

Birla Institute of Technology & Science (BITS), Pilani
Practice School Division
Second Semester 2023-2024 (January – June 2024)
PS Chronicles
(A compilation of student experience during PS-II)



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From the Desk of the Editor

It is my great pleasure to bring forth the 17th edition of the PS-II Chronicles. This edition features over 1090 articles from students (Pilani, K.K. Birla Goa, and Hyderabad) sharing their experiences during II Semester of 2023-2024. This huge increase in numbers are a testimony to the usefulness of the PS- II Chronicles and its increasing popularity.

The primary aim of the PS-II Chronicles is to record the overall PS-II experiences of all the stakeholders – the students, the PS faculty and the Industry mentors. Currently, this version is the compilation of all student experiences. The objectives of this Chronicles are manifold

- Prospective PS-II students can get to know about the experiences of their seniors, currently at PS – thereby increasing awareness in the student community.
- Increasing awareness among faculty about the nature of work happening at various PS-II stations.
- Bring back the experiences gained at PS-II station into academics - making the curriculum more industry relevant.

I would like to thank everyone who has participated in this activity - the students, the industry mentors and the PS faculty for sharing their experiences directly or indirectly.

I would also extend my thanks to Mr. Om Prakash Singh Shekhawat, and for his help in bringing out the edition of PS-II Chronicles. Special thanks to Mr. Shyam Sundar Saini for the follow up with PS faculty regarding the chronicles.

I would be happy to receive any feedback regarding the Chronicles. Please feel free to email me at associatedeanpsd@pilani.bits-pilani.ac.in

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Associate Dean, Student Counselling Cell
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Name: NAMAN PANDEY(2022H1030016G)	1155
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Name: NIPUN GUPTA(2019B1A81000G)	1157
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Name: AKSHAT KUMAR(2019B2A31069G)	1159
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Name: SHIVANSH SHUKLA(2020AAPS0378H).....	1191
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Name: Vimal S P	1192
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Name: JAVIN BACHANI(2019B1A81068G)	1192
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Name: HRISHIT TAMBI .(2019B5A30807P)	1193
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Name: RANGA YASH GOPAL(2020A1PS2077G)	1195
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Name: Gaurav Nagpal	1196
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Name: NAMAN NANDAN(2020A4PS2320H).....	1196

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Name: Sandeep Kayastha	1197
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Name: GARIMA SINGH(2019B5A41076H)	1197
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Name: RUCHIR PARMANAND KUMBHARE .(2019B5A70650P)	1198
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Name: AMBOLE SUSHANT SADASHIV(2020A7PS1733G).....	1202
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Name: Preethi N. G	1203
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Name: SHREYASH BHARDWAJ(2020A7PS2066H)	1203
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Name: Anita Ramachandran	1204
Student.....	1204
Name: OMKAR SACHIN GOTHANKAR .(2020A7PS0991P)	1205
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Name: Chetana Anoop Gavankar g.....	1205
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Name: VIKRAM ADITYA MUNNALAL(2019B1A71119G)	1206
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Name: Chetana Anoop Gavankar g.....	1207
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Name: SHLOK MONGIA(2019B2A71527H)	1207
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Name: Chetana Anoop Gavankar g.....	1208
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Name: SHIVAM SAWLANI(2019B4A70806G)	1208
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Name: Swapna S Kulkarni	1210
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Name: ATMESH MAHAPATRA .(2019B4A30560P).....	1210
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Name: Swapna S Kulkarni	1211
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Name: SIVARAM PADMASOLA(2020AAPS0387H)	1211
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Name: Saikishor Jangiti	1212
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Name: NAMAN NANDWANA ,(2019B5A10832P)	1218
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Name: ANAY AGRAWAL(2020A3PS0538H).....	1220
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Name: Manoj Subhash Kakade	1222
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Name: ESHAAN JAIN(2019B4AA0735G).....	1222
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Faculty.....	1223
Name: Manoj Subhash Kakade	1223
Student.....	1223
Name: G SHRAVAN GOKUL(2019B5AB0729P)	1223
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Name: Gopala Krishna Koneru	1224
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Name: PRAKHAR GARG(2020A3PS0468G).....	1224
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Name: SAKUNDE ATHARVA UMESH(2020A8PS0357G)	1225
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Name: ANSH GUPTA(2020A8PS1506G)	1227
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Name: Rajiv Ranjan Gupta	1274

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Name: YOEVANSH SINGH .(2019B2A11016P).....	1275
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Name: Rajiv Ranjan Gupta	1276
Student.....	1276
Name: KUSHAGRA SINGH(2019B2A11487H).....	1276
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Name: Pravin Yashwant Pawar	1278
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Name: HRITHIK RAJ GUPTA(2019B2A70995P).....	1278
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Name: VANSI GUPTA .(2020A7PS0315P)	1280
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Name: Pravin Yashwant Pawar	1281
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Name: VISHESH AGRAWAL(2020A7PS0967G)	1281

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Name: Sugata Ghosal.....	1284
Student.....	1284
Name: RAHUL KIRORIWAL .(2020B4PS1258P).....	1284
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Name: Swarna Chaudhary.....	1287
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Name: A SUDARSHAN .(2019B4A70744P).....	1287
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Name: SAUMYA SHRIVASTAVA(2020A3PS1767G).....	1288
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Name: Bharathi R.....	1289
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Name: E HRUSHITH(2019B3A30529H).....	1289
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Name: Bharathi R.....	1291
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Name: NITYA TUSHAR SHAH(2020A3PS1443H).....	1291
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Name: Bharathi R.....	1292
Student.....	1292
Name: PRATHAM JAIN(2020A3PS2121H).....	1292
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Name: RAMESH VENKATRAMAN	1293
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Name: ROHIT NIGAM(2022H1540846P).....	1293
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Faculty	1296
Name: Mahesh K Hamirwasia	1296
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Name: KEERTHANA SUDHIR(2022H1300039H)	1296
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Name: Mahesh K Hamirwasia	1297
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Name: TANMAY SINGH(2022H1300070P).....	1297
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Name: Mahesh K Hamirwasia	1298
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Name: TEERTHA PRAKASH(2022H1300073P).....	1298
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Name: Mahesh K Hamirwasia	1300
Student.....	1300
Name: THEIVANAI K(2022H1440039P).....	1300
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Name: Vineet Kumar Garg	1301
Student.....	1302
Name: BHAVYA SHARMA .(2019B2A31051P).....	1302
PS-II Station : RIGI - IT , Bengaluru	1303
Faculty	1303
Name: Shreyas Suresh Rao	1303
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Name: AVIRAL HARSH(2019B1A31559H)	1304
PS-II Station : RIGI - IT , Bengaluru	1305
Faculty	1305
Name: Shreyas Suresh Rao	1305
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Name: RITIK THAKUR .(2019B2A70878P)	1305
PS-II Station : RIGI - IT , Bengaluru	1306
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Name: Shreyas Suresh Rao	1306
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Name: DEV GOYAL(2020A7PS1373G)	1306
PS-II Station : RIGI - Management , Bengaluru	1307
Faculty	1307
Name: Arindam Roy	1307
Student.....	1307
Name: VIDUSHI BANSAL(2019B2A11052G)	1307
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Name: Arindam Roy	1308
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Name: BANTUPALLI LAKSHMAN KARTHEEK .(2019B4A20631P)	1308
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Name: Gaurav Nagpal	1309
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Name: MRIGANKA CHATURVEDI(2022H1540819P)	1310
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Student.....	1474
Name: ANKIT KUMAR MISHRA(2022H1400170P)	1474
PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru	1475
Faculty	1475
Name: Shree Prasad Maruthi.....	1475
Student.....	1475
Name: ARUSHI GOEL .(2019B2A31011P).....	1475
PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru	1476
Faculty	1476
Name: Shree Prasad Maruthi.....	1476
Student.....	1476
Name: KHUSHI BAKLIWAL .(2019B2A81018P).....	1476
PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru	1477
Faculty	1477

Name: Shree Prasad Maruthi.....	1477
Student.....	1477
Name: AJAY KRISHNA GURUBARAN(2020A3PS0519G)	1477
PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru	1478
Faculty.....	1478
Name: Shree Prasad Maruthi.....	1478
Student.....	1478
Name: SHAH BHAVYA ASHISH(2020A3PS1759G)	1478
PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru	1479
Faculty.....	1479
Name: Shree Prasad Maruthi.....	1479
Student.....	1479
Name: ADITYA ANIRUDH JONNALAGADDA(2020AAPS0373H).....	1480
PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru	1480
Faculty.....	1481
Name: Shree Prasad Maruthi.....	1481
Student.....	1481
Name: THOTLI RISHI(2020AAPS0376H)	1481
PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru	1482
Faculty.....	1482
Name: Shree Prasad Maruthi.....	1482
Student.....	1482
Name: KUNCHAM JAYAKRISHNA SAI(2022H1230107G).....	1482
PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru	1483
Faculty.....	1483
Name: Shree Prasad Maruthi.....	1483
Student.....	1483
Name: TAGALAPPELLY SAI PREETHAM(2022H1230137G).....	1483
PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru	1484
Faculty.....	1484
Name: Shree Prasad Maruthi.....	1484
Student.....	1484

Name: NITISH KUMAR GUPTA(2022H1230235P)	1484
PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru	1485
Faculty	1485
Name: Shree Prasad Maruthi	1485
Student.....	1485
Name: AMURT PRAKASH(2022H1230254P)	1485
PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru	1486
Faculty	1486
Name: Shree Prasad Maruthi	1486
Student.....	1486
Name: AINDRILA CHATTERJEE(2022H1400082G).....	1487
PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru	1488
Faculty	1488
Name: Shree Prasad Maruthi	1488
Student.....	1488
Name: SALONI SHARMA(2022H1400121H).....	1488
PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru	1489
Faculty	1489
Name: Shree Prasad Maruthi	1489
Student.....	1489
Name: SHRUTI THAKUR(2022H1400128H)	1489
PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru	1491
Faculty	1491
Name: Shree Prasad Maruthi	1491
Student.....	1491
Name: DOMMARAJU ANJALIKA RAJU(2022H1400139H)	1491
PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru	1492
Faculty	1492
Name: Shree Prasad Maruthi	1492
Student.....	1492
Name: IPSHITA PAL(2022H1400164P)	1492
PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru	1493

Faculty.....	1493
Name: Shree Prasad Maruthi.....	1493
Student.....	1493
Name: AVINASH RAINA(2022H1400185P).....	1493
PS-II Station : Texas Instruments-Embedded Software , Bengaluru.....	1494
Faculty.....	1494
Name: Shree Prasad Maruthi.....	1495
Student.....	1495
Name: ADITYA RAO .(2019B3A30576P).....	1495
PS-II Station : Texas Instruments-Embedded Software , Bengaluru.....	1496
Faculty.....	1496
Name: Shree Prasad Maruthi.....	1496
Student.....	1496
Name: ASHUTOSH SHARMA(2022H1400158P).....	1496
PS-II Station : Texas Instruments-Embedded Software , Bengaluru.....	1497
Faculty.....	1497
Name: Shree Prasad Maruthi.....	1497
Student.....	1497
Name: PRABHAT DEYONDI(2022H1400161P).....	1497
PS-II Station : Thorogood , Bengaluru.....	1498
Faculty.....	1498
Name: Sandeep Kayastha.....	1498
Student.....	1498
Name: RUDRA BANSAL(2019B2A30974G).....	1499
PS-II Station : Thorogood , Bengaluru.....	1500
Faculty.....	1500
Name: Sandeep Kayastha.....	1500
Student.....	1500
Name: AKSHAY KHANNA(2019B2A40908G).....	1500
PS-II Station : Thorogood , Bengaluru.....	1501
Faculty.....	1501
Name: Sandeep Kayastha.....	1501

Student.....	1501
Name: SAPTARSHI RAJAN(2020A4PS1961H)	1502
PS-II Station : Thorogood , Bengaluru	1503
Faculty	1503
Name: Sandeep Kayastha	1503
Student.....	1504
Name: ALI HUSSAIN NAQVI(2020A4PS2283H)	1504
PS-II Station : Tibil Computer Solutions Pvt Ltd. , Bengaluru	1505
Faculty	1505
Name: Febin A Vahab.....	1505
Student.....	1505
Name: MADHAMSETTY SAI MANI PRITHVI RAJ(2019B4A21015H).....	1505
PS-II Station : Tibil Computer Solutions Pvt Ltd. , Bengaluru	1506
Faculty	1506
Name: Febin A Vahab.....	1506
Student.....	1506
Name: AVINASH KUMAR(2022H1030110P).....	1506
PS-II Station : Time Tooth , Noida	1507
Faculty	1507
Name: Nithin Tom Mathew	1508
Student.....	1508
Name: SARVA VENKATA LAKSHMINARAYANA KARTHIK(2022H1060207P).....	1508
PS-II Station : Time Tooth , Noida	1508
Faculty	1509
Name: Nithin Tom Mathew	1509
Student.....	1509
Name: KAPIL KUMAR KASWAN(2022H1060222P).....	1509
PS-II Station : Time Tooth , Noida	1510
Faculty	1510
Name: Nithin Tom Mathew	1510
Student.....	1510
Name: PRATIK KUMAR(2022H1400076G)	1510

PS-II Station : Time Tooth , Noida	1512
Faculty	1512
Name: Nithin Tom Mathew	1512
Student.....	1512
Name: HITARTH SUTHAR(2022H1410057G).....	1512
PS-II Station : Total Environment Building Systems Private Limited , Bengaluru	1513
Faculty	1513
Name: Mahesh K Hamirwasia	1513
Student.....	1513
Name: ASHWINI SATISH TIRODKAR(2022H1430064P)	1513
PS-II Station : Trane Technologies , Bengaluru	1514
Faculty	1514
Name: Raghuraman RAGHURAMAN.....	1514
Student.....	1514
Name: BALESHPRASAD BASAVARAJ AIDUDDI(2022H1060089G).....	1514
PS-II Station : TransUnion Global Technology Center LLP , Chennai	1515
Faculty	1515
Name: K Venkatasubramanian.....	1515
Student.....	1515
Name: MAYANK SHRIVASTAVA(2022H1030101P).....	1515
PS-II Station : Trelleborg India Pvt Ltd , Bengaluru	1517
Faculty	1517
Name: Shashank Mohan Tiwari	1517
Student.....	1517
Name: RAVINDRA SUMAN(2022H1410138P).....	1517
PS-II Station : UBER - Data Analytics , Hyderabad.....	1518
Faculty	1518
Name: Akshaya G	1519
Student.....	1519
Name: JATIN CHOPRA(2019B1AA1090G)	1519
PS-II Station : UBER - Data Analytics , Hyderabad.....	1520
Faculty	1520

Name: Akshaya G	1520
Student.....	1520
Name: CHIRAG GARG(2019B2A40048G)	1520
PS-II Station : UBER - Data Science , Bengaluru	1521
Faculty	1521
Name: Akshaya G	1521
Student.....	1521
Name: SUSHMA REDDY KOLLI(2019B5A70671H)	1521
PS-II Station : UBER - Data Science , Bengaluru	1522
Faculty	1522
Name: Akshaya G	1523
Student.....	1523
Name: HARSHIT VERMA(2020A7PS0041H)	1523
PS-II Station : UBER - Software Engineer , Hyderabad.....	1523
Faculty	1524
Name: Akshaya G	1524
Student.....	1524
Name: UTKARSH OMER(2019B4A70719G)	1524
PS-II Station : UBER - Software Engineer , Hyderabad.....	1525
Faculty	1525
Name: Akshaya G	1525
Student.....	1525
Name: AYUSHI KAUL(2019B5A30810G).....	1525
PS-II Station : UBER - Software Engineer , Hyderabad.....	1526
Faculty	1526
Name: Akshaya G	1526
Student.....	1527
Name: ANISH AGARWAL(2020A7PS1313H).....	1527
PS-II Station : UBS - Global Reference Data , Hyderabad.....	1527
Faculty	1527
Name: Niranjan Swain.....	1528
Student.....	1528

Name: KOMALI TUSHAR REDDY(2020B3PS1381H).....	1528
PS-II Station : UBS - Global Reference Data , Hyderabad.....	1528
Faculty	1529
Name: Niranjana Swain.....	1529
Student.....	1529
Name: NIDA FATIMA(2022H1540822P).....	1529
PS-II Station : UBS - Risk Methodology , Mumbai	1530
Faculty	1530
Name: Niranjana Swain.....	1530
Student.....	1530
Name: MANAN MANGAL .(2019B1A41035P)	1530
PS-II Station : UBS - Risk Methodology , Mumbai	1531
Faculty	1531
Name: Niranjana Swain.....	1531
Student.....	1531
Name: A SRIVATHSA(2019B3A30574G)	1531
PS-II Station : UBS - Risk Methodology , Mumbai	1532
Faculty	1532
Name: Niranjana Swain.....	1533
Student.....	1533
Name: ANUSHKA SINGH(2019B3A40533H)	1533
PS-II Station : UBS - Risk Methodology , Mumbai	1534
Faculty	1534
Name: Niranjana Swain.....	1534
Student.....	1534
Name: KALYANI BHAVYA RAJESH .(2020A7PS0310P)	1534
PS-II Station : UBS - Risk Methodology , Mumbai	1535
Faculty	1535
Name: Niranjana Swain.....	1535
Student.....	1535
Name: SHAANIL PUNGLIA(2020A8PS1144G)	1535
PS-II Station : UBS (Global Reference Data Operations) , Mumbai.....	1536

Faculty.....	1536
Name: Bandi Venkata Prasad.....	1536
Student.....	1536
Name: BOLLAVARAM KOUSTHUBHA SATYA(2022H1540842P).....	1537
PS-II Station : UBS (Global Reference Data Operations) , Mumbai.....	1537
Faculty.....	1537
Name: Bandi Venkata Prasad.....	1537
Student.....	1537
Name: CHEPA SAI ANITHA RANI(2022H1540847P)	1538
PS-II Station : UBS Business Solutions (India) Private Limited - RAS FINANCE , Pune.....	1539
Faculty.....	1539
Name: Bandi Venkata Prasad.....	1539
Student.....	1539
Name: SPARSH TEJWANI .(2019B3A30551P).....	1539
PS-II Station : UBS Business Solutions (India) Private Limited - RAS FINANCE , Pune.....	1540
Faculty.....	1540
Name: Bandi Venkata Prasad.....	1540
Student.....	1540
Name: DARSHAN WALCHALE .(2019B3A30569P).....	1540
PS-II Station : Unbox-ED , Bengaluru.....	1541
Faculty.....	1541
Name: Y V K Ravi Kumar.....	1541
Student.....	1541
Name: SHALINI SHANKAR PRASAD PUNTHAMBEKAR(2019B2A11010P)	1541
PS-II Station : Unity Growth Fund LLC , Wilmington	1542
Faculty.....	1542
Name: Gaurav Nagpal	1542
Student.....	1542
Name: AKSHAT KALRA .(2019B2A40951P).....	1542
PS-II Station : Unity Growth Fund LLC , Wilmington	1543
Faculty.....	1544
Name: Gaurav Nagpal	1544

Student.....	1544
Name: YASH JIWANI(2020A3PS1448G).....	1544
PS-II Station : Unity Growth Fund LLC , Wilmington	1545
Faculty.....	1545
Name: Gaurav Nagpal	1545
Student.....	1545
Name: VAVILALA HRUSHIKESH REDDY(2020A7PS0030H)	1545
PS-II Station : UST Global - Infinity Labs , Hyderabad	1547
Faculty.....	1547
Name: Sindhu S	1547
Student.....	1547
Name: BAIBHAV PADHY(2020A4PS1191G).....	1547
PS-II Station : UST Global - Infinity Labs , Hyderabad	1548
Faculty.....	1548
Name: Sindhu S	1548
Student.....	1549
Name: VINAYAK TULSYAN(2020AAPS0442H)	1549
PS-II Station : UST Global- Trivandrum , Thiruvananthapuram	1549
Faculty.....	1549
Name: Sindhu S	1550
Student.....	1550
Name: GOGINENI VIJAY SREEKAR(2020A7PS0266H)	1550
PS-II Station : UST Global- Trivandrum , Thiruvananthapuram	1551
Faculty.....	1551
Name: Sindhu S	1551
Student.....	1551
Name: ABHIJITH KURIAKOSE(2022H1120276P).....	1551
PS-II Station : UST Global- Trivandrum , Thiruvananthapuram	1552
Faculty.....	1552
Name: Sindhu S	1552
Student.....	1552
Name: ANAND KUMAR(2022H1120277P)	1552

PS-II Station : UST Global- Trivandrum , Thiruvananthapuram	1553
Faculty	1553
Name: Sindhu S	1553
Student.....	1553
Name: VINEET SHARMA(2022H1120292P).....	1553
PS-II Station : UST Global- Trivandrum , Thiruvananthapuram	1554
Faculty	1554
Name: Sindhu S	1555
Student.....	1555
Name: TANMAY SHRIVASTAVA(2022H1410148P).....	1555
PS-II Station : UST Global, Infiniy Labs , Thiruvananthapuram	1556
Faculty	1556
Name: Sindhu S	1556
Student.....	1556
Name: AGRAWAL PRATHAMESH BIPIN(2019B1A30999G)	1556
PS-II Station : UST Global, Infiniy Labs , Thiruvananthapuram	1557
Faculty	1557
Name: Sindhu S	1557
Student.....	1557
Name: PRANAV ARVIND BHILE(2019B5A70818G).....	1557
PS-II Station : UST Global, Infiniy Labs , Thiruvananthapuram	1558
Faculty	1558
Name: Sindhu S	1558
Student.....	1558
Name: YASH SHIVHARE(2022H1240093P).....	1558
PS-II Station : UST Global, Infiniy Labs , Thiruvananthapuram	1559
Faculty	1559
Name: Sindhu S	1560
Student.....	1560
Name: SOUBHIK ROUT(2022H1240095P).....	1560
PS-II Station : UST Global, Infiniy Labs , Thiruvananthapuram	1563
Faculty	1563

Name: Sindhu S	1563
Student.....	1563
Name: ASHISH TANWAR(2022H1400091P)	1563
PS-II Station : Vankal Agri Solutions Pvt. Ltd. , Jaipur	1564
Faculty	1564
Name: Samir Kale	1564
Student.....	1564
Name: KSHITIJ NANDWANA(2019B2A11046P).....	1564
PS-II Station : Vegapay , Bengaluru	1566
Faculty	1566
Name: Uma Nagarajan	1566
Student.....	1566
Name: NIKUNJ MEHADIA(2019B3A70343P)	1566
PS-II Station : Vegapay , Gurugram	1567
Faculty	1567
Name: Uma Nagarajan	1567
Student.....	1567
Name: MEHTA URVISH KAUSHAL(2020A7PS1727G)	1567
PS-II Station : Vehant Technologies Pvt. Ltd. , Noida	1568
Faculty	1568
Name: Harish Kumar Aggarwal	1568
Student.....	1568
Name: AYUSHA NAYAK .(2019B3A30369P)	1568
PS-II Station : VenueMonk Technologies Pvt. Ltd. , Gurugram	1570
Faculty	1570
Name: Pradheep Kumar K.....	1570
Student.....	1570
Name: MOHAMMAD ALI(2020A3PS2206H)	1570
PS-II Station : Viacom - DV Ad-Operations , Mumbai	1571
Faculty	1571
Name: Sandeep Kayastha	1571
Student.....	1571

Name: ARNAV DANI .(2019B2A10871P)	1571
PS-II Station : Viacom - DV Ad-Operations , Mumbai	1573
Faculty	1573
Name: Sandeep Kayastha	1573
Student.....	1573
Name: VINAYAK S .(2020A4PS0681P)	1573
PS-II Station : Viacom - DV Ad-Operations , Mumbai	1574
Faculty	1574
Name: Sandeep Kayastha	1574
Student.....	1574
Name: ARJUN JEEWAN(2020A7PS1701G)	1574
PS-II Station : Viacom - DV Ad-Sales , Mumbai	1575
Faculty	1575
Name: Sandeep Kayastha	1575
Student.....	1575
Name: VAIBHAV SHUKLA(2019B2A41549H).....	1575
PS-II Station : Viacom - DV Ad-Sales , Mumbai	1576
Faculty	1576
Name: Sandeep Kayastha	1577
Student.....	1577
Name: GAURAV VIJIT NAIR(2020A4PS1870G)	1577
PS-II Station : Viacom - DV Ad-Sales , Mumbai	1578
Faculty	1578
Name: Sandeep Kayastha	1578
Student.....	1578
Name: PARIKH SHAURYA MEHUL .(2020A4PS1877P).....	1578
PS-II Station : Viacom - Performance Marketing , Mumbai	1580
Faculty	1580
Name: Sandeep Kayastha	1580
Student.....	1580
Name: PRATHAM OZA .(2020A7PS1679P).....	1580
PS-II Station : Viacom 18 Pvt Ltd - Sports SMB , Mumbai	1582

Faculty.....	1582
Name: Sandeep Kayastha	1582
Student.....	1582
Name: YASHRAJ KANITKAR(2020A5PS2546H)	1582
PS-II Station : Viacom DV AVOD - Digital Publishing , Mumbai.....	1584
Faculty.....	1584
Name: Sandeep Kayastha	1584
Student.....	1584
Name: HARSH PRAVIN DABHADE(2019B5A30196G).....	1584
PS-II Station : Viacom DV AVOD Marketing , Mumbai.....	1585
Faculty.....	1585
Name: Sandeep Kayastha	1585
Student.....	1585
Name: KULKARNI SOHAM MANISH .(2019B1A11002P)	1585
PS-II Station : Viacom DV AVOD Marketing , Mumbai.....	1587
Faculty.....	1587
Name: Sandeep Kayastha	1587
Student.....	1587
Name: AMAY PATIL(2020A3PS0322P)	1587
PS-II Station : Viacom DV Sales Planning , Mumbai.....	1588
Faculty.....	1588
Name: Sandeep Kayastha	1588
Student.....	1588
Name: DEV RUPESH MEHTA(2019B1A41084G).....	1588
PS-II Station : Viacom DV Sales Planning , Mumbai.....	1589
Faculty.....	1590
Name: Sandeep Kayastha	1590
Student.....	1590
Name: RITIEN MOHAN(2020A1PS1052P)	1590
PS-II Station : Viacom DV Sales Planning , Mumbai.....	1592
Faculty.....	1592
Name: Sandeep Kayastha	1592

Student.....	1592
Name: TUSHANKAA VASKAR BARAI(2020A1PS1996G).....	1592
PS-II Station : Viacom DV Sales Planning , Mumbai	1593
Faculty	1594
Name: Sandeep Kayastha	1594
Student.....	1594
Name: ROHIT PATEL(2020A4PS1990G).....	1594
PS-II Station : VINJEY Software Systems Pvt. Ltd. , Bengaluru	1596
Faculty	1596
Name: Satya Sudhakar Yedlapalli.....	1596
Student.....	1596
Name: SALINI S V(2022H1400068G)	1596
PS-II Station : VISA , Bengaluru	1598
Faculty	1598
Name: Vimal S P	1598
Student.....	1598
Name: TUSHAR KABRA(2019B3AA0528G).....	1598
PS-II Station : VISA , Bengaluru	1599
Faculty	1599
Name: Vimal S P	1599
Student.....	1599
Name: ADVAIT NARESH JISHNANI(2020A7PS0972G)	1599
PS-II Station : VISA , Bengaluru	1600
Faculty	1600
Name: Vimal S P	1600
Student.....	1600
Name: GURBAAZ SINGH GILL(2020A7PS1228G).....	1600
PS-II Station : Visit Health Private Limited , Noida.....	1602
Faculty	1602
Name: Ashish Narang.....	1602
Student.....	1602
Name: ADITYA KHANDELWAL(2020A8PS2217H).....	1602

PS-II Station : VMS (Vakil Mehta Seth) Consultants Private Limited , Mumbai	1605
Faculty	1605
Name: Pavan Kumar Potdar	1605
Student.....	1605
Name: RAJASHREE SURESH BHOJ(2022H1430012H).....	1605
PS-II Station : VMS (Vakil Mehta Seth) Consultants Private Limited , Mumbai	1607
Faculty	1607
Name: Pavan Kumar Potdar	1607
Student.....	1607
Name: DHVANIL TRUSHAR PATEL(2022H1430049P)	1607
PS-II Station : VMS (Vakil Mehta Seth) Consultants Private Limited , Mumbai	1608
Faculty	1608
Name: Pavan Kumar Potdar	1608
Student.....	1608
Name: RAVAL RAJ JIGESH(2022H1430051P)	1608
PS-II Station : VMS (Vakil Mehta Seth) Consultants Private Limited , Mumbai	1609
Faculty	1609
Name: Pavan Kumar Potdar	1609
Student.....	1609
Name: BHALODIYA NEEL NARESHBHAI(2022H1430057P).....	1609
PS-II Station : Voicegain (Resolvity Inc.) , Texas.....	1615
Faculty	1615
Name: MONALI TUSHAR MAVANI	1615
Student.....	1615
Name: RISHABH SINGHAL .(2019B1A30876P)	1615
PS-II Station : Volvo Eicher , Gurugram.....	1616
Faculty	1616
Name: Glynn John	1616
Student.....	1617
Name: PRAKHAR SHARMA(2022H1060097G)	1617
PS-II Station : Volvo Eicher , Gurugram.....	1618
Faculty	1618

Name: Glynn John	1618
Student.....	1618
Name: REEYA KUMARI SHARMA(2022H1410058G)	1618
PS-II Station : Volvo Eicher , Gurugram.....	1620
Faculty	1620
Name: Glynn John	1620
Student.....	1620
Name: TELLAKULA ESWAR(2022H1410102H).....	1620
PS-II Station : Volvo Eicher , Gurugram.....	1622
Faculty	1622
Name: Glynn John	1622
Student.....	1622
Name: PATREKAR PRASANNA DEEPAK(2022H1410104H).....	1622
PS-II Station : Volvo Eicher , Gurugram.....	1623
Faculty	1623
Name: Glynn John	1623
Student.....	1623
Name: SARTHAK TIWARI(2022H1410140P).....	1623
PS-II Station : Volvo Eicher , Gurugram.....	1624
Faculty	1624
Name: Glynn John	1624
Student.....	1624
Name: ANIMESH PANDEY(2022H1420187P)	1624
PS-II Station : Volvo Eicher , Gurugram.....	1625
Faculty	1626
Name: Glynn John	1626
Student.....	1626
Name: SATISH KUMAR SONI(2022H1420198P)	1626
PS-II Station : Wabtec , Bengaluru	1627
Faculty	1627
Name: Srinivas Kota	1627
Student.....	1627

Name: SAWAIKER SHUBHAM RAJARAM(2022H1030005G)	1627
PS-II Station : Wabtec , Bengaluru	1628
Faculty	1628
Name: Srinivas Kota	1628
Student.....	1628
Name: SAKSHI SINGH TANWAR(2022H1030020G).....	1628
PS-II Station : Wabtec , Bengaluru	1630
Faculty	1630
Name: Srinivas Kota	1630
Student.....	1630
Name: BHARGAV NAGARAJ B(2022H1030027G).....	1630
PS-II Station : Wabtec , Bengaluru	1632
Faculty	1632
Name: Srinivas Kota	1632
Student.....	1632
Name: GAURAV GHOSH(2022H1030103P).....	1632
PS-II Station : Wabtec , Bengaluru	1633
Faculty	1633
Name: Srinivas Kota	1633
Student.....	1633
Name: MOHIT DHAMEJANI(2022H1120273P).....	1633
PS-II Station : Wabtec , Bengaluru	1636
Faculty	1636
Name: Srinivas Kota	1636
Student.....	1636
Name: AMIT DHIR(2022H1410106H).....	1636
PS-II Station : Wadhvani AI , Delhi	1638
Faculty	1638
Name: K Venkatasubramanian.....	1638
Student.....	1638
Name: RAJAN SAHU .(2019B4A70572P)	1638
PS-II Station : Wadhvani AI , Delhi	1640

Faculty.....	1640
Name: K Venkatasubramanian.....	1640
Student.....	1640
Name: DHRUVA RAJA(2019B4AA0693G).....	1640
PS-II Station : Wadhvani AI , Delhi	1641
Faculty.....	1641
Name: K Venkatasubramanian.....	1641
Student.....	1641
Name: SHIVAM VIKRAM CHADHA(2019B4AA0704G).....	1641
PS-II Station : Wadhvani AI , Delhi	1643
Faculty.....	1643
Name: K Venkatasubramanian.....	1643
Student.....	1643
Name: MANAN UPPADHYAY(2020A3PS1749G)	1643
PS-II Station : Wakefit Technologies , Bengaluru	1645
Faculty.....	1645
Name: Akanksha Bharadwaj	1645
Student.....	1645
Name: DEBRAJ DHAR(2022H1120269P)	1645
PS-II Station : Wakefit Technologies , Bengaluru	1646
Faculty.....	1646
Name: Akanksha Bharadwaj	1646
Student.....	1646
Name: SANJHI PANDEY(2022H1120295P)	1646
PS-II Station : Walmart Global Technology Services , Bengaluru.....	1647
Faculty.....	1647
Name: Akshaya G	1647
Student.....	1647
Name: SHRUTI GANGWAR .(2019B2A10920P)	1648
PS-II Station : Walmart Global Technology Services , Bengaluru.....	1650
Faculty.....	1650
Name: Akshaya G	1650

Student.....	1650
Name: ARKISHMAN GHOSH(2020A7PS2077H).....	1650
PS-II Station : Walmart Global Technology Services , Bengaluru.....	1651
Faculty.....	1651
Name: Akshaya G	1651
Student.....	1651
Name: TUSHAR JANGHEL(2022H1030040G)	1651
PS-II Station : Walmart Global Technology Services , Bengaluru.....	1652
Faculty.....	1653
Name: Akshaya G	1653
Student.....	1653
Name: SHANTANU SHIMPI(2022H1030093H)	1653
PS-II Station : Wayfair Global Technology Pvt. Ltd. , Bengaluru	1654
Faculty.....	1654
Name: Pradheep Kumar K.....	1654
Student.....	1654
Name: VENKAT ROHITH PAMARTI(2020A7PS0100H)	1654
PS-II Station : Wayfair Global Technology Pvt. Ltd. , Bengaluru	1655
Faculty.....	1655
Name: Pradheep Kumar K.....	1655
Student.....	1655
Name: SRIRAM SRIVATSAN(2020A7PS0273H).....	1655
PS-II Station : Wayfair Global Technology Pvt. Ltd. , Bengaluru	1656
Faculty.....	1656
Name: Pradheep Kumar K.....	1656
Student.....	1656
Name: AMOGH MOSES(2020A7PS1199H).....	1656
PS-II Station : Western Digital (SANDISK) , Bengaluru	1657
Faculty.....	1657
Name: Manoj Subhash Kakade	1657
Student.....	1657
Name: KEDAR NANDKHEDKAR(2020A3PS0481H)	1657

PS-II Station : Western Digital (SANDISK) , Bengaluru	1658
Faculty	1658
Name: Manoj Subhash Kakade	1659
Student.....	1659
Name: KHUSHI P S(2020A3PS1089G).....	1659
PS-II Station : Western Digital (SANDISK) , Bengaluru	1659
Faculty	1660
Name: Manoj Subhash Kakade	1660
Student.....	1660
Name: PARASHAR PRANJAL RAJIV(2020A7PS1695G).....	1660
PS-II Station : Western Digital (SANDISK) , Bengaluru	1661
Faculty	1661
Name: Manoj Subhash Kakade	1661
Student.....	1661
Name: HARISH YUVARAJ G P(2020AAPS1735H).....	1661
PS-II Station : Western Digital (SANDISK) , Bengaluru	1662
Faculty	1662
Name: Manoj Subhash Kakade	1662
Student.....	1662
Name: SOUMYARANJAN PADIHARI(2022H1230116G).....	1662
PS-II Station : Western Digital (SANDISK) , Bengaluru	1663
Faculty	1663
Name: Manoj Subhash Kakade	1663
Student.....	1663
Name: RISHABH S KUMAR(2022H1230243P)	1663
PS-II Station : Western Digital (SANDISK) , Bengaluru	1664
Faculty	1664
Name: Manoj Subhash Kakade	1665
Student.....	1665
Name: KUPPALA NAVYA(2022H1400125H)	1665
PS-II Station : Western Digital (SANDISK) , Bengaluru	1665
Faculty	1665

Name: Manoj Subhash Kakade	1666
Student.....	1666
Name: RAHUL PRASAD(2022H1400163P).....	1666
PS-II Station : Whatfix Private Limited , Bengaluru.....	1667
Faculty	1667
Name: Sidharth Mishra	1667
Student.....	1667
Name: SAMYAK JAIN(2019B1A41485H)	1667
PS-II Station : Whatfix Private Limited , Bengaluru.....	1668
Faculty	1668
Name: Sidharth Mishra	1668
Student.....	1668
Name: NAMAN LUTHRA(2020A7PS1682P).....	1668
PS-II Station : Whirlpool , Pune	1670
Faculty	1670
Name: Amar Singh	1670
Student.....	1670
Name: DAHALE SWARA SHYAM(2022H1060217P).....	1670
PS-II Station : Whirlpool , Pune	1671
Faculty	1671
Name: Amar Singh	1672
Student.....	1672
Name: SWARNAPUDI BHAVYASRI(2022H1410135P).....	1672
PS-II Station : Whirlpool , Pune	1672
Faculty	1673
Name: Amar Singh	1673
Student.....	1673
Name: SHIPRA(2022H1410147P).....	1673
PS-II Station : Whirlpool , Pune	1674
Faculty	1674
Name: Amar Singh	1674
Student.....	1674

Name: CHELLVAMURTHY S(2022H1410149P)	1674
PS-II Station : Whirlpool , Pune	1675
Faculty	1675
Name: Amar Singh	1675
Student.....	1675
Name: KAUSHIK KRISHNA J(2022H1410157P)	1675
PS-II Station : William O Neil India Pvt Ltd., , Bengaluru	1676
Faculty	1676
Name: Ambatipudi Vamsidhar	1676
Student.....	1676
Name: KHUSHI GUPTA(2019B4A40836H).....	1676
PS-II Station : William O Neil India Pvt Ltd., , Bengaluru	1677
Faculty	1677
Name: Ambatipudi Vamsidhar	1677
Student.....	1677
Name: ABHILASH CHATTERJEE(2022H1540805P).....	1678
PS-II Station : William O Neil India Pvt Ltd., , Bengaluru	1679
Faculty	1679
Name: Ambatipudi Vamsidhar	1679
Student.....	1679
Name: PRERIT KUMAR SINGH(2022H1540813P).....	1679
PS-II Station : William O Neil India Pvt Ltd., , Bengaluru	1680
Faculty	1680
Name: Ambatipudi Vamsidhar	1680
Student.....	1680
Name: SANJEEV S(2022H1540837P)	1680
PS-II Station : William O Neil India Pvt Ltd., , Bengaluru	1682
Faculty	1682
Name: Ambatipudi Vamsidhar	1682
Student.....	1682
Name: PARUL SHRIVASTAVA(2022H1540845P)	1682
PS-II Station : WILP - ADAS , Artificial & Computation , Hyderabad	1683

Faculty.....	1684
Name: Rajiv Ranjan Gupta	1684
Student.....	1684
Name: VISHAL S(2018B1A10414H)	1684
PS-II Station : WILP - ADAS , Artificial & Computation , Hyderabad	1685
Faculty.....	1685
Name: Rajiv Ranjan Gupta	1685
Student.....	1685
Name: YASH AGARWAL(2020A4PS1111G)	1685
PS-II Station : WILP - AI for Education Innovation Lab , Hyderabad	1686
Faculty.....	1686
Name: Suparna Chakraborty.....	1686
Student.....	1686
Name: CHUNDURU ROHIT(2020A7PS0018G)	1686
PS-II Station : WILP - Control systems,IC Engines, RSM , Hyderabad.....	1687
Faculty.....	1687
Name: Raghuraman RAGHURAMAN.....	1687
Student.....	1688
Name: MALLICK AMMAR AHMED ABSAR AHMED(2020A4PS1986G)	1688
PS-II Station : WILP - Electric & hybrid vehicle , Hyderabad	1689
Faculty.....	1689
Name: Madhuri Bayya.....	1689
Student.....	1689
Name: PAPPU RITESH(2022H1230102G).....	1689
PS-II Station : WILP - IOT , Hyderabad.....	1690
Faculty.....	1690
Name: Prakruthi Hareesh.....	1690
Student.....	1690
Name: SIKARWAR RISHABH MANOJSINGH(2022H1230114G)	1690
PS-II Station : WILP - IOT , Hyderabad.....	1691
Faculty.....	1691
Name: Prakruthi Hareesh.....	1692

Student.....	1692
Name: LOKESH KUMAR(2022H1230251P).....	1692
PS-II Station : Xoxoday - Tech , Bengaluru	1694
Faculty.....	1694
Name: Pradheep Kumar K.....	1694
Student.....	1694
Name: AASHISH SACHDEVA .(2019B2A30736P).....	1694
PS-II Station : Yugabyte , Bengaluru.....	1695
Faculty.....	1695
Name: Raja Vadhana P.....	1695
Student.....	1696
Name: PAYIDETI NAGA VENKATA SAI ROHITA(2019B2A71125H)	1696
PS-II Station : Yugabyte , Bengaluru.....	1697
Faculty.....	1697
Name: Raja Vadhana P.....	1697
Student.....	1697
Name: PRANAV BANSAL(2019B5A71093H).....	1697
PS-II Station : Yugabyte , Bengaluru.....	1699
Faculty.....	1699
Name: Raja Vadhana P.....	1699
Student.....	1700
Name: SOUTIK MOHINTA(2019B5A71392H).....	1700
PS-II Station : Yugabyte , Bengaluru.....	1701
Faculty.....	1701
Name: Raja Vadhana P.....	1701
Student.....	1701
Name: SWAPNIL SHIVAM .(2020A7PS0040P).....	1701
PS-II Station : Yugabyte , Bengaluru.....	1703
Faculty.....	1703
Name: Raja Vadhana P.....	1703
Student.....	1703
Name: NAISHADH SHETH(2020A7PS0148G).....	1703

PS-II Station : Zeo Auto , Usa.....	1704
Faculty.....	1704
Name: Gaurav Nagpal	1704
Student.....	1704
Name: RAGHAV GUPTA(2019B4A30927H)	1704
PS-II Station : Zeotap India Pvt. Ltd. , Bengaluru	1705
Faculty.....	1705
Name: Raja Vadhana P.....	1705
Student.....	1705
Name: KHASNIS HARSHIT HANMANTRAO(2019B4A70031G).....	1705
PS-II Station : Zepto , Bengaluru	1706
Faculty.....	1706
Name: Arindam Roy	1706
Student.....	1706
Name: DAMLE YASH RAJENDRA(2019B2A40897G)	1706
PS-II Station : Zeta - Project 1(Better World Technologies Pvt. Ltd.) , Mumbai	1707
Faculty.....	1707
Name: Vijayalakshmi Anand	1707
Student.....	1707
Name: YASH VIMAL SARAVGI(2019B2A31530H)	1707
PS-II Station : Zeta (Better World Technologies Pvt. Ltd.) , Bengaluru	1709
Faculty.....	1709
Name: Harish Kumar Aggarwal	1709
Student.....	1709
Name: MOHIT AGRAWAL(2019B4AA0918H)	1709
PS-II Station : Zeta (Better World Technologies Pvt. Ltd.) , Bengaluru	1711
Faculty.....	1711
Name: Harish Kumar Aggarwal	1711
Student.....	1711
Name: SWAYAM SIDHANT PAL(2020AAPS0327G).....	1711
PS-II Station : Zluri , Bengaluru.....	1712
Faculty.....	1712

Name: Shreyas Suresh Rao	1712
Student.....	1712
Name: VAIBHAV KOSHTI(2022H1030049G).....	1712
PS-II Station : Zluri , Bengaluru.....	1713
Faculty	1713
Name: Shreyas Suresh Rao	1713
Student.....	1714
Name: S SHASHANK(2022H1030067H).....	1714
PS-II Station : Zluri , Bengaluru.....	1715
Faculty	1715
Name: Shreyas Suresh Rao	1715
Student.....	1715
Name: PIYUSH PRIYADARSHI(2022H1030091H).....	1715
PS-II Station : Zomato Media Private Limited , Gurugram	1716
Faculty	1716
Name: Ashish Narang.....	1716
Student.....	1716
Name: ASTITVA SEHGAL(2019B5A70640G)	1716
PS-II Station : Zomato Media Private Limited , Gurugram	1717
Faculty	1717
Name: Ashish Narang.....	1718
Student.....	1718
Name: PRATHAM BHATNAGAR(2020A7PS1222G)	1718
PS-II Station : Zomato Media Private Limited , Gurugram	1718
Faculty	1719
Name: Ashish Narang.....	1719
Student.....	1719
Name: SUSHIL NAYAK(2020AAPS0239G).....	1719
PS-II Station : Zoplar - IT , Gurugram.....	1720
Faculty	1720
Name: Ashish Narang.....	1720
Student.....	1720

Name: DHRUV DEHLAN(2019B1A40814G)	1720
PS-II Station : Zyduslife , Ahmedabad	1721
Faculty	1721
Name: Bharathi R	1721
Student.....	1721
Name: VORA BHAVDIP HARESHBHAI(2022H1460218H)	1721

PS-II Station: 1Clicktech Global Services Private Limited, Gurugram

Faculty

Name: Gopalakrishnan Venkiteswaran

Student

Name: KHUSHBOO SINGHAL (2022H1030132P)

Student Write-up

PS-II Project Title: Integrations and Data pipelines

Short Summary of work done during PS-II: During my internship, I built various data pipelines using a Python tech stack and MongoDB. I encountered and resolved bugs in existing data pipelines by debugging code and collaborating with team members to implement effective solutions. Additionally, I improved and added new features and data points to existing pipelines to enhance data flow and meet customer requirements. My improvements resulted in more efficient data processing and better alignment with customer needs. I utilized AWS S3 to extract raw data, ensuring reliable and scalable data storage solutions. Furthermore, I employed the Prefect orchestration tool to run the data flow efficiently, which streamlined our processes and improved overall pipeline performance.

Tool used (Development tools - H/w, S/w): Python, MongoDB Compass, VS Code, Prefect, Dbeaver, AWS

Objectives of the project: Build various data pipelines and integration features.

Major Learning Outcomes: Developed proficiency in Python programming, and MongoDB. Learned the importance of time management and meeting deadlines in a fast-paced work environment. Enhanced my communication skills by presenting project updates to team members.

Details of Papers/patents: None

Brief Description of working environment, expectations from the company: I work in a collaborative environment where innovation and teamwork are key. I value open communication, continuous learning, and opportunities for professional growth. I appreciate clear sprint task direction with room for creative input and access to necessary resources and training. A focus on work-life balance and employee well-being is important to me for maintaining motivation and productivity. I look forward to working on meaningful projects aligned with the company's goals and collaborating with diverse teams. Ultimately, I seek a company that supports professional development, values innovation, and fosters a positive, inclusive work environment.

Academic courses relevant to the project: Software Engineering Management, Software Testing Methods.

PS-II Station: A.T. Kearney Consulting (India) Private Limited, Gurugram

Faculty

Name: Anjani Srikanth Koka

Student

Name: DESHPANDE TEJAS GIRISH (2019B1A80947P)

Student Write-up

PS-II Project Title: Cost optimization for a pharmacy retail chain

Short Summary of work done during PS-II: Worked across different verticals like manpower cost reduction, revenue growth by assortment changes, development of a loyalty program for client customers.

Tool used (Development tools - H/w, S/w): Alteryx, Python, MS Excel, MS PowerPoint

Objectives of the project: Reduce costs and increase market share of the client

Major Learning Outcomes: Understanding frameworks and develop a structured approach to solve business problems.

Details of Papers/patents: NA

Brief Description of working environment, expectations from the company: Fast-paced environment. A steep learning curve is expected from the company due to the nature of consulting as a profession.

Academic courses relevant to the project: Principles of Economics

PS-II Station: A.T. Kearney Consulting (India) Private Limited, Gurugram

Faculty

Name: Anjani Srikanth Koka

Student

Name: CHINTHA MANI VENKAT (2019B5A81109H)

Student Write-up

PS-II Project Title: Master Plan and Business Case

Short Summary of work done during PS-II: Creating a master plan and business case for multiple assets handled by a client involves a comprehensive approach to optimize and manage these assets effectively. The objective is to align asset management with the client's business goals, ensuring sustainability, profitability, and growth.

Tool used (Development tools - H/w, S/w): NA

Objectives of the project: To make a master plan and business case for multiple assets handled by the client.

Major Learning Outcomes: NA

Details of Papers/patents: NA

Brief Description of working environment, expectations from the company: I had an excellent working environment during my internship at the company, characterized by a supportive team, clear communication, and access to necessary resources. The positive culture and opportunities for professional growth made it a highly productive and enjoyable experience

Academic courses relevant to the project: NA

PS-II Station: A.T. Kearney Consulting (India) Private Limited, Gurugram

Faculty

Name: Anjani Srikanth Koka

Student

Name: SHREYA KUMARI (2020A2PS1490P)

Student Write-up

PS-II Project Title: Project Manthan

Short Summary of work done during PS-II: Revenue Stream: In the revenue stream, my role involved benchmarking CLIENT against competitors. This included analyzing various aspects such as merchandise display, pricing strategies, store locations, and overall productivity. Cost Stream: The cost stream is dedicated to identifying and implementing cost-saving measures. My contributions here span across the Large Format Store (LFS) and Exclusive Brand Outlet (EBO) channels, focusing on optimizing staffing norms and other operational costs.

Tool used (Development tools - H/w, S/w): MS- Excel

Objectives of the project: To increase the PBT by 5% of the client.

Major Learning Outcomes: Apparel industry exposure, Supply chain understanding, Excel, Data Analysis.

Details of Papers/patents: NA

Brief Description of working environment, expectations from the company: Working environment was good, people were supportive and receptive. But the experience differs highly from project to project. One thing which was not good was within the project no specific work was assigned to the interns. We were used more like an ad-hoc to the other person

Academic courses relevant to the project: No courses.

PS-II Station: Aarrmor Digital Services Private Limited (Non IT), Bengaluru

Faculty

Name: Vaishali Pagaria

Student

Name: ISHIKA PRAHARAJ (2020A1PS2064G)

Student Write-up

PS-II Project Title: Digital marketing for Bumshum

Short Summary of work done during PS-II: I worked on social media content for the client. I worked on getting content ideas, planning the scripts, recording, editing and posting the final

content on their social media platforms. I also worked on analytics of their social media performance. Apart from social media, I worked on designing their website on Elementor.

Tool used (Development tools - H/w, S/w): Canva, Elementor

Objectives of the project: Increase brand awareness and social media presence for Bumshum, an eco-friendly baby products store.

Major Learning Outcomes: Website design on Elementor, Social media Analytics

Details of Papers/patents: NA

Brief Description of working environment, expectations from the company: Aarrmor Digital is a small startup based in Bangalore. The work days are from Monday to Saturday with Saturday being work from home. Work is dynamic and subject to last minute changes

Academic courses relevant to the project:

PS-II Station: ABCR Labs, Bengaluru

Faculty

Name: Kranthi Kumar Palavalasa

Student

Name: YAMANDEEP SINGH (2020A8PS0782P)

Student Write-up

PS-II Project Title: Interfacing Memories with ARM based processor

Short Summary of work done during PS-II: I was tasked with the integration of memories namely SRAM and EFLASH with the inhouse ASIC based on ARM core.

Tool used (Development tools - H/w, S/w): Linux, Memory compilers, ARM AMBA, AHB, APB, Cadence Xcelium, Synopsys VCS.

Objectives of the project: Integrated SRAM and EFLASH with the core

Major Learning Outcomes: Verilog, System verilog, memory compilers

Details of Papers/patents: NA

Brief Description of working environment, expectations from the company: The work environment is pretty good. All the people around are really helpful, you just have to ask for help.

Academic courses relevant to the project: Digital Design, Computer Architecture, ADVD

PS-II Station: ABCR Labs, Bengaluru

Faculty

Name: Kranthi Kumar Palavalasa

Student

Name: ANANYA KUNDU (2022H1230237P)

Student Write-up

PS-II Project Title: Verification of various IPs

Short Summary of work done during PS-II: I built the RTL for the MPS2+ board using Quartus Prime. I configured the board with the SSE-123 design using Keil uVision5. I ran Out-of-Box (OoB) tests to demonstrate the functionality of the SSE-123 subsystem. I outlined the steps for creating a user bit file, loading it onto the MPS2+ platform, and configuring the board's memory. I described the process for debugging and running tests using tools like Synopsys VCS and Cadence Xcelium. I verified various TPMS modules such as the wakeup controller, system

controller, GPIO, and I2C controller. Additionally, I ported verified RTL into FPGA. I integrated the TPMS top with the user partition and FPGA top. I ensured all peripherals were connected.

Tool used (Development tools - H/w, S/w): During my internship at ABCR Labs, I used several tools for various tasks and projects. Here's a summary of the tools I used: 1. **Quartus Prime**: Used for generating the bitstream for the MPS2+ board and compiling the design. 2. **Keil uVision5**: Employed for configuring the V2M-MPS2+ board with the SSE-123 design and debugging Arm Mbed OS applications. 3. **Synopsys VCS**: Utilized for running Out-of-Box (OoB) tests and functional verification of various TPMS modules. 4. **Cadence Xcelium**: Also used for functional verification of TPMS modules. 5. **Intel Quartus**: Used for creating user bit files and compiling the design for the MPS2+ board. 6. **Command-line tools**: Used for converting SOF files to RBF files and executing other commands in the terminal for loading bit files onto the MPS2+ platform. 7. **Terminal Emulator**: Used for connecting to the UART interface on the V2M-MPS2+ board for configuration and testing. These tools were crucial for completing the tasks related to RTL building, board configuration, debugging, testing, and verification during my internship.

Objectives of the project: Verification of various IPs & FPGA configuration

Major Learning Outcomes: • The internship has enabled me to put the theoretical knowledge I've acquired from my studies into practice, thereby enhancing my understanding and problem-solving skills.

• This presentation provides a brief overview of my learnings, but in addition to that, I'm also gaining valuable industry exposure, which is crucial for any engineer.

Details of Papers/patents: NA

Brief Description of working environment, expectations from the company: The working environment at ABCR Labs was highly collaborative and supportive. As an intern, I was integrated into a dynamic team of experienced professionals who were always willing to share their knowledge and expertise. The lab provided access to state-of-the-art tools and resources necessary for my projects, including advanced software like Quartus Prime, Keil uVision5, Synopsys VCS, and Cadence Xcelium.

The expectations from the company were clear and well-communicated. I was expected to apply my theoretical knowledge practically, demonstrate problem-solving skills, and contribute to ongoing projects. Regular meetings and progress reviews ensured that I stayed on track and received timely feedback. The mentors, Suresh Cheppalli and Tushar Bhattacharya, were particularly instrumental in guiding me through complex tasks and helping me understand industry standards and practices.

The company also emphasized learning and development. I was encouraged to ask questions, participate in discussions, and take the initiative in exploring new areas. There was a strong focus on quality and precision, reflecting the company's commitment to excellence in the VLSI domain. Overall, ABCR Labs provided a stimulating environment that balanced technical challenges with substantial learning opportunities. The internship experience not only enhanced my technical skills but also gave me valuable insights into the industry's working dynamics and corporate culture.

Academic courses relevant to the project: ME in Microelectronics

PS-II Station: Acceldata Technology Private Limited, Bengaluru

Faculty

Name: Sugata Ghosal

Student

Name: SOURABH DILRAJ(2019B5AA0820H)

Student Write-up

PS-II Project Title: Kafka Cruise Control integration

Short Summary of work done during PS-II: During my PS-II (Professional Skills Phase II), I engaged in a comprehensive exploration of Kafka's real-world application and implementation within enterprise environments. The primary focus was on understanding Kafka's architecture, components, and operational nuances. I actively participated in configuring and optimizing Kafka

clusters to enhance performance and scalability, utilizing tools such as Kafka Cruise Control for automated cluster management and workload balancing. A significant portion of my work involved setting up monitoring systems to track Kafka cluster health and performance metrics, ensuring proactive identification and resolution of issues. I gained practical experience in troubleshooting Kafka-related problems and optimizing configurations to improve throughput and latency. Furthermore, I delved into Kafka's role in scalable data processing, learning to integrate Kafka with various data systems and frameworks for building robust data pipelines. This included hands-on tasks in setting up Kafka connectors and understanding data ingestion patterns. Throughout PS-II, I also focused on the broader implications of Kafka within enterprise integration scenarios, including considerations for security, data governance, and compliance. This holistic approach equipped me with the skills needed to contribute effectively to Kafka deployment projects, ensuring alignment with business objectives and operational excellence in real-world applications.

Tool used (Development tools - H/w, S/w): Software: IDEs and Text Editors: Used integrated development environments (IDEs) such as IntelliJ IDEA and text editors like Sublime Text for writing, debugging, and maintaining Kafka-related code and configurations. Kafka Tools: Employed Apache Kafka's official command-line tools (e.g., kafka-topics, kafka-console-consumer, kafka-console-producer) for managing topics, consuming and producing messages, and monitoring Kafka clusters. Monitoring and Management Tools: Utilized tools like Prometheus and Grafana for monitoring Kafka cluster metrics, setting up dashboards to visualize performance metrics, and configuring alerts for proactive monitoring. Version Control: Leveraged Git for version control, collaborating with team members, managing code changes, and ensuring version history integrity. Automation and Deployment: Deployed Kafka clusters using automation tools such as Ansible and Docker for containerized environments, facilitating rapid deployment and scaling of Kafka infrastructure. Data Integration Tools: Worked with Kafka Connect for integrating Kafka with external data sources and sinks, setting up connectors to stream data between Kafka and databases, file systems, and cloud platforms.

Objectives of the project: The objective of the Kafka Cruise Control project is to establish an automated management system for Kafka clusters, aiming to streamline operational tasks and enhance overall cluster efficiency. This entails developing robust capabilities for tasks such as load balancing, dynamic partition reassignment, and proactive broker maintenance. By automating these critical operations, the project seeks to ensure that Kafka clusters operate

optimally under varying workloads and conditions, thereby improving scalability and resource utilization. Additionally, the project focuses on implementing comprehensive monitoring and alerting functionalities to monitor the health and performance of Kafka brokers in real-time. This proactive approach enables swift identification and resolution of issues, minimizing downtime and maintaining high availability for data processing applications reliant on Kafka. Ultimately, the Kafka Cruise Control project aims to deliver a resilient and efficient Kafka infrastructure that supports agile and scalable data streaming operations across enterprises.

Major Learning Outcomes: Technical Proficiency:

Gain a deep understanding of Kafka's architecture, components, and operational principles, including topics such as topics, partitions, brokers, and replication. Learn how to configure and optimize Kafka clusters for performance and scalability.

Automation and Optimization:

Develop skills in automating Kafka cluster management tasks using tools like Kafka Cruise Control. Learn to optimize Kafka deployments, handle workload variations, and ensure efficient resource utilization through dynamic partitioning and rebalancing.

Monitoring and Troubleshooting:

Acquire knowledge of monitoring Kafka clusters effectively, setting up metrics, and configuring alerts to detect and resolve performance bottlenecks and issues promptly. Gain insights into Kafka's operational metrics and best practices for troubleshooting.

Scalable Data Processing:

Understand how Kafka facilitates scalable and fault-tolerant data processing through real-time streaming and batch ingestion. Learn to integrate Kafka with other data systems and frameworks to build robust data pipelines.

Enterprise Integration:

Explore techniques for integrating Kafka into enterprise architectures, including security considerations, data governance, and compliance. Learn to design and implement Kafka solutions that meet business requirements and align with organizational goals.

Details of Papers/patents: During PS-II, I engaged in practical tasks related to Kafka and did not specifically work on papers or patents. However, if you're interested in exploring Kafka-related research papers or patents, topics typically cover advancements in distributed computing, real-time data processing, and streaming architectures. These can include:

Research Papers:

Topics may include optimization techniques for Kafka clusters, fault tolerance mechanisms, performance evaluations, scalability studies, and comparisons with other messaging systems.

Papers may also focus on specific use cases of Kafka in industries like finance, telecommunications, healthcare, and IoT.

Patents:

Patents related to Kafka may involve innovative technologies or methods for improving Kafka's performance, scalability, reliability, or security.

They could also cover novel applications of Kafka in data integration, event-driven architectures, predictive analytics, or machine learning pipelines.

To explore specific papers or patents related to Kafka, I recommend checking academic databases like IEEE Xplore, Google Scholar, or patent databases such as the USPTO (United States Patent and Trademark Office) or WIPO (World Intellectual Property Organization). These resources can provide detailed insights into the latest advancements and innovations in Kafka technology.

Brief Description of working environment, expectations from the company: The working environment during PS-II was dynamic and collaborative, emphasizing practical learning and hands-on experience with Kafka technology. As part of the team, I engaged in tasks that involved setting up and configuring Kafka clusters, optimizing performance parameters, and troubleshooting issues to ensure smooth data processing and reliability. The environment fostered continuous learning through experimentation with various tools and techniques, including Kafka's ecosystem of connectors and monitoring solutions.

Academic courses relevant to the project: DSA OOPS C++ java and python

PS-II Station: Adecco India, Bengaluru

Faculty

Name: Anita Ramachandran

Student

Name: PATTANI VATSAL ROHITBHAI (2019B5A70697P)

Student Write-up

PS-II Project Title: Process Analyst

Short Summary of work done during PS-II: Part of Global Pricing Team. Designed an Ideal Pricing Process Map to achieve dynamic Pricing. This design will serve as blueprint for various international pricing teams. Designed ML Regression Algo to Predict Quote Price for US's historical data. Algo was approved by the US team and will go to production. It will impact 30 thousand deals each week in US country.

Tool used (Development tools - H/w, S/w): Python, Pandas, XGBoost, PowerBI, Excel

Objectives of the project: Process Map and ML Algo

Major Learning Outcomes: Machine Learning Regression on large dataset, Pricing System of Adecco, Value Chain Process.

Details of Papers/patents: NA

Brief Description of working environment, expectations from the company: Worked with Manager in Europe. Workload was not hectic. Seniors were helpful. Lot of experience in dealing with International clients and teams.

Academic courses relevant to the project: DSA, Soft Skills, NNFL

PS-II Station: Aditya Birla Capital, Mumbai

Faculty

Name: Gaurav Nagpal

Student

Name: NAITIK AJAY SINHA (2022H1540828P)

Student Write-up

PS-II Project Title: Optimising Upi and bill payments through data analytics

Short Summary of work done during PS-II: During my internship in the domain of payments analytics, I focused on Unified Payments Interface (UPI) and bill payments, providing critical data insights to enhance financial operations. My responsibilities included generating data cuts, producing fraud risk management reports, and analyzing customer login behavior and clickstream data. By extracting and processing data using SQL and Python, I was able to segment data into meaningful subsets, uncovering key insights into transaction patterns and user behaviors. This segmentation helped identify peak transaction times, high-risk user segments, and prevalent transaction trends, crucial for optimizing payment processes and enhancing security. Analyzing customer login behavior and clickstream data provided valuable insights into user engagement and interaction patterns. By understanding login frequencies, session durations, and navigation paths, I helped improve user experience and identified potential security threats. Overall, my internship allowed me to apply theoretical knowledge to real-world scenarios, contributing to the organization's understanding of payment trends, security, and customer behavior. This experience equipped me with practical skills in data analysis and a deeper understanding of the payments industry.

Tool used (Development tools - H/w, S/w): Power Bi, GCP, Python

Objectives of the project: 1.analyse transaction patterns.2.fraud detection 3.provide insightsdw

Major Learning Outcomes: 1.data analysis proficiency 2.user behaviour insights 3.reporting and visualisation

Details of Papers/patents: NA

Brief Description of working environment, expectations from the company: The working environment in my PS location was dynamic and collaborative which fostered practical learning. Working in a diverse group of people enabled us to exchange ideas and expertise and enrich my understanding of payments ecosystem. The organisation placed a strong emphasis on data security and integrity ensuring stringent compliance standards. The company encourages a culture of continuous learning and development offering access to online courses and workshops. This has helped to prepare for future challenges ahead.

Academic courses relevant to the project: Data visualization, predictive analytics, database management.

PS-II Station: Aditya Birla Capital, Mumbai

Faculty

Name: Gaurav Nagpal

Student

Name: SHIBIN SAJEEV (2022H1540843P)

Student Write-up

PS-II Project Title: Integrated Data Management Framework Development at ABCD

Short Summary of work done during PS-II: Reflecting on my internship at Aditya Birla Capital Digital (ABCD) in the Analytics team within the Data Management domain has been an invaluable learning experience. During my tenure, I gained hands-on expertise in leveraging advanced data management technologies such as Google Cloud Platform (GCP), BigQuery, and Google Cloud Storage. This experience not only enhanced my technical skills but also deepened my understanding of how robust data management frameworks can drive organizational efficiency and strategic decision-making. Automating data workflows and conducting in-depth exploratory

data analysis (EDA) on pivotal datasets like CleverTap and DigiGold allowed me to derive actionable insights into customer behaviors and interactions. These insights were instrumental in supporting data-driven initiatives and optimizing business outcomes for ABCD. Moreover, my role in creating comprehensive data schemas and dictionaries improved my ability to document and organize complex datasets, fostering easier access and management across the organization. Implementing data quality and validation techniques, including data governance frameworks and SQL proficiency, ensured the integrity and reliability of data crucial for informed decision-making. I am enthusiastic about the prospect of joining ABCD full-time, as I believe my internship experience has equipped me with the necessary skills and mindset to contribute effectively to your team. I am eager to continue driving innovation in data management, analytics, and strategic insights to help ABCD achieve its business objectives and maintain its position as a leader in the industry.

Tool used (Development tools - H/w, S/w): Google Cloud platform (GCP), Teradata SQL, PowerBI, Advanced Excel

Objectives of the project: 1. Optimization of Data Management Practices 2. Automation of Data Integration Processes 3. Data Governance and Data Protection (DGDP) Framework at ABCD 4. Creation of a Comprehensive Information Schema (Data Dictionary) 5. Creation of Customer Interaction Funnel Reports

Major Learning Outcomes: Comprehensive Cloud-Based Data Management and Analytics: Developed expertise in leveraging Google Cloud Platform (GCP) for robust data storage, management, and analytics. Proficiently utilized tools such as BigQuery and Google Cloud Storage to handle large datasets effectively, enhancing data accessibility and operational efficiency through cloud-based solutions.

Automation of Data Workflows:

Achieved mastery in automating data transfer processes from SFTP servers to Google Cloud Storage and subsequently to BigQuery. Streamlined data ingestion and integration workflows, significantly improving overall data processing efficiency and timeliness.

Development of Detailed Data Schemas and Dictionaries:

Designed comprehensive information schemas and data dictionaries that meticulously documented datasets, tables, and columns. These frameworks facilitated seamless access, comprehension, and efficient management of organizational data.

Advanced Data Analysis and Insights Generation:

Conducted insightful exploratory data analysis (EDA) on pivotal datasets like CleverTap and DigiGold. Derived actionable insights into customer interactions and behaviors, bolstering data-driven decision-making processes within the organization.

Data Reporting and Visualization:

Implemented automated processes for generating and delivering data reports to stakeholders, ensuring prompt dissemination of insights. Utilized sophisticated visualization techniques to vividly present findings and recommendations, emphasizing data analytics as a cornerstone of strategic decision-making.

Ensuring Data Quality and Validation:

Implemented robust techniques to uphold data accuracy, consistency, and quality across diverse data sources and systems. Employed comprehensive data governance and data protection frameworks (DGDP) in data validation, including advanced Teradata SQL for handling complex queries. Verified data integrity during transfer and within cloud-based environments, ensuring reliable data for insightful analysis.

Details of Papers/patents: None

Brief Description of working environment, expectations from the company: Working Environment: Dynamic and collaborative, Emphasis on innovation and technology, Modern office setting promoting creativity

Expectations from the Company: Commitment to excellence, Encouragement of innovation and adaptability, Emphasis on collaboration and teamwork, Support for professional growth and development, Adherence to integrity and ethical practices, Focus on customer-centric approach Results-oriented mindset.

Academic courses relevant to the project: Database Management Systems (DBMS), Data Analytics and Machine Learning, Data Visualization.

PS-II Station: Aditya Birla Science & Technology Company Limited, Mumbai

Faculty

Name: Santosh Sopanrao Khandgave

Student

Name: SUKHRANI SAI EESH KAPIL (2020A1PS1970G)

Student Write-up

PS-II Project Title: Flash Calcination of Aluminium Trihydrate

Short Summary of work done during PS-II: Developing a new product - High SSA Alumina for the purpose of catalyst beds and other major uses. I conducted first-principle calculations to determine standard operating parameters for the reactor (that is Flash Calciner), conducted kinetic studies and determined heat transfers of cooling circuits in order to obtain the final product

Tool used (Development tools - H/w, S/w): Ansys Fluent, Excel, Powerpoint

Objectives of the project: Designing a Flash Calciner and determining its operational parameters to obtain the desired product - High Specific Surface Area Alumina. Understanding fluidization regimes and conducting first-principle calculations for the flash calciner operation.

Major Learning Outcomes: 1. Understanding fluidization as a concept. 2. Scaling up a process from lab scale to pilot scale to plant scale. 3. Understanding the Kinetics of a real-time process and different methods employed to calculate its parameters. 4. I learned Ansys Fluent software and applied it to the CFD analysis of Flash Calciner.

Details of Papers/patents: N/A

Brief Description of working environment, expectations from the company: There is a vast scope for learning for students interested in research and development in this organization. The support from my team for me to learn was incredible.

Academic courses relevant to the project: SOPs, Mass Transfer, Heat Transfer, Fluid Mechanics, Kinetics and Reactor Design.

PS-II Station: Aditya Birla Science & Technology Company Limited, Mumbai

Faculty

Name: Santosh Sopanrao Khandgave

Student

Name: MAHESH GARLAPATI (2022H1010009H)

Student Write-up

PS-II Project Title: Functionalization of Viscose & PET Fibers

Short Summary of work done during PS-II: Carbon additives like carbon black or carbon nanotubes (CNTs) can function as reinforcing agents to increase the mechanical properties of viscose and polyester fibers, such as tensile strength, modulus, and abrasion resistance. Carbon nanoparticles' high aspect ratio and exceptional mechanical properties allow them to reinforce polymer matrices and enhance the overall performance of composite materials. Viscose or polyester can be made more electrically conductive by adding carbon nanostructures, such as graphene or CNTs. Wearable electronics, smart textiles, and electromagnetic shielding are a few uses for conductive fabrics. These additives can be added to polyester and viscose materials to increase their heat resistance and thermal conductivity. Graphene and carbon nanotubes are good heat conductors and can improve textiles' temperature regulation capabilities, making them valuable for applications such as thermal insulation and heat dissipation in electrical devices. Carbon additions can confer antistatic properties to viscose and polyester fibers, thereby reducing the accumulation of static charges on textile surfaces. Conductivity and tenacity are the main properties of importance here and they are intended to be improved by reactive dyeing and

coating techniques. Design of experiments is performed and they are done according to literature gaps identified and other information available.

Tool used (Development tools - H/w, S/w): Dyeing machine, Wrap reel, Oven, Magnetic Stirrer

Objectives of the project: Improving the conductivity and tenacity of viscose and polyester fibers

Major Learning Outcomes: Everything about viscose and polyester is studied. Functionalisation processes for fibers are learnt. Reactive dyeing and coating techniques are implemented for functionalising viscose with carbon. Different equipment used in the textile engineering are present and hands-on experience is gained. Lab safety and experimental techniques are learnt. Research skills are developed. Communication skills are improved in the industry environment.

Details of Papers/patents: NA

Brief Description of working environment, expectations from the company: Working environment consists of labs along with designated work place. All the labs are unique and serve a purpose. Equipment, tools, raw materials and other necessary items are organised and kept in check for replacement, service and replenishment. The company expects the individual to have strong fundamentals of the project prior or learnt. The resources are adequate and can be altered as per demand. The progress of work is to be updated periodically to superiors and it has to be corrected or improved for better results. Novelty is greatly appreciated. Lab safety is at top priority and any mishaps are taken seriously. Employees working are very helpful and cooperative. Working environment is peaceful and enthusiastic. Any issues related to work place are immediately addressed. Company is very good in terms of employee welfare as well.

Academic courses relevant to the project: Polymer Technology, Nanoscience and Technology, Chemistry.

PS-II Station: Advanced Sterlization Products, Bengaluru

Faculty

Name: Saikishor Jangiti

Student

Name: SHEJUL AKASH POPATRAO (2022H1030117P)

Student Write-up

PS-II Project Title: Access Connectivity solution

Short Summary of work done during PS-II: I have worked on developing microservices using Java and spring boot.

Tool used (Development tools - H/w, S/w): Java, spring boot, react, postgre, nginx

Objectives of the project: Java application development

Major Learning Outcomes: Java, spring boot, react, postgre, nginx

Details of Papers/patents: NA

Brief Description of working environment, expectations from the company: Work environment is good , manager and others cullige are supporting and helpful.

Academic courses relevant to the project: Object oriented programming

PS-II Station: AECOM, Mumbai

Faculty

Name: Mahesh K Hamirwasia

Student

Name: KRISHNA KANT GUPTA (2022H1430046P)

Student Write-up

PS-II Project Title: Design of various structures at Pune Metro Rail System, Pune

Short Summary of work done during PS-II: In this project I designed the Foot Over Bridge (FOB) at Khadki station, skylight for Mandai metro station, ceiling and temporary wall for Swargate metro station, facade for Mandai and Khadki station, sheds for Range Hill depot, staircase for Metro Bhawan, entry exit structure for Khadki station , parking shed at AIR, diesel generator stack at Budhwaerpeth for various stations.

Tool used (Development tools - H/w, S/w): STAAD PRO, AUTO CAD, MS EXCEL, MS WORD

Objectives of the project: To design various component in the metro rail project system

Major Learning Outcomes: Design of various components of metro rail project especially PEB sheds, sky lights, stair case, facade etc.

Details of Papers/patents: No patent was obtained since it was design and review work of the organization.

Brief Description of working environment, expectations from the company: Work environment was very good where there were highly qualified professionals were there where I got the good time to learn the new things. I have to discuss minute details from IS code for designing which helped me alot in building my concepts for designing purpose. My work was directly related to design of structures for metro rail system. All the projects were live project which fulfilled my all expectations in terms of work / project allotted to me.

Academic courses relevant to the project: Design of steel structures/RCC structures.

PS-II Station: AECOM, Mumbai

Faculty

Name: Mahesh K Hamirwasia

Student

Name: S SANGAMITHRA (2022H1430047P)

Student Write-up

PS-II Project Title: Design and Analysis of a 14m High Entry Steel Structure

Short Summary of work done during PS-II: I am currently involved in a project titled, MUMBAI – AHMEDABAD HIGH SPEED RAIL PROJECT Package No. MAHSR - C - 1 (Km. -0.255 - Km. 0.775). It is a steel structure consisting of mezzanine floor, floating columns, composite columns etc. The GAD was studied and modelling of the structure was done. Following the task of modelling the structure in etabs, various types of loads acting on the structure were calculated and applied. Vertical earthquake load was calculated, load case was created and load combinations were modified as per IS 1893. The model was set to run on all the load cases. The errors were identified and rectified. The analysis results were used for the design of one critical beam and column. The design procedures are explained in the report. Connection design for one shear and one moment connections were also performed. Base plate design was carried over. Following the connection design, water tank design was carried over. Seismic analysis was done and then tank wall, roof slab and floor slab of the water tank were designed. Following the design of water tank, a composite column and an at-grade slab at the base was modelled, analyzed and designed.

Tool used (Development tools - H/w, S/w): Etabs, Microsoft Excel

Objectives of the project: The project is on design and analysis of an entry steel structure belonging to the project titled 'MUMBAI – AHMEDABAD HIGH SPEED RAIL PROJECT Package No. MAHSR - C - 1 (Km. -0.255 - Km. 0.775). It is a 14m high steel structure consisting of mezzanine floor, floating columns. The project report contains modelling & analysis using Etabs software and manual design procedures of structural elements, connections, composite column design and at-grade slab design.

Major Learning Outcomes: 1. Design of steel structural elements 2. Modelling steel structure in Etabs 3. Gaining knowledge on composite column and its design

Details of Papers/patents: Nil

Brief Description of working environment, expectations from the company: The working environment in my company can be described within the following aspects.

1. AECOM company fosters a culture of innovation and creativity
2. AECOM believes in the power of teamwork and collaboration. It encourages ideas from every single employee
3. There is a good professional growth expected here
4. The work life balance is totally appreciable once employee learns to manage his/her time dedicated to the project
5. AECOM values diversity and inclusion in all aspects of the company
6. The safety and well-being of employees working here are considered paramount. Here they maintain a safe work environment and provide resources and support for employees' mental and emotional health.

Expectations from the company can be consolidated into following points.

1. AECOM expects its employees to strive for excellence in everything they do, whether it's delivering high-quality work, providing exceptional customer service, or contributing to the success of the team.
2. The company encourages employees to embrace a growth mindset and continuously seek opportunities for learning and improvement.
3. In today's fast-paced business environment, it expects employees to be adaptable and flexible in responding to changing priorities, market conditions, and customer needs.

Academic courses relevant to the project: Analysis & Design of steel structures, Geotechnical Engineering, Analysis & Design of concrete structures, Earthquake Engineering.

PS-II Station: AECOM, Mumbai

Faculty

Name: Mahesh K Hamirwasia

Student

Name: GUNJAL RUTVIJ MAHESH (2022H1430052P)

Student Write-up

PS-II Project Title: Modelling and Analysis of a Marine Bridge

Short Summary of work done during PS-II: Conducted comprehensive structural modelling of balanced cantilever type marine bridge for the Greater Maldives Connectivity Project using MIDAS Civil software. Executed precise calculations for static and dynamic loads in accordance with Euro codes standards EN 1998-1, BS EN 1991-1-4, and BS EN 1991-2, ensuring structural integrity and safety. Implemented soil structure interaction methodologies, including PY Curves and Soil Springs, to accurately analyse the bridge's behaviour under varying soil conditions and external forces. Collaborated closely with Independent Checking Engineers to verify results and address any disparities, ensuring the accuracy and reliability of the structural model. Proactively rectified discrepancies identified through collaborative analysis, ensuring adherence to project specifications and regulatory requirements.

Tool used (Development tools - H/w, S/w): MIDAS Civil, Excel

Objectives of the project: The main objective of the project was to completely model a balanced cantilever type bridge. Providing two types of soil structure interaction and comparing the results for the same. Calculation of static and dynamic loads according to Euro codes and obtain full professional proficiency in MIDAS Civil.

Major Learning Outcomes: Obtained professional proficiency in MIDAS Civil, gained knowledge of various soil structure interaction techniques, calculations of various static and dynamic loads using Eurocodes, got an idea of the effects on prestress on the structure.

Details of Papers/patents: NA

Brief Description of working environment, expectations from the company: Everyone was very supportive and helpful during my PS tenure and the working environment was positive.

Academic courses relevant to the project: Advance Bridge Engineering

PS-II Station: AECOM, Mumbai

Faculty

Name: Mahesh K Hamirwasia

Student

Name: GOLLAPALLY SIDDANTH (2022H1430056P)

Student Write-up

PS-II Project Title: Pune Metro Line-3 Project

Short Summary of work done during PS-II: I worked on Analysis and Design of Viaduct Substructure. Initially I had to go through all the codal specifications and design basis reports. During this process I learned commercial softwares such as Midas Civil, Oasys AdSec, Staad Pro.

Tool used (Development tools - H/w, S/w): Staad Pro, Midas Civil, Oasys AdSec

Objectives of the project: Analysis and Design of Viaduct Sub Structure

Major Learning Outcomes: Analysis and Design of Viaduct Sub Structure

Details of Papers/patents: NA

Brief Description of working environment, expectations from the company: I had the opportunity to work with AECOM at Pune Metro Line 3 Project during my PS. This gave me insight into complexities of large scale infrastructure projects. Work culture is collaborative, competitive and structured. Overall a positive work environment where employees feel valued and supported.

Academic courses relevant to the project: Earthquake Engineering, Bridge Engineering, Pre Stressed Concrete Structures.

PS-II Station: AECOM, Mumbai

Faculty

Name: Mahesh K Hamirwasia

Student

Name: HETA PRAGNESH BHATT (2022H1440034P)

Student Write-up

PS-II Project Title: Mumbai Trans Harbour Link

Short Summary of work done during PS-II: Not good experience, firstly PS faulty was worst he didn't help us nor he reply to us through mail..and PS division allotted me to that company who's project got finished..couldn't learn anything

Tool used (Development tools - H/w, S/w): Primavera P6

Objectives of the project: Marine Bridge

Major Learning Outcomes: Primavera P6, CPM, PERT, Planning and Scheduling

Details of Papers/patents: NA

Brief Description of working environment, expectations from the company: Good working environment.

Academic courses relevant to the project: Construction Project Management

PS-II Station: AgileConnects Priavte Limited, Nagpur

Faculty

Name: Pravin Yashwant Pawar

Student

Name: ASHISH KUMAR SINHA (2019B5A41042G)

Student Write-up

PS-II Project Title: Predicting return air temperature of HVAC using ML models

Short Summary of work done during PS-II: This project focused on predicting return air temperature in HVAC systems using advanced machine learning and deep learning techniques. The dataset consisted of hourly measurements of return air temperature, outside temperature, and relative humidity. To enhance data granularity, the data was converted to 15-minute intervals using a backward fill technique. Several machine learning models were applied, including Linear Regression, Random Forest, Gradient Boosting, XGBoost, Ensemble models, and Support Vector Machines (SVM). The Ensemble model, combining Random Forest and Gradient

Boosting, achieved the highest accuracy of 89%. Convolutional Neural Networks (CNNs) were also utilized, built with the Keras library, achieving an accuracy of 85.145%. City-wise analysis was conducted to compare predicted vs. actual return air temperatures, revealing the superior performance of ensemble methods and the potential of deep learning models. Graphs and data subsets highlighted the differences between actual and predicted temperatures, providing a clear visual representation of model performance. The project demonstrated that while traditional machine learning models like Random Forest and Gradient Boosting were highly effective, CNNs showed promising potential for capturing complex patterns in time-series data. Future work includes optimizing CNNs, expanding feature sets, and validating models across diverse climatic conditions. In conclusion, the project successfully enhanced the prediction of return air temperature in HVAC systems, paving the way for more efficient and optimized climate control solutions.

Tool used (Development tools - H/w, S/w): Python, SQL, keras, pandas, numpy, scikit-learn, matplotlib.

Objectives of the project: To predict the return air temperature of air conditioners using machine learning models.

Major Learning Outcomes: Applying various machine learning algorithms and understanding data preprocessing techniques.

Details of Papers/patents: NA

Brief Description of working environment, expectations from the company: It was remote.

Academic courses relevant to the project: Machine learning, Deep learning

PS-II Station: AgroStar, Pune

Faculty

Name: Bandi Venkata Prasad

Student

Name: RAHUL KUMAR (2022H1030131P)

Student Write-up

PS-II Project Title: Enhancing self-checkout adoption through the Agrostar Saathi app.

Short Summary of work done during PS-II: Our initiative focuses on enhancing self-checkout adoption among agriculture store owners through the Agrostar Saathi app. By leveraging digital solutions, we aim to empower store owners and streamline their operations. Our specific goal is to elevate app usage from the current 5% to 40%, significantly increasing efficiency and customer satisfaction through the self-checkout feature. Additionally, we are committed to onboarding 17,000 agri-partners, expanding our network of digitally-enabled stores across various regions. This expansion faces challenges such as resistance in new states due to limited awareness about our company, regulatory compliance, market competition, and logistical hurdles. To address these, we have implemented rigorous tracking and communication with field agents via dashboards and regular meetings, providing incentives for meeting targets, and conducting ongoing training sessions. We also made product-level changes in the app to enhance convenience and efficiency for our partners. Our multi-faceted approach includes logic-based campaigns via WhatsApp and app notifications, product-level optimization, user education through videos and blogs, and continuous monitoring and optimization using dashboards and daily reports. By integrating these strategies, we strive to create a robust, digitally empowered ecosystem for agriculture store owners, driving growth and innovation in the agricultural retail sector.

Tool used (Development tools - H/w, S/w) : Big Query, SQL, Looker , AppScript

Objectives of the project : Elevate app usage from 5% to 40% and onboard 17000 new agri-stores.

Major Learning Outcomes : As a product analyst, major learning outcomes included understanding user behavior, optimizing app features for better adoption, and addressing market expansion challenges through data-driven strategies.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The work environment was conducive to productivity and collaboration, providing a supportive atmosphere that fostered both professional growth and team cohesion. It was characterized by a balance between structure and flexibility, allowing employees to manage their tasks efficiently while also encouraging innovative thinking and problem-solving. The company culture promoted open communication and transparency, making it easy for team members to share ideas, seek guidance, and offer feedback.

Expectations were clearly defined and realistic, aligning well with individual roles and responsibilities. This clarity helped in setting achievable goals and allowed for a focused approach to work. Management was approachable and provided the necessary resources and support to meet these expectations, which contributed to a positive work experience.

The environment also supported continuous learning and development, with opportunities for training and skill enhancement. Regular team meetings and collaborative projects ensured that everyone stayed aligned with the company's objectives and could contribute effectively. Moreover, the company recognized and appreciated hard work and dedication, providing motivation and fostering a sense of belonging among employees.

Overall, the work environment and expectations were well-balanced, creating a space where employees could thrive, innovate, and achieve their professional goals while contributing to the company's success.

Academic courses relevant to the project : None

PS-II Station : AgroStar , Pune

Faculty

Name: Bandi Venkata Prasad

Student

Name: SHUBHAM SHRIVASTAV(2022H1120283P)

Student Write-up

PS-II Project Title: Enhancing Operational Efficiency and User Engagement in B2B Business

Short Summary of work done during PS-II : During my internship at Agrostar, Pune, I worked on several projects aimed at enhancing operational efficiency and user engagement. I developed a custom Google App Sheet for the "Whom to Call CET" project, which optimized lead identification and call management, resulting in a 15% increase in lead conversion rates. In the "Self-Onboarding Feature of Saathi App" project, I implemented App Store Optimization (ASO), Search Engine Optimization (SEO), and targeted marketing campaigns on WhatsApp, which boosted user engagement by 30% and increased app downloads by 25%. Throughout these projects, I utilized various tools and technologies such as Google Analytics, WhatsApp Business API, SQL, and BigQuery. This internship allowed me to develop key technical skills in data analysis, automation, and marketing, as well as soft skills in project management, communication, and problem-solving. The hands-on experience with CRM systems and large-scale data analysis tools provided me with a solid foundation in managing and optimizing business operations.

Tool used (Development tools - H/w, S/w) : BIG QUERY, GOOGLE LOOKER STUDIO, GOOGLE SHEETS, JIRA,

Objectives of the project : Optimize lead management, enhance user engagement and retention, improve CRM integration and operational efficiency, and streamline inventory management to boost overall business performance.

Major Learning Outcomes : Mastered data analysis, ASO, SEO, CRM systems, automation, marketing campaigns, SQL, and BigQuery, while enhancing project management, communication, problem-solving, and team collaboration skills.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : During my internship at Agrostar, Pune, I experienced a highly demanding and dynamic working environment. The workload was substantial, often requiring over 11 hours of dedication per day with no fixed time for leaving, and included alternate Saturday working. This rigorous schedule pushed me to enhance my time management and resilience. The company had high expectations, which drove me to consistently perform at my best and deliver high-quality results. Despite the challenging environment, I gained invaluable technical and professional skills, and the experience significantly contributed to my personal and professional growth.

Academic courses relevant to the project : DSMS,SQL,DATA ANALYSIS TOOLS

**PS-II Station : Allegro MicroSystems Marketing India Pvt. Ltd. ,
Hyderabad**

Faculty

Name: Suparna Chakraborty

Student

Name: KOUSTAV BASU(2020A3PS0292H)

Student Write-up

PS-II Project Title: Improvisation of KEPCO Power Supply, Pulse Generator and Development of Python Automation Scripts

Short Summary of work done during PS-II : I designed new schematics and tested them on SPICE to improve the Pulse Generator. The main oscillator was replaced with a synchronizing block, leading to enhanced performance and reliability. After learning Altium Designer, I created a PCB layout for the updated design, ensuring a professional and efficient configuration. To ensure safety, efficiency and absence of leakage currents, I thoroughly researched datasheets to select the appropriate disconnect contactors for the KEPCO Power Supply. Additionally, I rewrote the software for sensitivity testing of current sensors, developing a new validation framework that significantly enhances testing efficiency and accuracy, ultimately contributing to better quality control and product performance.

Tool used (Development tools - H/w, S/w) : LtSpice, Altium Designer, Mouser Electronics Website, NI Instrument Studio, MS VSCode, GitLab, KEPCO Power Supply, Pulse Generator

Objectives of the project : The objective of the project was to improve the performance of bench testing equipment in validation such as Power Supplies and Automated Test Equipment, improve existing software and product validation frameworks for efficient testing.

Major Learning Outcomes : Circuit Design and Analysis, Component selection and analysis by researching datasheets, Python Automation for Automated Test Equipment.

Details of Papers/patents : Not Applicable

Brief Description of working environment, expectations from the company : As an intern, I constantly experience how teamwork and mutual assistance are embedded in our daily operations. Everyone is willing to share their knowledge and skills, which creates a continuous learning environment that fuels both personal and professional growth. The positive attitudes and open communication foster a welcoming atmosphere, allowing us to freely exchange ideas and tackle challenges together. This collaborative spirit not only boosts our productivity but also strengthens the bonds among us. Our company expects hard work and unwavering commitment from us, recognizing that these qualities are essential for achieving our collective goals.

Academic courses relevant to the project : Electrical Sciences, Microelectronics, Analog Electronics, Digital Electronics, Python

**PS-II Station : Allegro MicroSystems Marketing India Pvt. Ltd. ,
Hyderabad**

Faculty

Name: Suparna Chakraborty

Student

Name: TUMMARAKOTI SAI NIHAR(2022H1230189H)

Student Write-up

PS-II Project Title: Modelling simulation of sensor

Short Summary of work done during PS-II : I studied overview of the working principle of magnetic position sensor. and that includes some checkers to verify the functionality of some blocks. and also understood the brief procedure about the design vs model of the simple analog block (Amplifier) and about hall effect and its working principle and its application in the current sensor.

Tool used (Development tools - H/w, S/w) : h/w cadence virtuoso

Objectives of the project : Modelling the blocks and verifying through simulations

Major Learning Outcomes : System Verilog Verilog AMS ,Real number modelling

Details of Papers/patents : I did not write any paper or patents in this PS2

Brief Description of working environment, expectations from the company : Flexible Work Arrangements, Clear Expectations and Boundaries, Encouraging Time Off, Wellness Programs, Promoting Communication and Feedback, Setting Realistic Goals and Deadlines

Academic courses relevant to the project : I just revised my analog ic, verilog hDL that I studied from my first two sems of my masters

PS-II Station : AlmaConnect - Nontech , Gurugram

Faculty

Name: Nithin Tom Mathew

Student

Name: T P CHANDRA CHUDAN .(2019B1A11030P)

Student Write-up

PS-II Project Title: STEPS TAKEN TO ENSURE USER EXPERIENCE AND BUSINESS DEVELOPMENT

Short Summary of work done during PS-II : Helped test new product features used specifically by the ops team of the company and ran crucial reviews for product success

Tool used (Development tools - H/w, S/w) : none

Objectives of the project : Reinvent sales and business development ops

Major Learning Outcomes : Understanding product development cycles and strategy

Details of Papers/patents : none

Brief Description of working environment, expectations from the company : Fully WFH and small,lean team with great exposure to entrepreneurship and management

Academic courses relevant to the project : none

PS-II Station : AlmaConnect - Nontech , Gurugram

Faculty

Name: Nithin Tom Mathew

Student

Name: VIDISHA WAHAL(2019B2A40132G)

Student Write-up

PS-II Project Title: ENHANCING CLIENT SATISFACTION: A DATA-DRIVEN APPROACH TO ALUMNI ENGAGEMENT

Short Summary of work done during PS-II : In the rapidly evolving landscape of alumni engagement platforms, AlmaConnect stands out as a robust solution offering universities and organizations insights into their alumni networks. The key focus areas include Data Maintenance, Data Clean-Up, Data Analysis, Data Verification, and Alumni Mapping. The other side of this is the process of procuring the news. Data Maintenance has been a cornerstone of our efforts,

ensuring the continuous accuracy and relevance of the information stored within AlmaConnect. Through systematic approaches, redundant and outdated data have been identified and rectified, enhancing the overall quality of the platform's database. Furthermore, Data Clean-Up initiatives have streamlined the database, eliminating inconsistencies and errors that might impede effective analysis. Data Analysis capabilities have been augmented, empowering AlmaConnect clients and ensuring that the social media profiles provided to them are as accurate as possible. Data Verification protocols have been implemented to ensure the authenticity and reliability of the information provided by AlmaConnect.

Tool used (Development tools - H/w, S/w) : AlmaConnect web-portal, Excel and Google Sheets

Objectives of the project : Improve functioning of the organisation and streamline it by leveraging existing data points

Major Learning Outcomes : Team work, time management, Excel and Google Sheets proficiency

Details of Papers/patents : none

Brief Description of working environment, expectations from the company : Very casual, doesnt seem like a conventional workplace at all. Completely remote and the teams seem rather mutually exclusive. Since it is a very small firm (18 people or so including interns) they expect you to put in time whenever asked.

Academic courses relevant to the project : Principles of Management

PS-II Station : AlmaConnect - Nontech , Gurugram

Faculty

Name: Nithin Tom Mathew

Student

Name: VEDANSH BURMAN(2020A1PS2464H)

Student Write-up

PS-II Project Title: PUBLISHING

Short Summary of work done during PS-II : Publishing, Outbound ,RSS Feed Finding

Tool used (Development tools - H/w, S/w) : None

Objectives of the project : Accurate and Relevant Publishing

Major Learning Outcomes : Time Management

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Environment was good. Mentor was Amazing.

Academic courses relevant to the project : Principles of Management

PS-II Station : AlmaConnect - Nontech , Gurugram

Faculty

Name: Nithin Tom Mathew

Student

Name: RISHABH KHANDELWAL(2020A8PS2154H)

Student Write-up

PS-II Project Title: Operations at AlmaConnect

Short Summary of work done during PS-II : In my role at AlmaConnect, I was tasked with the critical function of curating and refining news articles for dissemination through the organization's alumni portal. This task was integral to enhancing alumni relations by keeping the alumni community informed and engaged with developments relevant to their alma mater and fellow graduates.

Tool used (Development tools - H/w, S/w) : Slack, Google Sheets, Browser

Objectives of the project : Data enrichment and publishing for organizations

Major Learning Outcomes : This project was immensely enriching, providing me with invaluable hands-on experience in handling large datasets, implementing marketing strategies, and improving user engagement through technology. The skills and insights gained are directly applicable to a wide range of future professional endeavors, particularly in fields requiring strong data analytics and user engagement strategies.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Working environment was completely remote

Academic courses relevant to the project : Technical Report Writing

PS-II Station : AltiusHub , Hyderabad

Faculty

Name: Y V K Ravi Kumar

Student

Name: SUDIPT VYAS(2020A7PS0985G)

Student Write-up

PS-II Project Title: User Flow Design and product documentation for enterprise SaaS. Designing implementation strategy and framework for product deployment in large pharma manufacturing setups.

Short Summary of work done during PS-II : When I first joined the company, I was given a few onboarding documents and exercises to see where I would be contributing as a team. I was part of the frontend team for the first few months. I was later moved to the QA testing team, where my modules were transferred to the new employees. During the course of these 5-6 months, I learnt React.js, TypeScript, GitHub, JIRA, Postman, VS Code and a little bit of Python as well.

Tool used (Development tools - H/w, S/w) : React.js, TypeScript, AGILE methodologies, Git.

Objectives of the project : Learning about serialization SaaS product and gaining industry experience with cutting edge tech stack.

Major Learning Outcomes : I learned how to work in a fast paced startup environment. I learnt building new modules and adding functionality to the product in a small team.

Details of Papers/patents : Not Applicable

Brief Description of working environment, expectations from the company : It is an early startup so there is a lot of work. Timings are usually from 10am to 6-7pm. Everyone is approachable and friendly. Leave policies are also good if you plan your leaves in advance. In my case, I had to attend my sister's wedding just a few days after starting the internship. I planned in advance and I was granted leaves accordingly. PPO chances are high as they are actively hiring people.

Academic courses relevant to the project : A little knowledge of web development and languages like JavaScript/Python/TypeScript is good to have.

PS-II Station : AltiusHub , Hyderabad

Faculty

Name: Y V K Ravi Kumar

Student

Name: SHASHANK KHATTAR .(2020A7PS1509P)

Student Write-up

PS-II Project Title: AltiusHub Full Stack Dev

Short Summary of work done during PS-II : Worked on various core modules for the system,

Tool used (Development tools - H/w, S/w) : Python, Django, DRF, Postgres, Cassandra, TimescaleDB, Typescript, React, Azure cloud services, Github Actions

Objectives of the project : Contribute towards building an Enterprise level Logistics management system (L4 system) for Serialization and track and trace for the Pharma industry

Major Learning Outcomes : I got to be more proficient in Python/Django based backend development and React based frontend Development, I got to learn a lot about the logistical processes and international standards and compliances regarding logistical and commercial processes especially in the Pharma industry. Learned about Cassandra and Timescale Databases, Jest test Framework and making CI/CD pipelines using Github Actions

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The Working Environment is stringent, especially for a startup, and there is never a shortage of work and close deadlines so having to stretch to complete it is quite common. The dev is very supportive.

Academic courses relevant to the project : Object Oriented Programming, Database systems, Computer Networks, Data structures and Algorithm

PS-II Station : Alts Wealth Pvt. Ltd. - Onsite , Bengaluru

Faculty

Name: Jyotsana Grover

Student

Name: AKSHANSH BHATT(2019B5A80754P)

Student Write-up

PS-II Project Title: Backend Development for Company's new ITL Platform

Short Summary of work done during PS-II : During this project, the primary focus was on modernizing the backend infrastructure of a proprietary platform by transitioning from a legacy PHP-based system to a more scalable and maintainable architecture utilizing Node.js and Python. The project commenced with a comprehensive analysis of the existing PHP backend to identify bottlenecks and limitations. Following this, suitable modern JavaScript-based technologies were researched and selected. Initial development efforts concentrated on building core backend functionalities in Node.js and Python, alongside implementing PostgreSQL as the primary database to leverage its ACID compliance and advanced features. APIs were developed using the Django REST Framework, adhering to the Model-View-Template (MVT) architecture for efficient and scalable web service creation. Throughout the development phase, unit testing was conducted to ensure code functionality and integrity. Optimization efforts focused on enhancing database queries and implementing efficient algorithms, resulting in significant performance improvements. The project also emphasized security, performing vulnerability assessments and addressing potential risks. Integration testing ensured seamless interaction between backend components, and the system was gradually integrated with the frontend application. Comprehensive documentation was created to facilitate maintainability and knowledge transfer. The project culminated in deployment, monitoring, and gathering user feedback to further refine and optimize the system. Overall, the project successfully delivered a robust, scalable, and secure backend infrastructure, capable of supporting the platform's growth and future aspirations, while providing valuable learning experiences in modern backend development, database management, API creation, and system optimization.

Tool used (Development tools - H/w, S/w) : Node.js, Python, Django, PostgreSQL, Django REST Framework, and various security assessment tools.

Objectives of the project : The primary objective of this project is to modernize and enhance the backend infrastructure of a proprietary platform by transitioning from a legacy PHP-based system to a more scalable and maintainable architecture using Node.js and Python. This includes implementing PostgreSQL for improved data integrity and performance, developing efficient APIs with the Django REST Framework, and optimizing backend processes to reduce response times and enhance system responsiveness. Additionally, the project aims to ensure robust security

through thorough vulnerability assessments, ultimately delivering a modern, efficient, and secure backend system.

Major Learning Outcomes : 1. Backend Development Proficiency: Gained hands-on experience in developing and transitioning backend systems using modern technologies such as Node.js and Python.

2. Database Management: Learned to implement and optimize PostgreSQL for robust data handling, ensuring ACID compliance and advanced querying capabilities.

3. API Development: Acquired skills in developing scalable and efficient APIs using the Django REST Framework and understanding the Model-View-Template (MVT) architecture.

4. System Optimization: Enhanced abilities in optimizing backend processes for improved performance and reduced response times.

5. Problem-Solving and Adaptability: Strengthened problem-solving skills through real-time issue resolution during deployment and integration phases.

6. Security Best Practices: Developed a strong understanding of security assessments and implemented measures to protect the platform from vulnerabilities.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The working environment at Finsec Investments Limited was dynamic and collaborative, fostering a culture of innovation and continuous learning. As part of the backend development team, I worked closely with experienced developers, mentors, and stakeholders. Regular technical discussions and brainstorming sessions were integral to refining project scope and addressing challenges. The company provided access to cutting-edge tools and technologies, ensuring we were well-equipped to tackle complex development tasks.

Expectations from the company were clearly defined, emphasizing the importance of delivering a scalable, maintainable, and secure backend infrastructure. High standards were set for code quality, performance optimization, and adherence to best practices in software development. The company valued proactive communication and collaboration, encouraging team members to share insights and contribute to problem-solving initiatives.

Mentorship played a significant role in my development, with senior developers and mentors offering continuous guidance and constructive feedback. This support was crucial in enhancing my technical skills and understanding of industry standards. Additionally, the company expected

thorough documentation and rigorous testing to ensure the system's reliability and ease of maintenance.

Security was a paramount concern, with regular vulnerability assessments and penetration testing conducted to safeguard the platform. The company's commitment to maintaining a secure and robust system was evident in its expectations for meticulous attention to potential risks and the implementation of appropriate mitigation strategies.

Academic courses relevant to the project : Object Oriented Programming, Data Structures and Algorithms, DBMS, Soft Skills for Professionals

PS-II Station : Alts Wealth Pvt. Ltd. - Onsite , Bengaluru

Faculty

Name: Jyotsana Grover

Student

Name: SATVIK SINGH(2019B5A80894G)

Student Write-up

PS-II Project Title: Sarpanch Samvaad

Short Summary of work done during PS-II : Working as a member of the Sarpanch Samvaad project that aims to empower grassroots leaders in improving local governance and developing 'Quality Villages' Spearheading coordination efforts with the development team to implement new features, bug tracking, app testing, and periodic review for the Sarpanch Samvaad Mobile App and Admin Dashboard, ensuring seamless integration and timely delivery Identifying key metrics to ensure data-driven monitoring of user activity, engagement and learning through

implementation of dashboard analytics Providing backend support to the on-ground state project coordinators through daily tracking of tasks, performance analysis and key insights for their intra state village visits Conceptualizing and implementing new features aimed at enhancing daily active user rates and boosting user engagement.

Tool used (Development tools - H/w, S/w) : Excel, PowerBI, Figma

Objectives of the project : Analytics and optimization of Sarpanch Samvaad app.

Major Learning Outcomes : Collaboration, Data analytics, Communication, Product Management

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Positive work environment.

Academic courses relevant to the project : NA.

PS-II Station : Amazon Development Center , Bengaluru

Faculty

Name: Akanksha Bharadwaj

Student

Name: BALASUBRAMANIAN SRIRAM(2020A7PS0002H)

Student Write-up

PS-II Project Title: Detail Page Latency Optimization

Short Summary of work done during PS-II : The project assigned to me was to engineer a latency optimization experiment by making some changes in the existing Amazon Detail Page architecture. The project involved understanding the complex architecture behind the detail page, what each component does and how they interact with each other. The crux of the optimization is to discard an unnecessary server call in the architecture from one component to another if a user accesses a product page with Chrome Desktop, since in this case the response given out by the component is empty. Since the architecture is undergoing migration, the new incoming components are written in Java, and the old components were written in Perl. Yet another component was written in an Amazon internal language, with principles very similar to what is taught in the Logic in Computer Science course. This change was also supposed to break the existing latency instrumentation within the components, so understanding how latency is instrumented for different components and how overall detail page latency is calculated was also necessary. All changes at Amazon, either on the frontend or backend have to go behind something called a weblab, that helps ascertain the latency impact of the experiment and how this change would affect business, either positively or negatively. Overall, it was a great experience which helped me learn quite a lot, with regards to both technical and non-technical aspects.

Tool used (Development tools - H/w, S/w) : Java, Datapath (Amazon-internal), Perl & Mason

Objectives of the project : The objective was to remove an unnecessary server call from the components in the Amazon Detail Page architecture under certain conditions.

Major Learning Outcomes : - Why latency is important for an organization to stay ahead of its competitors, and how latency is measured using various metrics.

- How complex Amazon's Detail Page is, and how various components in the architecture interact with each other to render the page.
- How A/B testing is done within Amazon using weblabs, and how business profitability is assessed for every change.
- Writing multiple design documents and collaborating across teams at Amazon to ensure velocity and accuracy of the projects undertaken.

Details of Papers/patents : No papers/patents

Brief Description of working environment, expectations from the company : A typical day at Amazon is a mix of constant meetings and development work, with generally one day allocated as no-meeting day for focused work. There is heavy emphasis on demonstrating Leadership Principles and exhibiting coachability as part of assessing an intern. Engineers are expected to be self-reliant in their work and figure out things on their own by reading all the documentation that is available. The general observation is that engineers within the same team are really helpful, whereas it is not so easy when it comes to getting knowledge and help from partner teams. In such cases, it is important to keep your manager and mentor in the loop constantly and get them to expedite and escalate whenever appropriate. The documentation is sometimes incomplete and outdated since architectures are undergoing change, so it would be beneficial to keep a senior engineer in the loop along with your mentor, especially when working on an away team project. Interns are expected to report their work in stand-ups and provide a comprehensive update at the end of every sprint in a demo. Interns are also expected to have regular 1:1's with their manager and mentor to track progress and to gain valuable feedback. It is also recommended to keep everything documented, especially design decisions and meeting minutes to navigate the working environment safely.

Academic courses relevant to the project : Object Oriented Programming, Software Engineering, Database Systems

PS-II Station : Amazon Development Center , Hyderabad

Faculty

Name: Akanksha Bharadwaj

Student

Name: TANISHQ DOSHI(2020A3PS0475H)

Student Write-up

PS-II Project Title: Away Team Code Metrics Collector Tool

Short Summary of work done during PS-II : To address the need for tracking away team contributions and providing actionable insights to TEA Leadership, we developed a comprehensive dashboard utilizing Harmony, guided by PE principles. This dashboard offers a detailed overview of the number and ratio of commits and lines changed in TEA packages by SDEs not belonging to the Tax Services Organization. The primary goal is to identify opportunities for reducing away team work and enhancing code ownership within the host teams. The dashboard features monthly, year-over-year (YoY), and quarter-over-quarter (QoQ) trends, visually represented through pie charts and other graphical elements. It highlights packages with the highest away team contributions, offering a clear visual representation of where the most significant external influences are occurring. Additionally, it includes a report detailing away commits per package and identifies the away teams to which the contributing SDEs belong.

Tool used (Development tools - H/w, S/w) : React.js , Java , AWS , Git

Objectives of the project : Create dashboard for code metrics

Major Learning Outcomes : Full Stack Development

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The working environment at Amazon is dynamic, fast-paced, and innovation-driven, fostering a culture of excellence and continuous improvement. As an intern, I experienced a highly collaborative atmosphere where teamwork and open communication were paramount. The company emphasizes a hands-on approach to problem-solving, encouraging interns to take ownership of their projects and contribute meaningfully from day one. The mentorship provided by experienced

engineers and the accessibility of leadership helped me gain valuable insights and grow professionally.

Expectations from the company include a high level of responsibility and accountability. Amazon expects interns to deliver high-quality work, meet deadlines, and show initiative in tackling complex problems. Attention to detail and a commitment to Amazon's principles, such as customer obsession and operational excellence, are crucial. Interns are encouraged to challenge the status quo, bring fresh ideas to the table, and demonstrate adaptability in a constantly evolving environment.

Overall, the environment at Amazon is one that pushes individuals to strive for their best while providing the support and resources necessary to achieve it. The expectations are high, but so are the opportunities for growth and the potential for making a significant impact.

Academic courses relevant to the project : OOPS , DBMS, DSA

PS-II Station : AMD , Hyderabad

Faculty

Name: Suparna Chakraborty

Student

Name: KIRAT BIR SINGH CHAWLA .(2019B1A80735P)

Student Write-up

PS-II Project Title: PCI Express Debugging and Validation

Short Summary of work done during PS-II : Developed features for their debugging tool to extract useful metrics for the Link Speed change and Power Management capabilities of the

protocol. After the features are dumped onto the logs, a python script developed by me is used to visualise the data in a separate pdf file.

Tool used (Development tools - H/w, S/w) : C programming

Objectives of the project : Extract useful statistics during feature testing to make Debugging of Issues faster

Major Learning Outcomes : Learnt about system level architecture of SoCs and the PCIe protocol. Learnt about how OS are installed and run on the CPU.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Good working environment, nobody pressures you. It is upto you to take proper responsibility of the projects

Academic courses relevant to the project : Computer Programming, Computer Architecture

PS-II Station : AMD , Hyderabad

Faculty

Name: Suparna Chakraborty

Student

Name: YASH KHANDELWAL .(2019B1A81006P)

Student Write-up

PS-II Project Title: Scripting and Web D in Physical Design

Short Summary of work done during PS-II : My work involved making interactive ui tools and dashboards for helping the management have a check on the work. It also involved making scripts to decrease convergence time for manually laborious grunt work and use python for analysis of block timing and placement.

Tool used (Development tools - H/w, S/w) : ICC2

Objectives of the project : Make the PD flow easier and quicker by doing automation. Work on Web D to simplify user experience.

Major Learning Outcomes : Web development, physical design

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Working environment is not extremely good as you would expect in an mnc. Things happen slowly and there is not much help from the seniors. You have to proactively ask your mentors for work and do a lot of self motivated learning. The people are nice and no toxicity is involved. My team under pawan talkad was extremely flexible with regards to timing. The expectation is to learn quickly and be curious and proactive. Also show interest in work.

Academic courses relevant to the project : ADVD

PS-II Station : AMD , Hyderabad

Faculty

Name: Suparna Chakraborty

Student

Name: AKHIL RAJEEV(2019B5AA1287H)

Student Write-up

PS-II Project Title: Graphics Power Management Design Verification And Texture Reference Models

Short Summary of work done during PS-II : Wrote tests to ensure correct operation of various power management features within the GPU. Wrote TLM models to act as a reference to verify the Texture subsystem.

Tool used (Development tools - H/w, S/w) : Synopsys Verdi, Synopsys VCS

Objectives of the project : The aim of this project is to work with my team to write and debug testbenches to verify the Graphics Power Management Subsystem and to create Texture Subsystem TLM Reference Models for upcoming AMD datacenter GPUs.

Major Learning Outcomes : How a GPU works, Industry standards like UVM, How power management on a chip is implemented

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Everyone is very supportive and friendly. There are a lot of opportunities to learn new things. Projects are industry relevant.

Academic courses relevant to the project : Computer Architecture, OOPS, Microprocessors and Interfacing

PS-II Station : AMD , Hyderabad

Faculty

Name: Suparna Chakraborty

Student

Name: ARNAV TRIPATHI .(2020A7PS0082P)

Student Write-up

PS-II Project Title: Integration of SEU FIT Estimator in Power Design Manager

Short Summary of work done during PS-II : I was assigned the project of integrating SEU FIT estimator to Power Design Manager. While designing chips the developer would like to know the power range within which the chip operates (PDM) as well as the failure rate in radioactive environment called Single Event Upsets (SEU FIT). Right now, this is being calculated by two tools which is inconvenient hence the decision was made to integrate the FIT estimator into PDM codebase. The code has C++ on backend handling declaration, placement as well as creation of GUI and Java on frontend handling display (color) with Swig acting as a wrapper between the code converting C++ to Java. The coding has been done keeping PDM design in consideration while also keeping salient features of SEU FIT in mind. A new tab for SEU FIT estimator has been added to side-menubar. The subtabs of FIT are rendered dynamically according to device and family selected. Limit for various equipments used in device (like RAMs) are also rendered dynamically depending on device and family using data file. All the GUI items like tables, dropdowns, editable input cells have been added their location handled using grid layout. Update formulas are added to certain cells in table or particular columns such that output table will be updated automatically in that particular cell whenever the cell it is computing has its value be changed. Update formulas have the entire calculation run again on system whenever one of the

cell the output cell (attached to update formula function) is changed giving results and thereby predicting the probability of a SEU in a particular environment using a particular chipset. The code has been deployed in the AMD codebase and the changes approved the product will be released to customer 2nd quarter of FY 2024-25.

Tool used (Development tools - H/w, S/w) : SEU FIT Estimator, Power Design Manager, Vim (C++ code editor), IntelliJ (Java IDE), Excel+VBA (SEU FIT code), Balsmiq (Designing)

Objectives of the project : Integration of SEU FIT Estimator into PDM for Everest Architecture (Versal Chips).

Major Learning Outcomes : Learned about how to work on complex pre-existing code, applied design principles taught in Object Oriented Programming more importantly being dynamic about the consumer needs and being able to build robust code to adjust accordingly.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : My project was integration of SEU FIT estimator into Power Design Manager it was a completely independent end to end project under my ownership. While developing chips the designer would like to know both the Power consumption statistics (Power Design Manager) and failure characteristics (chance of failure in radioactive environment) (SEU FIT Estimator). Currently these exist as two separate tools which is unintuitive hence I was given the project of integrating SEU Estimator code into PDM codebase. The backend of PDM has been done in C++ (which handles creation, placement as well as functioning of GUI items like tables, dropdowns, charts etc) whereas the frontend is in Java using Swing and AWT libraries for design aspect (coloring). The code of FIT was integrated in such a way keeping in consideration the coding style of PDM while retaining salient features of FIT. FIT functionality was added a tab in the side-menubar alongside other tabs with the subtabs of FIT being rendered dynamically depending on device and family selected by user. Update formulas were added to output tables so as to calculate the outputs automatically whenever the input is changed as it did originally. The constants like maximum amount of equipments used in various chips are stored in a dedicated data file and API calls from helper class are used to extract their value to protect them from being changed accidentally. The project is completed for Everest architecture (Versal chips) and I have made a highly detailed

documentation regarding the entire process so that in case the functionality is to be extended in future it can be done easily. The code has been deployed in AMD codebase and the feature will be released to customer at end of 2nd quarter of FY 2024-25.

Academic courses relevant to the project : Object Oriented Programming, Data Structures and Algorithms

PS-II Station : AMD , Hyderabad

Faculty

Name: Suparna Chakraborty

Student

Name: RAHUL JAUHARI(2020A7PS0106H)

Student Write-up

PS-II Project Title: CPU inferencing solution and CI/CD infrastructure

Short Summary of work done during PS-II : Benchmarking is a critical process for evaluating the performance of products, services, and processes by comparing them to established standards. In the context of machine learning, particularly with Large Language Models (LLMs), benchmarking involves standardized datasets, tasks, and scoring mechanisms to assess models' capabilities. Metrics like throughput and latency provide insights into the efficiency and effectiveness of these models, while trade-offs between these metrics must be considered based on specific use cases. Additionally, the integration of tools such as PyPI and frameworks like Retrieval-Augmented Generation (RAG) enhances the functionality and relevance of LLMs. RAG allows models to access real-time data and contextualize responses, addressing the limitations

of static models and making AI-generated content more accurate and context-aware. By leveraging custom data, RAG improves the specificity and applicability of LLMs in various office scenarios.

Tool used (Development tools - H/w, S/w) : Jenkins, confluence, pypi, python, pytorch, tensorflow, c++

Objectives of the project : To accelerate LLM, CNN and NLP inferencing workloads

Major Learning Outcomes : Understanding Benchmarking in Machine Learning:

Grasp the importance of benchmarking as a method to evaluate the performance of machine learning models, especially Large Language Models (LLMs).

Recognize the role of standardized datasets, tasks, and scoring mechanisms in the benchmarking process.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Our company fosters a dynamic and collaborative environment where innovation and continuous learning are highly valued. Open communication and teamwork are emphasized, with regular brainstorming sessions and cross-functional team collaborations.

Academic courses relevant to the project : Machine learning, FODS

PS-II Station : AMD , Hyderabad

Faculty

Name: Suparna Chakraborty

Student

Name: SAI HEMANTH ANANTHOJU(2020A7PS0116H)

Student Write-up

PS-II Project Title: Design and Development of a DFX Application

Short Summary of work done during PS-II : Developed an Application showcasing Dynamic Function Exchange on the newly released Versal FPGAs. Had a steep learning curve with regards to a Computer Science student, but it is a very new and exploratory project with great potential in the future.

Tool used (Development tools - H/w, S/w) : H/W - AMD Vivado, S/W - AMD Vitis, Embedded C

Objectives of the project : Designing a board level DFX Application

Major Learning Outcomes : Embedded Software Flow, AMD Vivado, AMD Vitis

Details of Papers/patents : Nil

Brief Description of working environment, expectations from the company : The working environment was very friendly. AMD follows a flat hierarchy and everyone is approachable. In the course of my project I had to approach multiple employees over all designations and everyone responded positively to my questions.

The company does not give you hard deadlines for exploratory projects, and you have adequate freedom to research and develop using their tools, which are readily available for all employees. All interns are treated like full-time employees and not discriminated in any sort.

Academic courses relevant to the project : Computer Architecture, OS, OOPS, DSA, Microprocessors and Interfacing, Digital Design

PS-II Station : AMD , Hyderabad

Faculty

Name: Suparna Chakraborty

Student

Name: NABAR OMKAR ASHISH(2020A7PS0119G)

Student Write-up

PS-II Project Title: Kernel Development in AIE2

Short Summary of work done during PS-II : Developed GeMM kernel, and one which handles sparsity and a reshape kernel as well as a array reverse kernel to be used in bidirectional LSTMs. Also Prepared a pipeline for inference of resnet50 and inceptionv4 models

Tool used (Development tools - H/w, S/w) : AIEsim, python, C++

Objectives of the project : Develop specialized functions to optimize performance of inference

Major Learning Outcomes : Learnt how these functions are dealt with at the hardware level

Details of Papers/patents : No papers

Brief Description of working environment, expectations from the company : Work environment is really focused, while being friendly and helpful whenever approached with a doubt. Not stressful, but require efforts to be put into to ensure competency.

Academic courses relevant to the project : Computer Architecture

PS-II Station : AMD , Hyderabad

Faculty

Name: Suparna Chakraborty

Student

Name: VARUN SAHNI .(2020A7PS0144P)

Student Write-up

PS-II Project Title: Project I: Jira Automation Project II: SPEC CPU Characterization Project III: BUS Tracing Analysis Project IV: MySQL Characterization Study Project V: Performance Debugging for AMD Servers Using AMD uProf Project VI: Analysis and Optimization of MySQL Sys

Short Summary of work done during PS-II : During the Practice School-II at AMD, the work focused on enhancing performance and efficiency across several domains, including automation, benchmarking, database optimization, and virtualization. Key projects involved developing scripts to automate Jira issue management, reducing manual errors and improving productivity. Detailed performance characterization of SPEC CPU workloads provided insights into system behavior, aiding in hardware and software optimization. Efforts to optimize bus tracing and memory access thresholds led to reduced IO operations and improved system performance. Comprehensive MySQL workload characterization and optimization studies informed best practices for database configuration in virtualized environments. Additionally, automation frameworks were developed for workload comparison and reporting using SWIFT and Atlassian Python API, ensuring consistent and reliable performance evaluations. Trace analysis in the SimNow simulation

environment provided valuable data for understanding performance impacts and bottlenecks. These projects collectively enhanced technical proficiency, problem-solving abilities, and analytical skills, contributing significantly to the improvement of AMD's products and services.

Tool used (Development tools - H/w, S/w) : Jira Automation: Python, Jira API, Atlassian Python API
SPEC CPU Characterization: SPEC CPU 2017 Benchmark Suite, Perf, Python
BUS Tracing Optimization: System Tracing Tools, Perf, Custom Scripts
MySQL Characterization Study: MySQL, Sysbench, Performance Schema, Python
Performance Debugging for AMD Servers Using AMD uProf: AMD uProf, Perf
Analysis and Optimization of MySQL Sysbench Performance in Virtualized Environments: MySQL, Sysbench, VMware, KVM, Perf, Python
Obtaining MySQL Sysbench Trace in SimNow Simulation Environment: MySQL, Sysbench, SimNow, Trace Analysis Tools, Python
Automation of Workload Comparison and Reporting Using SWIFT and Atlassian Python API: SWIFT, Atlassian Python API, Python

Objectives of the project : Project I: To automate the process of managing Jira issues to enhance productivity and accuracy. Project II: To characterize the sensitivity of SPEC CPU workloads to various factors. Project III: To optimize bus tracing to reduce IOs and improve performance. Project IV: To characterize and compare MySQL workloads. Project V: To create a debugging playbook for AMD servers using AMD uProf. Project VI: To analyze and optimize MySQL Sysbench performance in virtualized environments. Project VII: To obtain MySQL Sysbench trace in the SimNow simulation environment. Project VIII: To automate the comparison and reporting of workload performance using SWIFT and Atlassian Python API.

Major Learning Outcomes : During the Practice School-II at AMD, significant technical skills and practical knowledge were acquired across various domains, including automation, performance benchmarking, database management, and virtualization. Developing and optimizing scripts for Jira automation highlighted the importance of automating repetitive tasks to enhance productivity and accuracy. Work on SPEC CPU characterization and MySQL performance studies deepened the understanding of system and database performance analysis, enabling data-driven optimization recommendations. Projects on bus tracing optimization and workload comparison automation honed problem-solving abilities, reduced system inefficiencies, and improved data handling and reporting skills. These experiences collectively enhanced analytical capabilities, technical proficiency, and the ability to document and communicate complex processes, leading

to adeptness at integrating various technologies to drive performance improvements and operational efficiency.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at AMD is fantastic. The team culture is very supportive and collaborative, making it a great place to work. Team members are understanding and always ready to help. You can approach anyone, regardless of their position, which makes it easy to communicate and get assistance.

Learning and development are highly encouraged. The company makes sure to assign tasks that match your interests and skills, which makes work enjoyable and fulfilling. This focus on continuous learning helps everyone grow both personally and professionally.

AMD also knows how to keep things fun and balanced. There are frequent team lunches and outings, which provide great opportunities to relax and bond with colleagues. Additionally, the company organizes various sports activities like table tennis, cricket, badminton, and volleyball, promoting a healthy and active lifestyle.

Overall, the work culture at AMD is outstanding. It combines professional growth with a supportive and fun atmosphere, making it an ideal place to work.

Academic courses relevant to the project : Operating System, Computer Architecture and Data structure and Algorithms

PS-II Station : AMD , Hyderabad

Faculty

Name: Suparna Chakraborty

Student

Name: AAKASH TIWARI(2020A7PS0981G)

Student Write-up

PS-II Project Title: Neural network optimization, quantization and onnx model analysis

Short Summary of work done during PS-II : I learnt a lot about neural networks, their architectures and optimizations. I got to learn about ONNX framework for deep learning. I worked on advanced python concepts. Learnt a lot about data types.

Tool used (Development tools - H/w, S/w) : 1) Python 2) Numpy 3) BASH 4) SciPy 5) Pip 6) Visual Studio Code

Objectives of the project : 1) Neural network optimization 2) ONNX model analysis 3) Quantization

Major Learning Outcomes : Understood the concept of neural network optimization in a detailed manner

Understood the importance of neural network architectures

Got to learn about the concept of data types in detail

Got to learn about ONNX framework for deep learning

Practiced advanced concepts of python

Details of Papers/patents : Not applicable

Brief Description of working environment, expectations from the company : At our company, the work environment is crafted to foster collaboration, creativity, and personal growth. The work environment is very healthy and supportive for our growth in terms of technical as well as soft skills. My team members are very supportive. They help me in solving all my doubts. We believe in a culture that values both individual contributions and teamwork, where every voice is heard and respected. The work life balance in AMD is pretty good. In essence, our company work environment is more than just a place to work—it's a community where passion meets purpose,

and where individuals are empowered to achieve their fullest potential while making a meaningful impact. I am looking forward to grow with the company.

Academic courses relevant to the project : Computer Architecture
Data structures and algorithms

PS-II Station : AMD , Hyderabad

Faculty

Name: Suparna Chakraborty

Student

Name: RISHABH KUMAR(2020A7PS1211P)

Student Write-up

PS-II Project Title: Development and Optimization of Machine Learning Models

Short Summary of work done during PS-II : Created a dashboard that displays benchmarks of the team's plugin. Also improved the code testing and validation before a patch is submitted.

Tool used (Development tools - H/w, S/w) : Python, C++, Jenkins, Confluence, Shell Scripting

Objectives of the project : Create a dashboard, improve the automation of code testing and validation

Major Learning Outcomes : DevOps, Python, Jenkins

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Team members were very friendly and gave ample time to learn and understand the work.

Academic courses relevant to the project : Computer Programming, DSA, OOP

PS-II Station : AMD , Hyderabad

Faculty

Name: Suparna Chakraborty

Student

Name: DHAPARE NEEL PRASHANT(2020A7PS1223G)

Student Write-up

PS-II Project Title: Serialisation and Deserialisation of Data for Vivado Design Suite using Protocol Buffers

Short Summary of work done during PS-II : Aiding in migrating serialisation and deserialisation mechanisms for structured data to Google's Protocol Buffers to improve runtime and memory utilisation. Identified potential memory issues caused due to ProtoBuf's absolute size limits and modified the implementation to handle the restrictions on compression size. Extensively testing the developed implementation and resolving bugs with the aid of GNU Debugger to converge to an error-free substitute for the existing mechanism.

Tool used (Development tools - H/w, S/w) : GDB, Valgrind, Perforce, Google Protocol Buffers, Perforce, Gradle

Objectives of the project : To migrate the serialisation and deserialisation mechanism for the synthesis stage from a proprietary design to Google's Protocol Buffers

Major Learning Outcomes : Gained hands-on experience on writing optimised and modular code, and how to debug code efficiently. Familiarised myself with industry-standard coding practices and documentation standards. Developed problem-solving skills through real-world challenges and projects.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Working environment is quite healthy. Individuals are encouraged to bring up their own ideas and think outside of the box. Fellow employees are extremely supportive and knowledgeable.

Academic courses relevant to the project : Computer Programming, Object Oriented Programming, Operating Systems, Data Structures and Algorithms

PS-II Station : AMD , Hyderabad

Faculty

Name: Suparna Chakraborty

Student

Name: SHOBHIT GANGWAL(2020A7PS1703G)

Student Write-up

PS-II Project Title: VAIFrame

Short Summary of work done during PS-II : I mostly worked on backend in Django. And also worked on ML related integrations in dashboard.

Tool used (Development tools - H/w, S/w) : VS Code, Postman

Objectives of the project : To ease out the integration of ML in vivado.

Major Learning Outcomes : Django, ML

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Work environment was really good, everyone were very helpful.

Academic courses relevant to the project : ML, OOP

PS-II Station : AMD , Hyderabad

Faculty

Name: Suparna Chakraborty

Student

Name: VARUN VIKRAM SANTURKAR(2020AAPS1319H)

Student Write-up

PS-II Project Title: RTL Design for a Glitch Detector Circuit Block

Short Summary of work done during PS-II : As part of my project, I analysed the circuit schematic, understood its functionality and translated this to a behavioural model in SystemVerilog. I wrote a sample testbench to simulate the functionality of the code and ensure its functionality. I proceeded to perform initial functional verification checks on the circuit including Linting, Logical Equivalence and ESP Checks. The results of this project can be forwarded to verification and integration teams who will perform complete verification on the circuit block before it is integrated onto a physical chip.

Tool used (Development tools - H/w, S/w) : Cadence Virtuoso, Cadence Conformal, SystemVerilog, HSPICE, Synopsys VCS, Synopsys ESP

Objectives of the project : The overall aim of this project is to complete the RTL design, simulation and initial verification for a glitch detector circuit block.

Major Learning Outcomes : - Gained valuable expertise on how RTL code is practically designed and simulated, particularly in how models are defined for circuits based on their expected behavior.

- Learnt how initial verification checks are executed on this code and gained a deeper understanding in how their results are debugged and analyzed.

- Understood the various factors to be taken into consideration when creating such schematic designs, such as power and area restrictions, and how these challenges can be overcome.

Details of Papers/patents : Multiple patents are pending on the designs worked on during the project.

Brief Description of working environment, expectations from the company : Working environment is very good, the overall culture at the company is great and my team was very friendly and helpful throughout the internship experience. Work can get stressful nearing major project deadlines but otherwise proceeds at a comfortable pace. All team members, from my manager to PMTS to Senior Engineers, were very approachable and always ready to help.

Academic courses relevant to the project : Analog & Digital VLSI Design, Analog Electronics, FPGA-Based System Design, Computer Architecture, Microelectronic Circuits

PS-II Station : AMD , Hyderabad

Faculty

Name: Suparna Chakraborty

Student

Name: PATHAK SHUBHAM NAVINCHANDRA(2022H1030052G)

Student Write-up

PS-II Project Title: Optimizing Deep Learning Inference/s

Short Summary of work done during PS-II : Worked on latest AI models addressing vision, language and generative models , while optimising compute, memory, communication configurations, and other hardware as well as software implementation choices. My work involved ML kernels such as GeMM, Conv2d (using GeMM) and Sigmoid; models utilising those kernels such as Resnet50 and Inceptionv4, building a high level model which generates input and reference output for these kernels / models, and applying optimisation techniques such as Quantization, Compression and Pruned compression for improved compute, greater bandwidth, lesser latency with the aim being to reduce cost and energy consumption. I also worked on tools such as AI Engine Compiler, Simulator, Vitis Analyser and programmed solutions using C++, Python and Shell scripting. My work involved designing end to end workflows as well as automating tasks using Python and Shell.

Tool used (Development tools - H/w, S/w) : Os: Linux Ubuntu. Tools : AIE toolkit, AIE compiler, AIE simulator, Vitis Analyser, vim, Visual Studio, gcc, python 3.11 interpreter, AI Engine board
Other : Predefined APIs and Intrinsics

Objectives of the project : Applying Hardware and software level optimisation/s on Deep Learning Inferences

Major Learning Outcomes : 1. End-to-end design, development, and deployment of ML / AI inferences for AMD's AI Engine
2. Optimising Deep Learning Inferences

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Great environment, with all essential facilities provided. The team is extremely helpful, and guided us throughout the internship. We were allocated separate cubicles close to our team. The managers and mentors helped us whenever we got stuck at some point. This team also has a great learning environment, enabling rapid skill acquisition. The IT team helped us with any setup related issues. The onboarding process was well managed. The additional perks are great too. The HR team was in constant touch to ensure all the intern related formalities are completed on time. We also worked in collaboration with other teams in the same group for some work, which helped us to understand how all of it comes together. We interns (across different teams at AMD Hyderabad) had 3 interaction sessions where we got to know each other and talk about our work. The office space and the larger campus provides tons of amenities and services.

Academic courses relevant to the project : Advanced Computer Architecture, Machine Learning, Deep Learning, Foundations of Data Science, Compiler theory, Operating Systems

PS-II Station : AMD , Hyderabad

Faculty


Name: Suparna Chakraborty

Student

Name: TARUN SINGH(2022H1030145G)

Student Write-up

PS-II Project Title: SpeedFile Publish Dashboard and Automated Code Coverage Generation

Short Summary of work done during PS-II : Developed a Dashboard to display past SpeedFile Release Details in a Tabular Format, Wrote a Data Collection Script that collects all the parameters taken when a SpeedFile is Released for a Particular AMD Device and then keep a collective history to be used by the dashboard.  Wrote a bash script to generate a coverage build for the entire Device Modelling Codebase using GCOV , execute all existing test cases, Generate a HTML Coverage Report for the entire codebase using LCOV , and then send the coverage report via email.

Tool used (Development tools - H/w, S/w) : React.js , Perforce, bash scripting ,neovim , gcov , lcov , Doctest and Pytest frameworks

Objectives of the project : Develop a Internal Dashboard to record , display SpeedFile Releases, and implement an automated system to generate code coverage reports for the entire Device Modelling c++ codebase.

Major Learning Outcomes : Learnt about web development using React.js. Learnt about writing bash scripts to automate tasks. Learnt how to write unit test cases using Pytest and DOCTEST C++ framework.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Good Working Environment ,There's no strict schedule for when you arrive or leave. Work hours followed by most of the team is around 9 to 5 in office. You can get help by pinging Team Members via Teams, unless they're tied up with critical work.

Academic courses relevant to the project : Advanced Computer Architecture

PS-II Station : AMD , Hyderabad

Faculty

Name: Suparna Chakraborty

Student

Name: PONNADA SRI CHARAN(2022H1120274P)

Student Write-up

PS-II Project Title: Benchmarking of CPU Inference Solutions

Short Summary of work done during PS-II : My internship at AMD has been an invaluable experience, providing deep insights into the cutting-edge world of semiconductor technology and high-performance computing. Working with a team of brilliant engineers, I gained hands-on experience with advanced software development processes and worked on various machine learning models. This opportunity enhanced my technical skills and broadened my understanding of collaborative and innovative problem-solving in a fast-paced industry. I am grateful for the mentorship and the challenging projects that significantly contributed to my professional growth. This experience has solidified my passion for technology and equipped me with the confidence

and expertise to pursue a successful career in this dynamic field. The skills and knowledge acquired during this internship have prepared me to tackle future challenges and contribute effectively to the tech industry.

Tool used (Development tools - H/w, S/w) : Jenkins, Confluence, React, Linux, Pytorch

Objectives of the project : Practical Experience: To provide interns with hands-on experience in real-world projects related to semiconductor design, development, and testing. Skill Development: To help interns develop both technical and soft skills relevant to the semiconductor industry and AMD's specific work environment. Project Contribution: To enable interns to make meaningful contributions to ongoing AMD projects, allowing them to see the impact of their work. Industry Exposure: To give interns insight into the semiconductor industry, AMD's role in it, and current technological trends.

Major Learning Outcomes : Architecture of the Deep Learning Models,

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Dynamic and Fast-paced: AMD operates in a rapidly evolving industry, requiring adaptability and quick learning. Collaborative: Teams often work together on complex projects, fostering a culture of cooperation and knowledge sharing.

Technical Proficiency: Interns are expected to have a solid foundation in relevant technical skills and be eager to learn more.

Proactivity: Taking initiative, asking questions, and seeking out learning opportunities is highly valued.

Time Management: Ability to manage multiple tasks and meet deadlines is crucial.

Academic courses relevant to the project : Deep Learning, Machine Learning, Artificial Intelligence, Object Oriented Analysis and Design

PS-II Station : AMD India Pvt Ltd , Bengaluru

Faculty

Name: Kranthi Kumar Palavalasa

Student

Name: ADITYA AMIT BHATTACHARJEE(2022H1030044G)

Student Write-up

PS-II Project Title: SSO Implementation for Client Application

Short Summary of work done during PS-II : Collaborating with the Client Manageability Team to implement SSO for client tools. □ Implemented authenticating to a Winforms application using Azure. Integrated onpremises AD with Azure. □ Implemented authenticating to a ASP.NET web application using Okta. Integrated on-premises AD with Okta

Tool used (Development tools - H/w, S/w) : Visual Studio, Windows Server 2022, Microsoft Entra ID, C#, Winforms Application, MVC Application

Objectives of the project : Implement SSO for Client Application

Major Learning Outcomes : Working with Server 2022 and Microsoft Entra ID

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Everyone should complete their work on time. Does not matter how many hours you spend in office. If your work gets completed early you can leave early for the day.

Academic courses relevant to the project : NA

PS-II Station : AMD India Pvt Ltd , Bengaluru

Faculty

Name: Kranthi Kumar Palavalasa

Student

Name: SOUMIK MAJUMDAR(2022H1230257P)

Student Write-up

PS-II Project Title: Soc verification of memory phy

Short Summary of work done during PS-II : Written a testcase to verify the loopback feature when dram memory fails, and made the c++ based system to give Firm Ware a direct path to verify the sytem

Tool used (Development tools - H/w, S/w) : Verdi, shell script and python

Objectives of the project : To verify the phy working in test chip soc level

Major Learning Outcomes : Understanding verification system of Memory subsystem

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : It is very chill team and obviously very supporting i am so lucky to be the part of this team at the time of tape out

Academic courses relevant to the project : Vlsi test and testability

PS-II Station : AMD India Pvt Ltd , Bengaluru

Faculty

Name: Kranthi Kumar Palavalasa

Student

Name: BOBBITI CHARITHA(2022H1400133H)

Student Write-up

PS-II Project Title: DDRPHY for next gen SOC's

Short Summary of work done during PS-II : My work included: Running top-level Galaxy Constraint Analyzer for function and scan modes. To check the errors and warnings in both the modes and understand the suggestions through rule reference book. To file Jiras on the errors and warnings encountered in the design To understand the special checks, timing paths and hierarchies involved in it. To get command over PrimeTime (a tool for Static Timing Analysis). To analyze timing paths of a high frequency clock and adjust them to avoid any violations. To check timing paths of certain pins on different corners considering voltage, temperature.To find appropriate solutions for data path optimization in timing analysis to meet the setup and hold slacks. Learning TCL scripting and using it to write scripts for timing and at tile level. Working on Tile includes : PNR flow and PV checks Timing checks Physical

Verification(PV) includes Tie-off checks, Floating checks, DRC cleaning, LVS cleaning, long nets and Formality checks. Timing checks include setup, hold, clock transition and data transition worst negative slacks, capacitance at different corners of temperature and voltage.

Tool used (Development tools - H/w, S/w) : PrimeTime, Galaxy Constraint Analysis, Fusion Compiler

Objectives of the project : To design a lower technology node and low power mode chip for next gen SOCs

Major Learning Outcomes : TCL scripting, Timing Analysis

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : I got the best team. They are very cooperative , considerate, understanding. I learnt good amount of work in this internship period. Work environment is great. I gained lot of practical knowledge and good exposure.

Academic courses relevant to the project : VLSI Design ,Advanced VLSi Design

**PS-II Station : American Express - Decision Science & Strategy ,
Bengaluru**

Faculty

Name: Arindam Roy

Student

Name: SARTHAK GUPTA .(2019B4A70464P)

Student Write-up

PS-II Project Title: Enhancements and Analytics of Amex in-house chatbot

Short Summary of work done during PS-II : Enhanced User Engagement: Improved the relevance and informativeness of dropdown options, leading to increased user interaction. Accurate Query Matching: Improved accuracy in suggesting relevant Confluence pages, resulting in more successful query resolutions. Comprehensive Metrics: Developed performance metrics that provide insights into the chatbot's effectiveness and user satisfaction, guiding future improvements.

Tool used (Development tools - H/w, S/w) : GPUs, Pytorch, transformers

Objectives of the project : To enhance the current performance of the Amex in-house chatbot to increase user engagement.

Major Learning Outcomes : Familiarisation with LLMs and basics of GenAI

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : It was hybrid mode with compulsory three days a week of being present in-office.

Academic courses relevant to the project : Machine Learning, Deep Learning, Artificial Intelligence, Natural Language Processing

PS-II Station : Amica Financial Technologies Pvt. Ltd. , Bengaluru

Faculty

Name: RAMESH VENKATRAMAN

Student

Name: AKSHAT MANISH GARG .(2019B4A40695P)

Student Write-up

PS-II Project Title: Scaling up & improving the user experience of Debit Card

Short Summary of work done during PS-II : Led the inception, rollout, and go-to-market strategy of a premium metal debit card, setting new standards in high-end customer service and financial solutions. - Optimized debit card engagement, improving activation and order rates by 4.5 percentage points and 4.68 percentage points, respectively, through refined user journeys and smart nudges. - Strategically devised and executed an AMC plan for over 200,000 users, generating ₹2.5 Crore in revenue while maintaining exceptional customer satisfaction. - Achieved a 45.49% revenue growth by leading the execution and brainstorming of innovative marketing and promotional campaigns. - Streamlined payment processes with Push Tokenisation, enabling one-click card addition for seamless debit and credit card checkouts. - Increased the success rate of international debit card transactions by 10.7% by implementing ECI-7 in collaboration with VISA.

Tool used (Development tools - H/w, S/w) : Grafana, Metabase, Amplitude, JIRA, Confluence, Figma, Retool, Gupshup, Clevertap, DLT

Objectives of the project : Improve the user experience of Debit Card and also increase the business of Debit cards in the declining market

Major Learning Outcomes : - Identifying customer needs and preferences through surveys and interviews.

- Conducting competitor analysis and market trend evaluations.

- Working with engineering, design, marketing, and sales teams to ensure product success.
- Developing product strategies aligned with business goals.
- Understanding how to align the roadmap with stakeholder expectations and market demands.
- Developing and executing go-to-market strategies for product launches.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Regarding the work environment, it is similar to many other startups: fast-paced, results-oriented, and always keeping employees on their toes.

As for expectations from the company, those seeking learning opportunities will certainly find them. There are many great people to learn from, and all one needs to do is reach out and talk to them. However, those expecting a lifestyle similar to that of a MNC might find it challenging.

Academic courses relevant to the project : At the moment, there are not many courses in BITS curriculum that will teach you Product management, but many things learnt in the SCM might be helpful in your management skills.

PS-II Station : Analog Devices India Pvt. Ltd. , Bengaluru

Faculty

Name: Sathisha Shet K

Student

Name: H R VEDANTH(2020AAPS0248G)

Student Write-up

PS-II Project Title: Digital Design Verification of Prefetch Buffer using Universal Verification Methodology

Short Summary of work done during PS-II : The project provided in-depth knowledge of Prefetch Buffer architecture, functionality, and its role in SoC designs, alongside hands-on experience with verification methodologies, particularly UVM. Skills in testbench development using SystemVerilog and UVM were acquired, enabling the creation of reusable and scalable test environments for comprehensive verification. Debugging and troubleshooting skills were enhanced through the identification and resolution of issues during the verification process. Additionally, there was significant learning on adapting verification methodologies to industry standards, preparing for future roles in semiconductor design and verification.

Tool used (Development tools - H/w, S/w) : Cadence Xcelium, Simvision, DVT Eclipse, Linux

Objectives of the project : Verification of Prefetch Buffer IP using UVM and ensuring correctness of behaviour and compliance with protocols.

Major Learning Outcomes : DV, System Verilog, UVM, Cadence Xcelium

Details of Papers/patents : In development

Brief Description of working environment, expectations from the company : Healthy work environment with highly supportive seniors.

Academic courses relevant to the project : Digital Design, Microelectronics

PS-II Station : Anicut Capital LLP , Delhi

Faculty

Name: Uma Nagarajan

Student

Name: NISHANT SETHI(2019B2A21464H)

Student Write-up

PS-II Project Title: Research Analyst

Short Summary of work done during PS-II : I am a research intern, primarily focusing on the study of industries and markets. I have the responsibility to conduct research on a particular industry (as per what the company wants me to find out). This research focuses on the broader dynamics. For example, household consumption, whitespaces in the market, etc. Along with that, most of the times I conduct background research on the sector/market that a potential investment opportunity company works on. I also have the privilege to be a part of the pitch calls of the startup companies looking to raise funds. I have the freedom to ask questions about the startup as and when I feel is appropriate. I am also working on a topic where the basic idea is to find the whitespaces in the markets. I am tasked with the responsibility of finding a market where there are a lot of fragmented players but no major ones. The idea is to find a company working in such a space and hopefully make an investment in such a company. For this, I am going through a lot of government data for India as well as the other most populous countries.

Tool used (Development tools - H/w, S/w) : Excel, Powerpoint

Objectives of the project : 1) Due diligence on startups 2) Finding the whitespaces in the market

Major Learning Outcomes : I have had the privilege to learn from some of the best out there. I am now familiar with a lot of jargons related to startup investing, such as MOQ, MOU, MIS, ARR, SKU etc. Because of the questions raised by my teammates, I now have a better understanding of the information a VC expects from the startups. As an added bonus, I feel like I now ask more relevant questions.

I have significantly improved my research skills. The most important outcome for me is the ability to convert data into information.

Details of Papers/patents : NIL

Brief Description of working environment, expectations from the company : Anicut Capital is definitely one of the best places you can work at. People here are very friendly, very helpful and supportive. You will never feel out of place. They guide you constantly. Unlike other finance role, this one is very interactive.

The company expects you to be regular at the office, timely deliver the work and that's it.

Academic courses relevant to the project : Finance Minor courses

PS-II Station : Anicut Capital LLP , Delhi

Faculty

Name: Uma Nagarajan

Student

Name: PADARTI BHANU TEJA .(2019B3A20418P)

Student Write-up

PS-II Project Title: Startup Incubator Management

Short Summary of work done during PS-II : Developed an startup accelerator program and an investor connect event at Jaipur. Also developed a fundraising accelerator program for startups. Also, played a crucial role in venture capital partnerships with PIEDS.

Tool used (Development tools - H/w, S/w) : Excel, Mail merging tools and Canva.

Objectives of the project : To effectively understand and facilitate the venture capital partnerships between PIEDS BITS Pilani and the VC firms and also understanding the investment analysis for startups, get involved in the programs organized by the PIEDS team such as Selection of startups for the NIDHI Prayas grant by Govt. of India. Developing Accelerator, Incubation and other mentoring programs. To understand the startup incubation process.

Major Learning Outcomes : Got an exposure to the startup environment and the funding processes.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Flexible and conducive environment for learning and growth.

Academic courses relevant to the project : Creating and leading an Entrepreneurial Organization (CLEO) and other entrepreneurship minor courses.

PS-II Station : Apple India Private Limited , Bengaluru

Faculty

Name: T Venkateswara Rao

Student

Name: BOMMAKANTI HASITA(2019B5AA0781H)

Student Write-up

PS-II Project Title: Hardware technology- Component Verification

Short Summary of work done during PS-II : Worked on Verification of firmware. Automation related tasks.

Tool used (Development tools - H/w, S/w) : Visual Studio code, Python, Jenkins

Objectives of the project : Work on 4G, 5G Cellular communications

Major Learning Outcomes : Learnt a lot about the existing cellular communication technologies

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Working environment is very easy going. Colleagues are very helpful. Work being done even as interns directly impacts the company. Expectations are high from a student but a very good learning opportunity.

Academic courses relevant to the project : Communication Networks, Digital Signal Processing, Signals and systems

PS-II Station : Apple India Private Limited , Bengaluru

Faculty

Name: T Venkateswara Rao

Student

Name: ARYAN SALUJA(2020A3PS1764G)

Student Write-up

PS-II Project Title: Cellular Modem Firmware Development

Short Summary of work done during PS-II : My main project was to develop plugins for triage tool. In addition, my work also encompassed helping team members in debugging Firmware code.

Tool used (Development tools - H/w, S/w) : Most of the development work was done in C and Python

Objectives of the project : The objective of the project was to learn about advancement in wireless communication, particularly in the area of 4G and 5G. The work done revolved around developing tools for debugging of firmware.

Major Learning Outcomes : Learnt about the basics of wireless communication and then moved on to 4G and 5G cellular networks. The project also helped me to learn about how the development goes on for such complex systems.

Details of Papers/patents : N.A

Brief Description of working environment, expectations from the company : The working environment is really good here at Apple with flexible working hours and the hybrid work mode. Everyone in the team is very supportive and one can approach anyone to resolve any doubts.

Academic courses relevant to the project : Communication systems

PS-II Station : Apple India Private Limited , Bengaluru

Faculty

Name: T Venkateswara Rao

Student

Name: SUMEDHA PANJA(2020A3PS1766G)

Student Write-up

PS-II Project Title: CNC Traceability

Short Summary of work done during PS-II : My team primarily works on Apple Manufacturing Traceability. I worked on the same with a major focus on CNC Traceability. My project included to understand the current system of Traceability and ways to enhance the same by working closely with the Apple team as well as vendor teams.

Tool used (Development tools - H/w, S/w) : MES, Shopfloor Systems, Excel, Tableau, SQL

Objectives of the project : Understanding manufacturing traceability, understand and work on CNC Traceability, understand CNC machine connectivity and CNC data collection.

Major Learning Outcomes : Agile, Working of MES and Shopfloor Systems, Data Analysis

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Worked in the manufacturing sector and got a hands-on experience to work in the shop floor. I got a better understanding of manufacturing and Apple manufacturing traceability. I got an insight of

importance of Traceability and manufacturing data. On a day to day basis I had to work with many cross functional teams for project planning and execution.

Academic courses relevant to the project : Microprocessors and Interfacing, Computer Programming, Technical Report Writing.

PS-II Station : Apple India Private Limited , Bengaluru

Faculty

Name: T Venkateswara Rao

Student

Name: NEHA MITTAL(2020A3PS2324H)

Student Write-up

PS-II Project Title: Power Driver Host Project

Short Summary of work done during PS-II : During my Practice School II at Apple Inc., I optimized the software build process by automating JavaScript file generation, enhancing my understanding of software architecture. My key project, the Power Driver Host, involved developing a modular build system with Makefiles, allowing independent sub-project builds to reduce resource use and build times. I resolved various build and linking issues by creating stubs to simulate hardware interactions. Integrating these modules within XCode streamlined the process further, leveraging its robust environment for enhanced productivity and providing a versatile workflow, significantly expanding my technical expertise.

Tool used (Development tools - H/w, S/w) : S/W: Command Line Interface, Xcode

Objectives of the project : Build of sub-module, resolving all system dependencies

Major Learning Outcomes : C, C++, Linux

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : At Apple Inc., the working environment is dynamic and innovation-driven, fostering a culture of collaboration and continuous learning. The atmosphere is highly professional, with access to cutting-edge tools and resources that support efficient project execution and skill enhancement.

Expectations from the company included delivering high-quality work within strict deadlines, maintaining confidentiality, and adhering to Apple's high standards. I was encouraged to take initiative, independently solve complex problems, and make meaningful contributions to the team. This experience significantly enhanced my professional growth and provided deep insights into Apple's innovative practices and operational excellence.

Academic courses relevant to the project : Operating Systems, Data Structures & Algorithms, Power Electronics

PS-II Station : Apple India Private Limited , Bengaluru

Faculty

Name: T Venkateswara Rao

Student

Name: SHAH JAINIL DHARMIL .(2020A4PS0504P)

Student Write-up

PS-II Project Title: Operations Program Manager

Short Summary of work done during PS-II : My work here at Apple as a New Product Introduction Operations Program Manager (NPI OPM) is to launch products on time, with high quality and maximum customer availability. Some of the key responsibilities include achieving goals for time to market, cost, quality, product availability and order cycle time.

Tool used (Development tools - H/w, S/w) : Keynote, Numbers, Pages

Objectives of the project : To make available products on time, with high quality and maximum customer availability.

Major Learning Outcomes : Operations, Manufacturing, Supply Chain, Communication & Presentation

Details of Papers/patents : N.A.

Brief Description of working environment, expectations from the company : Working environment of the company is very free, open & flexible. All the people within the company are very approachable and super helpful. Overall, this internship has helped me adapt to a very dynamic way of looking at & working on things.

Academic courses relevant to the project : Manufacturing Management, Supply Chain Management, Analytics for Supply Chain, Sustainable Manufacturing, Supply Chain Modelling & Empirical Analysis

PS-II Station : Apple India Private Limited , Bengaluru

Faculty

Name: T Venkateswara Rao

Student

Name: APRAJITA GUPTA .(2020A4PS0913P)

Student Write-up

PS-II Project Title: Standardisation of CapEx reports and processes

Short Summary of work done during PS-II : Started out by visiting sites and understanding existing processes. Developed standard reporting templates to be used by the factories and aligned, trained them on the process to be followed. Developed Tableau dashboards for enhanced analysis and decision-making.

Tool used (Development tools - H/w, S/w) : MS Excel, Tableau

Objectives of the project : Standardisation and streamlining processes to track inventory, spend and downtime across sites and departments

Major Learning Outcomes : Learnt about the importance of managing vendors, inventory and supply chain in a manufacturing. Developed the skills to manage and align teams across factories, work across different cultures.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Stimulating and fast-paced environment. Problem statements were explained and I was given the independence to develop my own approach to solving them. At the same time, my team was very approachable and promptly responded to any questions I had and gave valuable feedback. Visiting the sites helped me learn a lot, and I got the opportunity to manage and direct teams at each site - a novel

experience in an internship which gave me a lot of confidence. Everyone is very approachable and I got the opportunity to present my work to the leadership and collect much valuable feedback and insights.

Academic courses relevant to the project : Supply Chain Management, Manufacturing Management

PS-II Station : Apple India Private Limited , Bengaluru

Faculty

Name: T Venkateswara Rao

Student

Name: ADITYA DHANEKULA(2020A7PS0205H)

Student Write-up

PS-II Project Title: Cadence Rule Functionality for a Microservices Model

Short Summary of work done during PS-II : Implementing cadence rule functionality which monitors the data ingestion frequency and notifies the corresponding user when a deviation is observed.

Tool used (Development tools - H/w, S/w) : IntelliJ, Astro CLI, Snowflake, Kafka, Airflow.

Objectives of the project : Implement cadence rule functionality for a microservices application

Major Learning Outcomes : Practical understanding of real-time technologies like Snowflake, Kafka, Airflow along with the understanding of how microservices based applications work.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment was very inclusive and everyone was very supportive. I had the chance to interact with several people from various domains as well as several senior executives as well.

Academic courses relevant to the project : Software Engineering, Database Management Systems, Data Structures and Algorithms, Operating Systems, Computer Networks

PS-II Station : Apple India Private Limited , Bengaluru

Faculty

Name: T Venkateswara Rao

Student

Name: KUSHAGRA VERMA(2020A7PS0225H)

Student Write-up

PS-II Project Title: Data Visualization with Metal for Trace Analysis

Short Summary of work done during PS-II : Worked on the data visualization flow for a software trace analysis tool

Tool used (Development tools - H/w, S/w) : Swift, SwiftUI, Metal API

Objectives of the project : Enhance visualization for a trace analysis tool, specifically for KPI charting and event profiling flows

Major Learning Outcomes : 1. Swift development
2. Metal API and the rendering pipeline
3. Understanding software tracing

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Apple is very strict about maintaining confidentiality, so a lot of permissions are required to access tools and information. While technical skills are required, there is also a heavy emphasis on presenting your work regularly, so presentation skills are good to have.

Academic courses relevant to the project : OOP, Networks

PS-II Station : Apple India Private Limited , Bengaluru

Faculty

Name: T Venkateswara Rao

Student

Name: ASHWIN NAVEEN PUGALIA(2020A7PS1080H)

Student Write-up

PS-II Project Title: **Confidential**

Short Summary of work done during PS-II : The aim of the project is to understand the development process and concepts behind web development using django and integrating of LLMs & other NLP technologies in a website based application as well as working on scalable & efficient information retrieval systems and search engines.

Tool used (Development tools - H/w, S/w) : LLMs, Python, Docker, Transformers

Objectives of the project : **Confidential**

Major Learning Outcomes : Large Language Models, Transformers, Search Engine

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The one thing I experienced was apple had a kind of startup culture where we individuals have extreme ownership of the project and are in the drivers seat in guiding the project to success and in software organisations intern work is presented till executives and SVPs, which they take very seriously to provide intern the visibility till the very top of the hierarchy.

Academic courses relevant to the project : Information Retrieval, Operating System and Machine Learning

PS-II Station : Apple India Pvt Limited , Hyderabad

Faculty

Name: T Venkateswara Rao

Student

Name: TUSHAR BRIJESH CHENAN(2020A7PS0253H)

Student Write-up

PS-II Project Title: AI Driven Shipment Costing

Short Summary of work done during PS-II : This report details an internship at Apple that focused on designing an AI/ML solution for the Logistics team to improve global supply chain shipping operations. The project utilized data from the enterprise data warehouse (EDW) to extract and prepare vital information, implement AI/ML algorithms, and significantly improve key performance indicators such as shipment costs and transit time. The study emphasizes the importance of precise rate card determination for better logistics efficiency, cost optimization, and supply chain management. We explore the challenges of traditional rate card systems and propose a data-driven solution using AI/ML algorithms. The study suggests that firms can improve supply chain management by integrating AI and machine learning tools, which rely on an enterprise data warehouse.

Tool used (Development tools - H/w, S/w) : Python, Jupyter Notebooks

Objectives of the project : To use AI/ML to drive the prediction of shipment costing using historical rate card information.

Major Learning Outcomes : How can we effectively use historical data in a supply chain landscape to optimize operational and logistics costs

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The company expects you to be able to pull your own weight. The teams are very helpful but it is definitely a plus point if you are proactive in your approach and seek challenges by yourself. The work timings are flexible but you will definitely be worked hard, that's the standard they uphold. Sometimes, you may have late night meetings for US team timings.

Academic courses relevant to the project : Foundations of Data Science

PS-II Station : Apple India Pvt Limited , Hyderabad

Faculty

Name: T Venkateswara Rao

Student

Name: MAHAJAN MANALI SAMEER(2020A7PS1012G)

Student Write-up

PS-II Project Title: Data Comparison Dashboard

Short Summary of work done during PS-II : Created an end-to-end dashboard to display Sales validation data status. Created the backend in Snowflake, wrote python scripts to load and transform data. Created the service layer using NodeJS and the frontend using ReacJS. Added features such as filters, historical data comparison and email subscription. Made sure that the dashboard was reusable and onboarded data for other applications onto the dashboard.

Tool used (Development tools - H/w, S/w) : Oracle, Snowflake, Python, Apple Internal Tools, NodeJS, ReactJS, HTML, CSS

Objectives of the project : Create a complete dashboard from scratch

Major Learning Outcomes : Soft skills like making and giving presentations, collaborating in a team environment, receiving and giving technical help from/to others, networking.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Apple has a good working environment. The team expected me to complete the work assigned according to my own pace and did not set any fixed deadlines. The team members were understanding and ready to help whenever necessary. We also had a few activities to get to know the team better.

Academic courses relevant to the project : OOP, DBMS

PS-II Station : Apple India Pvt Limited , Hyderabad

Faculty

Name: T Venkateswara Rao

Student

Name: KHUSHI NAGENDRA HARSURE(2020A7PS1271G)

Student Write-up

PS-II Project Title: Resource Management System

Short Summary of work done during PS-II : Created a platform to upload manifests and a form to capture all the details from that manifest. Created several APIs and backend storage as well as additional features.

Tool used (Development tools - H/w, S/w) : VueJS , SpringBoot , AWS

Objectives of the project : Create a platform that will streamline resource management. The current manual system is labor-intensive and error-prone, leading to inefficiencies in data collection, analysis, and reporting. Thus there is a need to automate and streamline the process.

Major Learning Outcomes : Learnt how to create a full stack application from scratch.

Learnt to use internal tools and technologies.

Got to know about the company culture and values.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Environment at Apple is very helpful and nurturing. Everyone is easy to approach and willing to give guidance. Everyone takes responsibility of their own work.

Academic courses relevant to the project : OOPS , DBMS

PS-II Station : Aptiv , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: GAURAV BANSAL(2019B4AA0748H)

Student Write-up

PS-II Project Title: Building MLOps Infrastructur

Short Summary of work done during PS-II : I conducted several Proofs of Concept (POCs) to evaluate and determine the best tools for infrastructure development. These tools included ZenML, MLflow, Kubeflow, Kognic, Sagemaker, among others. My goal was to identify which tools would most effectively meet the needs of our various teams for machine learning workflows and data pipelines. To streamline and automate the process of resource provisioning, I created Terraform scripts specifically for AWS resources. These scripts enabled efficient and repeatable deployment of infrastructure, ensuring consistency and reducing the potential for human error. Additionally, I built the infrastructure required for deploying machine learning workflows and data pipelines. This was achieved by leveraging orchestration tools such as Airflow and Kubeflow, which facilitated the scheduling, monitoring, and managing of complex workflows. For cluster management and system metrics collection, I set up a comprehensive monitoring system using Prometheus. This system allowed us to monitor the health and performance of our clusters in real-time. I then integrated this with Grafana, an open-source analytics and monitoring platform, to create dashboards. These dashboards provided visualization of key metrics, making it easier for upper management to understand the system's status and performance at a glance, while also enhancing the monitoring capabilities for our technical teams.

Tool used (Development tools - H/w, S/w) : Helm, Terraform, Kubeflow, airflow, AWS

Objectives of the project : To develop an infrastructure for the teams to cater the deployment of ML models

Major Learning Outcomes : Learned about tools required for Infrastructure development and pipelines deployments and its automation

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Fairly good work culture, nice place to learn and grow if your interested in automotive industry.

Academic courses relevant to the project : FDSA, OOPS, OS

PS-II Station : Aptiv , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: JEET SHAH(2020A7PS0155H)

Student Write-up

PS-II Project Title: Automotive Audio

Short Summary of work done during PS-II : My major role was routing Audio in automotive from the Android OS to Linux OS. Android captures signals via HMI and then via gRPC and Protocol Buffers had to enable audio routing and also have to optimize the code in such a manner that there is very less latency around 50 ms. Apart from that, have developed some of the best in ML models for the same for audio related gen ai tasks and other applications

Tool used (Development tools - H/w, S/w) : Samsung H/w and SDK and environment

Objectives of the project : Enabling inter and intra os communication

Major Learning Outcomes : gRPC, Protocol Buffers, GEN AI

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The working environment is very friendly only the working timings are a bit heavy otherwise all is very good and there is lot to learn and every senior leader are easily approachable and responsive.

Academic courses relevant to the project : OS and Comp Arch

PS-II Station : Aptiv , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: HRISHIKESH HARSH .(2020A7PS0313P)

Student Write-up

PS-II Project Title: Collection of multiple smaller projects

Short Summary of work done during PS-II : CI-CD Build Verification, Feature tracking and Reporting: This is a continuous task where we need to take care of the new build versions received from CI-CD with the newly integrated features. There needs to be proper understanding of what changes have been incorporated into this build and what are the implications and impact on the development cycle. | Build, Integration and Releases: We need to be up-to-date with the base/patch/feature-based releases from WR, Samsung, or from the team itself. As mentioned in the previous section, the work done on these is critical to pave way for future development work. | Platform Software Development: It involves the work which all of us Platform SW Engineers do on a regular basis: Software development for the various features/functionalities according to the needs of the Project and the capabilities of the SoC.

Tool used (Development tools - H/w, S/w) : C, C++, Embedded C, Shell-scripting, Linux, Makefiles, Automotive Architecture, Java, Python, Samsung SoC, Gerrit, JFrog, JIRA

Objectives of the project : Software Feature Development. Verification, Testing, Integration, and Release for the Automobile Cockpit

Major Learning Outcomes : Better understanding of Software build procedure for Automobile Feature Development and how to work with Eval (Electronic) Boards for Software purposes

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : A decent work environment where everyone collaborates and sync well knowing what must be done at the present moment

Academic courses relevant to the project : DSA, C Programming, Microprocessors & Interfacing, Computer Networks, OS

PS-II Station : Aptiv , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: KHAKHI SHREY ALPESH(2020A7PS1720G)

Student Write-up

PS-II Project Title: Creating an internal service for generating a certificate

Short Summary of work done during PS-II : Developed an internal service to generate a certificate for protecting the hardware from malicious attack. Wrote unit tests for the methods implemented in the service achieving a code coverage of around 80 percentage

Tool used (Development tools - H/w, S/w) : VS Code, Android Studio, Tklogger, Teraterm, OEM board ,

Objectives of the project : We had to create an internal service for generating a certificate to protect the hardware for malware attacks

Major Learning Outcomes : Java, C++ ,JUnit and Mockito frameworks, AOSP, Android Development, Cuttlefish Virtual Device

Details of Papers/patents : No papers were published

Brief Description of working environment, expectations from the company : There were a lot of learnings during my internship duration. The work life balance was good and I enjoyed working in the company. The company had an internal learning academy where required training was provided related to the project.

Academic courses relevant to the project : Data Structures and Algorithms, Object Oriented Programming, Database Management System, Operating System, Computer Programming

PS-II Station : Aptiv , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: CHINMAY S DALAL(2020A7PS2060H)

Student Write-up

PS-II Project Title: CI/CD, Resimulation

Short Summary of work done during PS-II : Initially I was tasked with converting tests from a custom framework to pytest and miscellaneous CI/CD work. Then I was shifted to the resimulation team where I had to bring up resimulation for the new generation of radars by porting the code from the previous generation, improving and modernizing it in the process. The previous generation's code was built using CMake, and the newer generation's code was built using Bazel - hence I got the opportunity to learn Bazel.

Tool used (Development tools - H/w, S/w) : Gerrit, Bazel

Objectives of the project : Pytest, CI/CD, Resim bringup

Major Learning Outcomes : C++, Python, Bazel, Gerrit

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Working environment is conducive to productive work, there is no pressure. When the workload is less, there is freedom to implement your own ideas.

Academic courses relevant to the project : Data Structures and Algorithms, Operating Systems, (Advanced) Computer Architecture (optimal struct layout, SIMD, AoS to SoA)

PS-II Station : Aptiv , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: KUMAR KRISH(2020AAPS0334G)

Student Write-up

PS-II Project Title: Set up a test bench to demonstrate ADAS apps

Short Summary of work done during PS-II : During my five-month internship at Aptiv, I focused on working with the Wind River Pipeline Manager and setting up a test bench for over-the-air (OTA) updates and eSync. I gained hands-on experience in orchestrating complex build pipelines and automating workflows, enhancing my understanding of efficient software delivery. Additionally, my work on the OTA and eSync test bench allowed me to apply theoretical knowledge to practical scenarios, improving my skills in maintaining and updating embedded systems. This internship has been instrumental in advancing my technical proficiency and preparing me for a career in the technology sector.

Tool used (Development tools - H/w, S/w) : WindRvr pipeline manager, C++, Shell script, Internal tools at the company

Objectives of the project : To check whether ADAS applications are running on the microcontroller's environment or not

Major Learning Outcomes : C++, Rust, WindRVR pipeline manager, shell scripting etc.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at Aptiv was dynamic and collaborative, fostering a culture of innovation and continuous learning. I was part of a supportive team where knowledge sharing and open communication were encouraged. Expectations from the company were high, with a focus on delivering high-quality work and meeting project deadlines. Aptiv emphasized the importance of attention to detail, problem-solving skills, and the ability to work independently while also being a strong team player.

Academic courses relevant to the project : DSA

PS-II Station : Aptiv , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: AYUSH SHARMA(2020AAPS1778H)

Student Write-up

PS-II Project Title: Sentry Mode

Short Summary of work done during PS-II : This project has made me aware of how crucial it is to combine precise UI design, reliable backend development, and specialized automotive expertise in order to produce a state-of-the-art automotive application. Being proficient in Android XML coding and UI design has helped me envision and create userfriendly interfaces. Furthermore, learning Java and Kotlin has given me the ability to create strong backend logic that

makes sure the application functions properly. I've been able to create user-focused, industry-leading automotive applications by fusing my technical expertise with a deep comprehension of automotive technology. My knowledge of Java, XML, Kotlin, UI Design, and the Android IDE are among my key talents. These abilities are necessary to create applications of the highest standard that are specific to automotive settings.

Tool used (Development tools - H/w, S/w) : Internal tools(Cant Disclose)

Objectives of the project : Simulation Android App

Major Learning Outcomes : Android Development, Professional Development Ways

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment of the company is quite professional. The people here are really sweet and helping. They are always there to help you.

Academic courses relevant to the project : SDPD

PS-II Station : Aptiv , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: MISHRA BHAVESH RAHUL(2020AAPS1897H)

Student Write-up

PS-II Project Title: Radars Ethernet Communication, both Client and Server

Short Summary of work done during PS-II : Worked on Ethernet in C,C++ along with writing UTs and using Jira, Davinci for creating RTE Ports

Tool used (Development tools - H/w, S/w) : JIRA, Polarion, Davinci Configurator, Davinci Developer, JFrog

Objectives of the project : Radars Ethernet Communication, both Client and Server

Major Learning Outcomes : Through this internship, I have gained invaluable exposure to the corporate world and industry-level projects, particularly in an agile framework. This experience has revealed my strengths and weaknesses, fostering personal growth and adaptability. Handling work pressure and understanding the importance of deadlines have been key learning points. Despite the project's divergence from my domain, it has broadened my skill set and versatility. Additionally, my soft skills have significantly improved, which are crucial for success in the corporate realm and for achieving future management roles. Overall, this internship has laid a strong foundation for my career advancement.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The company expects interns to quickly adapt to the corporate environment, actively engage in projects, and follow industry standards, especially within agile frameworks. Interns should demonstrate a willingness to learn, show initiative, and effectively manage their time and tasks. Strong communication and teamwork skills are essential, as is the ability to handle work pressure and meet deadlines. The company values versatility and the capability to contribute to projects outside one's primary domain. Overall, the expectation is for interns to show growth, professionalism, and a readiness to take on future roles within the organization.

Academic courses relevant to the project : Communication Systems, Communication Networks

PS-II Station : Aptiv , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: K SAI PRANEETH REDDY(2022H1400083G)

Student Write-up

PS-II Project Title: Embedded AI

Short Summary of work done during PS-II : Measuring the computational performance of every node in AI model

Tool used (Development tools - H/w, S/w) : Linux,git

Objectives of the project : To measure computational performance

Major Learning Outcomes : Python

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Measuring the computational performance of every node in AI model

Academic courses relevant to the project : ANN

PS-II Station : Aptiv , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: SUBHANKAR DAS(2022H1400178P)

Student Write-up

PS-II Project Title: Certification Testing

Short Summary of work done during PS-II : During my PS-II (Practical Training - II), I focused on certification testing for CarPlay and Android Auto in automotive head units. My primary role was to ensure compliance with Apple's standards for CarPlay integration. This involved rigorous testing to verify performance, functionality, and user experience, aiming to certify head units for seamless CarPlay operation and customer satisfaction.

Tool used (Development tools - H/w, S/w) : Facet, Iphone, Macbooks, TKlogger

Objectives of the project : Certification testing in the automotive industry aims to: 1. Ensure safety compliance, including crashworthiness and emissions standards. 2. Verify quality, durability, and performance under various conditions. 3. Meet regulatory requirements for emissions, fuel efficiency, and vehicle performance. 4. Enhance consumer confidence by validating product reliability and adherence to standards. 5. Promote innovation and continuous improvement in automotive technology and manufacturing practices.

Major Learning Outcomes : The major learning outcomes of certification testing in concise form:

Knowledge Acquisition: Understanding relevant concepts and regulations.

Skill Mastery: Proficiency in practical tasks and procedures.

Critical Thinking: Analyzing and solving complex problems effectively.

Compliance and Ethics: Adhering to industry standards and ethical guidelines.

Communication: Clearly conveying information to stakeholders.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : During my role at Aptiv in certification testing for CarPlay and Android Auto, the working environment was focused on ensuring seamless integration of these technologies into automotive systems. Aptiv, renowned for its advancements in automotive electronics and connectivity solutions, emphasized precision and compliance with Apple's and Google's standards.

My responsibilities included rigorous testing to validate CarPlay and Android Auto functionalities within Aptiv's automotive systems. This involved testing for performance metrics, user interface responsiveness, and overall user experience to ensure compatibility and reliability.

Expectations from Aptiv included meticulous attention to detail in testing protocols, timely reporting of results, and effective communication within the team to address any issues promptly.

The company fostered a collaborative environment where innovation and continuous improvement were encouraged to meet and exceed industry standards.

Academic courses relevant to the project : 1.Embedded systems Design 2.Software Embedded systems

PS-II Station : Argenbright Innovation Lab , Bengaluru

Faculty

Name: Seetha Parameswaran

Student

Name: KULUKURU SIVANANDHAN(2019B2A31084H)

Student Write-up

PS-II Project Title: Chat Application

Short Summary of work done during PS-II : Developed a web chat application with real time communication between clients , video audio calls, push notifications etc

Tool used (Development tools - H/w, S/w) : AWS resources, React

Objectives of the project : Developing a chat application with real time communication

Major Learning Outcomes : AWS services,Azure,React

Details of Papers/patents : Nil

Brief Description of working environment, expectations from the company : They are supportive and not hesitant towards any thing

Academic courses relevant to the project : OOP,DBMS

PS-II Station : Argenbright Innovation Lab , Bengaluru

Faculty

Name: Seetha Parameswaran

Student

Name: NIDHI KUMARI(2022H1400176P)

Student Write-up

PS-II Project Title: Developed an advanced chat module facilitating seamless communication and collaboration for remote teams, integrating real-time messaging with publish-subscribe features, enhancing team efficiency by 30 percent and reducing communication lag by 40 perc

Short Summary of work done during PS-II : A WebSocket API in API Gateway is a collection of WebSocket routes that are integrated with backend HTTP endpoints, Lambda functions, or other AWS services. We can use API Gateway features to help you with all aspects of the API lifecycle, from creation through monitoring your production APIs. A custom route uses a route key and integration that we specify. When an incoming message contains a JSON property, and that property evaluates to a value that matches the route key value, API Gateway invokes the integration

Tool used (Development tools - H/w, S/w) : Software Tools.

Objectives of the project : Developed an advanced chat module facilitating seamless communication and collaboration for remote teams

Major Learning Outcomes : React Native , React JS , AWS amplify ,AWS services

Details of Papers/patents : In conclusion, designing a serverless chat module on AWS with Lambda functions requires careful consideration of real-time communication, message storage, security, scalability, monitoring, and deployment processes. Following best practices and leveraging AWS services effectively can result in a robust,

scalable, and cost-efficient serverless chat solution. A WebSocket API in API Gateway is a collection of WebSocket routes that are integrated with backend HTTP endpoints, Lambda functions, or other AWS services. We can use API Gateway features to help you with all aspects of the API lifecycle, from creation through monitoring your production APIs.

Brief Description of working environment, expectations from the company : The company's working environment is good. All members of the company were supportive. We have done one complete project, and so many small tasks were done by us. I thoroughly enjoyed my PS2 task and project . I learned so many software tools and programming languages, like Python and JavaScript.

Academic courses relevant to the project : Embedded systems, Software for embedded systems, Javascript

PS-II Station : Arista Networks India Private Limited , Bengaluru

Faculty

Name: Akanksha Bharadwaj

Student

Name: RAHUL M BIJU(2020A7PS0953G)

Student Write-up

PS-II Project Title: Creation of Per-Interface Counters for Policy Maps

Short Summary of work done during PS-II : The former part of this project aims to enhance networking infrastructure by making policy-map counters per interface, enabling precise and granular monitoring of packet attributes and matches at each interface. Currently, counters are aggregated per policy-map, posing limitations on interface-specific analysis. Initially, the report discusses the resolution of a bug arising from an updated hardware version, emphasizing the importance of meticulous code analysis and debugging. Subsequently, it delineates the creation of a Command-Line Interface (CLI) command enabling dynamic toggling of the per-interface feature tailored to customer specific needs, highlighting the integration of user-centric design and rigorous internal review processes. Furthermore, comprehensive unit testing methodologies are outlined, underscoring the meticulous validation of each implemented feature. The latter part of the project is focused on attaching policy-maps to subinterfaces, a feature that is not yet supported on the majority of the chips. Subinterfaces are mainly used for inter-VLAN routing and the ability of applying policy-maps to subinterfaces will provide the ability to police subinterfaces as well.

Tool used (Development tools - H/w, S/w) : C++, Python, Bash

Objectives of the project : Code a feature for the direct request by customer

Major Learning Outcomes : High end data centre network switch programming

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Very good working environment, helpful mentor and colleagues, very good work life balance, hybrid office with 2 days from office, would highly recommend

Academic courses relevant to the project : Computer Networks, Operating Systems

PS-II Station : Arista Networks India Private Limited , Bengaluru

Faculty

Name: Akanksha Bharadwaj

Student

Name: SAKET B(2020A7PS0983G)

Student Write-up

PS-II Project Title: Per-Interface Counters for Policy Maps, Replication of Resources for LAG Interfaces & Syslogging for Policer Exhaustion Error in V2

Short Summary of work done during PS-II : The first project aims to enhance networking infrastructure by making policy-map counters per interface, enabling precise and granular monitoring of packet attributes and matches at each interface. Currently, counters are aggregated per policy-map, posing limitations on interface-specific analysis. The report explains the creation of a Command-Line Interface (CLI) command enabling dynamic toggling of the per-interface feature tailored to customer specific needs, highlighting the integration of user-centric design and rigorous internal review processes. The reprogramming of policy-maps to adapt to feature toggling is then elucidated, stressing the synchronization of CLI configurations with internal data structures. The second project aims to replicate entries in memory resources in the case of LAG interfaces in a specific chipset used by Arista. Currently, packets arriving at other member-interfaces get missed. Therefore, creating entries for each member-interface helped to capture those packets. The third project deals with creation of syslogs for policer exhaustion error in the V2 codebase. After migration of the codebase to V2, certain specific-error syslogs were not included, but rather a generic-error message syslog had been used. Therefore, syslogs have been added for errors like policer exhaustion. Besides, infrastructure has been created for logging successfully programmed messages. Furthermore, comprehensive unit testing and product testing methodologies are outlined for all the projects, underlining the meticulous validation of each implemented feature.

Tool used (Development tools - H/w, S/w) : C++, Python, physical switches, other proprietary tools

Objectives of the project : Quality of service for internet packets

Major Learning Outcomes : 1. Learnt how various company tools are used to enhance efficiency.

2. Learnt how to write unit and product tests.

3. Learnt to debug the code of others as well as debug the failed test cases in my own code changes.

4. Learnt the importance of peer review

5. Learnt how the overall working of the company's proprietary software and on dealing with bugs arising out of it.

Details of Papers/patents : Nil

Brief Description of working environment, expectations from the company : It was a very chill environment with not much stress to work on. It's upto you to complete the tasks at your own time. There will be a mentor who will help u literally everything, but at the same time you should be trying yourselves out to solve the problem first.

Academic courses relevant to the project : Computer Networks, Operating Systems

PS-II Station : Arista Networks India Private Limited , Bengaluru

Faculty

Name: Akanksha Bharadwaj

Student

Name: YASH KHANNA(2020A7PS1713G)

Student Write-up

PS-II Project Title: Dual Uplink Capability on Access Points

Short Summary of work done during PS-II : Working under the WiFi Access Points team at Arista, my project aims on upgrading the access points shipped to customers to support dual uplink (LAN1 and LAN2) capability, allowing better, reliable and robust connectivity. Being a customer requirement, this feature addresses improvement in network resilience and efficiency in deployment scenarios. This internship allowed me to interact with industry leaders and work with them side by side to understand and improve on our product's working and features deployed in the customer scenarios.

Tool used (Development tools - H/w, S/w) : Git/Gerrit, Python, Go, Shell Script, C, Docker, Devices under testing, Internal tools and dashboards

Objectives of the project : Allow access points to establish uplink on both LAN ports, ensuring continuous connectivity between access points and associated servers.

Major Learning Outcomes : Following are the major learning outcomes from the project assigned through the internship:

1. Understanding how network topologies are created in customer scenarios. Existing problems with the current implementations and how they can be improved upon.
2. Worked closely with software, and hardware teams, learning how different disciplines integrate to develop and maintain comprehensive WiFi solutions.
3. Learned agile methodologies and effective technical documentation practices, improving project coordination and clarity in technical communication.
4. Stayed updated on emerging technologies such as WiFi 7 and IoT, gaining insights into future trends and advancements in wireless technology.

Details of Papers/patents : No papers or patents associated with the project

Brief Description of working environment, expectations from the company : The working environment at the company is dynamic and collaborative, characterised by a strong emphasis on teamwork and innovation. The culture promotes open communication, allowing team members to freely share ideas and contribute to projects.

Expectations includes:

Eagerness to learn, Effective communication, Problem-Solving skills, Professionalism, Positive attitude.

Academic courses relevant to the project : Operating System, Computer Networks, Data Structures and Algorithms, Database Systems, Object Oriented Programming.

PS-II Station : Arista Networks India Private Limited , Bengaluru

Faculty

Name: Akanksha Bharadwaj

Student

Name: VISHESH GUPTA(2020AAPS0352G)

Student Write-up

PS-II Project Title: Forwarding features for Port-channels on SFE

Short Summary of work done during PS-II : The project aims to make an IPFIX test better by adding port channel testing and fixing issues with port-channel subinterfaces. It also involves learning about ACLs and how they work with our team's platform, especially the differences in setting them up for regular Ethernet and port channels. This project focused on enabling ACL

support for port channels and sub-interfaces on the SFE platform. The initial phase involved understanding and modifying the existing code and workflow of ACLs, followed by rigorous unit and product testing of the new ACL feature. The subsequent phase introduced DPS support for port channels, which required verification and testing to ensure proper functionality. The current task is to study the BFD protocol, determine necessary changes for port channel compatibility, and conduct tests to validate the new feature.

Tool used (Development tools - H/w, S/w) : VSCode, terminal, python, Hardware testing devices called DUTs,

Objectives of the project : Adding forwarding features for Port-channels on SFE

Major Learning Outcomes : Engaging in these tasks significantly improved my understanding of Arista's development environment. I successfully incorporated a port channel test into our IPFIX product test, enhancing the comprehensiveness of our network testing procedures. Furthermore, I introduced support for IPFIX to seamlessly work with port channel subinterfaces. These modifications not only enhance the functionality of our testing tools but also make them more adaptable to various network configurations.

We've introduced ACL support for both port channels and their subinterfaces, enhancing network security and access control within these interfaces. Additionally, we've implemented DPS support for port channels and their respective subinterfaces, ensuring optimized traffic management and distribution across these channels. These enhancements collectively contribute to a more robust and versatile network infrastructure, capable of meeting diverse operational demands and improving overall performance.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : I started with getting familiar with Arista's development environment during my internship. Using various internal documents and participating in training sessions designed for interns, I aimed to understand the tools, processes, and practices at Arista. Additionally, completing exercises further helped me feel comfortable in the working environment.

During this period, I delved into the details provided by Arista's internal documents, gaining insights into development practices and procedures. The training sessions, specifically tailored

for interns, proved valuable in addressing queries and offering a broader perspective on Arista's goals and expectations.

Engaging in practical exercises was a significant part of my learning process. These hands-on tasks allowed me to apply theoretical knowledge, fostering confidence and adaptability within Arista's unique work culture.

Academic courses relevant to the project : OBJECT ORIENTED PROG (CS F213)
COMMUNICATION SYSTEMS (ECE F311)

PS-II Station : Arista Networks India Private Limited , Bengaluru

Faculty

Name: Akanksha Bharadwaj

Student

Name: DEBANSHU MISHRA(2020AAPS1051G)

Student Write-up

PS-II Project Title: Enable RACL sharing and PBR with PVLAN on Sand Gen4 platforms

Short Summary of work done during PS-II : I was able to understand the root cause of the issue and able to fix it. Basically i was able to fix RACL sharing and PBR with PVLAN. Anymore details cannot be revealed due to confidentiality reasons

Tool used (Development tools - H/w, S/w) : VSCODE, ReviewBoard, Docker Containers

Objectives of the project : To Enable RACL sharing and PBR with PVLAN on Sand Gen4 platforms

Major Learning Outcomes : Learned how to write code following the standards required when contributing to large codebases. Learned a lot about PVLANS and other networking specific features like ACL etc.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment is good and people are helpful.

Academic courses relevant to the project : Computer Networks, Operating systems, Object Oriented Programming

PS-II Station : Arista Networks India Private Limited , Bengaluru

Faculty

Name: Akanksha Bharadwaj

Student

Name: ABHAY RAJ MISHRA(2020AAPS1739G)

Student Write-up

PS-II Project Title: PROVIDE PROPER REASON FOR TRANSMISSION POWER CHANGE EVENTS

Short Summary of work done during PS-II : During my tenure at Arista Networks, I spearheaded a project to enhance the event system for managing transmission power changes. The main objective was to expand the system's capabilities by incorporating additional parameters—TxPowerChangeReason and TxPowerCapReason—to provide detailed insights into the reasons behind power adjustments. This enhancement aimed to improve transparency and manageability, facilitating better monitoring and troubleshooting. The development process began with a thorough requirement analysis to identify the specific needs and objectives. A high-level design was created to integrate the new parameters into the existing event framework. This was followed by a detailed design phase where various components of the codebase were modified to support the new parameters. The event dispatch mechanism was updated to utilize ARDS for real-time data storage and retrieval. To ensure reliability and accuracy, rigorous unit and component tests were implemented. Automated testing scenarios verified the seamless integration of the new parameters with existing systems. Comprehensive system-level tests validated performance under various conditions. The user interface was updated to effectively display the new data fields, ensuring users could easily understand and act on the information provided. Additionally, detailed documentation and training materials were developed to support users in navigating the new system features. Overall, this project significantly enhanced the event system's ability to provide clear and actionable insights into transmission power changes, thereby improving network management capabilities at Arista Networks.

Tool used (Development tools - H/w, S/w) : C, Go, python

Objectives of the project : Change event logging mechanism for transmission power change events

Major Learning Outcomes : Through the integration of new parameters into the existing event system, a deep understanding of the system architecture and the interdependencies between modules was developed. This helped refine system design skills, particularly in areas related to scalability and system robustness.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Great work life balance, employees are appreciative of you.

Academic courses relevant to the project : Computer Networks, Microprocessors

PS-II Station : ARM Embedded Technologies Private Limited , Bengaluru

Faculty

Name: Manoj Subhash Kakade

Student

Name: AKSHAY KESHWANI(2020A3PS0575G)

Student Write-up

PS-II Project Title: Verification of an Automotive IP

Short Summary of work done during PS-II : Writing integration tests, updating the existing C-test to access SRAM from R-class CPU cores. Writing exit mechanism for C-tests. Improving the debug process's efficiency: Enabling Verdi Hardware Software debug flow for the project, Writing python scripts to automate certain debug steps, Using open source tool with CPU log files to help debug the error.

Tool used (Development tools - H/w, S/w) : Tools: Verdi, Visualizer, Eclipse, Questasim, VCS.
Languages: C, Python, System-verilog.

Objectives of the project : Verify the functionality, performance and reliability of an Automotive Intellectual Property (IP) module. This IP module is crucial for ensuring the efficient operation of automotive systems, contributing to vehicle safety, performance and compliance with industry standards.

Major Learning Outcomes : Learnt about Verification flow and the tools used, System-verilog concepts, Writing C-tests, Python scripting, Understanding debug flow and different techniques used for it, AMBA protocol, ARM architecture along with other skills like communication, teamwork, documenting.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The people and the culture here is great, the work is good and exciting. Good work life balance, nice office and a lot of learning opportunities.

Academic courses relevant to the project : Computer Architecture, Embedded system design, Computer programming, Digital design

PS-II Station : ARM Embedded Technologies Private Limited , Bengaluru

Faculty

Name: Manoj Subhash Kakade

Student

Name: SIDDHANT SINGH VATTSA(2020A3PS1832G)

Student Write-up

PS-II Project Title: Low Power Clocking Architecture & Simulation Profiling and Code Optimization

Short Summary of work done during PS-II : During my internship at ARM, I focused on verifying and optimizing low power clocking architecture within SoCs. My primary tasks involved developing and refining SystemVerilog scripts to validate clocking components like Phase Locked Loops (PLLs), clock dividers, and clock multiplexers. I constructed a Dynamic Voltage and Frequency Scaling (DVFS) framework for various modes and integrated Q-Channel protocols for SoC clocks. I also worked on simulation profiling and code optimization to improve system boot-up times and overall efficiency, analyzing disassembly files and reordering code for performance gains. This project significantly enhanced my skills in SoC design and verification, preparing me for future endeavors in this field.

Tool used (Development tools - H/w, S/w) : System Verilog, Embedded C, Linux scripting, VIM, Questa

Objectives of the project : The objective of this project was to enhance the efficiency and reliability of low power clocking architecture and SoC verification processes through the development, testing, and optimization of verification scripts and methodologies.

Major Learning Outcomes : Mastery of System Verilog for writing and debugging verification scripts.

In-depth understanding of low power clocking architecture and its components.

Enhanced skills in simulation profiling and code optimization for performance improvements.

Practical knowledge of various protocols in the context of SoC design.

Proficiency in using tools such as Questa, Vim, and Confluence in a Linux environment.

Details of Papers/patents : N.A.

Brief Description of working environment, expectations from the company : ARM is known to have one of the best work/life balance, at least among the companies/industries in the same domain. I experienced this firsthand upon visiting the company and working there. Everyone is very polite and helping in nature, and you can readily approach anyone, regarding any matter. I faced no issues in working there.

Academic courses relevant to the project : Digital Electronics, Computer Architecture, C Programming. (Knowledge of MuP will be helpful too, because there's work in assembly)

PS-II Station : Arup India Pvt. Ltd. , Hyderabad

Faculty

Name: Naga V K Jasti

Student

Name: SHOBHIT KHURANA(2022H1430053P)

Student Write-up

PS-II Project Title: Software Development in Geotechnical Tools

Short Summary of work done during PS-II : During my tenure as software development intern in ARUP Oasys Software, I got an opportunity to learn many things. I worked in development, support and QA team. As a part of development team, I got exposed to Agile software development cycle. I was involved in reducing of bugs in software to improve the results and user experience as well. And I also did some tasks regarding improving the software UI. During my support rota, I got familiarize with all the Geotechnical Software suite. I resolved user's query both internally and externally. During my QA rota I got familiar with all the testing process. I also explored more about automation in testing where I wrote some testcases regarding expanding existing test cover for getFeature endpoint on the user Api.

Tool used (Development tools - H/w, S/w) : C++, C#, Python, HTML, CSS, JS, Git

Objectives of the project : Working with Geotechnical Team for the tasks in Development, Support and QA of Geo Suite

Major Learning Outcomes : Software Development (Desktop and Cloud Apps)

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Good Work-Life Balance, good support and mentorship from team members, Good Career growth, good working environment

Academic courses relevant to the project : Coding Projects given by faculties as a Courses

PS-II Station : Atkins , Gurugram

Faculty

Name: Mahesh K Hamirwasia

Student

Name: SURANA SHUBH DEEPAK(2022H1440041P)

Student Write-up

PS-II Project Title: Concept Infrastructure Design

Short Summary of work done during PS-II : Understanding the Plan and profile of drawings, Checking the clearance between the structures, Modelling of Underpasses, Loads acting on underpasses it's calculations, Section check for Safe Design using AASHTO LRFD Guidelines.

Tool used (Development tools - H/w, S/w) : MIDAS CIVIL, AUTOCAD, CIVIL 3D

Objectives of the project : Proposed the bridge crossing over River and roads considering the site conditions and Constraints.

Major Learning Outcomes : Designing and Modelling of Underpasses proposed in the project

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working Environment is good at Atkins Realis, Senior are supportive, Helpful.

Academic courses relevant to the project : Yes some Subjects were relevant

PS-II Station : Aurigo Software Technologies , Bengaluru

Faculty

Name: Mohammad Saleem J Bagewadi

Student

Name: PRADYUT KUMAR .(2019B1A80943P)

Student Write-up

PS-II Project Title: .NET development for capital projects

Short Summary of work done during PS-II : During my PS-II at Aurigo Software Technologies, I focused on enhancing the Aurigo Masterworks platform. My responsibilities included diagnosing and fixing bugs in the SQL Server Reporting Services (SSRS) module, optimizing workflows within the right of way module, and refining various libraries integral to the software ecosystem.

Additionally, I contributed to the development of dynamic forms, utilizing XML for data structuring, C# for business logic integration, and JavaScript for user interface enhancements. My work also involved rigorous testing and validation to ensure the effectiveness of solutions implemented. This project provided valuable experience in .NET development, improving my technical skills and understanding of real-world software development processes.

Tool used (Development tools - H/w, S/w) : Aurigo Masterworks, .NET Framework, SQL Server Reporting Services, (SSRS), XML, C#, JavaScript SQL.

Objectives of the project : The primary objective of the project was to enhance the functionality of Aurigo Masterworks, a platform for capital projects planning, by implementing .NET development. This involved addressing software bugs, improving report generation, and developing dynamic forms using XML, C#, and JavaScript .

Major Learning Outcomes : Effective Problem-Solving: Improved skills in diagnosing and resolving complex software bugs.

Cross-Functional Collaboration: Gained insights into the importance of teamwork and effective communication in achieving project objectives.

Technical Skills: Enhanced proficiency in using technologies such as .NET, XML, C#, JavaScript, and SQL for software development.

Details of Papers/patents : NA.

Brief Description of working environment, expectations from the company : The working environment at Aurigo Software Technologies was collaborative and supportive, with a strong emphasis on teamwork and continuous learning. I had the opportunity to work closely with experienced mentors and colleagues who provided valuable guidance and feedback. The company expected high-quality deliverables within tight deadlines, fostering a culture of efficiency and precision. This environment was conducive to both professional and personal growth, allowing me to enhance my technical skills and problem-solving abilities. The supportive nature of the team and the structured approach to project management played a significant role in achieving the project objectives successfully.

Academic courses relevant to the project : CS 211 OOPS (Object-Oriented Programming Systems).

PS-II Station : Aurigo Software Technologies , Bengaluru

Faculty

Name: Mohammad Saleem J Bagewadi

Student

Name: SHREYASH JHA(2020A7PS1718G)

Student Write-up

PS-II Project Title: Unit and Functional Testing in Flutter (Dart) and Claims Feature Implementation Using .NET

Short Summary of work done during PS-II : Two major projects that were carried out to improve the functionality and dependability of Masterworks software are described in depth in this paper. The first project employs Dart and Flutter to enhance the testing infrastructure of the Masterworks Mobile Application. I enhanced the code coverage by 15 times, including 86 test files and roughly 300 new test cases, guaranteeing greater dependability and robustness. Important elements included the usage of bloc_test for state management testing and Mockito for mimicking dependencies. Implementing a Claims form inside the Masterworks program is the second project. This form tracks contract-related claims with an easy-to-use XML interface, C# backend logic, and SQL stored procedures to ensure data accuracy. It was developed using .NET technology. Real-time updates via JavaScript and a comprehensive workflow system further enhance user convenience and operational efficiency. These projects collectively improved the software's quality and provided valuable insights into advanced development practices.

Tool used (Development tools - H/w, S/w) : Flutter, .NET

Objectives of the project : Increasing the code coverage and strengthening the CI/CD Pipeline to safeguard it against the addition of any faulty future code

Major Learning Outcomes : Flutter, Dart, Flutter test, Bloc , Bloc Test, .NET

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : There is a defined way of doing everything here. Rules are lenient enough to offer flexibility while working. I am not required to be available all the time once I leave the office premises. Furthermore, there's no workload or distraction. So, I am not required to work excessively. No doubt, I have a happy, relaxed, and well-balanced office life.

Academic courses relevant to the project : OOPS, DBMS, SDPD

PS-II Station : Aurigo Software Technologies , Bengaluru

Faculty

Name: Mohammad Saleem J Bagewadi

Student

Name: SHIMPI ATHARV MANOHAR(2020A7PS1722G)

Student Write-up

PS-II Project Title: Aurigo Ad-Hoc Reporting Engine

Short Summary of work done during PS-II : Worked on creating an Ad Hoc Reporting Engine, for our users. This was to be integrated with Aurigo's flagship product MasterWorks. It's build in Python, Power BI. Frontend for this is built in React and Backend in .NET, C#, SQL. It generates report as per user's requirements and customizations.

Tool used (Development tools - H/w, S/w) : VS Code, React, SQL, C#, JavaScript, .NET, jQuery

Objectives of the project : Enable our users to generate their own reports and customize it as they want.

Major Learning Outcomes :

1. Various programming languages, like React, JavaScript, .NET, SQL, C#
2. Best programming practices, like Agile Software Development method
3. Soft-Skills, like communication, networking, behaving in a professional space

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working Environment is very calm and soothing. Not very much pressure. Great deal of things to learn, if having the right mindset. Company conducts appropriate activities to keep employees engaged, like get togethers, bring your family, cricket matches, etc. Expectation from company is to give PPO (Pre Placement Offer) to well deserving students and provide free food for Lunch at least, which most of the companies do.

Academic courses relevant to the project : Object Oriented Programming
Human Computer Interaction
Principles of Programming Languages

PS-II Station : Aurigo Software Technologies , Bengaluru

Faculty

Name: Mohammad Saleem J Bagewadi

Student

Name: SURAJ JAYAKUMAR(2020AAPS2105H)

Student Write-up

PS-II Project Title: .NET Development at Aurigo

Short Summary of work done during PS-II : So far there have been three phases to my internship. Phase one was a training phase where I was trained in various fields relevant to my work at Aurigo. Firstly, I was provided training where the existing software's functionality was explained in detail which oriented me regarding what Aurigo does precisely. Phase two was a technical training phase where I was coached in Visual Studio, .NET framework, C sharp, Databases, Cloud computing services like AWS, Docker, and Kubernetes. Masterworks' underlying layered architecture and code were also explained to me. Phase three was when my work began. I implemented the skills and knowledge I gained during training to develop Ad-hoc custom forms, scripts and workflows to complete PBIs¹ assigned to me by my manager and senior colleagues. I completed seven such PBIs to date. The next phase of my internship involves my assignment to a Masterworks project associated with a US department of transport. I will work in a team and be involved with the entire software development process from Business Analyst approval to deployment on the client end.

Tool used (Development tools - H/w, S/w) : Visual Studio, Azure

Objectives of the project : To develop custom webforms using .NET and XML framework

Major Learning Outcomes : Sprints, Backlog Grooming, SQL, .NET Development

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Extremely collaborative and focused work environment, Everyone is nice and happy to help. Office is wonderful. Workload is also light.

Academic courses relevant to the project : Object Oriented Programming, Database systems

PS-II Station : Aurigo Software Technologies , Bengaluru

Faculty

Name: Mohammad Saleem J Bagewadi

Student

Name: AASHAY KAURAV(2022H1030100H)

Student Write-up

PS-II Project Title: Aurigo Essential 2.0

Short Summary of work done during PS-II : Implemented a micro service for loading large files and documents.

Tool used (Development tools - H/w, S/w) : VS Code, Visual Studio

Objectives of the project : Capital Planning and Execution

Major Learning Outcomes : 1. A complete solution to manage all the nuances of your public-facing construction and maintenance projects in one unified system.
2. A modern solution that is built 100% in the cloud, deploys quickly, and can be used from any mobile device or browser.

Details of Papers/patents : Aurigo Essentials includes everything public agencies need to plan, manage, comply and report on each project in one easy-to-use solution.

Brief Description of working environment, expectations from the company : The work culture and work-life balance is very good in Aurigo. People are very friendly and helpful to others. Mentors have guided me at every step I got stuck. This organization has also received "Best Place to Work" awards couple of times.

Academic courses relevant to the project : Software Engineering, Databases and Computer Networking.

PS-II Station : AuxoAI , Bengaluru

Faculty

Name: Swapna S Kulkarni

Student

Name: AYUSH MISHRA(2020A7PS1715G)

Student Write-up

PS-II Project Title: Contracting Copilot

Short Summary of work done during PS-II : Full stack web development and generative AI

Tool used (Development tools - H/w, S/w) : Microsoft Azure Services, Langchain, Vector Database, React, Python, LLMs, Prompt engineering, Fast API, Uvicorn

Objectives of the project : Build a Generative AI copilot product

Major Learning Outcomes : Full stack web development, Generative AI, AI copilota

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Very Professional working environment

Academic courses relevant to the project : AI, ML, OOPS, DBMS, CN, OS

PS-II Station : AuxoAI , Bengaluru

Faculty

Name: Swapna S Kulkarni

Student

Name: AYUSH RAJ(2020AAPS0439H)

Student Write-up

PS-II Project Title: Implementation of Data Quality in Databricks

Short Summary of work done during PS-II : Developed a custom data quality framework for AuxoAI's client, leveraging Databricks notebooks and SparkSQL to perform automated data quality checks on Data Lake assets. Created an advanced multi-query retrieval system using LangChain to enhance information retrieval accuracy. Built a Python-based data processing pipeline for digital marketing, extracting key metrics from large datasets and improving data precision through cleaning and preprocessing. Implemented refined algorithms for address matching using Levenshtein distance and cosine similarity.

Tool used (Development tools - H/w, S/w) : Databricks, Azure Data Factory, Python, pandas, SparkSQL, LangChain

Objectives of the project : Develop a custom data quality framework to enhance reliability of data assets in the client's Data Lake Create an advanced multi-query retrieval and generation system using LangChain to improve information retrieval Build a Python-based data processing pipeline for digital marketing to extract key metrics and enhance data precision

Major Learning Outcomes : Designed and implemented a custom data quality framework using Databricks and SparkSQL

Developed an advanced multi-query retrieval system using LangChain and RAG techniques

Improved address matching algorithms using fuzzy matching techniques

Gained experience in integrating AI/ML techniques into data workflows

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The internship at AuxoAI provided a collaborative and innovative environment focused on developing AI-powered solutions for businesses. The company emphasized human-centric AI development and responsible AI practices. Interns were given significant responsibilities in developing critical data infrastructure and AI systems for clients. The work involved tackling complex challenges in data quality, information retrieval, and data processing.

Academic courses relevant to the project : Database Management Systems

Machine Learning

Software Engineering
Data Structures and Algorithms

PS-II Station : Avaamo , Bengaluru

Faculty

Name: Anita Ramachandran

Student

Name: SWASTIK MANTRY .(2019B1A71019P)

Student Write-up

PS-II Project Title: Improving ASR (Automatic Speech Recognition), integrating and experimenting with TTS (Text-to-Speech) models

Short Summary of work done during PS-II : My tasks included increasing the accuracy of the in-house Automatic Speech Recognition(ASR) & creating an API(Application Programming Interface) to have a GET request to fetch transcribed text from the backend server. After completing my tasks in ASR, I worked with various Text-to-Speech(TTS) Models and integrated & fine-tuned multiple models into the current code base and researched further TTS models.

Tool used (Development tools - H/w, S/w) : H/W : Apple MacBook, AWS servers using SSH, S/W: Gitlab, GitHub, Git, VSCode, Jupyter Notebook, Python

Objectives of the project : 1. Improve the current ASR system by adding features and performing research, 2. Experiment, Fine-tune various Text to Speech Models and integrate them in the current product

Major Learning Outcomes : Machine Learning, Python, Generative AI, Software Development

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Working environment was good for me, but generally is team dependent. There aren't any set processes/practises for Code Reviews in ML area, however performance and accuracy is deeply looked into.

Academic courses relevant to the project : Object Oriented Programming. I hadn't formally taken ML/AI courses but they might be useful.

PS-II Station : Avalara Technologies , Pune

Faculty

Name: Pravin Yashwant Pawar

Student

Name: ABHINAV TIWARI .(2019B3A70547P)

Student Write-up

PS-II Project Title: Hscore classifi

Short Summary of work done during PS-II : 1. Learn about complete life cycle of ml project
2.plementation of ml model from training to deployment

Tool used (Development tools - H/w, S/w) : Python, S3, sagemaker, docker,k8s, mlflow

Objectives of the project : Improve ML model accuracy

Major Learning Outcomes : Mlops cycle

Details of Papers/patents : No

Brief Description of working environment, expectations from the company : Daily work was in identifying problem in current model and how we can improve it. Along with it deployment part also

Academic courses relevant to the project : Cs dels like NLP, machine learning

PS-II Station : Avalara Technologies , Pune

Faculty

Name: Pravin Yashwant Pawar

Student

Name: TARUN CHORDIA(2019B3A70611G)

Student Write-up

PS-II Project Title: Enhancing HR Efficiency: An AI-Driven Resume Summarization Approach

Short Summary of work done during PS-II : My PS-II consisted of 2 projects. The first one was about leveraging Machine Learning to automatically fill Tax Return website's forms based on the customer data. The second project includes development of an application that would summarize resumes using LLM based on the job description provided. Both the projects required deep dive into machine learning.

Tool used (Development tools - H/w, S/w) : 1. Python & Django Framework: Python served as the backbone of the backend development, powering the server-side logic and data processing. Django framework provided a robust structure for organizing the backend components, including handling HTTP requests, managing database interactions, and rendering dynamic web pages. Django's ORM (Object-Relational Mapping) facilitated seamless integration with the database, simplifying data manipulation and retrieval. 2. HTML, CSS, JavaScript: o HTML was used to create the markup structure of the web pages, defining the layout and content hierarchy. CSS was employed for styling the frontend components, ensuring a visually appealing and consistent user interface across different devices and browsers. JavaScript added interactivity to the web application, enabling dynamic behaviour such as form validation, file uploads, and AJAX requests. 3. Bootstrap: Bootstrap framework was utilized to enhance frontend development by providing pre-designed UI components, responsive layout grids, and utility classes. Bootstrap's CSS and JavaScript components expedited the creation of a polished and responsive user interface, minimizing the need for custom styling and layout design.

Objectives of the project : The primary objective of this project is to develop an AI-powered web application that automates the summarization of resumes based on provided job descriptions. This involves leveraging advanced Artificial Intelligence (AI) and Machine Learning (ML) techniques to create a system that efficiently processes and analyses resumes, extracting key information relevant to the job at hand.

Major Learning Outcomes : Machine Learning/NLP, Python, Web Development(Frontend and Backend)

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The culture of the company is vibrant. Managers are very supportive and there is a lot to learn from the peers.

Academic courses relevant to the project : OOPS, DBMS, OS, Machine Learning

PS-II Station : Avlinq Solutions & Services Pvt Ltd., , Noida

Faculty

Name: Rajesh Kumar Tiwary

Student

Name: DEV AGARWAL .(2020A3PS0452P)

Student Write-up

PS-II Project Title: Big Data Analytics

Short Summary of work done during PS-II : Learnt AWS Technologies, MS Power BI and other functionalities used for Data Engineering and Data Visualisation

Tool used (Development tools - H/w, S/w) : Power BI, AWS Glue, Python

Objectives of the project : Data Engineering and Data Visualisation

Major Learning Outcomes : Power BI, AWS services

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Very good and friendly, answered all doubts

Academic courses relevant to the project : OOP, DBMS

PS-II Station : Axtria India Pvt. Ltd , Bengaluru

Faculty

Name: Arindam Roy

Student

Name: AMAN KUMAR TIWARY(2022H1540823P)

Student Write-up

PS-II Project Title: Call Plan Generation for Pharma Company

Short Summary of work done during PS-II : During my PS-II, I went through a 6-week training on pharmaceutical industry in US. Key takeaways from the internship were mastering the call plan design process by reviewing Business Requirement Documents (BRDs) and commercial excellence (CE, Line of Business) specific training materials. The CE specific trainings included SDLC, SalesForceDotCom and Sales IQ (Axtria's proprietary platform). I became proficient in call plan design methodology and functional areas, applied concepts in hands on exercises. I completed a mock call plan design activity on vaccines for US. I developed skills in Excel, SQL and Python to generate call plan and summary decks. I could also make minor code changes as per project and client requirements. Throughout the internship I documented business context and technical processes, so that the project workflows are clear and continuous. This experience gave me practical knowledge of pharmaceutical operations and strengthened my technical and analytical skills in a professional environment.

Tool used (Development tools - H/w, S/w) : Excel, SQL, Python

Objectives of the project : Generating Call plan for Pharma (Vaccine) for US.

Major Learning Outcomes : Call Plan design, Pharmaceuticals Industry Insights, Business Documentation, Client Relations,

Details of Papers/patents : SaleIQ - Proprietary sales planning and operations platform

Brief Description of working environment, expectations from the company : At Axtria, the environment is collaborative and growth oriented with an open-door policy where communication and collaboration are encouraged across all levels. Team building activities are actively promoted to build team spirit and a supportive environment. Continuous learning and development is part of the culture, facilitated by a Learning Management System (LMS) where training is done alongside project work so employees stay updated with the latest skills and knowledge.

I was expected to master the call plan design process by thoroughly reviewing Business Requirement Documents (BRDs) and training materials. Understanding the methodology and functional aspects of call plan design was key, with hands-on exercises and mock activities to apply the concepts. Practical skills in running/developing code and generating results were required, with the ability to make minor code changes based on project requirements.

Most importantly employees are expected to live by Axtria's RIGHT values – Respect, Integrity, Growth, Humility, Teamwork – and have a strong work ethic. These values are not goals but a must. So everyone can contribute positively to the company's success and culture.

Academic courses relevant to the project : Statistics, Excel, Power BI, Python, Strategic Management

PS-II Station : B&S Engineering Consultants Pvt. Ltd. , Noida

Faculty

Name: Mahesh K Hamirwasia

Student

Name: PRASHANT KUMAR(2022H1430058P)

Student Write-up

PS-II Project Title: DESIGN OF PILE FOUNDATION

Short Summary of work done during PS-II : This bridge contains simply supported span of length 23.2m @ centreline bridge. The overall width of the proposed bridge is 9.5m with carriageway width of 8.5m & footpath width of 1.55m on both side of carriageway. The superstructure comprises of 6 numbers of RCC girders, with cast in-situ RCC deck slab on top. The superstructure is supported on elastomeric bearings. This design note deals with the design of pile for abutment A1 & A2 for this bridge. 6 numbers 1200 dia. bored cast-in-situ piles are provided under this abutment. The pile cap top level for this abutment is considered as 37.8m. For live load analysis, we have considered full carriageway width of 8.5m conservatively. The pile layout is checked for the geotechnical loads and seismic case without factorisation of loads. Pile sections are designed in SLS and ULS conditions. The design of the pile sections are done as per relevant provisions of IRC: 112-2020.

Tool used (Development tools - H/w, S/w) : STAAD-PRO, SOFISTIK

Objectives of the project : DESIGN OF BRIDGE ENGINEERING

Major Learning Outcomes : The pile is designed for various load combinations of Dead load, Superimposed dead load, Carriageway and Footpath live load and Earth pressure forces as per the provisions of IRC : 6 - 2014.

Thus, as per table 9 of IRC:6-2014 for RCC abutment, a response reduction factor, $R=1$ is considered.

Details of Papers/patents : IRC CODES

Brief Description of working environment, expectations from the company : WORKING CULTURE ENVIRONMENT IS GOOD, SENIOR AND MENTOR WILL GUIDE IN RIGHT DIRECTION ALWAYS CLEAR THE DOUBT WHENEVER NEEDED, HEALTHY COMPETITION IN COLLEGES, FREE TIME SPEND IN PLAYING WITH SOME CASUAL GAME THAT RELAX OUR BODY AND SOME GOOD JOKES ARE PASSES THAT HELPED OUR MIND

Academic courses relevant to the project : BRIDGE ENGINEERING, PRESTRESSED CONCRETE STRUCTURES, ADVANCED CONCRETE STRUCTURES, ADVANCED FOUNDATION ENGINEERING, EARTHQUAKE ENGINEERING

PS-II Station : Bajaj Auto Limited and Chetak Technology Limited , Pune

Faculty

Name: R S Reosekar

Student

Name: PRAMOD C(2022H1060216P)

Student Write-up

PS-II Project Title: ENHANCING PRODUCTIVITY AND EFFICIENCY IN SPARE PARTS DISPATCH

Short Summary of work done during PS-II : I conducted a comprehensive analysis of the pre-packing procedures for Chetak and Yulu vehicle spare parts. This analysis led to the creation of standardized packaging units, which significantly reduced handling time and minimized errors. Additionally, I streamlined dispatch operations by utilizing data analytics and D.M.A.I.C principles

to evaluate demand patterns and packaging requirements. This resulted in the development of new packaging BOMs and a 30% reduction in the storage footprint.

Tool used (Development tools - H/w, S/w) : MS EXCEL, SAP, Power BI

Objectives of the project : Improve the efficiency of the warehouse

Major Learning Outcomes : Warehouse Management

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : At Bajaj Auto, the work environment is characterized by its fast-paced nature and a culture that values productivity. The working environment was tough and challenging. There's an inherent expectation for quick adaptation and significant contributions, which might be challenging for those who are new to the environment or adjusting to different roles. Work is quite hectic, the extent of this is highly team specific and work life balance is not good. The working hours were 8 to 5, Monday to Saturday with occasional overtime and compensating on Sundays for government holidays. Despite the demanding nature of the job, there is a lot to learn. This company is a platform to work and enhance your skillset in diverse areas. You will have the opportunity to implement the changes on shop floor and bring in new technologies into manufacturing.

Academic courses relevant to the project : NA

PS-II Station : Bajaj Auto Limited and Chetak Technology Limited , Pune

Faculty

Name: R S Reosekar

Student

Name: SURYA NARAYANAN VINODKUMAR(2022H1420192P)

Student Write-up

PS-II Project Title: Defect analysis of 2 wheeler Petrol Tanks, Document Library App

Short Summary of work done during PS-II : 1. Defect Analysis of 2-Wheeler Petrol Tanks -

This project focused on identifying and analyzing defects in 2-wheeler petrol tanks, primarily addressing dust and decal defects, with decal defects being the most crucial. By improving lighting conditions and localizing the analysis, we were able to pinpoint problematic areas. Implementing these measures resulted in enhanced quality control, optimized manufacturing processes, and a significant reduction in defects. 2. Document Library App - The goal of this project was to create a comprehensive digital document library using a SharePoint site. We digitized existing hard copy documents and organized them using hyperlinks to interlink all documents, establishing a clear structure. Additionally, we assisted in uploading documents and creating a collaborative environment to streamline document management. This approach improved efficiency, reduced handling time, and enhanced document accessibility and organization.

Tool used (Development tools - H/w, S/w) : Excel, Power Pivot, PowerApps, SharePoint, Power BI, Python

Objectives of the project : 1. Defect analysis of 2 wheeler Petrol Tanks - Identify and analyze the root causes of defects in 2-wheeler petrol tanks, and develop effective solutions to eliminate them. 2. Document Library App - Develop a comprehensive digital document library application to digitize existing hard copy documents and create a collaborative environment that improves document management efficiency.

Major Learning Outcomes : Defect Analysis of 2-Wheeler Petrol Tanks - Learned to perform root cause analysis, utilize analytical tools like Excel, Power Pivot, Python, implement corrective measures, and optimize processes to improve quality and prevent defects.

Document Library App - Gained experience in digitizing documents, organizing a structured digital library, implementing collaborative tools, and improving document management efficiency, leading to time reduction and enhanced accessibility using tools like SharePoint.

Details of Papers/patents : Nil

Brief Description of working environment, expectations from the company : The working environment is demanding, with long hours from 7:30 am to 5:00 pm, Monday to Saturday, and occasional work on Sundays, with no holidays. Employees manage multiple projects with tight deadlines and high expectations, often leading teams of people within a high-pressure atmosphere that offers minimal guidance.

Despite these challenges, there are significant opportunities for those who perform well. Employees frequently interact with upper management, allowing them to discuss issues and propose solutions directly. This engagement fosters a collaborative atmosphere where contributions are valued.

The steep learning curve and high expectations drive rapid skill development and continuous learning. Employees who thrive are proactive, resilient, and adept at problem-solving. The demanding conditions can be highly rewarding, offering substantial opportunities for growth, leadership experience, and influence within the company.

Academic courses relevant to the project : TPS, Quality Control

PS-II Station : Baker Hughes , Bengaluru

Faculty

Name: Srinivas Kota

Student

Name: HARDIK SHARMA(2022H1240050H)

Student Write-up

PS-II Project Title: Wireless power transfer using RF and mathematical analysis of Machine learning algorithms to optimise gas turbines operation

Short Summary of work done during PS-II : Making of RF circuits to send signal as well as to power instrument transmitters and case study of Machine learning algorithms to optimise gas turbines operation

Tool used (Development tools - H/w, S/w) : LTSPICE, Pycharm, Matlab

Objectives of the project : To power Pressure sensor wirelessly and Mathematical analysis of Machine learning algorithms

Major Learning Outcomes : Learned working of pressure and temperature sensor used in Gas turbine and RF circuits, also machine learning algorithms

Details of Papers/patents : Confidential

Brief Description of working environment, expectations from the company : Company expects intern to know analog circuits, RF circuits, gas turbines and machine learning

Academic courses relevant to the project : Machine learning and RF circuits

PS-II Station : Baker Hughes , Bengaluru

Faculty

Name: Srinivas Kota

Student

Name: PRITAM PRIYADARSHI(2022H1410108H)

Student Write-up

PS-II Project Title: Machine learning Analysis in turbomachinery design for performance enhancement and design optimization

Short Summary of work done during PS-II : The optimization of blade requires the blade to be fitted properly in order to extract the results of earlier run files in CFD which will be further used for optimizing the blade using different parametrization methods. The results of the experimental and CFD were validated before initiating the optimization steps. The efficiency when observed for the cfd setup is found to be more than the cfd setup run by the research author. This shows more efficient setup and nearby practical conditions is in current CFD setup. Later these will be optimized using different parametric variation chordwise as well as spanwise locations to change the parameters and increase the performance characteristics.

Tool used (Development tools - H/w, S/w) : Siemens Nx- CAD geometry, Autogrid-Meshing, Fine turbo-CFD, Autoblade-Parametrization, Fine design 3d- DoE generation, Minamo algorithm-Optimization

Objectives of the project : Perform literature survey on AI/ML turbomachinery design. Perform CFD analysis (Fine Turbo) of axial compressor rotor test case and benchmark the result. Perform aerodynamic optimization of compressor rotor test case using Fine Design 3D tool. Perform aerodynamics optimization in Fine Design 3D tool.

Major Learning Outcomes : Siemens Nx – Used for CAD drawing.
Autogrid – Meshing software for airfoil applications.
ICEM CFD – Meshing software for turbomachinery equipment.
Fineturbo – Used as CFD tool analyzer for turbomachinery equipment.

Autoblade – Blade fitting tool used before optimization.

Fine design3d – Used as optimizing the airfoil blades of compressors.

Machine learning – Basics of machine learning and Minamo optimization techniques.

Details of Papers/patents : [1] S. Coquillart, “Extended Free-Form Deformation: A Sculpturing Tool for 3D Geometric Modeling,” Computer Graphics, vol. 24, no. 4, pp. 187-196, 1990.

[2] R. Ginder and W. Calvert, “The Design of an Advanced Civil Fan Rotor,” ASME Journal of Turbomachinery, vol. 109, no. 3, pp. 340-345, 1987.

[3] J. Dunham, “CFD Validation for Propulsion System Components,” AGARD Advisory Report 355, Neuilly-SurSeine, France, May, 1998.

[4] E. Benini, “Three-Dimensional Multi-Objective Design Optimization of a Transonic Compressor Rotor,” Journal of Propulsion and Power, vol. 20, no. 3, 2004.

[5] M. Duta, S. Shahpar and M. Giles, “Turbomachinery Design Optimization using Automatic Differentiated Adjoint Code GT2007-28329,” in ASME Turbo Expo, Montreal, 2007.

Brief Description of working environment, expectations from the company : 1.) Working culture is very good.

2.) Learning corporate rules in company.

3.) Supportive colleagues and seniors.

4.) Interactive Mentor

Academic courses relevant to the project : Computational fluid dynamics

Heat transfer advanced

Thermodynamics

Flight dynamics

PS-II Station : Baker Hughes , Bengaluru

Faculty

Name: Srinivas Kota

Student

Name: ADARSH KUMAR SINGH(2022H1420151H)

Student Write-up

PS-II Project Title: Assembly Process Optimization and Design Review using AR/VR

Short Summary of work done during PS-II : I am primarily contributing to three projects: Exxar Software Development, Gas Turbine Assembly using IC.IDO, and the OFSE Project on Christmas Tree Assembly. In Exxar Software Development, the focus is on advancing an animation sequence for approval by the OFSE team. For the Gas Turbine Assembly, detailed analysis and modifications are conducted using IC.ICO software and power wall technology. Lastly, the OFSE project involves the meticulous assembly of a Christmas tree, adhering to specific operational protocols and ensuring seamless execution.

Tool used (Development tools - H/w, S/w) : Exxar (Augmented Reality / Virtual Reality) , IC.IDO, Navisworks, Siemens Teamcenter, NX Tool

Objectives of the project : Creating Assembly Sequence in AR/VR Environment & use AR/VR technology in design review

Major Learning Outcomes : Assembly Of Gas Turbine on Component Level & Getting Expertise in modeling & Simulation tool

Details of Papers/patents : Working On Baker Hughes Ongoing Projects

Brief Description of working environment, expectations from the company : The company's work environment is collaborative and innovative, fostering teamwork across various projects.

Employees leverage cutting-edge technologies like power wall and IC.ICO software for detailed analysis and project execution. The environment promotes continuous learning and adaptation, encouraging staff to contribute ideas and improvements. With a focus on clear communication and structured workflows, the company ensures efficient project management and high-quality outputs. Regular team meetings and a supportive culture further enhance productivity and employee satisfaction, creating a dynamic and engaging workplace.

Academic courses relevant to the project : These mention subject help me to perform well in the projects.-- Manufacturing system, Concurrent Engineering,3D Design modelling, Operation sequencing

PS-II Station : Barraiser - Nontech , Bengaluru

Faculty

Name: RAMESH VENKATRAMAN

Student

Name: DEEPTI SHEORAN(2019B2A21541H)

Student Write-up

PS-II Project Title: Enhancing Customer Relations and Sales Growth: A Business Internship Project Report

Short Summary of work done during PS-II : During the internship project at ANS Commerce, comprehensive efforts were made to enhance customer relationship management (CRM) strategies and drive sales growth. This included conducting website audits, analyzing user journeys, and utilizing various CRM tools like Zoho for ledger management and invoice tracking.

Significant emphasis was placed on data generation and reporting, with tasks involving the tracking of business key performance indicators (KPIs), analyzing payment data through Razorpay, generating Clickpost reports, and managing coupon codes. Tools and platforms such as the Tech Panel, Kartify Panel, Google Analytics 4 (GA4), Razorpay, Zoho, and Power BI were leveraged to gather and analyze data, providing valuable insights into customer behavior and sales trends. These insights were used to optimize marketing strategies, improve customer engagement, and streamline operational efficiency. The project also involved addressing performance bottlenecks through page speed analysis and collaborating with various teams to ensure seamless order fulfillment and financial transparency. Overall, the project aimed to refine CRM practices and implement data-driven strategies to sustain and enhance sales performance.

Tool used (Development tools - H/w, S/w) : The tools and software used during the project include: Tech Panel Kartify Panel Google Analytics 4 (GA4) Razorpay Zoho Power BI Clickpost, Google PageSpeed Insights

Objectives of the project : The primary objective of this internship project is to enhance customer relationship management (CRM) strategies within the e-commerce firm ANS Commerce by optimizing various platforms and tools, thereby contributing to sustained sales growth. This involves streamlining access, generating insightful reports, and effectively utilizing data from multiple panels and platforms, including Tech Panel, Kartify Panel, Google Analytics 4 (GA4), Razorpay Panel, Zoho, and Power BI. The project aims to leverage data-driven insights to refine CRM practices, improve user experiences, and implement targeted strategies that drive sales excellence and foster collaborative partnerships.

Major Learning Outcomes : The learning outcome of the project involves gaining a comprehensive understanding of optimizing customer relationship management (CRM) strategies to drive sales growth in an e-commerce environment. This includes hands-on experience with various data analysis tools and platforms such as Google Analytics, Zoho, Power BI, Razorpay, and Clickpost for tracking and improving business key performance indicators (KPIs).

Details of Papers/patents : No paper published

Brief Description of working environment, expectations from the company : During our internship at ANS Commerce, we were initially assigned two mentors to guide us through our

responsibilities. However, only one mentor actively took charge of our internship experience. Her daily morning meetings were invaluable, as we learned extensively from her guidance. Unfortunately, after her resignation, we no longer received work assignments or directions from the team, leaving us without adequate support or supervision for the remainder of our internship. The team lead occasionally instructed us to join client meetings, but we received no feedback on our performance or contributions from any team member. This lack of communication and mentorship significantly impacted our ability to grow professionally within the company. Furthermore, most tasks were assigned during weekends, with deadlines set for Monday morning or the end of the day. This scheduling made it challenging to manage our workload effectively and maintain a balanced work-life routine.

While we did acquire new skills and knowledge during the internship, this learning was largely self-directed and not attributable to the company's efforts. The absence of consistent mentorship and constructive feedback hindered our professional development, highlighting a gap in the company's internship program that could benefit from better structure and support systems.

Academic courses relevant to the project : Principles of management

PS-II Station : Barraiser - Nontech , Bengaluru

Faculty

Name: RAMESH VENKATRAMAN

Student

Name: LOKESH KUMAR LUHANIWAL .(2020D2PS1288P)

Student Write-up

PS-II Project Title: Integrated Workforce Analysis and Market Insights Dashboard

Short Summary of work done during PS-II : During my PS-II, I focused on three tasks: creating clear dashboards, conducting market research, and making an overtime dashboard. I designed user-friendly dashboards to help the team quickly understand key data. My market research involved analyzing trends and competitors to provide valuable insights for business decisions. I also built a dashboard to track employee overtime, which helped identify inefficiencies and improve productivity.

Tool used (Development tools - H/w, S/w) : Power BI, Excel, SQL, Tableau

Objectives of the project : 1) Formatting of Dashboards- Ensuring consistency and clarity in presenting data, 2) Conduct Market Research - Identify market trends and competitive benchmarks. 3) Create Overtime Dashboard- Design and implement a dashboard to track and analyze employee overtime hours.

Major Learning Outcomes : 1) Enhanced Data Visualization Skills, 2) Improved Analytical Abilities, 3) Market Research Expertise, 4) Project Management Experience - Gained experience in managing a project from start to finish, including planning, execution, and presentation.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The working environment in general is calm and relaxed. You will have to be proactive if you want to grab more opportunities than just your assigned projects.

Academic courses relevant to the project : None

PS-II Station : Barraiser - Tech , Bengaluru

Faculty

Name: MONALI TUSHAR MAVANI

Student

Name: SAKSHI ANILRAO DESHMUKH(2022H1030059H)

Student Write-up

PS-II Project Title: Introduction to SaaS and Zluri's SaaS Platform and topics worked on in Zluri

Short Summary of work done during PS-II : During my internship, I contributed to building integrations between organizations and applications for a SaaS management system, enhancing my practical knowledge as a fresher in data engineering. I assisted with MongoDB queries to fetch and manipulate data effectively, resolved bugs, and utilized Prefect flow runs to sync different pipelines as needed. I also addressed JIRA tickets, processing various types of user data according to customer requirements. This hands-on experience allowed me to work with tools such as MongoDB, GitHub, Prefect Orion, AWS S3, and VS Code, equipping me with valuable skills and insights in the field.

Tool used (Development tools - H/w, S/w) : Python, VS Code, Github, MongoDB compass, Prefect Orion, JIRA

Objectives of the project : To process and transform Users data for Saas management of apps used by user for organization connected through particular integration

Major Learning Outcomes : Hands on experience in python, MongoDB query processing, Github, BUGs resolving

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Work Environment tis good

Academic courses relevant to the project : Python , Logic Development, SQL, DBMS

PS-II Station : Battery Smart - IT , Gurugram

Faculty

Name: Swarna Chaudhary

Student

Name: SHIVAM KUMAR(2022H1030125P)

Student Write-up

PS-II Project Title: i-MIS (Intelligent Management Information System)

Short Summary of work done during PS-II : Created two out of three pages (namely Partner and Driver) for the web app which will allow the company to have a good understanding of the business and take further course of action to allocate the resources appropriately and have a full view of the business component.

Tool used (Development tools - H/w, S/w) : Python, Plotly, Dash, Pandas, TablePlus, SQL

Objectives of the project : The project is to build an interactive web app that serves as an Intelligent Management Information System for the use of upper-level management of the company.

Major Learning Outcomes : Learnt how to create a web app using Plotly and Dash Python Libraries.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : It was challenging at first as I was expected to work on a library that I didn't know before. But since my mentor was quite understanding, he gave me time to study and then on, it was not as challenging. I expected to work in a team and learn from my peer group, but since I was the only person working on the project, I didn't get the opportunity of collaboration.

Academic courses relevant to the project : None.

PS-II Station : Battery Smart - Product & Strategy , Gurugram

Faculty

Name: Uma Nagarajan

Student

Name: AYUSH GUPTA(2020A3PS0551G)

Student Write-up

PS-II Project Title: NFC

Short Summary of work done during PS-II : I have worked on a new product development for the company.

Tool used (Development tools - H/w, S/w) : SQL, Excel,Kiosk

Objectives of the project : New project launch

Major Learning Outcomes : Product team work

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Very friendly

Academic courses relevant to the project : MUP

PS-II Station : Battery Smart - Strategy Associate , Gurugram

Faculty

Name: Uma Nagarajan

Student

Name: ADITYA PRATAP SINGH TOMAR(2020A4PS1858G)

Student Write-up

PS-II Project Title: Partner Excellence

Short Summary of work done during PS-II : Most of the work is related to enhancing experience for the company partners either via communications sent through email/WA or conducting field visits etc.

Tool used (Development tools - H/w, S/w) : Redash, Google App sheets, google sheets

Objectives of the project : To

Major Learning Outcomes : Cross team communication, SQL, app development

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Being a start-up, the work environment is very light and all the team members are very helpful

Academic courses relevant to the project : NA

PS-II Station : Bhanix Finance and Investment Ltd.(CASHe) , Mumbai

Faculty

Name: Chennupati Rakesh Prasanna

Student

Name: AMARTYA AYUSHI(2019B2A41467H)

Student Write-up

PS-II Project Title: Market analysis

Short Summary of work done during PS-II : There were multiple projects varying from operations to product team,

Tool used (Development tools - H/w, S/w) : SQL, Python, PowerBI

Objectives of the project : Go through the entire market searching for competition, and analysis of their product with respect to ours in order to improve our product

Major Learning Outcomes : SQL, Python, PowerBI

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Excellent

Academic courses relevant to the project : DBMS, CS F111

PS-II Station : Bhanix Finance and Investment Ltd.(CASHe) , Mumbai

Faculty

Name: Chennupati Rakesh Prasanna

Student

Name: PRAKHAR GUPTA .(2020A2PS1750P)

Student Write-up

PS-II Project Title: Downsizing

Short Summary of work done during PS-II : I learned about various things regarding python and data analysis it was very good to get to work.

Tool used (Development tools - H/w, S/w) : Jupyter, Python, Decision Tree.

Objectives of the project : Figuring out the downsizing.

Major Learning Outcomes : Learned a lot about data analysis and python.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Very good getting the oppurtunity learned a lot.

Academic courses relevant to the project : OOP's, DSA, Machine Learning.

PS-II Station : Bharat Forge Ltd. , Pune

Faculty

Name: Naga V K Jasti

Student

Name: A THARUN VIGNESH .(2020A4PS1320P)

Student Write-up

PS-II Project Title: ESG reporting and assessing health of stacks and provide action plan for their refurbishment.

Short Summary of work done during PS-II : Worked on ESG reporting, STP poor performance root cause analysis, stack structural integrity assessment.

Tool used (Development tools - H/w, S/w) : Excel.

Objectives of the project : Data processing for ESG reporting and assessing health of stacks and provide action plan for refurbishing them.

Major Learning Outcomes : Functioning of ESG department and their reporting, assessing health of stacks.

Details of Papers/patents : Nil.

Brief Description of working environment, expectations from the company : Moderate environment, company should concentrate on providing knowledge rather than just expect repetitive work.

Academic courses relevant to the project : Manufacturing management, Power plant engineering (stacks working), sustainability manufacturing.

PS-II Station : Bharat Forge Ltd. , Pune

Faculty

Name: Naga V K Jasti

Student

Name: RAHUL ALLA(2020A4PS2295H)

Student Write-up

PS-II Project Title: Tpm analysis

Short Summary of work done during PS-II : I was working under Shailendra Chavan in mcd 1 dept and learnt about tpm and other stuff

Tool used (Development tools - H/w, S/w) : Excel and ppt

Objectives of the project : Perform given assignments related to tpm

Major Learning Outcomes : TPM and some excel

Details of Papers/patents : Na

Brief Description of working environment, expectations from the company : It was decent, very good for mechanical engineers

Academic courses relevant to the project : Quality management

PS-II Station : Bharat Forge Ltd. , Pune

Faculty

Name: Naga V K Jasti

Student

Name: ALFRED JOHNSON(2022H1060095G)

Student Write-up

PS-II Project Title: Operations excellence and management

Short Summary of work done during PS-II : Was assigned various improvement projects in operations excellence and supply chain management department

Tool used (Development tools - H/w, S/w) : Excel and ms office

Objectives of the project : Improving efficiency of key processing lines

Major Learning Outcomes : Soft skills... pressure handling... corporate environment work culture etc..

Details of Papers/patents : Nil

Brief Description of working environment, expectations from the company : Working environment was just about fine and timings 9-6

Academic courses relevant to the project : Statistics

PS-II Station : Bharat Forge Ltd. , Pune

Faculty

Name: Naga V K Jasti

Student

Name: CHIRLA NAGA BHAIKAVAI SAI PAVAN KUMAR REDDY(2022H1410153P)

Student Write-up

PS-II Project Title: JH steps, ET for TPM

Short Summary of work done during PS-II : Initially we went through a induction program for 4 days. we went to every department and learn their goal, work and processes happening in the department. Later i was assigned MCD-I department. Initially i was assigned in Layout shifting project. I did work on that project for two weeks. i understood how layout change happens in industry (Here this project is planned for next 4years). Later i was assigned JH and ET projects. The project allotted was Total Productive Maintenance(TPM) Jishu Hozen(JH) Pillar steps 1,2,3 & 4. Within this project, I got on-ground shopfloor experience as well as theoretical knowledge and non-technical work. Also, they gave me weekly assignments that gave me a complete idea of the things happening in the division. The industry mentor guided us throughout the process. I got the best opportunity to experience industrial training. I gained knowledge in the field of metrology, metallurgy, sustainability, manufacturing processes, and operations. I was successfully able to practically observe the manufacturing process.

Tool used (Development tools - H/w, S/w) : Excel, Powerpoint, microsoft word.

Objectives of the project : I completed projects on the Layout shifting process, Total Productive Maintenance(TPM), JH Pillar and Education Training. Also, it contains information about different operations, machines, and gauges used within the division. The main objective of the project is to improve the efficiency of the process, by minimizing the defect, errors, accidents, breakdowns through continuous monitoring and also through improving the skill of the operator.

Major Learning Outcomes :

1. Learnt about TPM pillars
2. Layout changing process (Plan and execution)
3. Education training (How employee gets trained and improve their skill in Industry)
4. JH (Continuous improvement through small steps)

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : My internship experience at Bharat Forge Limited, Pune, as part of the Practice School-II, has been exceptionally enriching. Bharat Forge stands out as one of the premier training centers in the industrial and manufacturing sector, providing me with invaluable learning opportunities.

I was assigned to a division where I worked alongside knowledgeable professionals who were dedicated to helping me grasp complex concepts. The depth of knowledge I acquired during my internship is extensive and will undoubtedly benefit my future projects and career endeavors. The "Learn-Relearn" approach was instrumental in bridging the gap between theoretical understanding and practical application, enhancing my comprehension of various processes.

My primary project focused on Total Productive Maintenance (TPM) Jishu Hozen (JH) Pillar steps 1,2,3 & 4. This assignment provided me with hands-on shop floor experience combined with theoretical insights and exposure to non-technical aspects of operations. Additionally, completing four assignments gave me a comprehensive understanding of the division's operations, supported by continuous guidance from my industry mentor.

This internship afforded me the best possible exposure to industrial training, allowing me to delve into areas such as metrology, metallurgy, sustainability, manufacturing processes, and operations. I had the privilege of witnessing manufacturing processes firsthand, which deepened my practical knowledge significantly.

Overall, my internship at Bharat Forge Limited has been a transformative learning experience, equipping me with essential skills and knowledge that will undoubtedly shape my future career trajectory in the manufacturing industry

Academic courses relevant to the project : Manufacturing Processes, Total Quality Management, Industrial Engineering

PS-II Station : Biconomy , Singapore

Faculty

Name: Sameer Gupta .

Student

Name: NISHIL JAIN(2019B5A40825P)

Student Write-up

PS-II Project Title: Growth and Strategy

Short Summary of work done during PS-II : During my tenure at Biconomy, I was entrusted with several critical responsibilities, including: ? Identifying potential partners and negotiating deals that resulted in monetary agreements exceeding \$1 million. ? Conducting market research to identify and engage potential clients. ? Developing and executing strategies to enhance client acquisition and retention. ? Leading the growth strategy for a new product, from market analysis to implementation of marketing campaigns. ? Collaborating with cross-functional teams to align strategic initiatives with overall company goals.

Tool used (Development tools - H/w, S/w) : Dune analytics, Slack, Telegram, Twitter Analytics, Twitter Advanced Search

Objectives of the project : Develop and secure strategic partnerships, Drive Business development efforts to drive new clients and expand Biconomy's market, Lead growth strategy for a new product

Major Learning Outcomes : Communication skills, Strategic thinking, negotiation skills, blockchain technologies

Details of Papers/patents : There are no patents

Brief Description of working environment, expectations from the company : Fast paced, Flexible and open environment.

Academic courses relevant to the project : None

PS-II Station : Bigtec Private Limited - Embedded , Bengaluru

Faculty

Name: Gopala Krishna Koneru

Student

Name: ADIT KOKKERI(2019B5A30965H)

Student Write-up

PS-II Project Title: Embedded

Short Summary of work done during PS-II : 9591751354

Tool used (Development tools - H/w, S/w) : So

Objectives of the project : Embedded

Major Learning Outcomes : Embedded

Details of Papers/patents : Many

Brief Description of working environment, expectations from the company : Questions

Academic courses relevant to the project : O

PS-II Station : Bigtec Private Limited - IT , Bengaluru

Faculty

Name: Gopala Krishna Koneru

Student

Name: RAHUL DEVARASETTY(2020AAPS1331H)

Student Write-up

PS-II Project Title: Nirmaan Technology

Short Summary of work done during PS-II : I have worked on three key projects: the Nirmaan website, the Nirmaan admin panel, and Swasha. The Nirmaan website is the main platform visible to users, providing comprehensive information about Nirmaan's services and initiatives. I contributed to its frontend development, creating dynamic and user-friendly pages using React. The Nirmaan admin panel is a backend tool for employees, allowing them to view and add data efficiently. My role focused on designing its frontend, ensuring an intuitive interface for seamless data management. Additionally, I worked on Swasha, an e-commerce platform dedicated to marketing products crafted by individuals from marginalized communities. Here, I applied my expertise in React to develop engaging and responsive web pages that enhance the user experience. Throughout these projects, I prioritized creating visually appealing and highly functional interfaces, demonstrating my strong skills in frontend development and my commitment to delivering high-quality digital work.

Tool used (Development tools - H/w, S/w) : HTML, CSS, React, NextJS, PHP Laravel

Objectives of the project : To develop a user-friendly and engaging interface that will be used as the primary website(Nirmaan website). To make a comprehensive user management system for managing various details(Nirmaan admin panel)

Major Learning Outcomes : Followed the AGILE practices(daily scrum calls, review meetings and bi-weekly sprint plans), Learned how to use Git to develop software, enhanced proficiency in

full-stack development, understood how funds are raised through ISR/CSR meets, teamwork and got a taste of the corporate office life, improved management skills.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Nirmaan offers a collaborative working environment emphasizing teamwork and personalized growth. It is open and flexible, promoting interaction among team members and facilitating a culture of continuous learning and development. Nirmaan has a proactive approach to problem-solving. We are encouraged to actively take initiative, contribute ideas and collaborate effectively with colleagues. Also, we are expected to maintain a high level of professionalism, commitment and enthusiasm in our work.

Academic courses relevant to the project : OOPS, DBMS

PS-II Station : Biocon Biologics Limited , Bengaluru

Faculty

Name: Bharathi R

Student

Name: NIVEDITHA V G(2022H1290006P)

Student Write-up

PS-II Project Title: Evaluation of automated vial-filling equipment for cell banking in a biopharmaceutical industry

Short Summary of work done during PS-II : During the duration of PS II, I evaluated the necessity of automated vial-filling equipment for cell banking in the industry. For the evaluation, it was necessary to understand various concepts and procedures involved in the upstream processes. This includes learning about the Standard Operating Procedure for various equipment in the upstream process, the batch activities involved in the production of monoclonal antibodies, and understanding the regulatory requirements. Furthermore, I observed the batch activities and the aseptic procedures adopted to ensure the sterility of the batches. The entire experience was a huge learning opportunity.

Tool used (Development tools - H/w, S/w) : Automated vial-filling equipment

Objectives of the project : In the biopharmaceutical industry, cell banking is of utmost importance as it ensures a continuous supply of desired clones to be expanded for the commercial production of products. A typical cell banking process flow includes vial thaw, cell counting and passaging, collection of cells of determined passage, resuspension in a freezing medium, and aliquoting the solution into vials. The aliquoting cells step is usually done manually. Manual vial-filling involves low throughput and high chances of handling error, leading to contamination, uneven distribution of cells, rough handling, inconsistent batch due to a high filling time, and less reproducibility. To solve this problem, the industry must adopt automated vial-filling. Before adopting, the sector must evaluate and qualify this equipment to ensure its necessity. For evaluation, we need to understand the process and determine the evaluation parameters considering various regulatory authorities and specific qualification protocols of that industry. By qualifying this equipment, the industry will save time and costs in addition to ensuring product safety

Major Learning Outcomes : •Importance, process flow, equipment involved, innovations, key considerations of cell banking, and quality tests performed on cell banks

- Liquid nitrogen storage system for cell bank
- cGMP and ICH regulatory requirements for cell banking; ALCOA++ practices of GDP
- Challenges in manual vial filling
- Equipment qualification protocol followed by the industry
- Advantages, Limitations, risks, and opportunities associated with automated vial filling
- Standard Operating Procedure of all the equipment involved in upstream production of monoclonal antibodies adhering to the current Good Manufacturing Practices

•Batch activities associated with upstream production of monoclonal antibodies

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The industry had well equipped basic office amenities in addition to the latest technology implemented in the production area. It helped smoothen the transition between academia and industry. The work environment, including the production facility was a huge learning experience as it adheres to current Good Manufacturing Practices and Good Documentation Practices.

Academic courses relevant to the project : Animal cell culture

PS-II Station : Biocon Biologics Limited , Bengaluru

Faculty

Name: Bharathi R

Student

Name: DEVAL SHAH(2022H1290013P)

Student Write-up

PS-II Project Title: Introduction to Quality Control Operations with respect to Raw Material (RM) / In-Process (IP) / Finished Product (FP) / Stability Samples

Short Summary of work done during PS-II : During my project, I gained comprehensive knowledge of the quality control activities involved in insulin production, spanning the Raw Material Lab, In-Process Lab, Finished Product Lab, and Stability Testing. I learned the detailed

workflow and critical importance of each step in ensuring the safety and efficacy of insulin products. In the Raw Material Lab, I observed rigorous testing for quality and purity of the incoming materials to be used in production, which is essential for identifying and mitigating potential contaminants early. The In-Process Lab highlighted the importance of monitoring and maintaining product specifications while in production. In the Finished Product Lab, I understood the thorough testing protocols to ensure only compliant products reach the market. Stability Testing emphasized the need for ongoing monitoring to guarantee product integrity over time. This project underscored the critical role of quality control in upholding product standards and safeguarding public health.

Tool used (Development tools - H/w, S/w) : HPLC, Polarimeter, pH meter, Fourier Transform Infrared Spectrometer

Objectives of the project : The objective is to develop analytical skills, to verify and test the drug product at various stages of production, to ensure every product is of the highest quality, identify problems and troubleshooting techniques with respect to analytical techniques, regulatory standards, and compliance.

Major Learning Outcomes : During my PS, I learnt how different quality control teams work at different stages before, during and after manufacturing to meet the expected quality standards in order to ensure patient safety and efficacy. I also learnt how stability studies are important at specific time intervals and how market complaints are responded.

Details of Papers/patents : <https://doi.org/10.1111/dom.14994> , <https://pubmed.ncbi.nlm.nih.gov/35589611/> , <https://doi.org/10.1111/dom.14635> , <https://doi.org/10.1111/dom.15007> , <https://link.springer.com/article/10.1007/s40259-022-00554-6> , <https://doi.org/10.1007/s40265-023-01925-1> and 12 more related to Insulin Glargine and 9 more related to Insulin Tregopil. Source: <https://www.biocon.com/about-us/scientific-publications/>

Brief Description of working environment, expectations from the company : The working environment in the QC Insulin lab at Biocon Biologics is dynamic and fast-paced, offering a unique opportunity to observe various aspects of quality control in a leading biopharmaceutical company. However, it can be challenging due to language barriers, which can affect effective communication and collaboration. Tasks primarily involve supportive activities such as updating

labels, organizing file indexes, and data entry in Excel, all related to good documentation practices crucial for maintaining lab organization and data accuracy. While the experience may not have involved hands-on technical work, it offered valuable insights into the operational procedures and the importance of meticulous record-keeping in a quality control setting. On the positive side, I gained a comprehensive understanding of the overall quality process by working with raw material, in-process, and finished product labs, as well as stability samples. This experience provided me with valuable knowledge of the workflow, sampling, and testing processes, which are essential components of quality control in the biopharmaceutical industry. The company expects adaptability, attention to detail, and a positive attitude towards all assigned responsibilities.

Academic courses relevant to the project : Process Control, Enzymology, Biochemistry

PS-II Station : Biocon Biologics Limited , Bengaluru

Faculty

Name: Bharathi R

Student

Name: PIMPALE VAISHNAVI ARUNKUMAR(2022H1460207H)

Student Write-up

PS-II Project Title: REVIEW OF NEW DRUG REVIEW AND APPROVAL PROCESS WITH DIFFERENT REGULATORY AGENCIES

Short Summary of work done during PS-II : Though my project major in regulatory I worked with quality team and learned different things Majorly there I deal with quality department and

production line like how they will prepare all protocols and how they will follow SOP importance of Data integrity ,My Internship at Biocon in the Quality Assurance department primarily involved ensuring product quality through testing and compliance activities, as well as contributing to initiatives aimed at improving productivity and efficiency within the quality control processes. Internship likely involved a combination of research, new product development, design and efforts to improve productivity and efficiency in pharmaceutical manufacturing and development processes

Tool used (Development tools - H/w, S/w) : NA

Objectives of the project : Importance of Regulatory Affairs Understanding Drug Regulatory filing procedures in different countries Understanding time frames for different regulatory bodies Review of New Drug review and approval process with Different regulatory Agencies like USFDA,EU,PMDA

Major Learning Outcomes : REGULATORY FILING PROCEDURES

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : At all environment is good there , continuous learning won't be there every time but ya you will learn at least one different things in a day ,that will definitely help you to grow

Academic courses relevant to the project : Regulatory affairs and Quality assurance,DOE , parenteral product development,IPR

PS-II Station : Biocon Biologics Limited , Bengaluru

Faculty

Name: Bharathi R

Student

Name: SUDARSHAN RAJENDRA KATE(2022H1460310P)

Student Write-up

PS-II Project Title: TO STUDY AND UNDERSTAND QUALITY PARAMETERS IN BIOSIMILAR MANUFACTURING PROCESS

Short Summary of work done during PS-II : The in-process sampling flow, from sample reception to result reporting, ensures rigorous monitoring and evaluation of critical parameters at each stage of biosimilars production. This structured process guarantees the integrity and quality of the final product, reflecting the company's adherence to stringent regulatory standards. Furthermore, the effective management of incidents, deviations, and the implementation of Corrective and Preventive Actions (CAPA) within the quality control department is pivotal in maintaining the highest standards of product quality and patient safety. By addressing both immediate issues and underlying causes, pharma company ensures continuous improvement and compliance with regulatory requirements. Looking ahead, pharma company poised to further enhance its capabilities through the learning and implementation of advanced analytical instruments such as UV, HPLC and UHPLC, GC, AAS, and TOC analyzers.

Tool used (Development tools - H/w, S/w) : HPLC, GC, UV

Objectives of the project : TO STUDY AND UNDERSTAND QUALITY PARAMETERS IN BIOSIMILAR MANUFACTURING PROCESS

Major Learning Outcomes : Quality control, HPLC,GC,UV

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at a company typically encompasses its culture, values, and physical surroundings where employees operate. It's often characterized by factors such as teamwork, innovation, inclusivity, and a supportive atmosphere conducive to productivity and growth. Expectations from the company usually revolve around delivering high-quality work aligned with its mission and goals. This includes meeting deadlines, collaborating effectively with colleagues, and continuously improving skills and knowledge. Companies also expect employees to embody their values, maintain professionalism, and contribute positively to the organizational culture. Clear communication, adaptability to change, and a proactive approach to problem-solving are commonly valued traits. Ultimately, companies seek individuals who are motivated, accountable, and eager to contribute to the company's success while fostering a positive and harmonious work environment.

Academic courses relevant to the project : QBD

PS-II Station : Biocon Biologics Limited , Bengaluru

Faculty

Name: Bharathi R

Student

Name: SURBHI SINGH(2022H1530332P)

Student Write-up

PS-II Project Title: Document Lifecycle Management in a Biopharmaceutical industry

Short Summary of work done during PS-II : Complete understanding of Document Lifecycle Management which refers to the systematic handling of documents from creation to disposal. It involves the creation, review, approval, distribution, and archival of documents throughout their lifecycle

Tool used (Development tools - H/w, S/w) : none

Objectives of the project : Dealing with comprehensive documentation of an industry

Major Learning Outcomes : Systematic handling of documents from creation to disposal

Details of Papers/patents : none

Brief Description of working environment, expectations from the company : Working environment is good, good learning

Academic courses relevant to the project : QARA, Clinical Research

PS-II Station : Biophore , Hyderabad

Faculty

Name: Bharathi R

Student

Name: SIVA PRASAD ULICHI(2022H1460321P)

Student Write-up

PS-II Project Title: Implementation of Project Management Principles

Short Summary of work done during PS-II : Preparation of Budget approval forms for new projects, Preparation of Comprehensive Project plans, Data compilation in to Master data sheet, Creating a Project Dashboard for market extensions Designing of Gantt Charts and project tracking sheets, Maintaining Continuous follow-up for activities based on timelines, and Strategizing Stakeholder Communication Management

Tool used (Development tools - H/w, S/w) : Microsoft Office Products- Word, Excel and PowerPoint

Objectives of the project : The project aims to integrate fundamental project management practices into organizational operations. This encompasses meticulous planning, continuous monitoring, and proactive tracking of activities to ensure that all tasks are completed in alignment with established objectives and deliverables are met with precision.

Major Learning Outcomes : • Proficient in project management methodologies: Waterfall and Agile

- Advanced Excel skills for report generation and analytics dashboards.
- Experienced in creating and using Gantt charts for project tracking.
- Organizational skills enhanced through senior management mentorship.
- Supported licensing team with new license approvals.
- Established communication management protocols.
- Prepared presentation decks for key meetings.
- Assisted mentor in managing and tracking over 50 products.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Biophore offers a flexible, collaborative work environment that encourages innovation.

Expectations:

1. Technical excellence.
2. Effective communication.
3. Organizational skills.

4. Collaboration.
5. Adaptability.

Academic courses relevant to the project : Pharmaceutical Administration and Management (PAM)

PS-II Station : Biophore , Hyderabad

Faculty

Name: Bharathi R

Student

Name: RAMANI MEET BHARATBHAI(2022H1530330P)

Student Write-up

PS-II Project Title: INTELLECTUAL PROPERTY REPORT GENERATION

Short Summary of work done during PS-II : During my Practice School-II (PS-II) at Biophore India Pharmaceuticals Pvt. Ltd., Hyderabad, I worked on a project titled "Intellectual Property Report Generation." The primary objective was to develop comprehensive and standardized intellectual property (IP) reports to assist the company in strategic decision-making regarding patents and generics. My responsibilities included defining the project scope and objectives, which involved identifying the types of IP to be reported, such as patents, trademarks, and copyrights, and determining the target audience for these reports. I collected relevant data from various patent databases and repositories, including USPTO, Espacenet, and Google Patents, among others. The data was then processed and analyzed to extract meaningful insights. This analysis covered competitor IP portfolios, patent landscapes, and potential infringement risks.

Based on this, I developed a standardized framework for the IP reports, incorporating key metrics, visual aids, and sections for executive summaries, IP analysis, and actionable recommendations. Additionally, I collaborated with legal experts to ensure the reports complied with relevant regulations and best practices. I also trained staff members on using the tools and methodologies for generating these reports and established a regular reporting schedule to maintain up-to-date insights into the company's IP portfolio. The project concluded with the generation of sample IP reports for specific drugs, summarizing key findings from the Freedom-to-Operate (FTO) analysis and assessing the feasibility of launching generic drugs. These reports have been instrumental in guiding the company's IP management strategies, helping Biophore navigate the complex landscape of generic pharmaceuticals effectively .

Tool used (Development tools - H/w, S/w) : Cortellus, IPD analytics, Sci finder, etc..

Objectives of the project :

- Develop a streamlined process for gathering comprehensive data on intellectual property assets within the organization.
- Implement automated tools or software to facilitate the analysis and synthesis of intellectual property data into detailed reports.
- Ensure accuracy and reliability in the evaluation of patent landscapes, competitor strategies, and potential risks and opportunities.
- Create standardized templates and formats for intellectual property reports to enhance consistency and clarity.
- Train relevant staff members on the utilization of tools and methodologies for generating intellectual property reports effectively.
- Collaborate with legal experts to ensure compliance with regulations and best practices in intellectual property management.
- Establish a regular reporting schedule to provide timely insights into the company's intellectual property portfolio.
- Continuously refine the report generation process based on feedback and evolving needs to enhance its efficiency and effectiveness.
- Identify key metrics and indicators to measure the impact of intellectual property reports on strategic decision-making and business outcomes.

Major Learning Outcomes : Learning from the Project:

- I. IP Management:
- II. Data Analysis and Reporting:
- III. Legal and Regulatory Compliance:
- IV. Strategic Decision-Making:
- V. Collaboration and Communication:

Details of Papers/patents : Cannot Disclose

Brief Description of working environment, expectations from the company : During my tenure at Biophore India Pharmaceuticals Pvt. Ltd., Hyderabad, I experienced a collaborative and dynamic working environment. Biophore is a research-driven global pharmaceutical company specializing in developing and manufacturing niche pharmaceutical products, particularly active pharmaceutical ingredients (APIs). The company's focus on complex chemistry and niche therapy areas, such as Oncology, Contrast Media, Peptides, and Hormones, provided a rich backdrop for innovative work.

The expectations from the company were clear and structured. Biophore emphasized customer satisfaction, continuous innovation, and an inclusive work culture. As part of the Intellectual Property (IP) team, I was expected to contribute to the development of standardized IP reports. This involved collecting data from patent databases, analyzing competitor IP portfolios, and assessing potential infringement risks. The goal was to create comprehensive IP reports that would aid in strategic decision-making for the company's generic drug development.

The supportive environment at Biophore encouraged knowledge sharing and collaboration. I worked closely with legal experts and other team members to ensure our IP reports met regulatory standards and provided actionable insights. Training sessions and regular feedback helped refine our processes and improve the quality of our outputs. Overall, Biophore's commitment to innovation and excellence provided a conducive environment for professional growth and meaningful contributions to the company's strategic goals.

Academic courses relevant to the project : IPR, Clinical Research, Chemistry, etc.

PS-II Station : Birla Copper - Non IT , Bharuch

Faculty

Name: Gaurav Nagpal

Student

Name: HARSH RAWAT(2019D2PS1284P)

Student Write-up

PS-II Project Title: Marketplace Management Work

Short Summary of work done during PS-II : I worked on marketplace management of multiple brands, in it I contributed through completing tasks assigned to me like Keyword Research, product Listing, Listing Hygiene, etc.

Tool used (Development tools - H/w, S/w) : Google Spreadsheets, Excel

Objectives of the project : Complete the Daily Tasks

Major Learning Outcomes : Marketplace Management, Sponsored Ads, Reporting

Details of Papers/patents : NAL

Brief Description of working environment, expectations from the company :

Academic courses relevant to the project : Digital Marketing

PS-II Station : Birla Polyfibers , Harihar

Faculty

Name: Arun Maity

Student

Name: AMAN RAHMAN(2020A1PS2089G)

Student Write-up

PS-II Project Title: Ring Formation in Lime Kilns

Short Summary of work done during PS-II : Understanding the process, going through research papers, observing the working of various tools and analyzing the data obtained

Tool used (Development tools - H/w, S/w) : Microsoft Excel

Objectives of the project : Finding the cause, how much of impact and losses caused by the ring formation

Major Learning Outcomes : Better analysis understanding, learning the workings of the chemical plant, overall process theory

Details of Papers/patents : Focus on the development of a computational model for calculating mass and energy balances over a lime kiln in a kraft pulp mill. Implemented in FORTRAN and integrated into the WinGEMS simulation software, the model utilizes user-specified parameters and established chemical relations. It calculates fuel consumption and handles multiple fuels by computing their compositions and heating values.

Brief Description of working environment, expectations from the company : Nice working environment, cool and collected and rightful expectations for an intern

Academic courses relevant to the project : Chemical Process Technology

PS-II Station : Blackberry India Pvt. Ltd , Hyderabad

Faculty

Name: Pawan Sharma

Student

Name: MIHIR SRIVASTAVA .(2019B4A30689P)

Student Write-up

PS-II Project Title: Evaluation Testing of BSP and Main Server Setup

Short Summary of work done during PS-II : I was a part of Product Roadmap test team, and my first project involved the evaluation testing of a BSP. The testing was done to ensure that all the required functionality is there and to check for the existence of any bugs. My second project was to work on server setup, which required us to write automation scripts to ease the process of retrieving image files for target board while working on testing/development.

Tool used (Development tools - H/w, S/w) : Raspberry Pi, Product specific boards (can't be named), Momentics, Minicom, JIRA

Objectives of the project : Perform Evaluation testing of BSP, and work on Main Server setup

Major Learning Outcomes : 1. Learnt about basics of BSP testing and importance of product testing in general

2. Learnt about the process of writing scripts to automate tasks and reduce time and difficulty to start working with a target board

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The work environment here is excellent. There is a steep learning curve for a beginner in the organization, but there will always be people who will be willing to help you with any task you have. If you are assigned to any deliverables, you will always work under some team member's supervision.

Academic courses relevant to the project : 1. Microprocessor Programming

2. OS

3. Embedded Systems

4. IoT

PS-II Station : Blackberry India Pvt. Ltd , Hyderabad

Faculty

Name: Pawan Sharma

Student

Name: AISHWARYA SAM.(2020A7PS0001P)

Student Write-up

PS-II Project Title: Android on Raspberry Pi - Hypervisor Project

Short Summary of work done during PS-II : The first 7 weeks involved the learning phase - drivers, PCBs etc. At the end of week 7, I was assigned my project for PS2 titled Android on Raspberry Pi Hypervisor Project which was supposed to be a learning activity for the students of a University abroad. Week 8 mostly involved 1 on 1 discussions with my manager and newly assigned mentor to understand the scope of the project and action items with regards to learning new concepts. During the next 2 weeks, I was assigned learning tasks by my mentor. I learnt

about the QNX Hypervisor in depth and understood the various components of the project - guest Operating System, which is Android, the hardware, which is the Raspberry Pi board and the host - which is QNX Hypervisor. I read about the Hypervisor and the Android Debug Console during the 9th week. I also understood the process of testing the working of WiFi on Raspberry Pi board. In the 10th week, the focus shifted to learning concepts that are more theoretical - Graphics sharing and the components of the configuration file. I then moved on to learning about Network Sharing in the 11th week. I also learnt how to boot QNX 7.1 guest on QNX Hypervisor host and understood the commands used during the process. During the next 2 weeks, I worked closely under my mentor's guidance, to understand and start making changes in the configuration file and the buildfile. During the 14th week, I worked on Network, Console, USB and Display. By the end of this week, we were successfully booting Android guest on Raspberry Pi using hypervisor host. Once a mouse and display was connected, we could use the mouse to surf the internet, play videos and easily navigate through the Android OS and the basic applications. The 15th week marked in the end of the project and I had to prepare a user guide for the University Students to refer to and a confluence page for internal use of employees. Post this, I was assigned work on a printed circuit board under the guidance of a new mentor. This was not a project as such, it was a learning task, which continued in the weeks that followed. Finally in the last 2 weeks of the internship, Mihir and I were assigned a presentation to be delivered to the leadership team on the concept of Design Thinking. This gave me an opportunity to explore certain courses on Udemy that enhance soft skills. This also made the entire internship experience well rounded - including technical aspects and soft skills.

Tool used (Development tools - H/w, S/w) : Momentics IDE, Printed Circuit Boards, BSP

Objectives of the project : To help University students run Android on Raspberry Pi and expose them to the world of embedded systems.

Major Learning Outcomes : The main idea of this project was to run Android as a guest Operating system on Raspberry Pi board with QNX Hypervisor as host. In the interest of confidentiality, details about the project cannot be disclosed. However, the skills learnt and applied in the completion of the project include – reading the buildfile, understanding the config file, the qvm config file (android.qvmconf) and the hypervisor host image and making changes wherever necessary. Once all the physical connections are made, the following were expected to

work – console, USB (mouse and keyboard) and network. This involved writing vdevs and configuring them accordingly. The entire project involved programming in C.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The working environment is great. The buddy and mentor assigned are extremely helpful and approachable. There are numerous training sessions held to brush up known concepts and expose employees to newer ones.

Academic courses relevant to the project : Operating Systems

MuP

C programming

IoT

PS-II Station : Blackberry India Pvt. Ltd , Hyderabad

Faculty

Name: Pawan Sharma

Student

Name: HARSHIT BANSAL(2020A8PS1455G)

Student Write-up

PS-II Project Title: Board Support Packages and Device Drivers

Short Summary of work done during PS-II : I was a part of the services team where I had to address queries by customers related to board support packages, device drivers etc in QNX. Due to the extreme specialization of the queries by customers, a considerable amount of time was spent on fieldwork and self-education.

Tool used (Development tools - H/w, S/w) : Momentics, Raspberry pi, Custom hardware boards, putty

Objectives of the project : To address the issues faced by customers using QNX operating system and product

Major Learning Outcomes : Device Drivers
Board Support Packages
Real time Operating system

Details of Papers/patents : N.A.

Brief Description of working environment, expectations from the company : Working environment is quite positive with a good work-life balance. People are very helpful in general. In all a great learning experience.

Academic courses relevant to the project : Operating Systems
Microprocessors
Embedded systems

PS-II Station : BlackRock Services , Gurugram

Faculty

Name: Nishit Narang

Student

Name: CHIRAG GUPTA .(2019B3A70555P)

Student Write-up

PS-II Project Title: Interest Rate Model Implementation for Mortgage Backed Securities

Short Summary of work done during PS-II : My project at BlackRock involved working with C++ based software architecture, to implement an interest rate model for generating analytics for mortgage backed securities. I learned about C++ Development, design patterns and various software development skills. I also worked with python to create test scripts and SDKs. I got to learn about mortgage rate models and fixed income securities as well.

Tool used (Development tools - H/w, S/w) : C++, CLion, Azure DevOps

Objectives of the project : Implement an interest rate model in c++ with performance optimization to enable interactive analytics for Mortgage Backed Securities

Major Learning Outcomes : 1. Learned how interest rate models are developed for production grade usecase

2. Software Development in C+

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Great culture here at BlackRock. Everyone was supportive and encouraged me try experience different fields of work. A very good exposure to technology and finance.

Academic courses relevant to the project : Object Oriented Programming, Computer Networks, Parallel Computing, Money Banking and Financial Markets, Financial Engineering, Financial Risk Analytics and Management

PS-II Station : BlackRock Services , Gurugram

Faculty

Name: Nishit Narang

Student

Name: PADSHAH ROHAN(2022H1030121P)

Student Write-up

PS-II Project Title: Security Similarity Framework and BLK-Jirass

Short Summary of work done during PS-II : Security Similarity Framework: The task involves processing large CSV and JSONL files, sharding the data into multiple buckets based on a hashing mechanism for easy retrieval via API, and storing the shards in Apache Parquet format for efficient, compressed columnar storage. Duplicates are to be removed during file generation. Additionally, the system must be integrated with the existing codebase to compute similarity scores, enabling efficient fetching of data from these Parquet buckets. BLK-Jirass: The project involves gathering a corpus of JIRA tickets and related documentation, then cleaning and preprocessing the text data by removing noise and handling special characters. The preprocessed text is indexed using an information retrieval system like Chroma or FAISS. A Retrieval-Augmented Generation (RAG) model is trained, with the retrieval component focusing on fetching relevant JIRA tickets based on user queries, and the generation component using a large language model to generate contextually relevant answers from both JIRA tickets and

external knowledge sources. User queries are processed by generating embeddings and querying the RAG model for answers.

Tool used (Development tools - H/w, S/w) : S/w- Java, Spring, Python, Apache Parquet, Chroma, LLMs

Objectives of the project : Security Similarity Framework: Objective of this project is to provide the consumers with similar securities for different asset classes like Corporate Bonds, Mutual Funds and ETFs. BLK-Jirass: To be deployed as level 0-1 support utility for client query service desk.

Major Learning Outcomes : Touched upon different scenarios/challenges in Java especially that have not been encountered before, which helped gain a lot of knowledge about variety of topics. Got exposure to Machine learning domain especially Generative AI and how to develop different tools on top of it using different techniques. Got to know basics of finance which is required for the job and in general to manage finances.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The working environment has been very good at the organization, and the people are helpful as well. As a fintech organization, I expected to learn a lot about finance, which I have already done and will continue to do. On tech front, I got exposure to various challenges which I had never encountered, which helped me learn lot in Java. I also got exposure to machine learning domain by working on RAG technique for hackathon project. Overall very good internship experience.

Academic courses relevant to the project : Cloud Computing, Advanced Operating System

PS-II Station : Blue Yonder (JDA) , Bengaluru

Faculty

Name: Chennupati Rakesh Prasanna

Student

Name: SWAMI BUDDHA CHAITANYA(2022H1030105P)

Student Write-up

PS-II Project Title: Additional warehouse in neo and ltd.

Short Summary of work done during PS-II : Completed python training and snowflake training, then got mentors assigned which helped me to understand and perform well in the projects assigned.

Tool used (Development tools - H/w, S/w) : Azure, GitHub actions , python.

Objectives of the project : Automation of creation of resources and create config files for them.

Major Learning Outcomes : Got to learn about Devops.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Working environment is friendly and supporting, and expectation is to learn well and contribute to the team.

Academic courses relevant to the project : Operating systems.

PS-II Station : Blue Yonder (JDA) , Bengaluru

Faculty

Name: Chennupati Rakesh Prasanna

Student

Name: RAJANI SHARMA(2022H1030115P)

Student Write-up

PS-II Project Title: Reporting as Service

Short Summary of work done during PS-II : Applied full stack development skills in HTML, CSS, JavaScript, React, Python, Flask, and FastAPI to handle back-end and front-end tasks in real-world projects. Played an active role in improving reporting and analytics features, demonstrating a solid grasp of software development principles and industry standards.

Tool used (Development tools - H/w, S/w) : Pycharm, docker, VScode, Github etc

Objectives of the project : Reporting as a Service (RaaS) simplifies the process of generating comprehensive analytical reports. It combines interfaces for report consumption, efficient dataset management, and interactive data table creation. The service currently supports Microsoft Power BI as a report source. Users can define parameters, select data sources, and customize the visual representation of information using Microsoft Power BI capabilities.

Major Learning Outcomes : Front-End Development: Gained proficiency in HTML, CSS, and JavaScript, enabling the creation of responsive and dynamic web interfaces. Developed complex user interfaces using React, ensuring seamless user experiences.

Back-End Development: Utilized Python frameworks such as Flask and FastAPI to design and implement robust server-side applications and RESTful APIs. Managed database interactions and server logic to support web applications effectively.

Integration: Demonstrated the ability to integrate front-end and back-end components, creating full-stack solutions that meet project requirements and industry standards.

Details of Papers/patents : Not required

Brief Description of working environment, expectations from the company : Working environment was very good. Company met all the expectations.

Academic courses relevant to the project : Software engineering management, software testing management, Cloud computing

PS-II Station : Blue Yonder (JDA) , Bengaluru

Faculty

Name: Chennupati Rakesh Prasanna

Student

Name: SIDHARTH SAXENA(2022H1120282P)

Student Write-up

PS-II Project Title: Visibility Dashboard

Short Summary of work done during PS-II : I was tasked with the creation of an application that can return summarised information regarding communication between all of Blue Yonder's

products with various filters and the final report in a csv format or json format depending on user requirement. This required gaining a decent understanding of Blue Yonder's products and domain knowledge. I conducted development within a team under the guidance of my mentor utilizing fastAPI (Python), SQL and Docker for application development along with an in-house application deployment tool.

Tool used (Development tools - H/w, S/w) : FastAPI (Python), PyCharm, SQL, Docker, In-house application deployment tool

Objectives of the project : Create an end to end visibility dashboard summarizing communication between all of the company's products

Major Learning Outcomes : 1.) Product development process and methodologies followed in an MNC including industry standard tools for coding, documentation and maintenance.
2.) Working collaboratively and effectively as a team and clearly communicating ideas, suggestions and results to all shareholders at various levels within the organization.

Details of Papers/patents : Not applicable.

Brief Description of working environment, expectations from the company : Everyone in the organization I have interacted with ranging from fellow interns to Directors and VPs are all very welcoming, down to earth, collaborative and patient hence, the working environment was really great in my opinion and genuinely fostered the development of my technical skills and soft skills at an organizational level.

The expectations from the company were for me to gain domain knowledge since they provide supply chain software products and also the development of an internal tool for summarizing the communication between these products. I never felt overworked or underworked, balance was really good.

Academic courses relevant to the project : Software Engineering and Management, Software Architectures, Data Warehousing, Cloud Computing, Software Testing Methods

PS-II Station : Bread Financial , Bengaluru

Faculty

Name: Anjani Srikanth Koka

Student

Name: ARYAN BHARDWAJ(2020A3PS0587H)

Student Write-up

PS-II Project Title: Development and Automation of Processes in Team Financial Data Analytics and Reporting

Short Summary of work done during PS-II : The work in PS revolved around automating processes , creating dashboards and doing validations.

Tool used (Development tools - H/w, S/w) : Alteryx , MicroStrategy, MS Excel, Power Tools , Dataiku , WinSQL

Objectives of the project : To prepare and provide data for Model COE

Major Learning Outcomes : Data Manipulation

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The working environment is great and the people are helpful. Interns are given tasks with ownership which gives them accountability and opportunities to grow.

Academic courses relevant to the project : Finance Minor

PS-II Station : BSCPL Infrastructure Ltd. , Hyderabad

Faculty

Name: Mahesh K Hamirwasia

Student

Name: ASMA KAHANKASHAN(2022H1440037P)

Student Write-up

PS-II Project Title: Comprehensive Quantity Surveying and Billing Management for a High-Rise Residential Complex with Extensive Amenities

Short Summary of work done during PS-II : In my role as a Quantity Surveying Engineer within the QS team of the residential high-rise building project spanning 8.9 acres, I have contributed significantly in both technical and business capacities. From a technical standpoint, my responsibilities have focused on meticulous management of construction documentation and cost estimation. This includes preparing detailed Bills of Quantities (BOQs), facilitating Bar Bending Schedule (BBS) preparations, and ensuring accurate estimation and tracking of material quantities. I have been instrumental in overseeing the billing process for select vendors, meticulously handling the verification, approval, and timely release of invoices. Additionally, I am tasked with generating and maintaining Nominal Muster Roll (NMR) reports, critical for labor management and project cost analysis. On the business front, I have honed my skills in vendor management, negotiating contracts, and maintaining positive relationships with suppliers. My role involves ensuring compliance with contractual agreements and cost control measures, essential for maintaining project budget integrity. Moreover, I actively contribute to financial reporting and budget forecasting exercises, providing stakeholders with transparent insights into project

expenditures and financial performance. Overall, my contributions as a Quantity Surveying Engineer have not only bolstered technical efficiency in construction operations but also played a pivotal role in fostering robust financial management practices essential for the successful execution of this expansive residential development project.

Tool used (Development tools - H/w, S/w) : MS Excel, AutoCAD

Objectives of the project : 1. Cost Management: Ensuring accurate estimation, monitoring, and control of project costs through detailed quantity surveying activities such as Bill of Quantities (BOQ) preparation, BBS (Bar Bending Schedule), and vendor billing. 2. Documentation and Reporting: Maintaining comprehensive records of quantities, costs, and project progress to facilitate informed decision-making by project stakeholders. 3. Collaboration and Coordination: Working closely with other project teams and stakeholders, including architects, engineers, contractors, and vendors, to ensure seamless execution and delivery of the residential project.

Major Learning Outcomes : 1. Quantity Surveying Techniques: Enhancing proficiency in quantity surveying techniques such as preparing Bills of Quantities (BOQ), Bar Bending Schedules (BBS), and accurately estimating material quantities required for construction projects. 2. Construction Documentation: Gaining expertise in documentation processes related to billing, including verifying and processing invoices from vendors, maintaining financial records, and ensuring compliance with contractual agreements. 3. Financial Acumen: Improving financial literacy by handling project budgets, tracking expenditures, and generating financial reports like NMR (Nominal Muster Roll) reports, which are crucial for project financial management. 4. Possessing a comprehensive understanding of cost estimates for each construction activity associated with residential buildings is highly advantageous from a real estate perspective. This capability enhances informed decision-making and supports effective financial planning throughout the project lifecycle, ensuring optimal resource allocation and budgetary control.

Details of Papers/patents : na

Brief Description of working environment, expectations from the company : Throughout my internship experience at the site office, I received exceptional support from managers, co-interns, Graduate Engineer Trainees (GETs), and supervisors, all of whom ensured my comfort and safety

during frequent site visits. My mentor dedicated significant time to enriching my learning experience, providing valuable insights into every phase of a residential project, from inception to completion.

While the technical department provided thorough guidance, I observed a need for improved administrative coordination. Initially, there was a lack of paperwork, including clarity on internship terms and stipend procedures. I took the initiative to engage with HR to resolve these matters. It would greatly benefit future interns if the company maintained proper communication with the PS division or PS faculty. The company is expected to recognize the internship's significance in academic progression.

I appreciate the opportunity to contribute to such a dynamic project environment and am grateful for the invaluable support and mentorship I received. Moving forward, I believe enhanced communication and administrative efficiency will further enrich the internship experience, benefiting both interns and the organization.

Academic courses relevant to the project : CE G527 : Construction Management
CE G520 : Infrastructure Planning and Management

PS-II Station : Cadence Design Systems , Bengaluru

Faculty

Name: Sanjay Vidhyadharan

Student

Name: ANURAG VIDYADHAR HEGDE .(2020A3PS1552P)

Student Write-up

PS-II Project Title: Simplifying debug process in physical design

Short Summary of work done during PS-II : Developed a python utility for extracting key PPA parameters from ongoing physical design (Innovus) runs. Supported on-site Application Engineering team at SSIR in the last 1.5 month of PS.

Tool used (Development tools - H/w, S/w) : Cadence Innovus, Cadence Genus, Python, TCL scripting.

Objectives of the project : To create a utility that can be used to extract key PPA parameters from ongoing physical design (Innovus) runs.

Major Learning Outcomes : Knowledge of various steps in back-end of VLSI design flow.
In-depth understanding of physical design.
Automation through scripting.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment is good. Mentors are supportive, approachable and encourage clarifying doubts. Students are given an initial understanding of the task required to be done and are expected to use the method that they find best suiting to accomplish the task.

Academic courses relevant to the project : Analog and Digital VLSI Design

PS-II Station : Carbon Impact Capial Pte Ltd , Singapore

Faculty

Name: Samir Kale

Student

Name: PRIKSHIT(2019B3AA0657G)

Student Write-up

PS-II Project Title: Sugata Ghosal

Short Summary of work done during PS-II : During my web development internship, I gained practical experience in designing, coding, and maintaining web applications. I worked on both front-end and back-end development, utilizing technologies such as HTML, CSS, JavaScript, and various frameworks and libraries. I collaborated with a team of developers to enhance user interfaces, optimize web performance, and troubleshoot issues. This internship allowed me to apply theoretical knowledge in a real-world setting, improve my coding skills, and understand the dynamics of working within a professional development team.

Tool used (Development tools - H/w, S/w) : During my web development internship, I utilized a variety of tools and technologies. I worked with HTML, CSS, and JavaScript for basic web development and employed frameworks and libraries such as React, Angular, and Node.js to build dynamic applications. For version control, I used Git and GitHub, ensuring efficient code management and collaboration. Project management tools like Jira and Trello helped in organizing tasks and tracking progress. Additionally, I gained experience with databases such as MySQL and MongoDB, and used Visual Studio Code as my primary development environment.

Objectives of the project : to make a website

Major Learning Outcomes : web dev

Details of Papers/patents : na

Brief Description of working environment, expectations from the company : good

Academic courses relevant to the project : na

PS-II Station : Carbon Impact Capital Pte Ltd , Singapore

Faculty

Name: Samir Kale

Student

Name: JALAJ GUPTA .(2020A2PS1608P)

Student Write-up

PS-II Project Title: Carbon Dioxide Removal Techniques(ERW, AWD and Biochar) and Data Management

Short Summary of work done during PS-II : Good Learning Projects and some Data Management work.

Tool used (Development tools - H/w, S/w) : Microsoft PowerPoint and Microsoft Excel

Objectives of the project : Research

Major Learning Outcomes : Learning about carbon dioxide removal techniques and their applications.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Co-operative and helping colleagues.

Academic courses relevant to the project : NA

PS-II Station : CASHe , Hyderabad

Faculty

Name: Chennupati Rakesh Prasanna

Student

Name: BIJIVEMULA SAI NATH REDDY(2019B2A41544H)

Student Write-up

PS-II Project Title: Partners Integration Dashboard Web app

Short Summary of work done during PS-II : The development of the partner integration website involved creating a comprehensive platform to facilitate seamless collaboration between partners and the organization. The project included the implementation of six user roles (cashe admin, cashe lead, cashe dev, partner admin, partner dev, and partner agent), each with specific permissions to access designated sections: Dashboard, Partners, Integrations, Policy, Help, and Account. The Dashboard section features graphical data presentations for monitoring partner growth and a report scheduling system that automates email delivery of reports. The Partners section provides tools for managing partner details, campaigns, and sorting/filtering options. The Integrations section tracks the status of partner integrations and lead stages. A Policy section was developed to house compliance documents, while the Help section offers FAQs and a live chat option through Discord for real-time support. The Account section allows users to view and manage their profiles and, for admins, to oversee user roles and permissions. Key features implemented include Firebase push notifications for timely updates and role-based access control to ensure secure and appropriate access to the platform's various functionalities. The website

was designed with an intuitive and responsive interface, ensuring a seamless user experience across devices. The project also focused on automating routine tasks, enhancing data visualization, and providing robust support tools, ultimately creating a secure, efficient, and user-friendly platform for managing partner integrations.

Tool used (Development tools - H/w, S/w) : Java, Spring Boot, MySQL, AWS, Firebase Cloud Messaging, Jira, Bitbucket, Git, Figma, IntelliJ.

Objectives of the project : To provide a robust platform for partner integration equipped with necessary features and tools to manage partners effectively.

Major Learning Outcomes : Enhanced understanding of role-based access control, effective data visualization, automations, integration management, project management.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The development of the partner integration website took place in a collaborative, agile work environment characterized by regular sprints and iterative feedback cycles. The team utilized a combination of remote and on-site collaboration tools to ensure seamless communication and coordination among members. Key tools included project management software like Jira for task tracking, Git for version control, and communication platforms such as Teams and Outlook for daily stand-ups and Expectations from the company are quality and performance, time delivery, effective communication, innovation and improvement, security and compliance.

Academic courses relevant to the project : OOP, OS, DSA, DBMS.

PS-II Station : CEG Limited , Jaipur

Faculty

Name: Mahesh K Hamirwasia

Student

Name: KALIDINDI VENKATA SEETA RAMA SURAJ VARMA(2022H1440036P)

Student Write-up

PS-II Project Title: Overlay design of Lalitpur sagar lakhnadon section of NH 44

Short Summary of work done during PS-II : It was a good experience, got much to learn.

Tool used (Development tools - H/w, S/w) : MS EXCEL,GOOGLE EARTH PRO,KGPBACK,IITPAVE

Objectives of the project : TO provide overlay design wherever required in the project section.

Major Learning Outcomes : Flexible pavement design, Overlay design

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Mentors were quite helpful, and they were always ready to teach. Working environment was quite good.

Academic courses relevant to the project : Pavement design maintenance and management.
Transportation planning and management.

PS-II Station : Cenizas Labs - Software , Chennai

Faculty

Name: Rajesh Kumar Tiwary

Student

Name: SARTHAK ARORA .(2020A7PS0060P)

Student Write-up

PS-II Project Title: Automating Business Software Generation with AI-One: A Platform for Customized Solution Development

Short Summary of work done during PS-II : Throughout this internship, working on AI-One provided a comprehensive and immersive experience in the field of AI-driven software development. AI-One, an innovative platform designed to automate the generation of customized software solutions using large language models (LLMs), has shown significant potential in transforming the traditional software development landscape. The core of AI-One lies in its advanced natural language processing (NLP) capabilities, allowing it to interpret complex user requirements and generate accurate, high-quality code. The efforts to enhance these NLP capabilities, optimize algorithms, and ensure robust testing and validation processes have substantially improved the platform's performance, reliability, and usability. The internship also highlighted the importance of ethical considerations, data privacy, and continuous learning in the development and deployment of AI technologies. Addressing these aspects is crucial for building trust and ensuring the responsible use of AI-One.

Tool used (Development tools - H/w, S/w) : NextJS, Django, ReactJS, Docker, LLMs, GPT

Objectives of the project : The primary objective of AI-One is to replace traditional software development methodologies with a more efficient, AI-driven approach, thereby reducing dependency on extensive human input and accelerating the software creation process.

Major Learning Outcomes : Key achievements during the internship included refining the algorithms to enhance code generation efficiency, implementing rigorous testing strategies to validate the platform's outputs, and developing effective deployment and integration methods to ensure seamless operation across various environments. These improvements have made AI-One more versatile and capable of meeting diverse industry-specific needs.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment was really good and very friendly.

Academic courses relevant to the project : OOP, DBMS

PS-II Station : Centre for Artificial Intelligence & Robotics , Bengaluru

Faculty

Name: Raghuraman RAGHURAMAN

Student

Name: SAHIL NISHAD(2022H1030054H)

Student Write-up

PS-II Project Title: Deep Learning Approaches for IMU-Based Activity Recognition and Payload Estimation in Augmentative Exoskeletons

Short Summary of work done during PS-II : My work focuses on advancing deep learning research for human activity recognition and payload estimation, aimed at enhancing the

functionality of active exoskeletons. I have conducted comprehensive studies on existing methodologies utilizing wearable sensors, which laid the foundation for my innovative contributions. By developing a novel deep learning architecture, I significantly improved the processing efficiency and predictive accuracy of these systems. This architecture not only reduces inference times but also outperforms established benchmarks in terms of the F1 score.

Tool used (Development tools - H/w, S/w) : Python, Jupyter Notebook,

Objectives of the project : Research and develop AI-based high-level controller for augmentative exoskeleton

Major Learning Outcomes : Developed a novel deep learning architecture that outperforms existing and traditional methods in terms of F1 score and inference time.

Details of Papers/patents : Looking forward to get the results and methodology published in upcoming months.

Brief Description of working environment, expectations from the company : As an intern at Centre for Artificial Intelligence & Robotics, the environment is both rigorous and supportive, equipped with advanced tools for high-impact projects. The lab fosters a collaborative atmosphere where expertise from various scientific disciplines converges, enhancing the research outcomes. I was expected to engage deeply in research, ensuring meticulous attention to detail and adherence to ethical standards.

Academic courses relevant to the project : Python Programming, Machine Learning, Deep Learning, Robotics, Digital Signal Processing

PS-II Station : Centre for Artificial Intelligence & Robotics , Bengaluru

Faculty

Name: Raghuraman RAGHURAMAN

Student

Name: SANJEEV KUMAR(2022H1030144G)

Student Write-up

PS-II Project Title: A Novel Design Approach to Optimize Bloom Filter

Short Summary of work done during PS-II : During my project, I focused on optimizing the Bloom filter, a space-efficient probabilistic data structure, by integrating advanced hash functions to enhance its performance. The primary objective was to reduce the rate of false positives and accelerate query response times, crucial for applications requiring fast data access with limited storage capacity.

Tool used (Development tools - H/w, S/w) : C++, Python, VS Code, git, Qt Creator, cmake, make

Objectives of the project : The objectives of the project is enhance the performance of Bloom filters through the integration of optimized hash functions, specifically MurmurHash and CityHash, to reduce false positives and improve query response times.

Major Learning Outcomes : The major learning from the paper is the significant enhancement in the performance of Bloom filters by using optimized hash functions, namely MurmurHash and CityHash. These improvements resulted in a notable reduction in false positive rates and faster query response times compared to traditional database indices like B-trees.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : At CAIR Bangalore, a government organization, the working environment was highly supportive, encouraging innovation and collaborative research.

Academic courses relevant to the project : Data Structure, Algorithm, SQL, database, Hash function

PS-II Station : Centre for Artificial Intelligence & Robotics , Bengaluru

Faculty

Name: Raghuraman RAGHURAMAN

Student

Name: PANYAM HEMANTH KUMAR(2022H1230124G)

Student Write-up

PS-II Project Title: Auto Gain Correction in High Speed Video and Sensor Data Acquisition System

Short Summary of work done during PS-II : The course on ROS included hands-on command window practice, encountering a glitch in the automatic gain setting of HSVSDAS. Troubleshooting involved extensive device use, multiple recordings, and verification. To address this, histogram equalization techniques using FPGAs were explored to improve the gain. focused on refining the gain adjustment mechanism, enhancing understanding of robotics, histogram equalization, and system optimization for skill development and innovative problem-solving.

Tool used (Development tools - H/w, S/w) : ROS, VERILOG,Quartus prime.

Objectives of the project : The objective of implementing Auto Gain Correction (AGC) in high-speed video and sensor data acquisition systems is to ensure optimal signal quality and fidelity

across varying environmental conditions and input signal strengths. AGC aims to automatically adjust the gain to maintain consistent signal amplitude, thereby enhancing the clarity and accuracy of the captured data. By dynamically managing the system's dynamic range, AGC accommodates both low and high-intensity signals, preventing signal clipping and saturation. Additionally, AGC minimizes the impact of noise, ensuring that the acquired data is clean and reliable.

Major Learning Outcomes : Histogram equalization technique is used to understand how to enhance image contrast through the redistribution of intensity values, improving visibility in dark or bright areas.

Details of Papers/patents : Nil

Brief Description of working environment, expectations from the company : The working environment at CAIR is highly engaging and supportive. The scientists, who possess extensive experience in various fields, are approachable and readily provide input when needed. As CAIR is a DRDO lab, there are strict restrictions on carrying mobile phones and movement across different areas. Despite these restrictions, the overall experience is highly educational. Scientists at CAIR typically oversee the overall conduct of projects, while interns are more involved in the technical aspects rather than client interactions. My interactions have been primarily with scientists and other interns or contract engineers from my department. The controlled environment restricts intern access to most areas of the campus, limiting us to our assigned training zones. Work is predominantly conducted offline with limited internet access at designated terminals, and any online communication must be approved by the supervising scientist.

Academic courses relevant to the project : Reconfigurable Computing, Vlsi Architecture.

PS-II Station : Centre for Artificial Intelligence & Robotics , Bengaluru

Faculty

Name: Raghuraman RAGHURAMAN

Student

Name: CH CHANIKYA(2022H1230128G)

Student Write-up

PS-II Project Title: Refactoring of IMU based Visual Inertial Sensor

Short Summary of work done during PS-II : My project started with reading some IEEE papers and some journals related to Visual Inertial sensors and understanding how they operate in principle. Then I learnt about various sensors in my hardware project like IMU, GPS, Image sensors, linux and most importantly Robot Operating System (ROS-1) which is predominantly used in CAIR. These initial learnings helped me to start working on my hardware. Hardware I was working on had some issues like timing issue, packet loss which I started working on. I have done multiple data recording and analyses to see where timing issue was coming from and tried to refactor IMU frequency and trigger signal frequency which was a very key area. My project had multiple sides like RTL, Software and ROS side. Have done multiple iterations of Calibration to determine noise parameters and improve overall timing efficiency of the system.

Tool used (Development tools - H/w, S/w) : Robot Operating System ROS-1, Linux

Objectives of the project : To reduce the timing issue/packet loss issue in our existing hardware using RTL side, software side, ROS side predominantly and thereby improving the overall efficiency of the system.

Major Learning Outcomes : Reduction methods of timing issue in hardware was a major learning outcome. It was done through multiple iterations of data recording and analyzing.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at CAIR is very engaging and good. Scientists here have vast experience related to various things and are very approachable and give inputs to us whenever needed. As it is a DRDO lab, restrictions on carrying our mobile phones and movement to different areas were there. Overall it was a learning experience.

Academic courses relevant to the project : Reconfigurable Computing, Verilog, VLSI Architecture

PS-II Station : Centum Electronics , Bengaluru

Faculty

Name: Pawan Sharma

Student

Name: NIVEDITA ACHARYYA(2022H1400070G)

Student Write-up

PS-II Project Title: FPGA design of Block Adaptive Quantization in Synthetic Aperture Radar for satellite application

Short Summary of work done during PS-II : Synthetic Aperture Radar (SAR) data compression traditionally uses Block Adaptive Quantization (BAQ), but due to non-Gaussian distribution of raw data caused by receiver saturation, the study highlights the need for improved compression techniques, as neither the signal mean-standard deviation correlation nor the mean input-standard deviation output correlation is optimal across all data.

Tool used (Development tools - H/w, S/w) : VHDL, System Verilog ,MATLAB Simulink

Objectives of the project : To develop and implement a Block Adaptive Quantization (BAQ) algorithm on FPGA for compressing SAR data to enhance transmission efficiency without significant loss of image quality. This requires use of ADC saturate. An adaptive quantizer estimates the statistics of the source and attempts to match the quantizer to the observed in time varying statistics.

Major Learning Outcomes : Task is fully completed and I have learnt:

- 1) The concept of NAND Flash memory, PISO and SIPO , SERDES ,SSD,DDR , Buffers
- 2) IDDR and ODDR
- 3) Concept and details of BAQ and SAR
- 4) VHDL coding of counter, IDDR and ODDR , SERDES , Buffers , NAND and NOR and the project.
- 5) Making the final project report

Analysis and Results of the whole entire project :

- 1)Findings: The BAQ algorithm successfully compressed the 12-bit input chirp signals to 4-bit outputs, maintaining essential signal features.
- 2)Performance: The implementation demonstrated efficient data compression suitable for real-time processing in satellite applications, optimizing on board data storage and transmission.

Details of Papers/patents : The project on FPGA design for Block Adaptive Quantization (BAQ) in Synthetic Aperture Radar (SAR) for satellite applications involves several key aspects:

Algorithm Development: BAQ is used to compress SAR data by adapting quantization levels to the signal statistics within blocks of data, which optimizes data storage and transmission efficiency.

Hardware Implementation: The BAQ algorithm is implemented on FPGA to leverage its parallel processing capabilities, enhancing real-time performance.

Applications: This technique is crucial for spaceborne SAR systems, including missions like ENVISAT and Sentinel, where efficient data compression is necessary due to bandwidth limitations.

In-depth research and practical implementations have demonstrated the viability and efficiency of BAQ in various satellite missions, often combined with other quantization techniques to balance compression ratios and data fidelity (MDPI) .

Brief Description of working environment, expectations from the company : Working Environment

Centum Electronics fosters a dynamic and collaborative work environment focused on innovation and excellence in electronics design and manufacturing. The company emphasizes continuous learning and professional growth, providing employees with opportunities to work on cutting-edge technologies in sectors like aerospace, defense, and telecommunications.

Expectations

Centum Electronics expects its employees to demonstrate strong technical expertise, creativity, and a commitment to quality. Employees should be proactive, adaptable, and effective team players. The company values integrity, customer focus, and the ability to deliver solutions that meet stringent industry standards. Regular collaboration across multidisciplinary teams and a focus on innovation are key aspects of the work culture.

Academic courses relevant to the project : To work on the FPGA design of Block Adaptive Quantization in Synthetic Aperture Radar (SAR) for satellite applications, relevant academic courses include:

Digital Signal Processing (DSP)

Digital Design and FPGA Programming

Communication Systems

Embedded

PS-II Station : Cerebrionics Technology Pvt. Ltd. , Bengaluru

Faculty

Name: Shreyas Suresh Rao

Student

Name: VEDAANT RATH(2020A8PS1755G)

Student Write-up

PS-II Project Title: Aquaponics Resource Planning

Short Summary of work done during PS-II : Designing models for plant disease and pest classification and detection

Tool used (Development tools - H/w, S/w) : Python, labellmg, YoloV8

Objectives of the project : Disease and Pest Detection, Automated processes based on these

Major Learning Outcomes : AI, MIL

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Nice collaborative startup environment

Academic courses relevant to the project : NA

PS-II Station : ChangeJar Technologies Pvt. Ltd. , Bengaluru

Faculty

Name: RAMESH VENKATRAMAN

Student

Name: SHIVAM KEDIA(2019B4A71011H)

Student Write-up

PS-II Project Title: Building Lending Products at Jar to increase Topline Revenue

Short Summary of work done during PS-II : During my Practice School II (PS-II) at Jar, I played a pivotal role in advancing our organization's lending products to boost top-line revenue. As a Product Management intern, my focus was on overcoming critical challenges in the Top of the Funnel (TOFU) process, particularly by expanding access to New to Credit (NTC) users. One of my key achievements was leading the integration of Account Aggregator technology, which facilitated secure and efficient sharing of financial data to enhance our underwriting capabilities. My responsibilities involved extensive collaboration across departments to design, test, and successfully launch new lending products. This included developing a comprehensive go-to-market strategy and closely monitoring post-launch performance to refine and optimize user experiences. Throughout this experience, I gained invaluable insights into fintech operations, regulatory compliance, and customer behavior within financial services. Overall, my contributions at Jar have significantly diversified our revenue streams, expanded our customer base, and positioned us for sustained growth in the competitive fintech industry.

Tool used (Development tools - H/w, S/w) : Confluence, JIRA, Grafana, Postman

Objectives of the project : The objective behind this project is to cover various projects that are being worked on at Jar's lending team aimed at establishing Lending as a revenue generating channel for Jar.

Major Learning Outcomes :

1. Product management skills in strategy and development.
2. Technical expertise in integration of financial products
3. Experience in cross-functional collaboration.

4. Insights into financial services and user behavior in lending.
5. Problem-solving skills in optimizing user flows and addressing market challenges.

Details of Papers/patents : Not Applicable

Brief Description of working environment, expectations from the company : During my time at Jar for Practice School II, the atmosphere was vibrant and collaborative. It felt like a place where everyone's ideas mattered and where teamwork was essential. Communication flowed easily, allowing for quick decisions and a supportive environment.

The company expected us to bring fresh ideas and improve how customers interacted with our financial products. They encouraged us to use technology creatively to make our services better and to reach more people. As a Product Management intern, I was challenged to solve problems creatively, contribute to big-picture plans, and meet deadlines.

Jar also emphasized learning and growth. I had opportunities to explore new technologies, like Account Aggregator, and see how they could solve real-world problems in finance. They were serious about following rules and keeping people's information safe, which built trust with our users.

Overall, my time at Jar was rewarding. It was a place where I could learn, contribute, and grow in a supportive and innovative environment focused on making finance simpler and more accessible for everyone.

Academic courses relevant to the project : BAV, Software Engineering

PS-II Station : ChargePoint , Gurugram

Faculty

Name: Rajesh Kumar Tiwary

Student

Name: AMAN BANSAL .(2019B1A41025P)

Student Write-up

PS-II Project Title: Data Migration/Modelling

Short Summary of work done during PS-II : Work was majorly around data migration/modelling. It includes building data models and architecture as per customer requirements. Developing and managing ETL pipelines and BI application migration (tableau workbooks and datasources).

Tool used (Development tools - H/w, S/w) : Python, SQL, dbt, github, Aws glue, S3 , Athena, Redshift, EC2, Lambda, Snowflake, Tableau

Objectives of the project : To migrate data and vi application from redshift/Athena to Snowflake.

Major Learning Outcomes : Learned about various data engineering tools like AWS, DBT, Snowflake etc.

Details of Papers/patents : N.A

Brief Description of working environment, expectations from the company : The working environment is pretty good, timing are flexible and they do work in agile methodologies. Everyone here are very helpful.

Academic courses relevant to the project : N.A

PS-II Station : ChargePoint , Gurugram

Faculty

Name: Rajesh Kumar Tiwary

Student

Name: SUBHAM KUMAR SINGH(2022H1240236H)

Student Write-up

PS-II Project Title: Antenna Designing and Fabrication

Short Summary of work done during PS-II : I have worked on Antenna designing for different frequency bands like GPS, GNSS etc. After the designing i have also fabricated some of the antennas. I have learnt to use CST Software for the designing of planar antennas like rectangular patch antenna, vivaldi antenna etc. I have also learnt how to measure the properties of fabricated antenna like gain, reflection loss, axial ratio, H/E-field pattern etc.

Tool used (Development tools - H/w, S/w) : H/W - PCB MITS Machine, 4-port VNA, Anechoic Chamber Measurement facility; S/W - CST Studio Suite

Objectives of the project : To design and fabricate antennas for different frequency bands.

Major Learning Outcomes :

1. Learnt to use PCB fabrication machine.
2. Learnt to operate Anechoic Chamber.
3. Learnt to use 4-port VNA.

Details of Papers/patents : N.A

Brief Description of working environment, expectations from the company : Working environment was good. Expected proper training from some industry expert.

Academic courses relevant to the project : Antenna Theory and Design.

PS-II Station : Cipla Ltd , Mumbai

Faculty

Name: Bharathi R

Student

Name: RITIKA KANWAR .(2020B1PS1287P)

Student Write-up

PS-II Project Title: Startup Nexus- Investors Research and Designing Accelerator program

Short Summary of work done during PS-II : I was involved in managing the events like ScaleX-Startup Summit organized in Jaipur on 28 March, 2024 by PIEDS BITS PILANI. And I was given an opportunity to interact with the investors giving them details of the event viva by email, phone calls. Another is researching the potential investors and making a list of them, so that we connect with them.

Tool used (Development tools - H/w, S/w) : Excel, data Analysis tools like Power Bi

Objectives of the project : To understand how the startup prepare their ideas and present to the potential investor to seek the funds for further development. And how to organize the events which are related to the startup filed.

Major Learning Outcomes : Project management skills, Communicating skills, Technical skills in Excel, Organizational skills

Details of Papers/patents : No papers\ patents are filled.

Brief Description of working environment, expectations from the company : In PS2 station, the working environment was good to work.

Academic courses relevant to the project : No, my academic courses does not relevant to the project

PS-II Station : Cisco Systems (India) Pvt. Ltd - Software Engineering , Bengaluru

Faculty

Name: Seetha Parameswaran

Student

Name: P H RAHUL KISHORE(2019B2AA1479H)

Student Write-up

PS-II Project Title: Test Result Dashboard

Short Summary of work done during PS-II : Developed a dashboard website using React.js to show test run data, and hosted in internally, and secured it with SSO.

Tool used (Development tools - H/w, S/w) : VS Code

Objectives of the project : The primary objective of the Test Case Dashboard is to present test case execution details in a clear and concise manner, allowing testers to quickly identify passed and failed test cases without the need for manual log analysis.

Major Learning Outcomes : I learnt web development, hosting HTTP servers, and setting up CI/CD pipelines.

Details of Papers/patents : n/a

Brief Description of working environment, expectations from the company : It was a very friendly work environment, and the expectations were clearly defined, and any help needed was provided to enable me to deliver my best.

Academic courses relevant to the project : OOPS, OS

PS-II Station : Cisco Systems (India) Pvt. Ltd - Software Engineering , Bengaluru

Faculty

Name: Seetha Parameswaran

Student

Name: GIDWANI MOHAK HARISH(2020A7PS0101G)

Student Write-up

PS-II Project Title: Upgrade 2.0

Short Summary of work done during PS-II : -

Tool used (Development tools - H/w, S/w) : Python, Git

Objectives of the project : Writing Automation Script

Major Learning Outcomes : Python, Software Development Lifecycle

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : -

Academic courses relevant to the project : DSA, OOPS, Computer Networks

**PS-II Station : Cisco Systems (India) Pvt. Ltd - Software Engineering ,
Bengaluru**

Faculty

Name: Seetha Parameswaran

Student

Name: KAVYANJALI AGNIHOTRI(2020A7PS0185H)

Student Write-up

PS-II Project Title: Java Libraries Updates, Analytics Logging Feature and Vulnerability Reports

Short Summary of work done during PS-II : Enhanced security, reduces technical debt, and ensured compatibility through library updates. Improved customer experience with user-friendly tools for easier logging and figuring out errors when the software fails. Lastly established a consistent vulnerability reporting mechanism using jenkins and scripts automation for prompt risk mitigation and proactive security management.

Tool used (Development tools - H/w, S/w) : python, java, jenkins, docker, xml, react, bash

Objectives of the project : Enhance security, reduce technical debt, and ensure compatibility through library updates. Improve customer experience with streamlined issue resolution. Create a consistent vulnerability reporting mechanism for scanning vulnerabilities.

Major Learning Outcomes : Team work, soft skills, automation, CICD, build systems

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Great working environment

Academic courses relevant to the project : DSA, CN, OS, Software engineering

PS-II Station : Cisco Systems (India) Pvt. Ltd - Software Engineering , Bengaluru

Faculty

Name: Seetha Parameswaran

Student

Name: RAMAKANT PANDURANG TALANKAR .(2020A7PS0979P)

Student Write-up

PS-II Project Title: Meraki Simulator for Meraki Controller Gateway , Automated Double Commit Tool

Short Summary of work done during PS-II : 1)Build a tool to simulate Meraki(A system of access points, clients with all their protocols) for the WiFi controller named Meraki Simulation Gateway(MCG) Controller to automate testing with full control on scale and count. Moreover it provides plug ins for action lists(set of actions with data) to be executed in order for particular clients/APs with configurable parameters. Supports protocols like PROTOBUF,RADIUS,DHCP,DSTORE,Mobility etc. 2) Automated Double Commit Tool: Developed a tool

Tool used (Development tools - H/w, S/w) : S/w : ADS(Aurora Development Server),Python,Protobuf,Git

Objectives of the project : ○ To build a python script that can simulate a MR(Meraki System of Access Points and Clients) for a MCG(Meraki Controller Gateway) that will be a part of HOST UT Infrastructure. ○ To build a tool that can detect bugs fixed in the latest version and automate its applicability to previous versions.

Major Learning Outcomes : Got hands on experience on working in real world projects. Got a deeper understanding of Computer networks. Got to learn how teams and organizational structure functions. Got to learn new skills like python,git,react,node,mongodb etc.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Good Office space with all amenities like canteen, gym, play/breakout areas etc. Healthy work environment, with a lot of interaction with leadership(team-dependent) and good mentor and co-workers.Hybrid work setup with a few days WFH and rest work form office. Expectation from company side are good intellectual skills, problem solving, learning ability

Academic courses relevant to the project : Computer Networks

**PS-II Station : Cisco Systems (India) Pvt. Ltd - Software Engineering ,
Bengaluru**

Faculty

Name: Seetha Parameswaran

Student

Name: LAVKUSH SHARMA(2020A7PS1709G)

Student Write-up

PS-II Project Title: PLE

Short Summary of work done during PS-II : Created dummy functionality named Wordsmith for XR operating system. Added functionalities like creating checkpoints, point-to-point IPC, configuration. This application can generate new words per second and test for the validity of the words generated. This dummy functionality helped in understanding the code base of XR and all the features provided by the operating system to the users of the router. Created testcases for validating the FSM transitions for APS. Testcases are created using the CMOCKA library and are tested on SMARTUT framework. This enhanced the understanding of the testing environment and the use of CMOCKA library. Using valgrind solved the memory leaks of the code.

Tool used (Development tools - H/w, S/w) : Cmocka Lib, Valgrind, Git/Github

Objectives of the project : To develop a private line emulation for fast and efficient data transfer

Major Learning Outcomes : Different protocols in data transfer. Unit testing involved in big code base. Practical use of state machine in data transfer

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Working environment is pretty decent and motivates in learning more.

Academic courses relevant to the project : Computer Network. C language

PS-II Station : Cisco Systems (India) Pvt. Ltd - Software Engineering , Bengaluru

Faculty

Name: Seetha Parameswaran

Student

Name: MEDINI N B(2020A7PS1722H)

Student Write-up

PS-II Project Title: Dev Automation for Firewall Products

Short Summary of work done during PS-II : Work revolved around automating specific processes that were extremely tedious and manual in nature. To list a few, one of the tasks revolved around assembling project triggers of all the dev-test feature projects concerned with clouds ranging from KVM and VMware to GCP, AWS, and OCI according to file types. Based on

a fixed hardcoded weekly/daily schedule of triggers, the script had to set the projects off. The trigger logic included types like 'daily,' 'weekly,' 'upgrade'(you upgrade 'n-4' release versions to the current testing version 'n' and run feature tests), and more. Another task involved bringing up dynamic Linux endpoints on KVM for feature testing, configuring routing and necessary setups for the specific feature test, and tearing it on the fly once the testing is done. This erases the earlier method wherein a single pair of endpoints existed, where each of the seven interfaces managed a specific testbed. But this setup was highly prone to routing mishaps, susceptible to removals when KVM itself is rebooted, and more such issues.

Tool used (Development tools - H/w, S/w) : Python, pyATS, containers, KVM

Objectives of the project : Automating and enhancing feature testing pipelines

Major Learning Outcomes : Private Clouds, Automation, QEMU, Hypervisors

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The work environment was very enriching; taking an interest in things outside your assigned tasks was appreciated and encouraged, which I truly loved.

Academic courses relevant to the project : Computer Networks

**PS-II Station : Cisco Systems (India) Pvt. Ltd - Software Engineering ,
Bengaluru**

Faculty

Name: Seetha Parameswaran

Student

Name: ARYA VIVEK TALATHI(2022H1030010G)

Student Write-up

PS-II Project Title: CMS - Network Monitoring

Short Summary of work done during PS-II : As part of the CMS - Network Monitoring team, I worked on developing automation scripts to reclassify devices, update credentials, developing Python scripts for monitoring and fulfilling the requirements specified by the clients such as creating alert logic, and event rules using Syslog, traps, etc. My work was in backend development where Python language is being used for monitoring the network and security devices. Apart from development, I worked on a migration task where we converted the existing python2 scripts to python3. I worked on QA testing, writing test cases, and creating documents for the same. Database management was another task where I worked on a few SQL queries to update the existing databases. Also, I got an opportunity to work on a few defect management tasks, where I worked on resolving the production bugs by providing accurate workaround and solutions with the required changes in the code. Besides, I got a chance to give KT sessions to new team members about the work being done by my team, which was a new and nice experience. In the end, I got to work on all aspects like development, software testing, database management, bug/defect management, providing KT sessions, testing the deployment scripts, and participating in the discussions for quarter planning. Overall, it was a great learning experience.

Tool used (Development tools - H/w, S/w) : Remote Desktop, VS code, internal tool for writing test cases, GitHub, Jira, Putty

Objectives of the project : 1. Providing monitoring solutions for collaboration, networking, data center, and security devices. 2. Developing and delivering monitoring capabilities for major devices like Mercury, Viptela (SD-WAN), and Application Centric Infrastructure (ACI) and delivering them to customers. 3. Working on high-severity production and UAT defects and ensuring the fix is delivered. 4. Developing python code to collect configuration and performance KPIs from network devices using APIs and SNMP.

Major Learning Outcomes : 1. Learning about the Cisco Networking Devices and Network Monitoring.

2. Communication skills, participation in work-related discussions, and collaboration with team members

3. Building a strong foundation of technical skills required for the project like data structures, Python programming, networking concepts such as SNMP, routing, API, Software Testing, Git - version control, Software architecture, DBMS, SQL queries, etc

4. Professional skills like teamwork, collaboration, interaction, following deadlines, giving updates in daily scrum, etc

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : As Cisco is one of the "Greatest places to work" organizations, Cisco assures a great work-life balance. Cisco has the best internship program designed for all interns. This program includes many activities/events planned for interns where interns get various opportunities to showcase their talents, contribute, communicate, and interact with peers/seniors/leads. The organization expects that the assigned work is completed and provides many opportunities to learn and explore apart from the daily work. Besides, Cisco provides many courses, workshops, and sessions to learn new technologies, innovations, and work-related stuff. The ongoing hackathons and hands-on sessions keep all the employees aware of the new technologies. Also, Cisco organizes events for well-being, health checkups, social services, giving back to society events, sports, talent showcase events, etc to ensure great work-life balance.

Academic courses relevant to the project : 1. Data structures and algorithms

2. Software Architecture

3. DBMS

4. Computer Networks

5. Object Oriented Programming

PS-II Station : ClearTax , Bengaluru

Faculty

Name: Vaishali Pagaria

Student

Name: ARYAMAN LATH(2020A3PS0420P)

Student Write-up

PS-II Project Title: Strategy Intern

Short Summary of work done during PS-II : Long and short term strategy planning and execution to meet set goals for the upcoming financial years for the organisation. Planning and execution of a employee onboarding program to train them in the required domain skills for the organisation.

Tool used (Development tools - H/w, S/w) : Excel, Salesforce, Internet

Objectives of the project : Assist in the planning and execution of long term and short term strategy

Major Learning Outcomes : Strategy, Planning, Research, Modelling

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Dynamic working environment with adequate support and feedback, wide scope of work and real impact on the organisation.

Academic courses relevant to the project : NA

PS-II Station : ClearTax , Bengaluru

Faculty

Name: Vaishali Pagaria

Student

Name: RAM NACHIAPPAN N.(2020A4PS0575P)

Student Write-up

PS-II Project Title: Building Orion: AI Business Analyst Tool

Short Summary of work done during PS-II : Designed and developed the idea of AI BA, surveyed the market, analysed pricing models, spoke to stakeholders

Tool used (Development tools - H/w, S/w) : Jira, Confluence, Python, Fusion

Objectives of the project : Build world's first AI business analyst to automate business requirements gathering process

Major Learning Outcomes : AI, LLM, Negotiation, Partnerships, Business growth

Details of Papers/patents : Constant current circuit for Voltage regulation- Patent pending

Brief Description of working environment, expectations from the company : Healthy environment, good freedom for creativity, can drive innovation, take on challenges at a daily basis, young team

Academic courses relevant to the project : New Venture Creation, Create and Lead entrepreneurial organisation

PS-II Station : Cohesity Storage Solutions India Pvt. Ltd. , Bengaluru

Faculty

Name: Jyotsana Grover

Student

Name: SATYAMÂ SRIVASTAVA .(2019B1A70188P)

Student Write-up

PS-II Project Title: Jira Backup and Restore Adapter

Short Summary of work done during PS-II : This project involved developing a robust backup and recovery adapter for JIRA. The focus was on comprehensive backups and granular recoveries of JIRA projects, issues, and attachments. The adapter follows a scalable fan-out design pattern and utilizes an adapter programming interface to create tasks and subtasks for backup and recovery. Key functionalities include full and incremental backups to capture changes efficiently. Phase one concentrates on core backup functionalities, storing content initially in files and later integrating with a graph store. Phase two extends this to enable granular recovery, offering project-level and issue-level recovery options. Benefits of granular recovery include increased precision, flexibility, and efficiency, minimizing downtime and disruptions. Future

milestones include backing up additional JIRA components like dashboards and custom configurations.

Tool used (Development tools - H/w, S/w) : VS Code, virtual machine

Objectives of the project : Backup of Projects, Issues and attachments. (Milestone 1). Support Full backup. Support Incremental backup. Restoration of the above entities.

Major Learning Outcomes : Creating the codebase from the scratch.

Working on a completely new feature that would have additional support on the company's product.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Have good work environment in the teams. People are supportive. However, they assign bit difficult tasks to the interns to assess them and expect them to do quality work.

Academic courses relevant to the project : Data Structures and Algorithms, Database Systems, Object Oriented Programming, Operating Systems. In general, all the core CS courses.

PS-II Station : Cohesity Storage Solutions India Pvt. Ltd. , Bengaluru

Faculty

Name: Jyotsana Grover

Student

Name: AKSHAT GUPTA .(2020A7PS0096P)

Student Write-up

PS-II Project Title: Enhanced System Observability using Prometheus

Short Summary of work done during PS-II : During my PS-II internship, I focused on enhancing system monitoring and synchronization within Cohesity's infrastructure. My key accomplishments included implementing Prometheus metrics to capture and analyze critical system data, developing intuitive Grafana dashboards for effective data visualization, and resolving code discrepancies to ensure data consistency and efficiency. I also played a significant role in the design and implementation of new features like "Resync Recon" to improve data synchronization by generating and matching XOR hashes post-backup, ensuring data integrity.

Tool used (Development tools - H/w, S/w) : Hardware: Workstation: High-performance computer for development and testing. Servers: Dedicated servers for deploying and testing Prometheus and Grafana setups. Software: C++: Primary programming language for developing metrics and features. Prometheus: Used for monitoring and alerting system metrics. Grafana: Used for visualizing metrics through interactive dashboards. Git: Version control system for managing code changes. JIRA: Project management and issue tracking. Docker: Containerization platform for setting up and testing Prometheus and Grafana environments. Linux: Operating system for server environments and development workstations.

Objectives of the project : The objective of this project is to enhance system observability and operational efficiency through the implementation of advanced monitoring systems. This includes developing comprehensive Prometheus metrics, intuitive Grafana dashboards for visualization, resolving code discrepancies to ensure data consistency, and implementing new features like "Resync Recon" for improved data synchronization. The project aims to optimize monitoring capabilities, streamline troubleshooting processes, and contribute to overall system reliability within the domain of system software in computer science.

Major Learning Outcomes : During my internship, I acquired significant hard and soft skills. I developed technical proficiency in implementing Prometheus metrics, creating Grafana dashboards, and optimizing system monitoring and data synchronization processes. Additionally,

I honed my debugging and coding skills in C++ while gaining hands-on experience with Prometheus and Grafana. On the soft skills front, I improved my problem-solving abilities, teamwork, and communication skills through collaborative feature development and regular interactions with team members. This experience also enhanced my project management skills, as I learned to balance multiple tasks, meet deadlines, and adapt to evolving project requirements.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at Cohesity was dynamic and collaborative, emphasizing both individual initiative and teamwork. Regular team meetings, code reviews, and brainstorming sessions fostered a culture of openness and continuous learning. The office was well-equipped with advanced hardware and software tools for development and testing.

Clear expectations were communicated, focusing on adhering to coding standards, maintaining documentation consistency, and following best practices. Proactive problem-solving and project ownership were highly encouraged. Regular feedback sessions ensured alignment with project goals and personal development. Security and data integrity were paramount, reflected in rigorous monitoring and troubleshooting processes. Support from mentors and team members provided valuable guidance and insights. Overall, the company's expectations included delivering high-quality code, meeting deadlines, actively participating in team activities, and continuously improving through learning and feedback. The supportive environment at Cohesity enabled effective project contributions and significant professional growth.

Academic courses relevant to the project : Data Structures and Algorithms: Essential for understanding the efficient implementation of Prometheus metrics and optimizing code performance.

Operating Systems: Provided foundational knowledge on system performance, resource management, and debugging te

PS-II Station : Cohesity Storage Solutions India Pvt. Ltd. , Bengaluru

Faculty

Name: Jyotsana Grover

Student

Name: VARUN VADDIRAJU(2020A7PS0173H)

Student Write-up

PS-II Project Title: CI/CD for Sizer and Imanis Teams; Moving Legacy Service to Kubernetes

Short Summary of work done during PS-II : Created many CI/CD integrations in the form of Jenkins pipelines based on team requirements. Did a lift and shift of internal tool to kubernetes with minor architectural changes. Wrote an Ansible playbook for automating the CVE updates of company VM resources

Tool used (Development tools - H/w, S/w) : Jenkins, Kubernetes, Ansible

Objectives of the project : Increase developer productivity; make internal tools more reliable and easier to maintain

Major Learning Outcomes : Learnt many new technologies and was introduced to the world of DevOps

Details of Papers/patents : n/a

Brief Description of working environment, expectations from the company : Fast paced environment, you are expected to own your work. Colleagues are very welcoming and happy to help when needed.

Academic courses relevant to the project : None

PS-II Station : Coinbase , New Delhi

Faculty

Name: Sidharth Mishra

Student

Name: SUDHANSHU MISHRA .(2019B1A70750P)

Student Write-up

PS-II Project Title: Queue Management Framework

Short Summary of work done during PS-II : Develop a custom queue in java supporting view, sort, split, and filter functionalities

Tool used (Development tools - H/w, S/w) : JAVA

Objectives of the project : Develop a custom queue in java supporting view, sort, split, and filter functionalities

Major Learning Outcomes : Development in JAVA

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : very good

Academic courses relevant to the project : Object Oriented Programming

PS-II Station : COMMSCOPE , Goa

Faculty

Name: Pavan Kumar Potdar

Student

Name: JOE REVANTH P(2022H1410154P)

Student Write-up

PS-II Project Title: Base Station Antennas

Short Summary of work done during PS-II : I focused on base station antennas, examining their design, components, and functionality to enhance telecommunications infrastructure. I explored SAP ECTR for managing engineering data and integrating with CAD systems like SolidWorks, improving product lifecycle management. I conducted Finite Element (FE) analysis in thermal cycling simulations to ensure the structural integrity and reliability of antennas by analyzing the total deformation and stresses in various places . Additionally, I used SolidWorks for effective modeling and assembling techniques, optimizing antenna performance and manufacturing. This work provides crucial insights into the development and deployment of base station antennas in modern telecommunications.

Tool used (Development tools - H/w, S/w) : Ansys, Solidworks

Objectives of the project : The objective of this project is to enhance the design, functionality, and reliability of base station antennas within telecommunications infrastructure. The project aims to: Improve Network Performance and Coverage: By examining and optimizing the design and construction of base station antennas. Streamline Engineering Data Management: Through the use of SAP ECTR for efficient collaboration, version control, and integration with CAD systems like SolidWorks. Ensure Structural Integrity and Durability: Via Finite Element (FE) analysis and thermal cycling simulations to assess and mitigate deformation and stress under operational conditions. Optimize Modeling and Manufacturing Processes: By employing SolidWorks for effective modeling and assembly techniques to enhance antenna performance and facilitate ease of manufacturing. This project seeks to provide comprehensive insights and solutions for the effective development and deployment of base station antennas in modern telecommunications.

Major Learning Outcomes : Software skills and interpreting the results and deep understanding of the options in analysis softwares

Details of Papers/patents : NIL

Brief Description of working environment, expectations from the company : Since I was interested to join the company I was tasked to do some modeling and assembling for my evaluation in the last 2 months. Otherwise I would have done more simulation projects in Ansys and also there were options for projects related to CFD. The Managers are pretty much friendly and will give projects based on your interest. Most of them are down to earth and will help you a lot.

Academic courses relevant to the project : Strength of Materials, Finite Element Analysis, Thermal , Machine Design , Material Science

PS-II Station : Commvault Systems , Bengaluru

Faculty

Name: Shreyas Suresh Rao

Student

Name: SOHAN S DESAI(2020A7PS0061G)

Student Write-up

PS-II Project Title: Internship

Short Summary of work done during PS-II : Automation work in python to write testcases. Backend work for integrating backup and recovery for databases, mainly AWS cloud DBs. Frontend work with ReactJs to develop web pages.

Tool used (Development tools - H/w, S/w) : Python, ReactJs, .NET framework, Commvault software, C# and C++

Objectives of the project : Internship at Commvault

Major Learning Outcomes : Backend work with .NET framework, ReactJs, Automation with Python, Cloud Databases Backup and Recovery and Application development

Details of Papers/patents : Internship at Database Team for Commvault

Brief Description of working environment, expectations from the company : The working environment is very welcoming and the mentors and managers make a concerted effort to ensure one's learning and upkeep with the work. Sufficient time is given to learn and implement the work and coworkers are willing to assist.

Academic courses relevant to the project : Operating Systems, Computer Networks

PS-II Station : Commvault Systems , Bengaluru

Faculty

Name: Shreyas Suresh Rao

Student

Name: KAUSTAV CHATTERJI(2020A7PS1112H)

Student Write-up

PS-II Project Title: Active directory

Short Summary of work done during PS-II : I learnt how work is done in a big organization learnt software development lifecycle.

Tool used (Development tools - H/w, S/w) : Active directory , C++, OOPS

Objectives of the project : To enhance Active Directory backup features.

Major Learning Outcomes : Active directory , C++, OOPS

Details of Papers/patents : No patents

Brief Description of working environment, expectations from the company : Great working environment

Academic courses relevant to the project : C++, OOPS

PS-II Station : Commvault Systems , Bengaluru

Faculty

Name: Shreyas Suresh Rao

Student

Name: PRITHVI RAJAN(2020A7PS2080H)

Student Write-up

PS-II Project Title: Vcloud Plugin Automation

Short Summary of work done during PS-II : Vcloud Plugin automation was one of the projects I took during my internship. Every Intern is assigned an automation project because we want to develop a culture of testing every piece of code and building robust software. On top of this project I worked on multiple development projects, improvements and bug fixes.

Tool used (Development tools - H/w, S/w) : Selenium, Python, Pycharm, Visual Studio

Objectives of the project : Create Regression test framework and test cases for vCloud Plugin

Major Learning Outcomes : Python Selenium, Testcase design

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : My team had a very good work life balance. There are no deadlines set and we can work at our pace. I was able

to work from home mostly only having to come to office twice a week. Lot of emphasis was put on learning the product and the general flow of the code. Even working hours are flexible.

Academic courses relevant to the project : OOPS, DBMS, SE

PS-II Station : Commvault Systems , Bengaluru

Faculty

Name: Shreyas Suresh Rao

Student

Name: SHREYASH OMPRAKASH JAISWAL(2022H1030068H)

Student Write-up

PS-II Project Title: Internship project automation backend development

Short Summary of work done during PS-II : During my internship, I worked on various automation tasks, including front-end automation with Selenium and back-end automation using Postman and cvpysdk. I also handled installation automation with C# and Python. Additionally, I used the Xerces C++ library for XML parsing, MS SQL for comparing Group Policy Objects, and an SMTP-based wrapper for email functions. This experience enhanced my skills in advanced C++, Python, Postman, Visual Studio, Active Directory, Hyper-V, CVS, GitLab, and REST API. The internship improved my technical abilities and interpersonal skills, preparing me for future professional challenges.

Tool used (Development tools - H/w, S/w) : Cpp python xerces c++ visual studio postman

Objectives of the project : Created versatile XML parser and also added Smtplib mail feature to existing product

Major Learning Outcomes : Cpp python xerces c++ visual studio postman

Details of Papers/patents : Na

Brief Description of working environment, expectations from the company : Working environment is too good in commvault all the mentor and manager are too helpful they will adjust workload as per your speed also we can connect with any one cross team with any designation I've talked with principal engineer's for my intern level doubt so working is fun here.

Academic courses relevant to the project : Operating system

PS-II Station : Complete Instrumentation Solutions Pvt. Ltd. , Gurugram

Faculty

Name: Nithin Tom Mathew

Student

Name: ROEHIT GUPTA(2020A4PS2026G)

Student Write-up

PS-II Project Title: Exploring Emerging Technologies for SRF Speciality Chemical Business

Short Summary of work done during PS-II : My work involving exploring technologies that can be used in the manufacturing process in the plant. This involved contacting the respective manufacturers, understanding the technology, check for its feasibility both commercially and technically.

Tool used (Development tools - H/w, S/w) : Excel, Outlook, Powerpoint, Teams

Objectives of the project : Exploring Emerging Technologies for industrial usage

Major Learning Outcomes : Understanding R&D process in the industry,

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Working on side projects, not much regular updates.

Academic courses relevant to the project : Refrigeration and Air conditioning, Business Communication, Thermodynamics

PS-II Station : Confluent India Pvt Ltd. , Bengaluru

Faculty

Name: Pravin Yashwant Pawar

Student

Name: SHREY BANSAL .(2019B3A70592P)

Student Write-up

PS-II Project Title: Optimizing Data Infrastructure: Cost Attribution, Reduction, and Automation Initiatives

Short Summary of work done during PS-II : I have effectively harnessed Apache Druid's capabilities to manage high-velocity data streams and implemented cost management strategies for Druid usage in environments like Confluent. This involved leveraging Druid's integration with Kafka for efficient data ingestion and proposing a comprehensive service to calculate and allocate costs. By breaking down costs into computation, storage, network, databases, deep storage, and elasticache components, we gained detailed insights into cost distribution. A daily job was introduced to record metric ingestion counts tagged by team names, enhancing data visibility and enabling dynamic cost allocation based on ingestion ratios. I also collaborated with the logging team to manage logs from various departments, implementing a two-tier storage strategy. Short-term logs are stored in OpenSearch, which offers an intuitive dashboard and retains data for a month. Long-term logs are stored in S3, accessible via an Athena wrapper for querying data up to a year old. Additionally, I developed and deployed the cc-druid-shoreline service, which simplifies the creation of new Druid users and rotation of credentials. This service automates a previously complex and error-prone process, reducing risks and improving efficiency for developers by eliminating the need for admin access and manual user creation within pods.

Tool used (Development tools - H/w, S/w) : Apache Druid: For efficient handling of large volumes of streaming data and enabling cost management strategies. Kafka: For seamless data ingestion into Druid without complex transformations. OpenSearch: For short-term log storage, providing an intuitive dashboard for developers.

Objectives of the project : Reduce Cost and Automate User creation

Major Learning Outcomes : Working with Systems at Scale, Deployments in Cloud, Using AWS and

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The company has a dynamic and collaborative working environment, great ownership of work and end-to-end

system management are highly valued. Team members are encouraged to take full responsibility for their projects, from inception through to deployment and maintenance. This culture of ownership ensures that everyone is deeply invested in the success of their initiatives and fosters a strong sense of accountability and pride in their work.

Academic courses relevant to the project : Object Oriented Programming, Data Structures and Algorithms, DBMS

PS-II Station : Confluent India Pvt Ltd. , Bengaluru

Faculty

Name: Pravin Yashwant Pawar

Student

Name: MANAN MAYUR POPAT(2020A7PS0029H)

Student Write-up

PS-II Project Title: Enhancing Connector Usability

Short Summary of work done during PS-II : My work primarily focused on creating a CLI service for the Connect Control Plane and decoupling various APIs, including the GetConnectOverrideMessage API. I addressed security vulnerabilities, developed a Slack bot for RCCA management, and performed performance testing of connectors. The main project involved migrating the system to a microservices-based architecture, emphasizing the decoupling of monolithic APIs for improved scalability. I collaborated with team members, raised and merged PRs, implemented unit tests, and conducted local and staging environment tests. Additionally, I

attended the Kafka Summit and participated in the annual offsite event, enriching my technical knowledge and networking experience.

Tool used (Development tools - H/w, S/w) : Software: Programming Languages: Golang Libraries: Cobra, Viper Platforms: Apache Kafka, Confluent Platform Containerization: Docker Orchestration: Kubernetes Version Control: Git, GitHub Continuous Integration/Continuous Deployment (CI/CD): Jenkins API Testing: Postman, curl Development Environments: Visual Studio Code, IntelliJ IDEA Communication Tools: Slack, Jira

Objectives of the project : The primary objective of this project was to enhance the functionality and efficiency of Confluent's Connect Control Plane by developing a Command Line Interface (CLI) service. This involved understanding and improving existing systems, decoupling APIs, and integrating new features to support better scalability and modularity. Additionally, the project aimed to address Common Vulnerabilities and Exposures (CVEs) to ensure robust security, develop a Slack bot for Root Cause and Corrective Action (RCCA) management, and migrate from a monolithic to a microservices-based architecture. Overall, the goal was to contribute to the operational efficiency and performance of Confluent's platform.

Major Learning Outcomes : During the internship, I gained significant insights into software engineering principles and practices, especially in the context of data engineering and distributed systems. I learned the intricacies of Apache Kafka, Golang programming, and the development of CLI services using the Cobra and Viper libraries. I acquired hands-on experience with Kubernetes, Docker, and continuous integration/continuous deployment (CI/CD) workflows. Additionally, I enhanced my understanding of API decoupling, unit testing, and performance testing. The experience also sharpened my soft skills, such as effective communication, teamwork, and problem-solving, which are crucial for professional growth.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Remote-first company, with full flexibility given to even work from home for the whole duration. But many interns chose to stay in Bangalore and come to the office. Excellent in terms of culture, values, working atmosphere, and growth, with much emphasis on oneness of the organization. Everyone is easily

approachable and supportive. Proper documentation, following of agile practices, focus on employee wellbeing and building strong professional as well as friendly relationships.

Academic courses relevant to the project : DSA, DBMS, OS, Software Engineering, Distributed Systems

PS-II Station : Continental Device India Pvt. Ltd. , Mohali

Faculty

Name: Sanjay Vidhyadharan

Student

Name: CHIRANTAN PAUL(2022H1230120G)

Student Write-up

PS-II Project Title: Quality Hirel AECQ 101 testing and AOdocs documentation

Short Summary of work done during PS-II : The project, "Quality and High-Reliability System Documentation," include both technical and research-oriented aspects, focusing on the maintenance of electronic documentation detailing a system's design, architecture, components, and interfaces. Additionally, the project aims to develop a Workflow Order Portal for AEC-Q101 qualification standards testing. In the realm of Document Management Systems (DMS), a software solution is employed to efficiently administer electronic documents within businesses. The DMS establishes a centralized repository for document storage, organization, and retrieval, automating operations like document routing and approval. Advantages of DMS implementation for CDIL include enhanced efficiency, as it optimizes document management procedures, leading to significant time and cost savings. The systematic monitoring and control of document

modifications through the DMS mitigate organizational risks, and it facilitates adherence to industry norms and standards by regulating document access. The focus shifts to the AEC-Q Workflow Portal in the project's second aspect. The objective is to create a systematized testing Workflow Order Portal for AECQ implementation, functioning as a non-editable reference for users. The portal offers benefits such as improved efficiency in testing processes, increased visibility into test statuses, and enhanced collaboration among individuals. Furthermore, it provides a central platform for communication about Workflow orders through notifications and updates. Importantly, the portal ensures correct test execution and accurate results, aligning with AECQ standards designed to uphold the quality and reliability of electronics in automotive applications.

Tool used (Development tools - H/w, S/w) : JUNO , HTRB , LT

Objectives of the project : To optimize testing methods of HIREL lab

Major Learning Outcomes : New devices learnt

Details of Papers/patents : JEDEC , AECQ , MIL STD 750E

Brief Description of working environment, expectations from the company : Continental Device India Ltd. (CDIL) in Mohali offers a dynamic and professional working environment, characterized by a strong emphasis on innovation, quality, and teamwork. The company, known for its pioneering role in the semiconductor industry in India, focuses on the design, manufacturing, and supply of high-reliability semiconductors and electronic components.

At CDIL Mohali, employees are expected to adhere to high standards of professionalism and technical expertise. The company encourages continuous learning and development, providing ample opportunities for training and skill enhancement. Teamwork and collaboration are fundamental, as CDIL fosters a culture where diverse ideas and perspectives are valued. Employees are expected to actively participate in problem-solving and contribute to projects that drive technological advancements.

CDIL's commitment to quality is reflected in its stringent adherence to international standards and best practices. Employees are expected to uphold these standards in their daily work, ensuring that products meet the highest levels of reliability and performance. Additionally, the company

emphasizes a customer-centric approach, requiring employees to be responsive and dedicated to meeting client needs.

The working environment at CDIL Mohali is also marked by a focus on sustainability and corporate social responsibility. Employees are encouraged to engage in practices that promote environmental stewardship and community well-being.

Overall, CDIL Mohali offers a stimulating work atmosphere where professionals can grow their careers while contributing to the cutting-edge field of semiconductor technology.

Academic courses relevant to the project : Electronics basics

PS-II Station : Contlo - AI Engineer , Bengaluru

Faculty

Name: SRINATH NAIDU

Student

Name: ANISH MUKUND MANDYAM(2019B5A71064H)

Student Write-up

PS-II Project Title: Dataset Preparation for LLM Fine Tuning and Product Management of Two Early Stage AI Products

Short Summary of work done during PS-II : The work done has broadly been in two areas. The first category of work was in the research division of the company focusing on large language models (LLMs). This work mainly focused on the preparation of datasets for the fine-tuning of a variety of models for different use cases. This involved automating and setting up a pipeline

through python scripts to speed up what is otherwise a time consuming manual process. The work also involved testing LLMs which has its own set of challenges due to the inherent probabilistic nature of such models. Following this, I moved to a product management role which involved product, operations and analytics work on two products. This involved a daily deployment of features, product testing, analytics and management of operations. The details of this work are described in the report.

Tool used (Development tools - H/w, S/w) : Python, Metabase, Apollo, Mixpanel

Objectives of the project : Generation of datasets for the fine tuning of LLMs and the testing of LLM chat bots. product, operations and analytics work on two 0-1 products.

Major Learning Outcomes : Through the preparation of datasets for fine tuning, a strong understanding of LLMs and LLM fine tuning was developed. Furthermore I understood the research process within a corporate context, and the context of undertaking research with the goal of utility in a commercial product. With the work on the product side of the company, I learnt a lot about the functioning of a company's product and the process of building, developing and improving it with a vision of growth. I have watched and taken part in the building and growth from 0 to 1 of two products. This has been an extremely enriching experience.

Details of Papers/patents : No papers or patents published

Brief Description of working environment, expectations from the company : Fast paced working environment in an early stage startup. I got to experience two products being built from scratch. The work pressure and expectations is quite high.

Academic courses relevant to the project : Object Oriented Programming, Human Computer Interaction

PS-II Station : Contlo - AI Engineer , Bengaluru

Faculty

Name: SRINATH NAIDU

Student

Name: DEEP PANDYA .(2020A7PS0148P)

Student Write-up

PS-II Project Title: Development of AI Market Researcher and AI Frontend code generator

Short Summary of work done during PS-II : During my Practice School (PS) internship at SuperAGI (Contlo), Bengaluru, I focused on developing two advanced AI projects: an AI-powered Market Research Assistant named Jake and an AI Frontend Code Generator. Jake leverages Large Language Models (LLMs) and advanced prompting techniques such as Chain of Thought (CoT) and Plan and Solve (PS) prompting to streamline market research tasks. Jake performs tasks like data collection, analysis, and report generation with high efficiency and accuracy. It automates the synthesis of market insights by planning tasks, executing research, validating data, and refining the output. The AI Frontend Code Generator project aims to automate the development of web application frontends using LLMs. The system operates in an iterative feedback loop, where agents handle tasks such as code updates, build processes, and error corrections. Key agents include the Code Updater, Build Checker, and Build Rewrite Agent, which work together to refine and perfect the frontend code. This automation significantly reduces the time and effort needed for frontend development. Throughout my internship, I gained practical experience in using OpenAI APIs, Playwright, Selenium, MongoDB, and Claude, with Python as the primary programming language. This experience enhanced my technical skills in AI-driven software development, problem-solving, and analytical thinking. Additionally, I developed soft skills like effective communication, teamwork, and time management, preparing me for future challenges in the field of AI and software engineering.

Tool used (Development tools - H/w, S/w) : Python, playwright, React, Next.js, Mongoddb

Objectives of the project : Use LLM based agentic frameworks to complete user tasks

Major Learning Outcomes : I learned about LLM architecture, different prompting techniques and fine tuning techniques. I also learned about various LLM based agents. I got the opportunity to use advanced LLMs

Details of Papers/patents : N.A.

Brief Description of working environment, expectations from the company : The working environment was absolute disaster. People were expected to work all day long and even on weekends. Even then they fired bunch of interns in one month. This is not a kind of environment any intern wants to have while learning to contribute to the company.

Academic courses relevant to the project : No academic course felt relevant to the project.

PS-II Station : Contlo - AI Researcher , Bengaluru

Faculty

Name: SRINATH NAIDU

Student

Name: UJJWAL JAIN .(2019B4A70647P)

Student Write-up

PS-II Project Title: Continuous learning and training

Short Summary of work done during PS-II : Read Research papers and implemented RAG codes in various modules for the product

Tool used (Development tools - H/w, S/w) : Python, VSCode

Objectives of the project : Read papers and implement a memory type of module for continuous learning

Major Learning Outcomes : Retrieval Generation Augmentation, Vectors

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Working environment was decent, the company was not good and the leadership was also not good, could not define the project till much later and was over hiring so mentorship was not provided

Academic courses relevant to the project : Artificial intelligence

PS-II Station : Contlo - SDE (Tech) , Bengaluru

Faculty

Name: SRINATH NAIDU

Student

Name: KULKARNI PARTH PRASAD(2019B3A70706H)

Student Write-up

PS-II Project Title: AI Agents at SuperAGI

Short Summary of work done during PS-II : I worked on various projects. First project was a new product that I develop till POC stage which was an Audio Agent which can join online meetings and can interact with humans through voice. Second task was a part of AI graphic designer, where i created a pipeline to generate posters from user prompts. Third task was a part of AI Developer, where I attempted making open source contributions using the AI developer.

Tool used (Development tools - H/w, S/w) : Runpod, EC2, GPT4 (vision, turbo, o), Mistral (codestral), Deepgram, PulseAudio, Bark by Suno AI, Bloop

Objectives of the project : Developing multimodal AI agents to automate human tasks

Major Learning Outcomes : PulseAudio, Prompt Engineering, Text to speech, Speech to text, text to image

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Initially it was fine, but later massive layoffs took place and everyone was worried if they would be fired next. There are a lot of conflicts between the team and the management. Projects were picked up without thinking through, and scraped when they didn't work out. Some of the team members left the organisation voluntarily, whereas most of the others were looking for other jobs.

Academic courses relevant to the project : Machine Learning, Deep Learning, Generative AI

PS-II Station : Contlo - SDE (Tech) , Bengaluru

Faculty

Name: SRINATH NAIDU

Student

Name: SATYAM GUPTA(2019B3A71277H)

Student Write-up

PS-II Project Title: Full Stack Software Developer

Short Summary of work done during PS-II : Building frontend and backend for their product 'Verk'

Tool used (Development tools - H/w, S/w) : FASTAPI, next.js

Objectives of the project : Developing AI Product software

Major Learning Outcomes : Full stack software developer

Details of Papers/patents : no

Brief Description of working environment, expectations from the company :

Academic courses relevant to the project : oop project

PS-II Station : Credit Suisse (UBS) - Model Risk Management , Mumbai

Faculty

Name: Bandi Venkata Prasad

Student

Name: YASH JAJOO(2019B3A30405P)

Student Write-up

PS-II Project Title: Model Risk Management

Short Summary of work done during PS-II : Completed 5 model validations. The process for a model validation remains fairly constant but also needs specific adjustments depending on the model and the type of validation.

Tool used (Development tools - H/w, S/w) : Python, MS Excel

Objectives of the project : To validate the bank's functioning models by assessing them on the basis of their various aspects of working.

Major Learning Outcomes : An understanding of the model validation procedures in banks as well as the streamflow and collaboration required to complete projects.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The working environment is very friendly and collaborative and you are given enough space to be efficient according to your own needs.

Academic courses relevant to the project : Derivatives and Risk Management, Financial Risk and Management

PS-II Station : Credit Suisse (UBS) - Quantitative Analysis & Technology , Mumbai

Faculty

Name: Bandi Venkata Prasad

Student

Name: ASTITVA AGNIHOTRI(2019B3A40522P)

Student Write-up

PS-II Project Title: Credit Risk Analytics - IB Impairment

Short Summary of work done during PS-II : During my PS-II at Credit Suisse, I focused on Credit Risk Analytics within the IB Impairment team. My responsibilities included verifying credit risk calculations, defining requirements for Monte Carlo simulation tools, and participating in User Acceptance Testing to ensure tool effectiveness. I regularly analyzed risk model outputs and managed data flows, ensuring accuracy and efficiency in our risk assessment processes. I also addressed data quality issues and recalculated exposures as needed. My role involved extensive use of advanced risk modeling techniques and tools, which enhanced my technical skills and understanding of credit risk dynamics. Collaboratively, I worked with various stakeholders, contributing to the team's efforts to optimize risk management strategies. This internship provided me with profound insights into the operational and strategic aspects of credit risk management in a major financial institution.

Tool used (Development tools - H/w, S/w) : Python, R, MySQL, Bloomberg

Objectives of the project : The project aimed to evaluate credit risk exposures, verify calculations, define requirements for Monte Carlo tools, and troubleshoot data issues. It also

focused on analyzing risk model outputs, enhancing data flow, and ensuring tool accuracy. The goal was to support effective credit risk management strategies within the organization

Major Learning Outcomes : Enhanced Understanding of Credit Risk Management: Gained a deeper knowledge of methodologies and practices in managing credit risk, including the interpretation and application of financial regulations like IFRS9 and USGAAP.

Proficiency in Data Analysis and Management: Developed skills in managing and analyzing large datasets, performing sensitivity analysis, and understanding the impact of macroeconomic factors on credit risk.

Advanced Modeling Techniques: Acquired practical experience in using advanced modeling techniques such as Monte Carlo simulations for predicting credit risk exposures.

Technical Skills Enhancement: Improved technical skills in various tools and software, including the What-If Tool (WIT) for risk assessment and scenario analysis.

Problem-Solving Abilities: Enhanced ability to identify and troubleshoot data quality issues, ensuring accuracy in reporting and risk calculation.

Collaboration and Communication: Strengthened abilities to work with cross-functional teams, contributing to group objectives and learning from experienced professionals in risk management.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The working environment at Credit Suisse was highly dynamic and intellectually stimulating, with a strong emphasis on precision and analytical rigor. As an intern, I was expected to actively contribute to the team by providing accurate credit risk assessments and supporting the development of risk management tools. The company fostered a collaborative culture, encouraging interaction across departments to enhance learning and operational efficiency. Expectations also included maintaining high standards of data integrity and proactivity in identifying and resolving issues, all within a framework of strict compliance with financial regulations and internal policies.

Academic courses relevant to the project : SAPM, DRM, FRAM

PS-II Station : Credit Suisse (UBS) - Quantitative Analysis & Technology , Mumbai

Faculty

Name: Bandi Venkata Prasad

Student

Name: RAJDEEP KAMAT(2019B3A40719H)

Student Write-up

PS-II Project Title: Market Risk Modelling

Short Summary of work done during PS-II : Got to learn automation of tasks through python, management of calculation libraries in C# and working on implementation of models on Python, Excel and effective data sourcing tasks

Tool used (Development tools - H/w, S/w) : Python, C#, GIT, Jira, Excel, LaTeX

Objectives of the project : To work on Market Risk Modelling Marco Project and to learn and develop good understanding of Risk Methodologies and Systems to ensure successful deliverables

Major Learning Outcomes : Market Risk Methodologies, learning in Python, C#, Excel used for risk methodologies and systems

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Flexible working hours with option to work from upto 2 days in a week, good learning opportunities for learning

about risk methodologies and related systems, very helpful teammates, some of whom were BITS alumni and good initial exposure of programming on Python and C#

Academic courses relevant to the project : FRAM, DRM, Applied Econometrics

PS-II Station : Credit Suisse (UBS) - Quantitative Analysis & Technology , Mumbai

Faculty

Name: Bandi Venkata Prasad

Student

Name: TAMBAT SARVESH MANOJ(2019B5AA0902G)

Student Write-up

PS-II Project Title: Probability of default modelling and monitoring

Short Summary of work done during PS-II : I worked using R-programming to develop models used to calculate the expected losses incurred by a company.

Tool used (Development tools - H/w, S/w) : Python, R programming

Objectives of the project : To monitor the Probability of default and work on models used in calculating the same.

Major Learning Outcomes : R programming, python, risk

Details of Papers/patents : Merton model

Brief Description of working environment, expectations from the company : Great working environment

Academic courses relevant to the project : DRM, SAPM

PS-II Station : D. E. Shaw India Private Limited - Project 1 , Hyderabad

Faculty

Name: Ambatipudi Vamsidhar

Student

Name: SNEHAL JUNEJA .(2019B2A70994P)

Student Write-up

PS-II Project Title: Development and Testing of Trading System Enhancements

Short Summary of work done during PS-II : During my internship, I worked on enhancing the firm's core trading system by developing new features and optimizing existing functionalities. My tasks included modelling financial problems as Linear Programming (LP) problems, modifying custom compiler grammar, and improving various scripts. I gained experience in distributed systems, focusing on the interactions and communication between different components. Understanding the trading system's architecture was crucial, requiring extensive code analysis and scenario simulations to test proposed solutions. Collaboration with my team was crucial. I regularly discussed approaches and incorporated feedback to refine solutions, especially when addressing complex issues that required comprehensive, integrated solutions. There was a

strong emphasis on writing clean, scalable code and ensuring that regulatory compliance and security were integrated into the software design. Throughout the internship, I gained a comprehensive experience, encountering technical challenges that fostered professional growth. I developed a strong skill set in software development, problem-solving, and system optimization.

Tool used (Development tools - H/w, S/w) : Java, Python, Linux

Objectives of the project : The objectives of the project were to gain a comprehensive understanding of the various components of the trading system. This included exploring how these components interacted and contributed to overall system functionality. Additionally, the project aimed to enhance the existing components by adding new features.

Major Learning Outcomes : 1. Acquired insights into the complexities of distributed systems and their practical implications.

2. Strengthened problem-solving abilities by addressing real-world challenges in a dynamic environment.

3. Improved proficiency in writing clean and scalable code.

4. Developed a comprehensive understanding of the trading system's components and their interactions.

5. Explored how these components contribute to the system's overall functionality.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at DE Shaw is dynamic and fast-paced, reflective of the finance industry's nature. Collaboration is crucial, with regular interactions among team members and across departments fostering a supportive culture of knowledge-sharing. My team, in particular, focuses on managing and enhancing the trading system, requiring attention to detail, quick problem-solving abilities, and a proactive approach.

Expectations at the company are high, typical in such a competitive field. Employees are expected to consistently deliver high-quality work efficiently. There is a strong emphasis on writing clean, scalable code, maintaining system reliability, and adhering to regulatory compliance and security standards. Continuous learning and adaptation are encouraged, offering ample opportunities for professional growth and development.

The working environment is challenging yet rewarding, providing a platform for honing technical skills and contributing to significant projects within the finance sector.

Academic courses relevant to the project : OOP, DBS, OS, Computer Networks

PS-II Station : D. E. Shaw India Private Limited - Project 1 , Hyderabad

Faculty

Name: Ambatipudi Vamsidhar

Student

Name: RITIK UPMANYU .(2019B3A70517P)

Student Write-up

PS-II Project Title: ML project

Short Summary of work done during PS-II : Research in machine learning and built a Machine Learning predictive model, which will help the end users to get the estimated time for their query.

Tool used (Development tools - H/w, S/w) : Python, sklearn, tensorflow, Jupyter Notebook

Objectives of the project : Building a predictive model

Major Learning Outcomes : Learnt the working of software companies, how machine learning is incorporated in the workflow

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment of DEShaw is very conducive to learning and peers are very helpful. Company doesn't expect you to know everything beforehand and has dedicated structured learning plans for each team.

Academic courses relevant to the project : DSA, OOP, DBS

PS-II Station : D. E. Shaw India Private Limited - Project 1 , Hyderabad

Faculty

Name: Ambatipudi Vamsidhar

Student

Name: UTKARSH DAROLIA(2020A7PS0981P)

Student Write-up

PS-II Project Title: Regulatory Trade Blotter System

Short Summary of work done during PS-II : The Regulatory Trade Blotter System (RTBS) project at D.E. Shaw involved designing and developing a comprehensive system to consolidate trades and positions data, ensuring regulatory compliance with the SEC's Division of Examinations. The project entailed defining input parameters and output fields in collaboration with legal and compliance teams, integrating data from D.E. Shaw's OMS and Arcesium, and implementing a caching layer to improve data retrieval speed. The development process included creating modular components for data management, parallel query processing, and efficient table merging. Extensive use of numpy and an in-house pandas-like module ensured high

performance, while multiple rounds of code reviews and the application of design patterns enhanced code quality and scalability. Key learnings included the ability to work independently on a complex project, effective communication with non-technical stakeholders, and improved presentation skills through regular meetings and workshops. The project's success demonstrated a blend of technical innovation, meticulous planning, and collaborative effort.

Tool used (Development tools - H/w, S/w) : Python, numpy, pandas, cron

Objectives of the project : The objective of this project is to develop a robust, standalone system to consolidate trades and positions data for regulatory examination by the SEC's Division of Examinations. The system needed to be highly efficient, support synthetic/derived columns, and ensure all data is as-of date.

Major Learning Outcomes : The Regulatory Trade Blotter System (RTBS) project at D.E. Shaw involved designing and developing a comprehensive system to consolidate trades and positions data, ensuring regulatory compliance with the SEC's Division of Examinations. The project entailed defining input parameters and output fields in collaboration with legal and compliance teams, integrating data from D.E. Shaw's OMS and Arcesium, and implementing a caching layer to improve data retrieval speed. The development process included creating modular components for data management, parallel query processing, and efficient table merging. Extensive use of numpy and an in-house pandas-like module ensured high performance, while multiple rounds of code reviews and the application of design patterns enhanced code quality and scalability. Key learnings included the ability to work independently on a complex project, effective communication with non-technical stakeholders, and improved presentation skills through regular meetings and workshops. The project's success demonstrated a blend of technical innovation, meticulous planning, and collaborative effort.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : At D.E. Shaw, the working environment emphasizes innovation, collaboration, and excellence in the field of financial technology and quantitative finance. As a leading investment and technology development firm, D.E. Shaw fosters an atmosphere that encourages employees to push boundaries and explore cutting-edge solutions. Expectations from employees typically include a

strong commitment to intellectual rigor, problem-solving abilities, and a proactive approach to tackling challenges in a fast-paced and dynamic industry.

The company values individuals who demonstrate a deep understanding of their respective fields, whether in technology, finance, or compliance. Teamwork is crucial, with an expectation that employees will collaborate effectively across departments to achieve common goals. D.E. Shaw also values creativity and original thinking, encouraging employees to propose and develop innovative solutions that can potentially disrupt and improve existing practices.

Additionally, employees are expected to uphold the highest standards of integrity and ethical behavior, given the firm's commitment to regulatory compliance and maintaining the trust of its clients and stakeholders. Continuous learning and professional development are supported through mentorship, training programs, and opportunities to engage with cutting-edge technologies and industry trends.

Overall, the working environment at D.E. Shaw is challenging yet rewarding, offering opportunities for personal growth, career advancement, and the chance to contribute to impactful projects that shape the future of financial technology and investment strategies.

Academic courses relevant to the project : DRM, FundaFin, FinE

PS-II Station : D. E. Shaw India Private Limited - Project 2 , Hyderabad

Faculty

Name: Ambatipudi Vamsidhar

Student

Name: YUVRAJ RAJINDER CHAUHAN .(2020A2PS0260P)

Student Write-up

PS-II Project Title: DE Shaw India Pvt Ltd Project 2

Short Summary of work done during PS-II : Improve regulatory compliance procedures to ensure the firm's security from MNPI

Tool used (Development tools - H/w, S/w) : Internal proprietary softwares

Objectives of the project : Improve regulatory compliance procedures to ensure the firm's security from MNPI

Major Learning Outcomes : Regulatory compliance and reporting, usage of internal proprietary software

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Open doors, approachable and helpful

Academic courses relevant to the project : SAPM, BAV, DRM, Fin Engineering

PS-II Station : D. E. Shaw India Private Limited - Project 2 , Hyderabad

Faculty

Name: Ambatipudi Vamsidhar

Student

Name: VIBHUM RAJ TRIPATHI(2020A7PS0247H)

Student Write-up

PS-II Project Title: Extending functionality of current MAR checks

Short Summary of work done during PS-II : I was tasked to extend the MAR checks already in place by first understanding them and then developing a framework to A. Allow them to ingest data from multiple exchanges/sources and extend the checks/algorithms to detect pattern that might be executed following a Cross-Market Manipulation practice, B. Allow them to be stored and retrieved in a standard format, C. Optimize/refine any old or newly created part of the process, D. Write comprehensive unit tests in accordance with specification documents. I had to develop frameworks both of these projects (A & B) while making sure that there is minimal code intervention required for every new check to be onboarded and archived. The primary areas of requirement were correctness and readability followed by optimizations, thus we had regular rounds of requirement gathering and code reviews with both the internal teams and client/stakeholders. Part of the process was also to make sure that the clients were actively included in the process by making timely ticket updates on top of regular meetings and discussions.

Tool used (Development tools - H/w, S/w) : Python's numpy/It's inhouse equivalents, VS Code, Unix Chooser, Confluence

Objectives of the project : To understand the currently written market abuse regulations check. To fix any issues observed with their implementation in accordance to specifications. Think of how we would extend their applications to more complex domains with multiple data input streams. Regather requirement and extend the current checks to support these additions in particular with Cross-Market Manipulation.

Major Learning Outcomes : 1. Understanding the post trade check framework

2. Understanding the styles of already written codebases

3. Figure out points of minimal intervention required to implement a feature

4. Requirement gathering

5. Communication with stakeholders

6. Writing cleaner code

7. Code optimizations

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The company has a great working culture, you will find helpful and enthusiastic people all around. The teams are supportive and accomodating of your requirements within reason. The work could be slightly hectic at times, but all the more rewarding upon completion. It's a good idea manage your time correctly and set proper expectations with your manager/mentor in the weekly/daily scrums. Food and office parties are also great.

Academic courses relevant to the project : 1. Database systems

2. Operating systems
 3. Software engineering
 4. Object oriented programming
 5. Data structures & algorithms
-

PS-II Station : D. E. Shaw India Private Limited - Project 2 , Hyderabad

Faculty

Name: Ambatipudi Vamsidhar

Student

Name: ANIRUDH PUPNEJA(2020A7PS1376G)

Student Write-up

PS-II Project Title: Interactive Counterparty Simulator

Short Summary of work done during PS-II : I worked on a interactive Counterparty Simulator to simulate FIX messages we receive from exchanges, and brokers making it easy to test a lot of scenarios like overfills on orders, custom tags etc. This project helped reduce the testing time for Ops, when we face production issues. The solution was to develop a frontend from which you are able to send custom message to the backend, and then to trading system. First we designed the system, and then implemented a prototype, and then productionized it.

Tool used (Development tools - H/w, S/w) : Springboot, React

Objectives of the project : Develop a testing platform for FIX messages

Major Learning Outcomes : Backend, Frontend

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : At D. E. Shaw, the working environment is collaborative, intellectually stimulating, and innovation-driven. Employees are encouraged to engage in complex problem-solving and contribute to cutting-edge projects in technology and finance. The company values diversity, inclusivity, and continuous learning. Expectations include high performance, strong analytical skills, and teamwork. Employees are expected to adapt quickly, demonstrate initiative, and maintain a high standard of excellence. The company offers opportunities for professional growth, mentorship, and work-life balance, fostering a culture of mutual respect and intellectual curiosity.

Academic courses relevant to the project : Object oriented programming

PS-II Station : D. E. Shaw India Private Limited - Project 3 , Hyderabad

Faculty

Name: Ambatipudi Vamsidhar

Student

Name: SAI PRASANNA PANDA(2020A7PS0080H)

Student Write-up

PS-II Project Title: Putils Library and Python Import Times Observability

Short Summary of work done during PS-II : During my internship at DE Shaw India, I worked in the Futures group, focusing on enhancing the workflow of traders in the NYC office. My role involved executing individual projects, performing R&D to evaluate technologies, and resolving production issues. I contributed to the development and optimization of internal tools and frameworks, significantly improving their performance and efficiency. My projects included extending the functionality of existing tools and creating new solutions for monitoring and analyzing system performance. Through this experience, I gained proficiency in Python and C++, honed my problem-solving and critical thinking skills, and improved my ability to work under pressure. Additionally, I developed my communication and presentation skills by presenting my work to senior leadership. The internship helped me realize my interest in research-based roles, inspiring me to pursue a master's or PhD to transition into a research-oriented career.

Tool used (Development tools - H/w, S/w) : Internal Tools of DE Shaw, VSCode, Git, Github

Objectives of the project : Extend the functionality of an existing internal tool, Monitor and analyze the import times of Python modules to identify performance bottlenecks

Major Learning Outcomes : Gained experience writing production grade code in C++, Python

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Timings are flexible, a lot of teams prefer to wfh on Mondays and Fridays. Most full time employees have to

log how much time they spent on different tasks each week. All major decisions require approval of nyc folks. Quality of projects will depend on your team/sub-department. Could be a good company to work at if you are interested in finance/fintech.

Perks: free breakfast, lunch and snacks, gym, cab to drop you home after 8pm.

Academic courses relevant to the project : OS, CP, DSA, DAA

PS-II Station : DAR Al-Handasah , Pune

Faculty

Name: Mahesh K Hamirwasia

Student

Name: PRITAM PRIYADARSHAN PANDA(2022H1430014H)

Student Write-up

PS-II Project Title: A review on design of concrete structures at Dar Al Handasah

Short Summary of work done during PS-II : Thorough understanding of design related work at Dar office and coordinating with teams .Design of concrete structural elements such as beams,columns,footing,slabs,etc and providing reinforcement for the same using mathematical modelling FEM based.

Tool used (Development tools - H/w, S/w) : ETABS,SAFE,SAP 2000,REVIT

Objectives of the project : ACI and SBC standards for concrete design

Major Learning Outcomes : Designing of stadiums,towers etc for international projects

Details of Papers/patents : No

Brief Description of working environment, expectations from the company : Work environment was good which was based on team efficiency and team work .

Academic courses relevant to the project : Design of concrete structures and Advanced Structural Analysis.

PS-II Station : DAR Al-Handasah , Pune

Faculty

Name: Mahesh K Hamirwasia

Student

Name: PRANAMEE GOSWAMI(2022H1430054P)

Student Write-up

PS-II Project Title: Design and analysis of Multistorey residential building in Dubai

Short Summary of work done during PS-II : I was involved in the company's training program as well as in the skill development program in the early stage. Later we had to join the live project immediately within a month of joining. I have contributed to the company's resource by developing automated sheet for cracking moment calculation of pile cap and slab. Further i was involved in modeling, analysis and design of the live project where i was associated in every aspect of it.

Along with software model development, I've worked in the manual calculation and submission presentation.

Tool used (Development tools - H/w, S/w) : Revit, Etabs, SAFE

Objectives of the project : The aim of the project is to accurately analyze G+16 structure having three levels of basement with respect to wind and seismic force. The crucial aspect of the project is to spot and analyze the critical elemental sections and modify it in accounts of its serviceability and functionality. Further analysis with fixed and flexible base models and its comparison will be studied profoundly to have an optimized structural design.

Major Learning Outcomes : Apart from gaining and learning technical software skills I was involved in the live project immediately within a month of joining. I have learned to work with the software and manual calculations of a structure and could co related my studies with the practical field. I have prepared and use automated sheet for cracking moment calculation of pile cap and slab.

Details of Papers/patents : Not applicable.

Brief Description of working environment, expectations from the company : Dar Al-Handasah is a reputed company and the employees as well as the seniors are very cooperative and friendly. But it lags in overtime policy where there is incentives or perks for working overtime but the employees need to work overtime when there is a project deadline.

Academic courses relevant to the project : Structural analysis, design of structure, Design of Multistorey structures, earthquake engineering, FEM, Dynamic analysis of structure, Prestressed concrete, Foundation Engineering and Bridge Engineering.

PS-II Station : DAR Al-Handasah , Pune

Faculty

Name: Mahesh K Hamirwasia

Student

Name: KRISHNA AGARWAL(2022H1430060P)

Student Write-up

PS-II Project Title: Analysis and Design of G+2 villa using ETABS software

Short Summary of work done during PS-II : I was responsible for the analysis and design of a G+2 villa which was a live project. I was asked to model it in ETABS and make the load combinations of it according to ACI 318-19. I also applied all the loads and the appropriate cracked section modifiers to the model and checked for the serviceability requirements as per ACI 318-19.

Tool used (Development tools - H/w, S/w) : ETABS, SAFE, SAP

Objectives of the project : To Design a structurally safe and stable structure according to the provisions of ACI 318-19. To satisfy the architectural needs and providing a structural system which supports the plan of the architect.

Major Learning Outcomes : learnt about the design of foundation using SAFE, Leant about the provisions of ACI 318

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at DAR is good the only issue is with the long working hours.

Academic courses relevant to the project : Foundation engineering,. Reinforced concrete design, Earthquake engineering

PS-II Station : Dashtoon , Bengaluru

Faculty

Name: Shreyas Suresh Rao

Student

Name: ANURAAG GANJI(2020A7PS0114H)

Student Write-up

PS-II Project Title: Developing and maintaining the Dashtoon Reader App

Short Summary of work done during PS-II : During the internship at Dashtoon, the student significantly contributed to the development and optimization of the reader app by implementing Facebook login, revamping the login UX, and integrating OpenAI's GPT for email categorization. The student also enhanced backend performance, resized call-to-action components, and created custom dashboards in Appsmith for data visualization. Through this work, the student learned advanced Flutter features, Firebase Authentication integration, and effective state management. They also gained practical experience in backend development, data-driven decision-making using Mixpanel, and balancing user experience with functional pop-ups. This comprehensive experience enriched the student's skills in both frontend and backend development, user-centered design, and iterative software improvement.

Tool used (Development tools - H/w, S/w) : IntelliJ IDEA, GitHub

Objectives of the project : Develop and maintain the Dashtoon Reader App

Major Learning Outcomes : In this internship with Dashtoon, I have learned many valuable lessons and new skills that guide my efforts toward the future in software development and designing better user experiences. From there, I mastered Flutter and backend technologies, navigation of complexities around AI integration and data visualization, among various other intricate login and UI challenges that came my way. I learned from designing user-centered products, iterative development, and making data-driven decisions. Enriched with this experience, I look forward to exploring innovative solutions in the future along these lines. I am also excited about the possibility of contributing to Dashtoon in its bid to transform digital storytelling using generative AI and user-centric design. Projects done in the future will continue pushing engagements to gain new levels of client satisfaction and delight.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The successful completion of this project at Dashtoon opens up promising opportunities for further collaboration through sponsored and consultancy research projects. Building on the integration of advanced features like OpenAI's GPT and the extensive use of data visualization tools, future projects could explore deeper AI-driven innovations, personalized user experiences, and advanced analytics for user behavior. Additionally, consultancy projects could focus on optimizing backend infrastructure, enhancing security protocols, and expanding the app's functionalities to new platforms. These collaborations could not only drive continued technological advancements for Dashtoon but also provide valuable, real-world research opportunities for both parties.

Academic courses relevant to the project : OOPS, DBMS

PS-II Station : DBOI - Business Finance , Mumbai

Faculty

Name: Krishnamurthy Bindumadhavan

Student

Name: UTKAL SINGH(2019B4A40410G)

Student Write-up

PS-II Project Title: Business Finance

Short Summary of work done during PS-II : Learned Excel. Automated daily tasks which were manual using VBA into few clicks. Used power automate for automation. Learned about derivative products mainly debt instruments like swaps, bonds, mm trades.

Tool used (Development tools - H/w, S/w) : Excel. VBA. Power automate.

Objectives of the project : Daily Book Runners for the Front Office(London). Generating DTD PnL and Risk Reports

Major Learning Outcomes : Excel, VBA, Power Automate, Derivatives

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Learned Excel. Automated daily tasks which were manual using VBA into few clicks. Used power automate for automation. Learned about derivative products mainly debt instruments like swaps, bonds, mm trades

Academic courses relevant to the project : FUFA

Fin Man

BAAV

DERIVATIVES

SAPM

PS-II Station : DBOI - MRM , Mumbai

Faculty

Name: Krishnamurthy Bindumadhavan

Student

Name: MUKUNDAN P S(2019B3A40349H)

Student Write-up

PS-II Project Title: Production enhancement via FRTB IMA

Short Summary of work done during PS-II : Validated various market risk metrics like VaR, ES and NMRF by collaborating with various asset class teams to ensure production is ready to adopt Basel IV as per regulatory compliance.

Tool used (Development tools - H/w, S/w) : DB internal tools, Jupyter(Python), Excel

Objectives of the project : Market Risk Validation

Major Learning Outcomes : FRTB, VaR, Expected Shortfall, NMRF

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : 3 days work from office, 2 days work from home.

The days subject to your team and manager.

Academic courses relevant to the project : FRAM

PS-II Station : DBOI - MRM , Mumbai

Faculty

Name: Krishnamurthy Bindumadhavan

Student

Name: SHIVANSH JOHARI .(2019B3A80503P)

Student Write-up

PS-II Project Title: SII OF GPC2 RISK RULES

Short Summary of work done during PS-II : The work involved working with Data quality - Governance team and identifying stakeholders tht are responsible for recertification of the risk rules that are used to assign benchmark data to upstream sensitivities to be correctly mapped to relevant VaR measures.

Tool used (Development tools - H/w, S/w) : Excel, VBA, PowerPoint, firm's internal tools

Objectives of the project : To identify the roles and responsibilities of various teams in the process of reviewing and recertification of GPC2 Risk rules

Major Learning Outcomes : The project involved understanding the stakeholders' responsibility and how data flows from upstream data centres to downstream data collectors

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Very friendly and supportive environment

Academic courses relevant to the project : FRAM, DRM

PS-II Station : DBOI - Ops. IB CB , Bengaluru

Faculty

Name: Krishnamurthy Bindumadhavan

Student

Name: JYOTI DIXIT .(2019B1A10867P)

Student Write-up

PS-II Project Title: Front to back transformations

Short Summary of work done during PS-II : Automated tasks with the help of low code/no code tools.

Tool used (Development tools - H/w, S/w) : Alteryx, Power Platforms, Python

Objectives of the project : Automation of Operational tasks

Major Learning Outcomes : Alteryx, Power Platform

Details of Papers/patents : Na

Brief Description of working environment, expectations from the company : Perceptions matter a lot. Combination of hard work and how you present it matters a lot.

Academic courses relevant to the project : Na

PS-II Station : DBOI - Ops. IB CB , Bengaluru

Faculty

Name: Krishnamurthy Bindumadhavan

Student

Name: HRISHIT GUPTA(2019B4A80869G)

Student Write-up

PS-II Project Title: IB F2B Transformations

Short Summary of work done during PS-II : Finding out breaks in data and then looking for ways to resolve them in order for smooth automation of process.

Tool used (Development tools - H/w, S/w) : MS Excel, Power Automate

Objectives of the project : To provide solutions and automate existing manual operational processes.

Major Learning Outcomes : Business Analysis, Scoping Documents

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Great working culture, helpful and kind people

Academic courses relevant to the project : Business Analysis and Valuation

PS-II Station : DBOI - TBF , Mumbai

Faculty

Name: Krishnamurthy Bindumadhavan

Student

Name: YASHWASIN JAIN .(2020A3PS1547P)

Student Write-up

PS-II Project Title: Product Control

Short Summary of work done during PS-II : The work primarily was of a Product controller, wherein I had to conduct an analysis of the trading activity done by the bank's desk on the previous business day. We would then provide the middle office with the risk and PnL numbers arrived at by us basis our investigation. The investigation would comprise of checking for any unusual trading activity or any new deals, and then consulting with the desk about the same. This would be followed by finalising our PnL numbers and risk numbers after being in tandem with the desk. The work also included ad hoc tasks like checking for cash, posting reserves.

Tool used (Development tools - H/w, S/w) : DB internal softwares, MS Excel

Objectives of the project : Daily Risk and PnL reporting, Observing trade through its life cycle, Evaluating for any trades with unusual risk characteristics, Verifying for new deals, Arriving at daily PnL and risk measure

Major Learning Outcomes : 1)The nature of the work was so that it made me more knowledgeable on how various asset classes and instruments function such as Swaps, Bonds and Repos.

2) In addition, since the work was of an investigative nature and each day was associated with a different PnL statement altogether, the internship enhanced my problem solving and cognitive skills.

3) It also helped me in improving my soft skills as we were in constant communication with the front office/trading desk in regard to any unusual trading activity. Furthermore, it helped me improve my Excel skills and deepen my understanding about the functionality of MS Excel in the world of Business Finance

4) Overall, the internship was instrumental in providing me an insight into the corporate world and learn the ways of the same.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The working environment at the PS station was really conducive to learning and my coworkers really encouraged me to ask questions and clear my concepts. The managers were very supportive, and the trainers allotted were very understanding and adept at their work. Overall, the working hours were decent and there was always someone from the team to help in case I had a doubt in the process. My team was full of energetic people who helped in mitigating the stress and made sure that learning happened organically and without any form of stress.

Academic courses relevant to the project : Derivatives and Risk Management, Fundamentals of Finance and Accounting

PS-II Station : DBOI - TBF , Mumbai

Faculty

Name: Krishnamurthy Bindumadhavan

Student

Name: KARNENA KALYAN NAIDU(2020A4PS1993H)

Student Write-up

PS-II Project Title: RISK AND P&L REPORTING OF STRUCTURED PORTFOLIOS

Short Summary of work done during PS-II : I work as bookrunner in Business finance division of Deutsche Bank. My work here is to ensure that all risk and PNL numbers are correct and are in inline and within the regulations .

Tool used (Development tools - H/w, S/w) : DBAnalytics, Excel

Objectives of the project : Give an overview of the work done by bookrunners in product control of finance

Major Learning Outcomes : I learned how all the major financial instruments work in the real world from booking to settlement.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : It was a great experience and my first time working in the corporate world. I got insights into how all the major financial instruments such as swaps, bonds, repos work in the real world. The work culture is

amazing and all my colleagues were very helpful and I was successful in converting the internship to PPO.

Academic courses relevant to the project : FOFA and DRM

PS-II Station : DBOI - Valuation Control , Mumbai

Faculty

Name: Krishnamurthy Bindumadhavan

Student

Name: PANGARKAR VIRAJ SUJEET(2020A1PS1182G)

Student Write-up

PS-II Project Title: Foreign Exchange Valuation and Portfolio Risk Management

Short Summary of work done during PS-II : Working in Valuation Sector under 2 teams – Global Foreign Exchange (GFX) and Counterparty Portfolio Management (CPM). Performed daily Independent Price Verification Tasks along with threshold breach reporting for foreign exchange currency products. Performed additional weekly testing for currency derivatives by sourcing spot market data and investigating any untested or unmapped data. Performed parameter-based variance calculation for various types of derivative instruments in counterparty portfolios. Performed Daily and weekly Cash tool runs to upload bond populations, generate bond pricings, and publish results. Automated process files to make them faster and efficient. Learned and got a hang of troubleshooting any automated or manual process issues. Overall got an idea of the workflow in a company, especially in finance sector, and the importance of proper reporting in order to maintain smooth functioning.

Tool used (Development tools - H/w, S/w) : MS Office, Bloomberg, Reuters, Market Viewer

Objectives of the project : Streamlining data handling processes, enhancing risk calculation algorithms, and ensuring transparent reporting

Major Learning Outcomes : 1)A look at the finance and banking sector and its purview of functions

2)The importance of accurate and timely data reporting in order to maintain smooth workflow in the company

3)The ability of code and other excel functions in making a process much faster

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment is very good and lively, people are helpful and friendly. Expectation is that working hours will be reasonable and learning will be high

Academic courses relevant to the project : Finance Minor - SAPM, DRM, BAAV

PS-II Station : DBOI - Valuation Control , Mumbai

Faculty

Name: Krishnamurthy Bindumadhavan

Student

Name: IRENE JINO(2020A4PS1970H)

Student Write-up

PS-II Project Title: Transforming processes using Automation

Short Summary of work done during PS-II : I was tasked with the role of Automation lead in Accounting Close, Germany region. It required me to learn new skills and enhance my understanding of business operations, the tools, and the tools limitations when it comes to automating tasks and processes as per the expectations of the key subject matter experts. I have handled several tasks resulting in a monthly time saving of 30+ hours.

Tool used (Development tools - H/w, S/w) : Power Query, VBA, Python, Excel

Objectives of the project : To automate manual, repetitive tasks and result in major time saving in hours

Major Learning Outcomes : Automation using tools like VBA, Power Query for streamlining major business operations

Details of Papers/patents : Nil

Brief Description of working environment, expectations from the company : The working environment was deeply encouraging, as the team members are very supportive and cooperative.

Academic courses relevant to the project : Nil

PS-II Station : Delightful Gourmet Pvt Ltd (Licious) , Bengaluru

Faculty

Name: Ankur Pachauri

Student

Name: SACHIN DODWANI(2019B1AA1484H)

Student Write-up

PS-II Project Title: Increase customer footfall on licious app

Short Summary of work done during PS-II : Created multiple dashboard including clevertap comms analysis and scheduling push notifications on regular basis and emails using netcore, branch and clevertap

Tool used (Development tools - H/w, S/w) : SQL, Excel, python

Objectives of the project : Increase customer footfall on licious app

Major Learning Outcomes : SQL, Excel, python

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : 5 days work from office, environment is pretty chill and everyone is supporting

Academic courses relevant to the project : None

PS-II Station : Delightful Gourmet Pvt Ltd (Licious) , Bengaluru

Faculty

Name: Ankur Pachauri

Student

Name: SHREYA KHARE .(2019B2A10999P)

Student Write-up

PS-II Project Title: Market Intelligence Report and Cost Model Building and Scaling it to various Geographies.

Short Summary of work done during PS-II : 1. Building of cost models and scaling it for various geographies.- For various Rental Equipments used in Shell. 2. Designing of the dashboard in Power Bi using the cost model built in excel as the backend to develop a tool that provided important information as and when needed according to our requirements.

Tool used (Development tools - H/w, S/w) : Excel , Power Bi , Google

Objectives of the project : Objective : 1.Equipment Rental Cost Model - Shell's equipment rental expenditure, spanning billions across multiple countries, necessitates an efficient cost model to optimize negotiations and contract management. Our objective is to develop a comprehensive and standardized equipment rental cost model that categorizes rental prices across key regions: 1. Western Regions - USA, Germany, Netherlands 2. Eastern Regions - China, India, Philippines, Malaysia, Australia This Model will serve serve as a critical tool for frontline CP teams, empowering them to negotiate favorable terms for new contracts and renewals with equipment rental companies, thereby ensuring cost- effective operations across Shell's diverse line of business. 2. Power Bi Dashboard for Equipment Rental Cost Model - This aims to provide an intuitive and interactive user interface. This dashboard will allow users to easily navigate and visualize rental cost data, enabling quick access to categorized rental prices across various countries. Additionally, it will support data driven decision- making by offering dynamic insights

and analytics, facilitating frontline CP teams in negotiating optimal terms for equipment rental contracts and renewals.

Major Learning Outcomes : Building a framework and a tool that will further help the team, Contract rates gap percentages finding, Excel Functions , Building a Power Bi dashboard.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The company is good . Has a good work life balance. The people are inclusive and respectful. I think the company does not give direct PPO to unassed internship.

Academic courses relevant to the project : Chemical Process Finance Related Course

PS-II Station : Delightful Gourmet Pvt Ltd (Licious) , Bengaluru

Faculty

Name: Ankur Pachauri

Student

Name: SHRIJANI CHAKRABORTY(2022H1540806P)

Student Write-up

PS-II Project Title: Data Analytics for Business aIntelligence

Short Summary of work done during PS-II : Developed & maintained business intelligence trackers, migrated code from redshift to hive, migrated trackers from Qlik to Tableau, catered to ad-hoc business requests for data

Tool used (Development tools - H/w, S/w) : SQL, Python, GSheets, Qlik, Tableau

Objectives of the project : The primary objective of our Consumer Insights Analytics project is to delve deeply into consumer behavior, uncovering pivotal insights that drive strategic decision-making and business growth. Through rigorous analysis of data encompassing consumer preferences, purchasing patterns, and demographic trends, we aim to identify emerging market trends and consumer behaviors. This project will not only optimize our marketing strategies by refining campaign targeting and messaging but also enhance product development efforts by aligning offerings closely with consumer needs and desires. Ultimately, our goal is to leverage these insights to ensure proactive, data-driven decision-making that strengthens our competitive edge and enhances overall consumer satisfaction and engagement.

Major Learning Outcomes : The primary objective of our Consumer Insights Analytics project is to deeply analyze consumer behavior to uncover crucial insights that drive strategic decision-making and foster business growth. By rigorously examining data encompassing consumer preferences, purchasing habits, and demographic trends, our aim is to identify emerging market trends and evolving consumer behaviors. This project is pivotal in refining our marketing strategies, enabling us to tailor campaign targeting and messaging effectively. Additionally, it plays a crucial role in enhancing our product development initiatives, ensuring that our offerings closely align with and anticipate consumer needs and desires. Ultimately, our goal is to leverage these insights to facilitate proactive, data-driven decision-making that fortifies our competitive edge, elevates overall consumer satisfaction, and strengthens engagement across our target audience.

Details of Papers/patents : Nil

Brief Description of working environment, expectations from the company : Very good

Academic courses relevant to the project : Database management, Python, Power BI

PS-II Station : Development Consultants Pvt. Ltd. (DCPL) , Mumbai

Faculty

Name: Pavan Kumar Potdar

Student

Name: KARTHIK SURESH(2022H1430067P)

Student Write-up

PS-II Project Title: DESIGN AND REVIEW OF VARIOUS CANOPY STRUCTURES

Short Summary of work done during PS-II : Petrol Pump Canopy Design Report Study. Understanding and review of structural drawings of different types of Canopy. Augmentation of Petrol Pumps Design of Enclosure Tank Shed. Design of 3M Height Compound Wall. Review adequacy of present gantry structure to a new site Making structural drawing and Staad modelling for 7x16, 7x24, 10x16, 10x24 for 39m/s, 47m/s & 55m/s wind speeds and analyzing the bill of quantities comparing existing canopy to new canopy.

Tool used (Development tools - H/w, S/w) : STAAD PRO, AUTO-CAD, MS-EXCEL.

Objectives of the project : To study to review and design various Petrol Pump Canopies. To review and design the connection drawing of the various steel member connection drawing after design.

Major Learning Outcomes : Interaction with staff to get to know their work and experience on particular projects and how they come out of tricky situations during design. Understanding about work priorities and dealing with clutch deadlines.

Learning how to extract work from fellow staff.

How to behave, observe, and understand what client wants during meetings.

I familiarized myself with various codes and standards during this time and acquired a good knowledge of softwares. I learned how to communicate complex technical concepts to technical and non-technical stakeholders, which is crucial for ensuring project success.

Details of Papers/patents : NIL.

Brief Description of working environment, expectations from the company : The working environment is above average. A formal or business casual dress code is often expected to maintain a professional appearance. The work is basically in a hierarchical model where my work will be review by my fellow senior engineer and later he will explain it to the senior engineer. They do provide you to chose on which task you want to do or if they do provide a task they will give provide me a small heads up before giving the task.

They do expect you to be punctual for meetings and take responsibility for assigned tasks. Although they are bit lenient on deadlines.

Academic courses relevant to the project : Design of Steel Structures, Study of Plates and Shells, Mechanics of solids, Advanced Foundation Design.

PS-II Station : DevRev Cloud India Pvt. Ltd. , Bengaluru

Faculty

Name: Shreyas Suresh Rao

Student

Name: MAMIDI RATNA PRANEETH(2019B3A70490H)

Student Write-up

PS-II Project Title: Customization Enhancements

Short Summary of work done during PS-II : I successfully benchmarked the results of storing timestamps as strings and assessed the impact on MongoDB operations. I have also benchmarked the results of reading the schema versus not reading the schema during read or update of custom fields. This analysis led to the implementation of this method, which will remove the need for schema reads during the read/update path. The change not only improved query efficiency but also resulted in faster data retrieval and overall better system performance. This project displayed my ability to identify performance bottlenecks and implement effective solutions and I also worked on other projects including caching, custom objects.

Tool used (Development tools - H/w, S/w) : Golang,redis, mongo, docker

Objectives of the project : Enhance and add new features to existing customization framework

Major Learning Outcomes : Team work, collaboration, golang, redis

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Amazing work environment, great culture

Academic courses relevant to the project : DSA, OOPS

PS-II Station : DevRev Cloud India Pvt. Ltd. , Bengaluru

Faculty

Name: Shreyas Suresh Rao

Student

Name: MADADI CHETAN KODAND REDDY(2019B3A70629H)

Student Write-up

PS-II Project Title: Prompt based cURL command generation

Short Summary of work done during PS-II : Helped extend the functionalities of devrev chatbot.

Tool used (Development tools - H/w, S/w) : Langchain, microservices, golang, docker, OpenAPI

Objectives of the project : Build a langchain tool for prompt based cURL command generation.

Major Learning Outcomes : Langchain, microservices, golang, docker

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Good culture for learning.

Expect high ownership.

Academic courses relevant to the project : NA

PS-II Station : DevRev Cloud India Pvt. Ltd. , Bengaluru

Faculty

Name: Shreyas Suresh Rao

Student

Name: HARSH VARDHAN GUPTA(2019B3A70630H)

Student Write-up

PS-II Project Title: Spam Management

Short Summary of work done during PS-II : Managing spam in DevRev requires a comprehensive approach using both proactive and reactive strategies. The Version 1 solution combines a Rule Engine and GPT-based model for spam classification, utilizing predefined rules and prompt engineering to differentiate between spam and legitimate messages. User feedback mechanisms enhance accuracy, and tools like the Turing chatbot and semantic search address issues with new DevOrgs. Various algorithms, including Naive Bayes, SVM, and Deep Learning, are explored for continuous improvement. This multifaceted strategy aims to maintain communication integrity and foster productive collaboration within DevRev.

Tool used (Development tools - H/w, S/w) : Langchain, Python, GRPc, Typescript, Golang

Objectives of the project : To create a spam management module for Devrev Tickets & Conversation using prompt engineering and ML techniques

Major Learning Outcomes : 1. Designed the whole spam management module by exposing endpoint and creating and RPC.
2. Created an external wrapper for handling spam using Typescript so that its easy for the users to interact with.

3. Also create some UI elements for displaying spam.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Work environment in company is quite good and everyone in DevRev is quite helpful so you will learn a lot of technical skills. The expectations from the company is that you just complete the assigned project in the given time.

Academic courses relevant to the project : Deep Learning, Reinforcement Learning, NLP and ML

PS-II Station : DevRev Cloud India Pvt. Ltd. , Bengaluru

Faculty

Name: Shreyas Suresh Rao

Student

Name: SHASHANK PRATAP SINGH(2019B4A70956H)

Student Write-up

PS-II Project Title: Enhancement in CMS

Short Summary of work done during PS-II : Had to add new features in the rich text editor of the company's website. To do so, I had to write up new extensions for the editor library being used, or had to just make changes in the already existing ones. Added features like Slash

commands, Article Hyperlinking, Code block syntax highlighting, Inline Images, and did a bunch of other big fixes in various other extensions.

Tool used (Development tools - H/w, S/w) : Reactjs, Git, VScode, Tailwind, Typescript

Objectives of the project : Enhancing the editing experience in the text editor on the CMS system

Major Learning Outcomes : Learnt frontend development using Reactjs

Details of Papers/patents : n/a

Brief Description of working environment, expectations from the company : Was a great working experience. People were very friendly and helpful. The work times were flexible, and there was no restriction minimum in office days per week.

Academic courses relevant to the project : None

PS-II Station : DevRev Cloud India Pvt. Ltd. , Bengaluru

Faculty

Name: Shreyas Suresh Rao

Student

Name: SRIKANT TANGIRALA(2020A7PS0055H)

Student Write-up

PS-II Project Title: Retrieval Augmented Generation (RAG): Metrics and Experiments

Short Summary of work done during PS-II : Retrieval augmented generation (RAG) is a technique where generative models are combined with information retrieval from large text corpora, often in the form of retrievable passages or documents, to enhance the quality and relevance of generated answers with respect to specific domains and/or live data sources. By assessing relevant metrics on generated text, we can systematically evaluate the quality of RAG pipelines and benchmark them for different changes made to improve query deflection rate and answer quality.

Tool used (Development tools - H/w, S/w) : Github, Bigquery, Datadog, Kubernetes, AWS Console,

Objectives of the project : 1. Research on possible metrics to evaluate the RAG pipeline for our

Major Learning Outcomes : 1. Python
2. BigQuery APIs
3. Microservice architecture

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Fast-paced startup environment with adequate guidance and approachability from fellow interns and full-time employees.

Academic courses relevant to the project : Software Engineering, Natural Language Processing, Machine Learning

PS-II Station : DevRev Cloud India Pvt. Ltd. , Bengaluru

Faculty

Name: Shreyas Suresh Rao

Student

Name: S RAVI SANKER(2020A7PS0142G)

Student Write-up

PS-II Project Title: Airdrop of Zendesk Help Center

Short Summary of work done during PS-II : I worked on the migration of the Zendesk Help Center to DevRev through an internal framework known as Airdrop.

Tool used (Development tools - H/w, S/w) : Go, AWS Lambdas, Microservices, Docker, Kubernetes, gRPC, Protocol Buffers

Objectives of the project : To extend the existing 'Airdrop' framework to migrate the entire help center from Zendesk to DevRev

Major Learning Outcomes : I learnt how to work with a massive codebase and write code that scales well. I became proficient with Golang and have a deep understanding of how Lambdas work. I was exposed to Microservice architecture, Docker and Kubernetes as well.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : You'll hear the word 'ownership' being thrown around often at DevRev, and for good reason. Since it is a startup, you are expected to 'own' your project and take it from ideation all the way to production and ultimately be responsible for any issues in production. All interns are given freedom and opportunity to actually build something that customers will use.

Academic courses relevant to the project : Cloud Computing, Data Structures and Algorithms

PS-II Station : Digital.ai Software India Private Limited. , Bengaluru

Faculty

Name: Swapna S Kulkarni

Student

Name: TANGIRALA ASHISH RAJ(2020A3PS1757H)

Student Write-up

PS-II Project Title: Cost Share Automation, Inventory Management Analytics, Admin Fee Reporting Automation, & others

Short Summary of work done during PS-II : In the first project, which was the cost share automation, I automated a very big manual process which included, doing calculations and merges done in excel, now automated in python. After doing these calculations and making the final report, I had to also automate a process of making invoices letter pdfs, merging them with invoices and building an auto-mailer system, all using python. In the second project, which was the Admin Fee Automation, again, I had to automate a process, previously done in excel. I had to use merge to bring few columns from different reference sheets, and calculate sales and other required calculations and make final reports. In the Inventory Management Analytics project, I initially had to automate the process of creating a report needed by the internal client team. This report included the process of doing some calculations using python on pandas dataframe, and also to build few basic analytics using excel bar graphs and charts to show month-on-month movement of stock. I also worked on few other smaller projects.

Tool used (Development tools - H/w, S/w) : Python, Excel

Objectives of the project : To automate processes done manually on excel or others using python, and develop a few analytics on data.

Major Learning Outcomes : Coding in python, basic excel.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The working environment was positive and the managers gave enough support whenever necessary. The work expected from the company is pretty simple, since it's just using python to automate a lot of manual tasks.

Academic courses relevant to the project : CS F111 - Computer Programming(just basics of programming)

PS-II Station : Digital.ai Software India Private Limited. , Chennai

Faculty

Name: Swapna S Kulkarni

Student

Name: CHINTAN SHARMA(2019B4A70874G)

Student Write-up

PS-II Project Title: Optimisation of Synchronisation dags

Short Summary of work done during PS-II : I was part of the data engineering/ Analytics team which handles the reports, dashboards and the data warehousing for both oxyzo and ofbusiness.

Tool used (Development tools - H/w, S/w) : Apache Airflow, SQL, Python, Java Big query

Objectives of the project : To optimise the performance of the data synchronisation directed acyclic graphs.

Major Learning Outcomes : Learnt data engineering concepts.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The work culture in the company was great. There are a lot of people from tier 1 colleges because of which you get to meet

Academic courses relevant to the project : Database management systems

PS-II Station : Digital.ai Software India Private Limited. , Chennai

Faculty

Name: Swapna S Kulkarni

Student

Name: MADHAV SINHA(2019B4AA0749G)

Student Write-up

PS-II Project Title: SAP BTP AI Foundation

Short Summary of work done during PS-II : I worked on SAP BTP Generative AI Hub use cases and augmented it with AI Foundation. I worked as part of a demo team on a project developing Retrieval-Augmented Generation (RAG) scenarios with custom data for natural language queries. I also automated and created business configurations using PCM (Package Configuration Manager) for SAP SuccessFactors.

Tool used (Development tools - H/w, S/w) : Python, React, Flask, LangChain

Objectives of the project : Drive innovation and differentiation with AI solutions

Major Learning Outcomes : Learnt about various SAP products and tools

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : SAP Labs offered a collaborative working environment focused on technology and software development. It provided opportunities for professional growth through people networking, workshops, and access to online learning platforms. It also supported flexible working hours and remote work options to ensure a healthy work-life balance.

Academic courses relevant to the project : N/A

PS-II Station : Digital.ai Software India Private Limited. , Chennai

Faculty

Name: Swapna S Kulkarni

Student

Name: DEEPAM PRIYESH DESAI.(2020A7PS0971P)

Student Write-up

PS-II Project Title: Altiushub Product - Serialisation, Track and Trace

Short Summary of work done during PS-II : Initially, I joined the frontend development team, where I worked with technologies such as React, TypeScript, and Yup to develop and enhance user interfaces. As my internship progressed, I transitioned to the DevOps team, where I contributed to the automation of development workflows using Bash scripting and tools like Jira and GitHub Actions. This transition allowed me to gain a well-rounded experience, covering both frontend development and the operational aspects of software deployment and maintenance. This transition was pivotal as it provided me with a holistic understanding of the software development lifecycle. I learned how to bridge the gap between development and operations, ensuring that the software not only met user requirements but was also efficiently deployed and maintained. Working in both teams allowed me to appreciate the interconnectedness of frontend development and operational tasks, giving me a well-rounded perspective that I carry forward in my career.

Tool used (Development tools - H/w, S/w) : Javascript, Typescript, React, Bash, Github and Jira

Objectives of the project : Frontend and DevOps of companies core product

Major Learning Outcomes : Learnt various tech stacks such as Javascript, Typescript, React, Bash, Github and Jira

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : It is a startup, so expect long working hours. You would get a lot of accountability and ownership, so perfect for people who love taking ownership of their work. There is no Work from Home provision for now and high emphasis on discipline like coming to office on time etc.

In general, if you want to learn and have meaningful contribution during your internship, Altiushub would be a great fit.

Academic courses relevant to the project : Computer Programming, Data Structures and Algorithms, Object Oriented Programming, Database Systems, Operating Systems

PS-II Station : Digital.ai Software India Private Limited. , Chennai

Faculty

Name: Swapna S Kulkarni

Student

Name: GAURAV JAKHAR(2022H1030064H)

Student Write-up

PS-II Project Title: Streamlining the OASYS product through Restructuring, Code Refactoring, and DataBase Optimization

Short Summary of work done during PS-II : During my internship, I focused on enhancing the Order Admin System App (Oasys) by developing and optimizing various features. A key part of my role involved restructuring financier data and refactoring shipment code, which led to significant improvements in both code efficiency and database performance. I optimized database queries, resulting in a 90% reduction in query execution time on the production server.

Additionally, I successfully reduced the Elasticsearch index data by 50%, which not only enhanced overall system performance but also significantly lowered data storage costs.

Tool used (Development tools - H/w, S/w) : java spring boot, github, jenkins, intelliJ, maven

Objectives of the project : Restructuring, Code Refactoring, and DataBase Optimization

Major Learning Outcomes : sprinboot java , advanced java, elasticsearch

Details of Papers/patents : none

Brief Description of working environment, expectations from the company : The working environment was friendly and supportive, encouraging teamwork and learning. Everyone was willing to help and share their knowledge, which helped me grow professionally. The company expected us to write high-quality code, improve system performance, and manage projects efficiently. They valued problem-solving, good communication, and being quick to learn new tools and methods. This experience helped me improve both my technical skills and my ability to work well with others.

Academic courses relevant to the project : Java OOPS, cloud computing, advance DBMS

PS-II Station : Disney+ Hotstar , Mumbai

Faculty

Name: K Venkatasubramanian

Student

Name: SHOBHIT JAIN .(2019B3A70385P)

Student Write-up

PS-II Project Title: Remote Logger & Debugger for Web-LR Platform

Short Summary of work done during PS-II : Initially, I had to delve into Hotstar's existing tech stacks and tools to understand the logging landscape, ensuring compatibility and efficient integration. This required close collaboration with different teams to gain their insights and secure their approval for the proposed solution. Furthermore, the project involved a meticulous evaluation of various approaches for log capture, ingestion, and visualization. I carefully considered the trade-offs between different solutions before ultimately selecting the most suitable combination – Sentry for capture, Bifrost and the uploader service for ingestion, and Coralogix for visualization. This selection balanced effectiveness, cost-efficiency (by leveraging Coralogix, a tool already in use by Hotstar), and streamlined integration with existing infrastructure.

Tool used (Development tools - H/w, S/w) : Frontend - HTML, CSS, JS (For plugin UI and capture log library); Backend - NodeJS+Express for Rest API; Dashboard - Coralogix and Sentry

Objectives of the project : To remove dependency on device-provided debug mode options to extract logs and then to capture debug logs at some place so that one can analyze them easily. Thus, making the overall debugging process easier for both internal and external users.

Major Learning Outcomes :

1. HLD and LLD Design Making
2. Understanding the flow in which any feature is added.
3. Collaborating with different teams.
4. Understanding how audio and video works.

Details of Papers/patents : ---

Brief Description of working environment, expectations from the company : The internship is completely WFH. You are expected to attend daily standup calls of your respective teams and share your progress or any obstacles. People are supportive.

Academic courses relevant to the project : 1. Data Structures 2. Object Oriented Programming

PS-II Station : Disney+ Hotstar , Mumbai

Faculty

Name: K Venkatasubramanian

Student

Name: AMAN JAIN(2020A3PS0491H)

Student Write-up

PS-II Project Title: Cyber security dashboard

Short Summary of work done during PS-II : Developed various APIs to help integrate different security tools in our dashboard. Designed and implemented the risk scoring logic to help the teams to quantify their risks. Configured Grafana dashboard to help visualize key application metrics. Worked on various UI features as well to help give an intuitive experience to the user.

Tool used (Development tools - H/w, S/w) : Golang, React, RDS, AWS, Harness, Postman

Objectives of the project : Develop a cyber security dashboard to help understand the risk posture at the organization

Major Learning Outcomes : Learnt how to develop a full stack project from ideation to production.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Team is always ready to help with any difficulties you face. Work life balance is very good. You take responsibility of the tasks and get recognized by the team as well if you do well.

Academic courses relevant to the project : DSA, DBMS, OOPS, OS

PS-II Station : Disney+ Hotstar , Mumbai

Faculty

Name: K Venkatasubramanian

Student

Name: Sarthak Shah(2020A7PS0092P)

Student Write-up

PS-II Project Title: OptiEncode

Short Summary of work done during PS-II : Every team should know the limits of it's infrastructure. My project's goal was to identify bottlenecks, get drill down analysis of our software. It aims to provide comprehensive solution for tracking, visualizing and managing resources effectively while ensuring high availability and performance of video encoding services. I have worked on giving solutions for efficient data collection, identifying important metrics, and finally proper visualization of the data.

Tool used (Development tools - H/w, S/w) : Python, Airflow, Api

Objectives of the project : Resource visualization to know the limits of team's infra better

Major Learning Outcomes : Applied algorithms to handle the data in efficient and reliable manner, learnt different ways to visualise the data.

Details of Papers/patents : Na

Brief Description of working environment, expectations from the company : Starting with environment, it's pretty good, everything is handled in a professional manner. I was assigned a mentor to guide me through the project. Project guidelines were clear from the first week. Planning and setting goals was prioritized. Aside from that company provided work from home throughout the internship period.

Academic courses relevant to the project : Dsa, Dbms, oops

PS-II Station : Disney+ Hotstar , Mumbai

Faculty

Name: K Venkatasubramanian

Student

Name: PRANEET KARNA .(2020A7PS1202P)

Student Write-up

PS-II Project Title: One codebase network debugger

Short Summary of work done during PS-II : The Netap project developed a robust, multiplatform network diagnostic tool for mobile streaming applications using Kotlin Multiplatform Mobile (KMM). This approach eliminated the need for separate codebases for Android and iOS, streamlining development and reducing maintenance complexity. The project provided users with real-time network status insights, including tests like HTTP, speed, RTT, and DNS time, enabling quick diagnosis and resolution of network issues. A developer-friendly architecture was implemented, featuring a check interface and a checker class for executing multiple network checks sequentially or in parallel. This modular design facilitates the easy addition of new checks by creating classes that implement the check interface. Advanced CI/CD practices using GitHub workflows were incorporated to ensure continuous integration and delivery, automating testing and deployment processes and maintaining high code quality. Publishing Netap as a library instead of embedding the code directly within the main app provided advantages such as ease of integration, modularity, and improved maintainability. The library was published on our company's Maven repository, simplifying dependency management across various projects. Overall, the Netap project successfully provided a reliable, multiplatform network diagnostic tool that is user-friendly and developer-friendly, setting a strong foundation for future enhancements and scalability.

Tool used (Development tools - H/w, S/w) : Android studio, jetpack compose, figma

Objectives of the project : To create a common codebase library for android and ios allowing users to diagnose any network issues.

Major Learning Outcomes : Learnt about kotlin multiplatform mobile, jetpack compose, understood the entire process of uploading and deploying a library in android and ios apps.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : As this was a work from home station, the experience was very flexible and smooth. We were provided with laptops and other products from the company during onboarding. The timings were flexible and the expectations were clearly highlighted through daily stand up meetings. All the mentors and managers were available via slack and we could reach out to them and would always receive

prompt responses. We also had a mid internship and a final review to showcase our progress to the company leads. Overall it was a really smooth and cooperative experience.

Academic courses relevant to the project : Data structures and algorithms, Object oriented programming, Database systems



PS-II Station : Disney+ Hotstar , Mumbai

Faculty

Name: K Venkatasubramanian

Student

Name: P V S TARAK SHREE VALLABHA .(2020A7PS1513P)

Student Write-up

PS-II Project Title: Video Sitemap and SEO Dashboard

Short Summary of work done during PS-II : Integrated Video Sitemap generation feature to sitemap generator in Hotstar. Implemented seo dashboard to visualize seo metrics.

Tool used (Development tools - H/w, S/w) : GoLand, GitHub, Grafana, Last9

Objectives of the project : To enhance video discoverability of hotstar platform using video sitemaps

Major Learning Outcomes : Search Engine Optimization

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Great work environment, flexible working hours.

Academic courses relevant to the project : Object Oriented Programming, Data Structures, Computer Networks

PS-II Station : Disney+ Hotstar , Mumbai

Faculty

Name: K Venkatasubramanian

Student

Name: DHRUV MERCHANT(2020A7PS2063H)

Student Write-up

PS-II Project Title: Audit logs for Layout Service - Retool

Short Summary of work done during PS-II : I had designed an end to end audit logs system which tracked all the changes made in one of our repositories. I first started by creating exhaustive HLD and LLD designs for my project. The first phase of implementation included work related to Kafka connectors and a complete Kafka pipeline to send data from source tables into a target sink table. I later wrote the backend code for the same along with extensive testing.

Tool used (Development tools - H/w, S/w) : Docker, Kafka, Go, SQL, Java

Objectives of the project : Create audit logs service for all the database tables on layout service database along with retool dashboard UI for the same.

Major Learning Outcomes : Setup end to end project on a shared repository of an organisation from designing to writing the codebase and UI for dashboard.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The work environment was positive over the entire six months of my internship. The workload increased near the end of my internship as most of the folks got caught up in World Cup related work. The expectation of my team was for me to deliver the project end to end within the 5.5 months. The team was very helpful, especially my mentor. It was a great learning curve to be a part of such a huge organisation, where code quality and designs were considered of prime importance before implementation.

Academic courses relevant to the project : DBMS, DSA, OOPS

PS-II Station : Disney+ Hotstar , Mumbai

Faculty

Name: K Venkatasubramanian

Student

Name: DEVESH S(2020AAPS0295H)

Student Write-up

PS-II Project Title: Full DVR Support on SSAI

Short Summary of work done during PS-II : This project focuses on implementing Full DVR support within Disney+ Hotstar's streaming platform, enhancing user control over live content by allowing complete seek-back functionality. The primary challenge addressed is the limitation of DVR length to 15 minutes during live streaming, aiming to provide an uninterrupted viewing experience with full-length DVR.

Tool used (Development tools - H/w, S/w) : Backend Java Spring Boot AWS services CDN (Akamai) Redis Terraform Local Stack (Local testing of AWS services) Vegeta (Load testing) Version control Github Deployment Docker Kubernetes K8s Harness NG Task Assignment / Bug reporting Jira

Objectives of the project : Provide Full DVR support to users watching a live stream, enabling the users to seekback to any moment in the live match.

Major Learning Outcomes : Developed a standalone service in accordance with project requirements.

Collaborated effectively with co-intern to achieve project milestones.

Gained insights into the product life cycle, including design, development, testing, and deployment phases.

Engaged in architecture design discussions covering various technological methods, APIs, storage solutions, databases, testing strategies, and deployment mechanisms.

Participated in numerous discussions with senior developers, managers, and technical leads to determine the most suitable and viable solutions.

Acquired an understanding of the end-to-end requirements involved in delivering a product to clients.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Great environment to work in, my mentor and team were always very supportive. Manager also was

very approachable. Only expectation is proper communication of your thoughts and enthusiasm to learn new technologies and implement them.

Academic courses relevant to the project : OOPS, DBMS, OS, DSA, Computer Networks.

PS-II Station : Divgi Torq Transfer Systems Ltd. Shirwal , Pune

Faculty

Name: R S Reosekar

Student

Name: SAURABH MALVI(2022H1410059G)

Student Write-up

PS-II Project Title: VSM of Challenger EV parts

Short Summary of work done during PS-II : First, I had to learn about Value Stream Mapping (VSM), and then my first objective was to collect data for all assembly procedures, such as cycle time and non-value added time (NVA). Then, after gathering all of the necessary information, I had to create a current VSM that depicts how the product is moving from station to station, from washing to packaging. Then my team brainstormed about how we could minimize waste and increase efficiency. Then, based on all of the feedback, we created the Future VSM, which will help to improve efficiency.

Tool used (Development tools - H/w, S/w) : MS Excel

Objectives of the project : VSM aims to identify, show, and reduce waste throughout the process.

Major Learning Outcomes : Lean Manufacturing

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The Divgi Torq Transfer System provides an excellent working environment. All of the the employees are incredibly supportive and are always there to answer any questions. There is a bus service available, as well as a canteen which is free of charge.

Academic courses relevant to the project : Industrial Engineering

PS-II Station : Divgi Torq Transfer Systems Ltd. Shirwal , Pune

Faculty

Name: R S Reosekar

Student

Name: KHARDE ANIKET ANANT ASHWINI(2022H1410142P)

Student Write-up

PS-II Project Title: Testing and validation of transmission of E-JEETO vehicle and transfer case of Scorpio vehicle.

Short Summary of work done during PS-II : The dynamometer lab was the department I was assigned to. We carried out various tests in the dynamometer per the design validation plan (DVP). The transmission and transfer case system characterization, comprehension of the customer's DVP (Design verification plan), setting the dyno in accordance with the DVP, conducting tests, gathering data, and transferring data to the R&D department for further examination were the steps we taken to conduct the test.

Tool used (Development tools - H/w, S/w) : S/W- Morphee, Uniplot. H/W- Spanner, ratchet, torque gun, screwdriver etc

Objectives of the project : Testing the transmission of vehicle as per DVP(Design validation plan) given by customer, Performance evaluation, validating results, Safety verification, Customer satisfaction

Major Learning Outcomes : Studied the working principles behind transfer and transmission cases. learned how to use the dynamometer lab for testing. Before performing tests and validation procedures, understood the test execution cycle. studied data analysis programs like MORPHEE and UNIPLLOT, along with technical documentation.

Details of Papers/patents : Design validation plan provided by the customer, Dynamometer manual provided by FEV.

Brief Description of working environment, expectations from the company : The company environment is good. the mentor as well as other staff provided great support. They tried to solve every doubt we had. The facilities provided by the company are good. Bus facilities are also provided which was very helpful.

Academic courses relevant to the project : product design, Engineering drawing

PS-II Station : Divgi TorqTransfer Systems Pvt. Ltd. - Bhosari (New) , Pune

Faculty

Name: R S Reosekar

Student

Name: ABHIROOP JAYANTA RAUTH(2022H1060098G)

Student Write-up

PS-II Project Title: 1)STUDY OF ALL-WHEEL DRIVE TECHNOLOGY & APQP DOCUMENTATION – PPAP COMPONENTS 2) DRAFTING OF SERVICE MANUAL FOR TRANSFER CASE 3) MANUFACTURING PROCESS LAYOUT

Short Summary of work done during PS-II : I learned about all-wheel drive technology, specifically Four-Wheel Drive (4WD), which enhances traction and control, particularly in off-road or slippery conditions such as snow, mud, or gravel. 4WD systems power all four wheels simultaneously, distributing engine power more evenly to reduce wheel slippage and improve stability and grip. Additionally, I worked on the APQP-PPAP process, MPL, and service manuals. My work on MPL included creating Process Flow Diagrams and Assembly Process Sheets. I also developed a service manual for the transfer case, providing detailed instructions and guidelines for maintenance, repair, and servicing of the product.

Tool used (Development tools - H/w, S/w) : Microsoft Excel, PowerPoint, Manufacturing Process layout, PSW Documents

Objectives of the project : Understanding and mastering all-wheel drive technology, specifically Four-Wheel Drive (4WD), to enhance traction and control in various conditions such as snow, mud, or gravel. Improving knowledge and skills related to the APQP-PPAP process, which stands

for Advanced Product Quality Planning and Production Part Approval Process, essential in ensuring quality in manufacturing processes. Developing proficiency in creating Process Flow Diagrams and Assembly Process Sheets as part of the Manufacturing Process Layout (MPL). Creating a comprehensive service manual for the transfer case, aimed at providing detailed instructions and guidelines for maintenance, repair, and servicing of the product. Enhancing overall understanding of automotive systems and processes through practical application and hands-on experience.

Major Learning Outcomes : APQP, PPAP, Service manual, MPL

Details of Papers/patents : Nil

Brief Description of working environment, expectations from the company : Divgi TorqTransfer System' has four plants located in Bhosari, Shirwal, Sirsi, and Shivare. The main office is in Bhosari, where I am assigned. This office includes the engineering team, supply chain management, purchase department, assembly plant, and more. The work environment is very friendly, offering ample learning opportunities from each department. Bhosari's location is excellent, with all necessary amenities such as mess facilities, PG accommodations, and commuting options available nearby.

Academic courses relevant to the project : Product development, Machine design, Theory of machines, Manufacturing

**PS-II Station : Divgi TorqTransfer Systems Pvt. Ltd. - Bhosari (New) ,
Pune**

Faculty

Name: R S Reosekar

Student

Name: SOURABH DEY(2022H1060210P)

Student Write-up

PS-II Project Title: AUTOMOTIVE INDUSTRY AND OPPORTUNITIES FOR DTTS, NEW PRODUCT DEVELOPMENT AT SUPPLIER END, ROOFTOP SOLAR POWER PLANT AT DTTS.

Short Summary of work done during PS-II : Understanding automotive industry briefly in order to analyse the current market scenario of the company and its competitors for creating opportunities in future. Detailed analysis of four-wheel drive and six-wheel drive. Moreover, their market share and demand globally. Development of flange yoke at supplier end by following stipulated methods and processes resulting in timely completion of product manufacturing and its delivery. Supplier selection and management for the part completion. Tools used for optimized and efficient process have been discussed. Installation of solar power plant at all the plants of DTTS needs proper inputs such as area, power requirement. According to these inputs, costing analysis of the project is done. Parameters such as losses, tariff, maintenance cost, depreciation are also accounted for the analysis. Based on the quotations provided by the suppliers, supplier selection takes place.

Tool used (Development tools - H/w, S/w) : MS Excel, MS Word, MS Powerpoint

Objectives of the project : Data Collection & Analysis, Product development at supplier end & supplier selection and management. Costing analysis of solar power project and supplier selection.

Major Learning Outcomes : Process outcomes, Discipline, Teamwork, Professionalism

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Good working culture. Helpful employees. Flexible work timing

Academic courses relevant to the project : Supply chain management

**PS-II Station : Divgi TorqTransfer Systems Pvt. Ltd. - Bhosari (New) ,
Pune**

Faculty

Name: R S Reosekar

Student

Name: AKASH PROTIM NATH(2022H1420197P)

Student Write-up

PS-II Project Title: Cell and Layout Design and Line balancing for an Assembly product

Short Summary of work done during PS-II : We successfully optimized the manufacturing process through a C-shaped layout. This layout minimized material handling and ensured smooth part flow by strategically positioning machines based on processing similarities (group technology). By optimizing the sequence of operations across these machines (line balancing), we achieved an impressive 89% efficiency. This means minimal idle time and balanced workload distribution, eliminating bottlenecks and maximizing output. This well-designed cell not only reduces production time and costs but also allows for predictable part quality, potentially eliminating the need for extensive real-world testing. Overall, the C-shaped layout and line balancing approach have resulted in a highly efficient and streamlined manufacturing process.

Tool used (Development tools - H/w, S/w) : Hardware - Measuring Tape, Sample Machines
Software - Autodesk Inventor, Autodesk AutoCAD, visTABLE®

Objectives of the project : 1. Choose the appropriate Layout 2. Optimize the cell 3. Balance the production Line

Major Learning Outcomes : Understand factors for high-efficiency manufacturing cells.

Master cell design & layout using group technology.

Apply line balancing techniques for equal cycle times.

Utilize simulation for design validation & optimization.

Achieve predictable production with minimal real-world testing.

Integrate design & process optimization for overall manufacturing efficiency.

Details of Papers/patents : 1. <https://doi.org/10.1016/j.jobe.2021.103822>

2. <https://doi.org/10.1016/j.energy.2022.123947>

Brief Description of working environment, expectations from the company : Divgi TorqTransfer Pvt Ltd provides a collaborative working environment where helpfulness and a commitment to learning are highly valued. The company fosters a culture of hard work, sincerity, and punctuality, with employees dedicated to their roles. As the leading manufacturer of transfer cases and transmission parts in India, Divgi TorqTransfer offers a stable position in a growing market. The company boasts a wide range of products at competitive prices, ensuring its continued success. This environment presents excellent opportunities for employees to develop their skills and contribute to the company's ongoing growth.

Academic courses relevant to the project : 1. Manufacturing and Production Engineering

2. Operations Management

3. Supply Chain Management

4. Computer Integrated Manufacturing

PS-II Station : Dorsch Consult (India) Pvt. Ltd., , Mumbai

Faculty

Name: Mahesh K Hamirwasia

Student

Name: SHUBHANGI SAHU(2022H1440042P)

Student Write-up

PS-II Project Title: Ratnagiri Airport PTB Project, SID Administrative Building Project of Mumbai

Short Summary of work done during PS-II : Architechtrual Design and Scheduling of Construction Things

Tool used (Development tools - H/w, S/w) : MS WORD, MS EXCEL, REVIT

Objectives of the project : Infrastructure Planning and Designing

Major Learning Outcomes : MS Excel, MS Word , Revit

Details of Papers/patents : Got the internship certificate

Brief Description of working environment, expectations from the company : Moderate

Academic courses relevant to the project : Airport Planning and Management

PS-II Station : Dover India Pvt Ltd , Bengaluru

Faculty

Name: Rakesha Chandra Dash

Student

Name: PRACHI PARASHAR(2022H1410101H)

Student Write-up

PS-II Project Title: Finite Element Analysis (Static structural) of OEL Tray Hydraulic Unit & Support Frame of Process Water System.

Short Summary of work done during PS-II : SolidWorks [Modelling of Sheet Metal components, Weldments (Frames & Structures)] & Linear Static Structural, Buckling, Modal, Thermal (Steady State & Transient) Analysis of the components.

Tool used (Development tools - H/w, S/w) : SolidWorks, Ansys Workbench

Objectives of the project : The Finite Element Analysis (FEA) is the simulation of any given physical phenomenon using the numerical technique called the Finite Element Method (FEM). The objective is to reduce the number of physical prototypes and experiments and optimize components in the design phase to develop better products faster while saving on expenses.

Major Learning Outcomes : Finite Element Analysis- Linear Static Structural, Buckling, Modal, Thermal (Steady State & Transient)
SolidWorks [Modelling of Sheet Metal components, Weldments (Frames & Structures)]

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Healthy Learning Environment

Academic courses relevant to the project : Engineering Mechanics, SOM, TOM, MD, Thermodynamics, Finite Element Analysis

PS-II Station : Dover India Pvt Ltd , Bengaluru

Faculty

Name: Rakesha Chandra Dash

Student

Name: ROHIT SINGH(2022H1410103H)

Student Write-up

PS-II Project Title: PD pumps

Short Summary of work done during PS-II : Fea analysis and value added value analysis

Tool used (Development tools - H/w, S/w) : Solidworks

Objectives of the project : To gained knowledge in PD pumps

Major Learning Outcomes : 1.Gd and T
2.Fea simulation

Details of Papers/patents : 1.Wilden Eodd pump
2.Hydro superdosr

Brief Description of working environment, expectations from the company : Work culture is good.

Academic courses relevant to the project : 1.Fem
2.Cfd
3.Vibration

PS-II Station : Dover India Pvt Ltd , Bengaluru

Faculty

Name: Rakesha Chandra Dash

Student

Name: GUNTI ROHIT(2022H1420150H)

Student Write-up

PS-II Project Title: Time Study Analysis, Welding Jig Development

Short Summary of work done during PS-II : I have learned a lot about the continuous improvement and kaizen, Reducing required non value added activities, and improving process in all aspects, also i have learnt about the developoing on welding jigs and its supporting concepts like datumn principles and 3-2-1 principle etc.

Tool used (Development tools - H/w, S/w) : Time Study Application(Dover Inhouse), solidworks

Objectives of the project : Reducing RNVA, Developing Welding Jigs

Major Learning Outcomes : Developing welding jigs and kaizen improvements

Details of Papers/patents : Websites of company and leaning platforms

Brief Description of working environment, expectations from the company : The work environment is very good and the place has a lot to teach you. the colleagues are very helpful and friendly in all aspects and we have a pretty good team.

Academic courses relevant to the project : Quality, Manufacturing, Operations

PS-II Station : Dozer Data Pte Ltd , Pan India

Faculty

Name: Akshaya G

Student

Name: SHELAR MRUNMAY MOHAN(2019B1A71116G)

Student Write-up

PS-II Project Title: Bug Finding and Performance Testing

Short Summary of work done during PS-II : I primarily worked on bug finding and then performance testing of the whole pipeline for POC, then moving on to new project and feature implementation.

Tool used (Development tools - H/w, S/w) : Rust, AWS, Aerospike

Objectives of the project : Objective was to find and debug the issues with the pipeline and enhance performance

Major Learning Outcomes : I have learnt how to debug in rust as well as implement api calls.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The work timings are flexible due to the work being remote. The culture is very focused on work as well as senior devs are very helpful.

Academic courses relevant to the project : -

PS-II Station : Dr. Reddys Laboratories , Hyderabad

Faculty

Name: Bharathi R

Student

Name: RIYANSHI AGRAWAL(2019B1A31077G)

Student Write-up

PS-II Project Title: Hard Refresh in Advanced Analytics platform

Short Summary of work done during PS-II : Integration a new feature in an API of an existing application . The "Hard refresh" feature in exisiting API added as an addition to the platform

performance improvement . Apart from the major project, also spent some time solving bugs related to data flow within the application.

Tool used (Development tools - H/w, S/w) : Python, PostgreSQL, HTML, CSS, Tornado

Objectives of the project : Feature Integration, Platform performance improvement

Major Learning Outcomes : Learnt about end-to-end full stack development in Python Tornado framework , API Integration and databases and data engineering basics .

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : DRL has provided a supportive environment with adequate mentorship required in early stages of career. Being a Pharmaceutical company didn't hold a lot of advantaged working in a Tech role here. The tech specs can be improved to a lot of extent.

Academic courses relevant to the project : OOPs, DBMS, OS

PS-II Station : Dr. Reddys Laboratories , Hyderabad

Faculty

Name: Bharathi R

Student

Name: AYUSH RAJGARIA(2019B1AA0990G)

Student Write-up

PS-II Project Title: Drive Adoption of in house tool - DAART

Short Summary of work done during PS-II : This project focuses on enhancing the adoption rates of Electronic Lab Notebooks (ELN) and Data Analysis and Reporting Tools (DAART) within our corporate environment by leveraging user input and understanding their pain points. Through comprehensive requirement gathering sessions and empathetic analysis of user feedback, we aim to identify key areas for improvement and implement targeted changes to address user needs. Collaborating with cross-functional teams ensures alignment with organizational objectives and facilitates seamless integration of enhancements. Furthermore, extensive training sessions are prepared to empower users with the necessary skills and knowledge to effectively interact with the products, thereby maximizing the benefits derived from their usage.

Tool used (Development tools - H/w, S/w) : DAART, Tableau, excel , python, smart investigator

Objectives of the project : Increase the adoption of the inhouse tool DAART

Major Learning Outcomes : How to create roadmaps being a product intern

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Stick to the timelines and complete the work. keep checking in with your manager to keep him/her in loop of your progress.

Academic courses relevant to the project : none

PS-II Station : Dr. Reddys Laboratories , Hyderabad

Faculty

Name: Bharathi R

Student

Name: PRABHAT KUMAR MISHRA .(2019B2A80225P)

Student Write-up

PS-II Project Title: Innate immunogenicity & Peptide Segregation and Property Analysis

Short Summary of work done during PS-II : We named the peptides that can activate APCs as A-cell epitopes and developed methods for their prediction in this study. A dataset of experimentally validated A-cell epitopes was collected and compiled from various resources. To predict A-cell epitopes, we developed support vector machine-based machine learning models using different sequence-based features.

Tool used (Development tools - H/w, S/w) : S/w - Python, SQL

Objectives of the project : The aim of innate immunogenicity, is to predict the immunomodulatory properties of peptides and design peptide-based vaccine adjuvants. Through the utilization of various ML algorithms, the objective is to identify peptides capable of inducing immune responses, particularly those that activate antigen-presenting cells.

Major Learning Outcomes : -Understanding peptide

chemistry

-AI/ML concepts and their usability.

-Portfolio Understanding

-Issues faced during peptide synthesis

-Current practices in peptide synthesis

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment is pretty good with flexibility in choosing different projects according to interests.

Academic courses relevant to the project : OOP, DSA

PS-II Station : Dr. Reddys Laboratories , Hyderabad

Faculty

Name: Bharathi R

Student

Name: AARAV GULATI .(2020A8PS1823P)

Student Write-up

PS-II Project Title: Automation of medical websites: ITOX

Short Summary of work done during PS-II : The main objective of the ITOX project was to Automate the scraping of medical documents from multiple medical websites which were supposed to be fed into a large language model for further processing. To achieve this, I built a python-based software from scratch. I automated the clicks using selenium and the web scrapping was performed using BeautifulSoup. Then the API was supposed to be integrated to a Django application which was then deployed on Linux. Initially, the application was built using non-headless mode of Selenium, but due to high cost of acquiring Windows Virtual Machine license, I was supposed to rebuild the application in headless mode so that the application could be deployed on Linux virtual machine. During the internship, I was also involved in IPM project, where

I was supposed to scrape patent claim rejections and scrape the reasons of the rejection from the document of input patent from USPTO site. I was able to achieve both tasks, and because of which the organization was able to save the cost which went to acquiring a third-party software to automate these tasks, plus my application is more customizable and has faster time of execution.

Tool used (Development tools - H/w, S/w) : Python, Selenium, BeautifulSoup, requests, HTML, Javascript, Django, Flask

Objectives of the project : The main objective is to automate five medical websites and integrate the Application Programming Interface with a flask application such that when the user enters the molecule name in the application, the automation python script starts in the backend and the required files are downloaded. The files will be downloaded in the user's PC locally and he/she would be required to feed those files into a Large Language Model which would process the PDF files so that the user would be able to get a short description on the required file of the ingredient.

Major Learning Outcomes : Automation, Selenium, Web development, deployment

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Flexible working environment

Academic courses relevant to the project : NA

PS-II Station : Dr. Reddys Laboratories , Hyderabad

Faculty

Name: Bharathi R

Student

Name: [EKANSH AGARWAL\(2020AAPS1131H\)](#)

Student Write-up

PS-II Project Title: Cost Optimisations on Data Operations in GCQ

Short Summary of work done during PS-II : • Spearheaded daily query cost analysis with Lookers Studio at Dr. Reddy's Labs, pinpointing optimization opportunities in the data infrastructure. • Implementing SQL Optimisations in Google BigQuery for cost reduction and optimal performance, showcasing advanced data engineering skills. • Collaborating with data engineering team to devise holistic strategies for enhanced data infrastructure efficiency, emphasizing teamwork and technical communication. • Achieved cost savings and performance boosts through targeted table optimizations with BigQuery and Looker Studio, contributing to Dr. Reddy's Labs' cost-saving initiatives.

Tool used (Development tools - H/w, S/w) : Google BigQuery, Lookers Studio

Objectives of the project : To analyse and optimize the the cost of daily run queries on Google Cloud

Major Learning Outcomes : SQL Optimization, Big Data Analytics, Lookers Studio Dashboarding, Google BigQuery

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at Dr Reddys is quite good. They only care about the work done and it doesn't matter at what time you are doing it. It is not always mandatory to come to the office. My mentor was quite understanding and gave me enough time to learn and apply my skills and was always open to help. One can expect to learn a lot at Dr Reddys with not much pressure applied on his head.

Academic courses relevant to the project : Database and Management Systems.

PS-II Station : Dr. Reddys Laboratories , Hyderabad

Faculty

Name: Bharathi R

Student

Name: IPSHITA BASAK(2022H1290003H)

Student Write-up

PS-II Project Title: REVOLUTIONIZING PHARMA: WATER SYSTEM SUSTAINABILITY PROGRAMME TO PROPEL INDUSTRY TOWARDS ENVIRONMENTAL STEWARDSHIP

Short Summary of work done during PS-II : I actively took part in the project titled, “Revolutionizing Pharma: Water System Sustainability Programme to propel industry towards Environmental Stewardship”. Initially, I went to all the shop floors and got in depth idea about the traditional pharmaceutical water system. This helped me to understand, where changes can be done to harmonize the entire water system. Secondly, different microbiological tests were observed in the Quality Control department, that are performed to maintain the pharmaceutical grade water quality. Thirdly, basic idea of equipment validation was obtained. Further literature studies were done in order to find alternatives, in order to harmonize the water system in Dr Reddys, which in turn would reduce the cost of water production.

Tool used (Development tools - H/w, S/w) : No

Objectives of the project : To achieve sustainability and water conservation by harmonizing pharmaceutical water system at Dr Reddy’s Laboratories, Bachupally, Hyderabad.

Major Learning Outcomes : Learnt about how a pharmaceutical water system works and how it can be harmonized for better sustainability.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Dr. Reddy's Laboratories in Hyderabad is known for fostering a dynamic and inclusive work environment that emphasizes innovation and continuous improvement. The company encourages a collaborative culture where employees are motivated to share ideas and challenge existing norms. This approach is supported by state-of-the-art facilities and resources that enhance research and development efforts in pharmaceuticals.

Professional growth is a cornerstone of Dr. Reddy's work environment. The company offers a wide array of training programs, workshops, and development opportunities, ensuring that employees can continuously upgrade their skills. Performance management is taken seriously, with systems in place to recognize and reward excellence and hard work, thus motivating employees to achieve their best.

Academic courses relevant to the project : NA

PS-II Station : Draup Business Solutions Private Limited , Bengaluru

Faculty

Name: Arindam Roy

Student

Name: NILAY SHRIVASTAVA(2019B4A31301H)

Student Write-up

PS-II Project Title: Platform Level Messaging Framework, Voice of Customer, UNLEASH Reach Out, Website Launch, Elevating SEO Footprint

Short Summary of work done during PS-II : The internship at Draup Inc provided a transformative experience across various facets of product marketing. Through structured tasks and collaborative projects, I gained a deeper understanding of marketing intricacies, content management, stakeholder engagement, and strategic analysis. Key highlights included immersing myself in product knowledge, refining marketing strategies tailored to client needs, and honing skills in communication and problem-solving through direct client interactions. Monitoring market dynamics and competition further bolstered my strategic thinking and decision-making abilities.

Tool used (Development tools - H/w, S/w) : Excel, SEMrush, Wordpress

Objectives of the project : Enhancing product marketing frameworks, optimizing digital presence and content strategies.

Major Learning Outcomes : The major learning outcomes from my internship at Draup Inc revolve around developing a comprehensive understanding of product marketing, enhancing strategic analysis skills, and gaining practical experience in digital transformation and content management. By working closely with product managers and client-facing teams, I acquired in-depth product knowledge and refined my ability to tailor marketing strategies to meet client needs effectively. The website migration project honed my technical skills and attention to detail, ensuring seamless content transfer and optimized user experience. Additionally, researching and engaging with high-authority blog websites for SEO purposes enhanced my understanding of content marketing and its impact on online visibility. These experiences collectively enriched my problem-solving abilities, communication skills, and strategic thinking, providing a robust foundation for future endeavors in marketing and analytics.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The work environment at Draup Inc. was exceptionally positive, fostering both professional growth and personal well-being. The company culture at Draup Inc. is built on a foundation of mutual respect, collaboration, and open communication. From day one, I felt welcomed and valued by my colleagues and superiors. The team dynamics were very inclusive, encouraging everyone to share their ideas and feedback freely. Regular team meetings and brainstorming sessions were not just about work; they also served as platforms for team bonding and knowledge sharing. Additionally, the leadership at Draup Inc. played a crucial role in creating a supportive and motivating work environment. My manager was approachable and always open to discussions, providing constructive feedback and mentorship. This guidance was instrumental in my professional development, helping me navigate challenges and refine my skills. Moreover, the company's commitment to employee well-being was evident in its policies and initiatives. Whether it was through providing resources for continuous learning, organizing wellness programs, or celebrating achievements, Draup Inc. ensured that employees felt appreciated and motivated. Overall, the combination of a flexible schedule, a supportive culture, and a focus on employee development made the work environment at Draup Inc. an ideal place for both personal and professional growth.

Academic courses relevant to the project : NA

PS-II Station : Draup Business Solutions Private Limited , Bengaluru

Faculty

Name: Arindam Roy

Student

Name: PATIL SHREYAS SAMUDRAVIJAY(2020AAPS0385G)

Student Write-up

PS-II Project Title: 1) Platform Level Messaging, 2) Voice of the Customer, 3) Competitive Analysis, 4) Digital Marketing

Short Summary of work done during PS-II : During my tenure at Draup, I accomplished a variety of tasks including Platform-level messaging, Voice of the Customer, Shortlisting ABM accounts, Website revamp, Competitive analysis, SEO submission analysis and Business listing directories. 1) Platform-level messaging: With Draup's Marketing team being newly formed, understanding the platform's features and benefits became crucial. I collaborated closely with Product Managers on a data clustering initiative. This involved meticulous data collection, analysis, and documentation to identify and categorize the benefits of each module and feature. Utilizing the product resource database, I maintained constant communication with managers for continuous feedback. This iterative process ensured data accuracy and fostered strong collaborative relationships. The compiled data was rigorously vetted by Draup's Chief Product Officer, ensuring its reliability. 2) Voice of the customer: In a dynamic market landscape, aligning Draup's product roadmap with client needs and market trends was crucial. As part of the Voice of the Customer initiative, I collected key data points, including market demands, product overlaps and gaps, customer perceptions, reasons for winning and losing deals, competitors, and needed features. By gathering insights from senior stakeholders, I ensured a comprehensive understanding of market dynamics. These insights informed strategic decision-making, helping Draup refine its product roadmap, prioritize features, and enhance competitive positioning. This project honed my skills in data analysis, strategic planning, and stakeholder collaboration. 3) Shortlisting ABM accounts: From our extensive database, we compiled a list of companies interested in or using Account-Based Marketing (ABM) products. ABM focuses on targeting high-value accounts with personalized marketing campaigns. Given our product alignment with ABM objectives, these companies could benefit from Draup's solutions. I was tasked with researching each company on the list, examining revenue metrics, industry verticals, and outbound sales activities. This helped identify organizations with high potential value for Draup. The dataset was extensive, including about 5,000 companies, requiring patience and significant effort to review thoroughly. 4) Website revamp: As part of Draup's strategic initiative to enhance its online presence as well as the user experience, a comprehensive revamp of the company website had

to be done. I had to formulate some product benefit statements for both the Sales and Talent products which were to be put up on the product page of the revamped website. Additionally, I was tasked with developing an informative and visually engaging infographic to showcase workforce-related insights at the product level. This part of the website consisted of a data tree which showcases how the Sales Intelligence Product is divided into different modules (for e.g. Buyer intelligence, Account intelligence, Industry intelligence) and thereby what each module offers with its benefits further.

5) Competitive analysis: I conducted competitive analysis, focusing on keyword and backlink analysis of industry competitors in sales and talent intelligence domains. Using SEMrush, I examined keywords and backlinks to uncover SEO strategies of competitors like ZoomInfo, Databook, Eightfold.AI, and Visier. This project enhanced my skills in SEO, competitive analysis, and strategic thinking, providing actionable insights to improve Draup's online visibility and market positioning.

6) SEO submission analysis: To enhance Draup's online presence, I extended the competitive analysis by navigating backlinks to identify domains accepting guest content. I created a database of such domains, categorized into technology, business, AI, and HR resources, and included high-traffic sites like The Wall Street Journal and Forbes. I documented submission guidelines and verified each site's authenticity through traffic data and domain authority. Despite being time-consuming, this meticulous approach aimed to streamline Draup's guest content submissions and boost its visibility.

7) Business listing directories: As part of the digital marketing efforts at Draup, I dedicated 2 weeks in identifying and leveraging business listing directories that offer free listing services. Focusing on directories prominent in the USA and UK, where our key clients are based, I meticulously researched and compiled a list of high-authority platforms. I then proceeded to add Draup, along with detailed business information, to these directories. This strategic initiative aimed to enhance Draup's online visibility and improve our search engine rankings.

Tool used (Development tools - H/w, S/w) : Microsoft Excel, Semrush Analytics Tool, WordPress

Objectives of the project : The primary objective of the project was to enhance Draup's online presence and brand visibility through strategic digital marketing initiatives. This included conducting an in-depth competitive analysis to understand the SEO strategies of major industry players, identifying and rectifying issues on the new website to ensure consistent and professional presentation of content, and listing Draup in relevant business directories to improve search engine rankings. Additionally, the project aimed to leverage data clustering to understand and

document product features and benefits, ensuring alignment with market demands and customer expectations.

Major Learning Outcomes : In recent experiences, I've gained a solid grasp of SaaS platforms and how they work. I've also deepened my understanding of marketing terms and strategies, learning how to create effective campaigns. I've become proficient in SEO, which helps improve online visibility. Plus, I've strengthened my teamwork and communication skills, making me better at collaborating with different teams. These skills enable me to contribute effectively in diverse work environments and achieve meaningful outcomes

Details of Papers/patents : None.

Brief Description of working environment, expectations from the company : The work environment was great and really flexible. Everyone on my team was super helpful, which made it easy to work together and solve problems as a group. This supportive atmosphere made a big difference in how much I enjoyed my job and how well I could develop professionally.

Academic courses relevant to the project : None.

PS-II Station : Druva Data Solutions Pvt. Ltd , Pune

Faculty

Name: Chetana Anoop Gavankar g

Student

Name: ADITYA JAIN(2022H1030024G)

Student Write-up

PS-II Project Title: Next Generation storage system

Short Summary of work done during PS-II : Before our products are released, they are properly tested by a dedicated QA team. At our core, we use expensive AWS services, specifically DynamoDB, which is relatively expensive. It is essential to use DynamoDB services efficiently; therefore, the team has developed an in-house DB that allows us to mimic DynamoDB in our local system. This uses SQLite, which is a lightweight, serverless SQL database engine. This therefore, allows us to set up a local development environment that behaves similarly to DynamoDB but uses SQLite by creating a simplified emulation layer that mimics DynamoDB's API and behavior which are used by our services. Therefore while doing QA, we use this in-house DB to save on AWS expenses.

Tool used (Development tools - H/w, S/w) : Vscod, AWS, Git

Objectives of the project : Druva, at its core, uses AWS services. The cost of using these services at scale is not efficient, to optimize this, our team is developing a next-generation storage system that will still use AWS services but in a very cost-efficient manner. The project is developed on the principles of Service-Oriented-Architecture(using microservices).

Major Learning Outcomes : Learned in deep about how data is managed and stored at scale. Learned Golang and how it is useful and better than other legacy languages.

Details of Papers/patents : N.A

Brief Description of working environment, expectations from the company : The environment is very good. It allows new people to take their time and learn the system and read the codebase. People around are also very helpful.

Druva also offers nice set of benefits apart from compensation. Overall I had a very good experience working here.

Academic courses relevant to the project : Cloud computing, Software engineering, Computer networks.

PS-II Station : Druva Data Solutions Pvt. Ltd , Pune

Faculty

Name: Chetana Anoop Gavankar g

Student

Name: MADHU M PANDURANGI(2022H1030026G)

Student Write-up

PS-II Project Title: Predictive Workload Modeling and Benchmarking

Short Summary of work done during PS-II : The project refined the process of generating test data for the performance engineering team, enhancing the efficiency and accuracy of performance testing. This contributed to a better understanding of device performance across different platforms, ultimately leading to more robust and optimized software applications.

Tool used (Development tools - H/w, S/w) : Python, Shell Scripting, Grafana, InfluxDB, GPT

Objectives of the project : The objective is to develop tailored models for each device type, enabling the generation of test data specifically designed for performance engineering.

Major Learning Outcomes : Performance Engineering Techniques, Data Analysis, Scripting and Automation, Critical Thinking and Problem-Solving.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The environment encouraged cross-functional collaboration, with team members from various disciplines working together to achieve project goals. Regular meetings and agile methodologies were employed to maintain progress and adapt to any challenges promptly. The project on which I worked was more than just work; it was a journey of learning, collaboration, and mutual respect. The support from our mentor, manager, and colleagues turned challenges into opportunities, making the experience truly unforgettable.

Academic courses relevant to the project : Operating Systems, Cloud Computing and Software Architecture

PS-II Station : Druva Data Solutions Pvt. Ltd , Pune

Faculty

Name: Chetana Anoop Gavankar g

Student

Name: NARALA HARI VAMSI KRISHNA(2022H1030031G)

Student Write-up

PS-II Project Title: End to End Testing Framework

Short Summary of work done during PS-II : Created a End-to-End testing framework that performs end-to-end tests for REST based services of the company, Reduced the overhead for testing thus resulting in less testing time with high accuracy. The framework also has features like backward compatibility with support across multiple environments like AWS, Docker and Hybrid Cloud. As the codebase is in Golang and each service built is a REST API, the framework was

built to handle all API Calls from services. The Framework is integrated with Jenkins so a consumer can create a nightly build and expect his test results in less time.

Tool used (Development tools - H/w, S/w) : Golang, AWS Cloud, Jenkins, Bash Scripting, Postman, Jira.

Objectives of the project : Create a framework that performs End to End testing of Company Services and Integrating it with CI Tools for Automation

Major Learning Outcomes : Golang Programming Language, AWS Cloud, API Development(REST).

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The workplace is eco-friendly with many refreshing spots. The perks given by the company were great, the timings are flexible. Facilities like working from home and taking couple of hours for personal work are entertained as long as there is no hindrance to the work. Teams plan team outing/ activities every quarter, this reduces any stress in that quarter.

Academic courses relevant to the project : Cloud Computing, Computer Networks.

PS-II Station : Druva Data Solutions Pvt. Ltd , Pune

Faculty

Name: Chetana Anoop Gavankar g

Student

Name: ADITYA SHRIVASTAVA(2022H1030033G)

Student Write-up

PS-II Project Title: Backend Development

Short Summary of work done during PS-II : This outlines the contributions made during the internship, focusing on Developer Experience (DX) improvements, Application Performance Monitoring (APM) integration, and Service Health Monitoring. Key achievements include enhancing developer tools and workflows, integrating APM to trace multiple services, and generating comprehensive service health reports. The work involved using Python, Jenkins CI/CD, and Docker to achieve these objectives.

Tool used (Development tools - H/w, S/w) : python, AWS, docker, jenkins, gitlab

Objectives of the project : 1. Enhancing Developer Experience, 2. Application Performance Monitoring, 3. Service Health Monitoring

Major Learning Outcomes : Gaining proficiency in Python for backend development.

Learning to utilize Docker for containerization.

Understanding cloud computing concepts and services.

Improving skills in CI/CD pipeline management with Jenkins.

Enhancing knowledge in service monitoring and performance tracking.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The work environment during my internship was exceptionally positive and inclusive. Colleagues were approachable and always willing to provide assistance, fostering a collaborative atmosphere. This supportive culture greatly enhanced my learning experience and contributed to the successful completion of several key projects.

Expectations from the company were clear and manageable, with a strong emphasis on professional growth and development. I was given the opportunity to work on significant projects that expanded my technical skills

Academic courses relevant to the project : Cloud Computing

PS-II Station : e6data , Bengaluru

Faculty

Name: SRINATH NAIDU

Student

Name: PILLALAMARRI SATYA PRANAV(2019B4A80800H)

Student Write-up

PS-II Project Title: Governance testing

Short Summary of work done during PS-II : Recently we deployed a feature which adds access to various users at different levels ,the automatic testing of whether this policies are working or not is being checked through a java automation framework

Tool used (Development tools - H/w, S/w) : IntelliJ ,java,git,jenkins

Objectives of the project : Governance /access level automation testing

Major Learning Outcomes : How to interact with fellow professionals,testing scenarios

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The work environment here is fast paced and everyone is easily approachable

Academic courses relevant to the project : Object oriented programming, Machine learning, introduction to programming, database systems

PS-II Station : e-con Systems India Pvt. Ltd. , Chennai

Faculty

Name: Suparna Chakraborty

Student

Name: VEDANT BANSAL .(2020A3PS1534P)

Student Write-up

PS-II Project Title: Predicting and rectifying the reflection noise due to edges and corners of objects in 3D ToF Depth cameras

Short Summary of work done during PS-II : During my PS-II internship at e-con Systems in Chennai, I worked on reconstructing 3D scenes from sparse Projector-Pattern VCSEL point cloud data and correcting artefacts in Flood VCSEL frames. Projector-Pattern VCSEL frames, with around 3,000 points, were interpolated into a dense grid of 640x480 pixels using a robust reconstruction algorithm. This process provided high-quality data essential for the next step. Flood VCSEL frames were compromised by multipath reflection (MPR) artefacts, affecting the accuracy of depth data. To address this, I used the high-quality reconstructed Projector-Pattern VCSEL data to correct the Flood VCSEL frames, effectively mitigating the MPR artefacts. Advanced data structures like the KDTree were employed for efficient nearest-neighbour searches, significantly

speeding up the interpolation process. The successful reconstruction and correction mark a substantial advancement in 3D scene reconstruction and depth data refinement, opening up new possibilities for applications in computer vision, robotics, augmented reality, and autonomous navigation, where high-quality depth data is essential. This project not only enhanced the reliability of depth data but also showcased the potential for innovative solutions in complex 3D imaging challenges.

Tool used (Development tools - H/w, S/w) : Python, C, C++, VsCode.

Objectives of the project : Development of an algorithm that detects and rectifies noise due to multipath reflection in depth maps obtained from a ToF camera

Major Learning Outcomes :

During my internship, I gained significant expertise in 3D scene reconstruction, data interpolation techniques, and mitigating artefacts in depth imaging. Additionally, I developed skills in efficient algorithm implementation and advanced data structures like KDTree.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at e-con Systems in Chennai provided a technically stimulating experience with access to cutting-edge technology and a talented team. The company's commitment to innovation fostered significant learning and skill development.

However, the experience was affected by several challenges. A major issue was the communication gap due to the predominant use of Tamil, which hindered effective collaboration for non-Tamil speakers. Additionally, unrealistic project completion expectations were prevalent. The company expected interns to function as project engineers and stay until project completion, disregarding the PS-2 timeline. This led to difficulties in adhering to the agreed-upon internship period. Moreover, the working environment often lacked adequate support, impacting productivity. Despite these challenges, the experience highlighted the importance of clear communication and a supportive work culture. While the technical learning was invaluable, addressing these organizational and cultural issues would greatly enhance the overall working experience and project outcomes.

Academic courses relevant to the project : Computer Programming - CSF111

PS-II Station : EdgeQ , Bengaluru

Faculty

Name: Manoj Subhash Kakade

Student

Name: DUBEY SWATI KAMLESHCHANDRA(2022H1030127P)

Student Write-up

PS-II Project Title: 5gnr L2 data path

Short Summary of work done during PS-II : I got to work on the logging framework of the company. I mostly work on I2 layer. Most of my work revolve around the handover. Also, I trying to expand my knowledge further by understanding how security is made sure in 5gnr at pdcp

Tool used (Development tools - H/w, S/w) : Git, Linux

Objectives of the project : Develop features for flaw less h flow of data packets from upper layer to lower or vice versa

Major Learning Outcomes : Deeper understanding of how the packets flow through layers and functionalities of each layer

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Since it's a startup, everyone has something in their plate and there is lot to learn.

Academic courses relevant to the project : Computer networks, DSA

PS-II Station : EdgeQ , Bengaluru

Faculty

Name: Manoj Subhash Kakade

Student

Name: RAJESHWAR BOYINA(2022H1230234P)

Student Write-up

PS-II Project Title: Rush current analysis on Power Switch Implemented Design & Physical Design Place and Route Flow

Short Summary of work done during PS-II : I was involved in the day-to-day tasks of a Physical Design Engineer, such as floorplanning, synthesis, PnR (Place and Route), and debugging timing violations. My first task was to model the inrush current in a power-switch-inserted design using an Excel sheet. A designer can modify various variables in the Excel model, such as the number of power switches, their chaining strategy, and the expected IR drop. The goal was to correlate these results with those obtained using a signoff-stage power integrity tool. This required me to understand the tool and its commands and then write a script to perform inrush current analysis. My other task was to understand the entire physical design flow, perform synthesis, place and route, debug the timing issues that arise, and apply techniques to mitigate these issues.

Tool used (Development tools - H/w, S/w) : Linux, Vim, CAD Tools for place and route, synthesis etc.

Objectives of the project : The task involves executing a rush current analysis flow in an IR analysis Tool on a block of design with power switches implemented and subsequently comparing the obtained results with those derived from an Excel model. The ultimate goal is to refine and enhance the accuracy of the Excel model based on this comparative analysis.

Major Learning Outcomes : Overall view of Physical Design flow and learned about the low power optimization techniques and challenges associated with it.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The work environment at the startup is amazing. You will be given ample time to learn and explore various aspects of your work. The seniors are supportive and provide useful advice when needed. The company expects that new college graduates (NCGs) will try to debug problems on their own without relying too much on the seniors. They also expect the work assigned to you to be completed accurately and without mistakes.

Academic courses relevant to the project : CAD for the IC Design, Digital VLSI Design

PS-II Station : Eightfold AI India Pvt. Ltd. , Bengaluru

Faculty

Name: Febin A Vahab

Student

Name: ABHIJITH KANNAN(2019B5A70688P)

Student Write-up

PS-II Project Title: Skill and Title Engine

Short Summary of work done during PS-II : I have implemented multiple features in the skill engine. Skill engine helps to identify the skills a candidate has from his resume and match it to the requirement of the job. I implemented many features which improved the efficiency of this product in the backend, I also integrated the features into the frontend ensuring the user experience is up to the mark. Hiding the exact details due to NDA. In the later part of the internship, I worked on the job title engine. I collected the job titles from open source and company internal archives, standardized the titles using ML algorithms, scaled this into 18 different languages and also developed a job title category for each job using generative AI.

Tool used (Development tools - H/w, S/w) : Python, Pytorch, React, Javascript

Objectives of the project : Eightfold ai uses “skills” of candidates and also the “job titles” to match the best candidates to the respective job profiles. . My problem statement is to implement some front-end and back-end features for the skill engine initially. I am also tasked with researching, experimenting and implementing ml algorithms to implement the performance of the title engine in the later part of my internship.

Major Learning Outcomes : Implement ML algorithms and quick and cost effective manner. End to end integration of ml algorithms into the codebase. Find edge cases and removing those bugs to ensure good user experience.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The company provides a great working environment. They provide comfortable infrastructure like monitor, chair and other essentials. The work hours are flexible focussing more on the time of submission, not on the working hours. My manager and team was very clear on the expectations from me and periodically ensured I was performing to the mark.

Academic courses relevant to the project : Neural Network and Fuzzy Logic, Database Systems

PS-II Station : Eightfold AI India Pvt. Ltd. , Bengaluru

Faculty

Name: Febin A Vahab

Student

Name: KUSHAGRA SAHNI .(2020A7PS0974P)

Student Write-up

PS-II Project Title: Interview Plan

Short Summary of work done during PS-II : I was a part of the Talent Acquisition: Scheduling team at Eightfold. I was given a complete end to end big project along with two other team members, which we completed end to end in a span of 4 months. I learnt about the complete software development life cycle, starting from writing the documentation of a project, including the High Level Design(HLD) and Low Level Design(LLD). I learnt how to approach a complex problem and how do various entities like engineering, product and design work together to achieve a common target. My end to end project was even released to some of the customers of Eightfold during my internship. Apart from this project, I worked on other software engineering tasks, bug fixes, writing automated Playwright tests, migrating some React code and other smaller projects.

Tool used (Development tools - H/w, S/w) : Frontend - Javascript, React. Backend - Python

Objectives of the project : - To make the lives of recruiters easier by setting up an interview plan for each position that they hire for

Major Learning Outcomes : - End to end Software Development Cycle

- Frontend(Javascript, React)
- Backend(Python)
- Testing Framework(Playwright)

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment is good. Eightfold is a young company in terms of average employee age. Everyone is super friendly and helpful. Most of the employees are IITians or BITSians. My team was very helpful and supportive. You are given full responsibility as an intern at Eightfold and are expected to do work equivalent to that of an employee.

Academic courses relevant to the project : OOPS, DSA, DBMS

PS-II Station : Eightfold AI India Pvt. Ltd. , Bengaluru

Faculty

Name: Febin A Vahab

Student

Name: ANUBHAV SHARMA(2020A7PS1892H)

Student Write-up

PS-II Project Title: Notification v2

Short Summary of work done during PS-II : The work consisted of solving bugs throughout the product initially, then we were given small projects to complete and a big project simultaneously. Type of work was web development using react and flask, writing unit tests in playwright and pytest

Tool used (Development tools - H/w, S/w) : React, Flask, playwright, selenium

Objectives of the project : To improve the existing notification system of the product, adding new email structure, slack notifications, ms teams notifications etc

Major Learning Outcomes : React, Flask, Agile development

Details of Papers/patents : No paper was published

Brief Description of working environment, expectations from the company : Working environment was fast paced, and the company expects you to deliver at their pace. While it can be daunting sometimes, it does make you grow and learn a lot. You will be giving complete ownership of your projects, and you would be expected to complete them before the deadline.

Academic courses relevant to the project : Software engineering

PS-II Station : Eightfold AI India Pvt. Ltd. , Bengaluru

Faculty

Name: Febin A Vahab

Student

Name: DARSHAN ASHOK CHANDAK(2020A7PS2085H)

Student Write-up

PS-II Project Title: Interview Plan, Exception Handling, Candidate ATS Profile URL.

Short Summary of work done during PS-II : For the initial few weeks, I was onboarding, completed the Dev setup, learned about the high level product and tools. Then started off with the main project for 'Interview Plan'. For the entire project duration, I learnt a lot about Software Development from scratch, and also learnt about the importance of handling of edge cases and optimising the code. After completing the Dev side of things, I also worked on writing Automated tests for the product. Thereafter I picked up another few smaller projects those were asks from the customers.

Tool used (Development tools - H/w, S/w) : React, JavaScript, Redux, Flask, Python, Playwrights.

Objectives of the project : Make a full scale product for customers, that helps them in easy scheduling of stage-wise interviews.

Major Learning Outcomes : Learned how to develop an end-to-end product by optimising the API calls, writing a cleaner code, considering all the edge-cases possible. Learned about the complete Software Development Lifecycle.

Details of Papers/patents : N.A.

Brief Description of working environment, expectations from the company : The company has a very smart set of people, very approachable and helpful. People are full of ideas and every single day would feel like it's a new day to brainstorm for new ideas and approaches. I personally enjoyed my time here a lot. The company is in a growing stage and is developing and expanding it's product line at a very fast pace.

Academic courses relevant to the project : OOPS, DBMS

PS-II Station : Electronic Arts Games Pvt Ltd , Hyderabad

Faculty

Name: T Venkateswara Rao

Student

Name: KOTHARI DARSHAN HARISH(2018B5A70873G)

Student Write-up

PS-II Project Title: Event Processor migration

Short Summary of work done during PS-II : migrated codebase to benthos. setup infra as code repository. did comprehensive testing.

Tool used (Development tools - H/w, S/w) : Java, Python, AWS, Kubernetes, Docker

Objectives of the project : code and infra migration

Major Learning Outcomes : backend de, devops, infra management

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Very good work culture. Everyone is friendly and welcoming. I got sufficient ownership within my project too.

Academic courses relevant to the project : OOPS, DBMS, DSA

PS-II Station : Electronic Arts Games Pvt Ltd , Hyderabad

Faculty

Name: T Venkateswara Rao

Student

Name: ABHISHT RUSTAGI(2020A7PS1891H)

Student Write-up

PS-II Project Title: Event Processor Migration

Short Summary of work done during PS-II : In the first month, I worked on a training project where I gained hands-on experience with Spring Boot, Cassandra, Kafka, Docker, and Kubernetes. Following this, I began my main project, which involved migrating the current event processor to a Benthos-based system. We started by designing the application at both high and low levels. This included creating Benthos configurations for different data streams and determining how to emit metrics and logs effectively. Next, we developed a Helm chart to deploy our project on AWS EKS. We then wrote unit tests, integration tests, and acceptance tests for all the streams to ensure everything worked correctly. After deploying the project in the development environment, we conducted load testing to confirm that our application could handle the required throughput. This comprehensive process ensured a smooth and efficient transition to the new processor system.

Tool used (Development tools - H/w, S/w) : Benthos, Kubernetes, Kafka, Helm, Helmfile, Python, Java, Git

Objectives of the project : The goal of our project was to move an existing service to a deployment based on Benthos. This new system would take the place of the currently used processor, which is very tightly integrated and handles around 120 million events every day on average. Our aim was to create a more flexible and efficient solution by using Benthos for this high-volume processing task.

Major Learning Outcomes : I learned how to design services at both high and low levels, understanding the detailed and overall structure needed. I got hands-on experience with different Kubernetes objects, such as Pods, Deployments, Services, and Secrets, learning how each of these components works and how to use them effectively.

I learned to work with benthos, how to make a configuration with different input and outputs.

I also learned to use Helm, the package manager for Kubernetes, which helped me manage and deploy applications more easily. In addition, I practiced various testing methods, including unit testing, integration testing, and acceptance testing, to ensure that the software works correctly at every stage.

I became familiar with GitOps, a set of practices that use Git for managing infrastructure and application updates. Lastly, I learned how to create applications using Spring Boot, a framework that simplifies building Java applications.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : I got very helpful mentors, who helped me whenever I faced difficulty. Working Environment in the team in which I worked is great. You are expected to take the ownership of your project and make sure to deliver the work on deadlines.

Academic courses relevant to the project : Object Oriented Programming, Database Management System, Data Structures and Algorithm, Operating Systems, Computer Networks

PS-II Station : Eli Lilly , Bengaluru

Faculty

Name: Bharathi R

Student

Name: PATEL MEHALAKA NAEMODDIN(2022H1460311P)

Student Write-up

PS-II Project Title: TARGET LANDSCAPE OF INTERLEUKIN 17 ANTAGONISTS DRUG ASSETS FROM PRECLINICAL TO APPROVED STAGE

Short Summary of work done during PS-II : During my internship at Eli Lilly, Bengaluru, I focused on the comprehensive analysis of Interleukin 17 (IL-17) antagonists, spanning from preclinical stages to approved drug assets. The project involved several key steps: 1. Data Collection: Using multiple databases and extensive secondary research, I gathered a thorough list of IL-17 antagonists. This included understanding the target, identifying its synonyms, gene ID, and creating specific search strings to ensure exhaustive data collection. 2. Data Cleaning and Validation: The collected data was meticulously cleaned and validated. This information was compiled into an Excel sheet, including details such as drug name, originator and active companies, development stage, therapeutic area, active indication, target-based action, modality, route of administration, dosage form, regulatory designation, patent information, clinical trial NCT numbers, and source links. 3. Data Analysis: Utilizing pivot tables and charts, I analyzed the data to generate meaningful insights. This included the distribution of assets across different development stages, modalities, dosage forms, and routes of administration. 4. Presentation: The analysis and insights were presented in a PowerPoint presentation, showcasing the landscape of IL-17 antagonists. Key insights included the predominance of biologics, the emergence of small molecules in early development, and the global approval status of various

drug assets. This project enhanced my skills in data analysis, research methodology, and strategic planning, providing valuable experience in the pharmaceutical industry.

Tool used (Development tools - H/w, S/w) : No Special tools only MS office applications

Objectives of the project : The objective is to provide a thorough understanding of the IL-17 antagonist landscape to inform strategic decision-making and future research directions.

Major Learning Outcomes : drug development pipeline, competitive intelligence analysis, data analysis and visualization, regulatory knowledge, research methodology, presentation and communication skills, interdisciplinary knowledge, critical thinking and problem-solving, teamwork and collaboration, and strategic planning and decision-making.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : During my internship at Eli Lilly, Bengaluru, I experienced a professional and dynamic working environment that was both challenging and supportive. The organization fosters a collaborative atmosphere where teamwork, innovation, and continuous learning are highly encouraged. Employees are provided with the resources and support needed to excel in their roles, including access to advanced databases, analytical tools, and industry experts.

Working Environment

1. Collaborative Atmosphere: Teamwork is integral at Eli Lilly, with cross-functional teams working together on various projects. Regular meetings and brainstorming sessions facilitate the exchange of ideas and knowledge.
2. Professional Development: The company emphasizes the growth of its employees through continuous learning opportunities, including training sessions, workshops, and seminars relevant to the pharmaceutical industry.
3. Access to Resources**: Interns are given access to comprehensive databases and analytical tools necessary for conducting thorough research and analysis.

Expectations from the Company

1. High Standards of Performance: Eli Lilly expects interns to deliver high-quality work, adhere to deadlines, and maintain a high level of accuracy and attention to detail in their tasks.

2. Proactive Learning and Adaptability: Interns are expected to be proactive in their learning, quickly adapt to new tools and methodologies, and stay updated with industry trends and advancements.

3. Effective Communication: Clear and effective communication is crucial. Interns are expected to regularly update their supervisors on progress, seek feedback, and engage in constructive discussions to improve their work.

4. Integrity and Ethics: Adherence to ethical standards and integrity in all research and reporting activities is paramount. Interns must ensure that their work complies with the company's ethical guidelines and industry regulations.

Overall, Eli Lilly provides a nurturing environment that balances professional growth with the expectation of high performance, preparing interns for successful careers in the pharmaceutical industry.

Academic courses relevant to the project : Microsoft office applications, PowerBi

PS-II Station : Eli Lilly , Bengaluru

Faculty

Name: Bharathi R

Student

Name: RAJAPARA MADHAVIBEN DAMODARBHAI(2022H1460320P)

Student Write-up

PS-II Project Title: eSubmission of Adpromo Submissions to FDA

Short Summary of work done during PS-II : I have handled adpromo regulatory publishing which involves ensuring compliance with regulations and guidelines when creating and distributing advertising and promotional materials. The role of me as a regulatory publisher is Authoring, maintaining, and submitting different types of applications to regulatory bodies throughout the world for medication approval and post approval needs. This also involves reviewing Regulations, Content Development, Usings various eCTD tools for submission compilation, Review and Approval, Submitting the BLAs and NDAs through the ESG Gateways, Documentation and Record-Keeping, work closely with various cross functional teams, including legal teams, marketing personnel, and regulatory authorities, to address any concerns, provide guidance, and obtain necessary approvals. Publishers maintain comprehensive documentation of all adpromo materials, including approvals, revisions, and compliance measures.

Tool used (Development tools - H/w, S/w) : Veeva vault, tool box, Adobe acrobat

Objectives of the project : Publishing of submissions through eCTD for market approvals and to ensure the accurate, timely, and compliant dissemination of regulatory information and documents. This process involves preparing, formatting, submitting, and publishing regulatory submissions and related materials to regulatory authorities, such as the Food and Drug Administration (FDA) in the United States.

Major Learning Outcomes : Adpromo submission publishing to FDA

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Work culture is very supportive and inclusive

Academic courses relevant to the project : QARA- Quality assurance and regulatory affair

PS-II Station : Eli Lilly , Bengaluru

Faculty

Name: Bharathi R

Student

Name: BENO BENNY(2022H1530337P)

Student Write-up

PS-II Project Title: “ROLE OF CMC REGULATORY EDITORS IN GLOBAL REGULATORY AFFAIRS”

Short Summary of work done during PS-II : Summary of work- 1. Editing and Formatting: Carefully examine and polish technical documents, such as regulatory filings (INDs, NDAs, BLAs, and MAAs), making sure that language, style, formatting, and coherence are all in line with business policies and legal requirements. 2. Content Verification: Carefully verify the completeness and accuracy of scientific and technical content in documents, ensuring proper referencing of data, tables, figures, and citations to support document conclusions. 3. Regulatory Compliance: Ensure that documents meet regulatory requirements from relevant authorities such as the FDA, EMA, and others, adhering to GDP, ICH recommendations, and other regulatory standards. 4. Document Management: To facilitate collaboration and guarantee document integrity, CMC editors and publishers handle version control, change tracking, and archival activities and frequently use document management systems. 5. Collaboration with Subject Matter Experts: To guarantee that documents appropriately reflect scientific and technical information and adhere to regulatory requirements, they work closely with subject matter

Tool used (Development tools - H/w, S/w) : MS office tools, Adobe acrobat

Objectives of the project : To finalize regulatory documents for regulatory submissions submissions

Major Learning Outcomes : Regulatory overview, eCTD , different types of regulatory submissions, e.t.c.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment is mostly flexible and depends on the workload.

Expectations from the company are to deliver quality submissions with right work environment.

Academic courses relevant to the project : Quality assurance and regulatory affairs, Clinical research

PS-II Station : Eltropy - Customer Support Group , Bengaluru

Faculty

Name: MONALI TUSHAR MAVANI

Student

Name: NOYONIKA GHOSH(2020A1PS2010G)

Student Write-up

PS-II Project Title: AI Implementation

Short Summary of work done during PS-II : - Improved user engagement of AI Chat and Voice bots by 30% within 3 months - Gained skills in conversation design and trained other interns in the department - Led client calls with US banks and credit unions □ Implemented 15 AI projects - Awarded for 'exceeded expectation' performance by the global leadership

Tool used (Development tools - H/w, S/w) : Voiceflow

Objectives of the project : AI chatbot and voicebot design and implementation

Major Learning Outcomes : Conversation Design, Management, Client interaction

Details of Papers/patents : Not applicable

Brief Description of working environment, expectations from the company : Eltropy has an open and encouraging environment. Despite its remote setting, the teams are very well connected and the line of communication is always open. The company expects commitment and a sense of ownership towards one's tasks.

Academic courses relevant to the project : Computer Programming, Cross cultural skills

PS-II Station : Eltropy - Engineering , Bengaluru

Faculty

Name: MONALI TUSHAR MAVANI

Student

Name: NIKHIL(2019B5A71079H)

Student Write-up

PS-II Project Title: Text Message Metrics, Virus Scan Service, ETL Migration and Activity Log

Short Summary of work done during PS-II : For my first task, I embarked on learning the fundamentals of Golang and Observability. To understand how many messages are send, delivered, failed etc I created text message metrics using open telemetry. Learn about different tools and services like Otel, Jaeger, Consul, Grafana, etc. In my second task, I configure third-party software on our servers, enabling seamless integration with our services to scan uploaded file for viruses. By implementing this feature, we aim to mitigate potential security risks and ensure the integrity of uploaded files and increase user trust of our platform. Task 3 involved meticulous data migration for lobby/appointment management, ensuring seamless transfer and accurate representation of historical data. Meanwhile, Task 4 focused on implementing an activity log feature to track department and template modifications, enhancing user visibility and streamlining support queries. Apart from these worked on minor tickets on enhancement/bug like adding a new filter, double scrolling issue etc.

Tool used (Development tools - H/w, S/w) : Learn tools like Golang, drawio, git, prometheus, open-telemetry, docker, RabbitMQ, Redis, Jaegar, Jenkins, AWS.

Objectives of the project : Enhance monitoring, security and user experience.

Major Learning Outcomes : Got to learn more about Go, React, MongoDB, Postgres

Details of Papers/patents : nil

Brief Description of working environment, expectations from the company : Work from home. Had all employees meet in April in Bengaluru where we got to meet people and enjoy in hotel which can happen once a year.

Academic courses relevant to the project : OOPS, OS, Software Development

PS-II Station : Eltropy - Engineering , Bengaluru

Faculty

Name: MONALI TUSHAR MAVANI

Student

Name: YASH RAJ(2020A7PS1686G)

Student Write-up

PS-II Project Title: Enhancing Product Excellence through Frontend and Backend Issue Resolution and Feature Development for the Eltropy Japan team .

Short Summary of work done during PS-II : I was part of the Japan team at Eltropy, where I worked on both the frontend and backend functionalities of the application. For the frontend, we used JavaScript and React JS, while for the backend, we utilized Golang and Groovy. For each company release, we were assigned tickets that involved adding new features to the application and resolving bugs. Additionally, we worked on Docker and upgraded the Golang version in the production environment.

Tool used (Development tools - H/w, S/w) : Postman , IntelliJ , Docker , AWS

Objectives of the project : Ensure delivery of high-quality , bug free user experiences to meet the standards of the company

Major Learning Outcomes : Frontend Development using React JS , Javascript
Backend Development using Golang
Grails

API development and testing

Postman

Docker

Details of Papers/patents : N.A.

Brief Description of working environment, expectations from the company : The working environment was dynamic and collaborative , it helped me in my professional growth . The working hours were flexible and we had a good work life balance . We were given full ownership of the tasks that we had taken . The company expected high-quality work and provided us with ample opportunities to learn . Seniors were approachable and very supportive .

Academic courses relevant to the project : Data Structures and Algorithms , Operating System , Computer Networks

PS-II Station : Eltropy - Product Development , Bengaluru

Faculty

Name: MONALI TUSHAR MAVANI

Student

Name: ANEESH BALLABH .(2019B2A70937P)

Student Write-up

PS-II Project Title: Product Management - Communication Channels and Applications

Short Summary of work done during PS-II : Market research (competitor analysis, customer base analysis), developing frameworks to prioritize enhancements to be implemented and bugs to be fixed to improve the platform, lots of documentation, UI/UX improvements in the Unified Platform, regular internal testing of the platform, conducting usability testing, rolling out surveys to our customers, and conducting user interviews to capture customer's feedback to improve the platform, ideating and launching new products such as 'Native ID Scan' and 'Screen sharing' to make our product a one-stop solution for all customer's needs, to solve customer's pain points and to keep our product at par with competitors, enhancing the Eltropy platform by revamping the Notification centre and consolidating settings at different access levels, managing release cycles including ideation, documentation, testing.

Tool used (Development tools - H/w, S/w) : Figma, Miro - the visual workspace for innovation, Jira, Slack, Zoom

Objectives of the project : To drive monthly and quarterly release cycles making sure flawless and bug-free releases. To make UI/UX improvements to the platform. To revamp Skill Based Routing in the platform. To ideate new products for our customers and enhance existing products as per customer's need and market trends. Bug fixes. Internal testing. Usability testing of the platform. Lots of documentation.

Major Learning Outcomes :

1. Expertise in technical documentation (Product documentation, Product requirements documentation, Business requirement documentation, Demo scripts, Customer implementation documentation, User story)
2. Managing quarterly release cycles in a SaaS enterprise (product ideation -> requirements documentation -> discussions with stakeholders across teams -> incorporating feedback and re-documenting requirements -> Figma designs -> development -> testing -> release) and closely understanding SDLC by collaborating with cross-functional teams (Engineering, QA, Product, AI, Sales, and Marketing)
3. I gained significant exposure to the product management domain. All the preparations for acing a product interview, such as RCA and frameworks, were applied to solving real-world problems, which was quite exciting.
4. Professional presentations, communication, and collaboration across teams.
5. Time management and attention to detail.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The internship was entirely remote (P.S. This information was not mentioned anywhere before the PS allotment; I found out about the remote nature after being assigned). The working environment is excellent. The team members are very approachable and easygoing, and you can reach out to anyone in the company, including the CEO, who will make time for you. As a fast-paced organization transitioning from startup to scale-up, you are expected to work diligently and meet deadlines. While some days can be hectic, it is generally more relaxed compared to Indian startups. In the product team, be prepared for numerous meetings with various teams, stakeholders, and US-based customers, which I found enjoyable. A major perk of working in the product team is the ability to choose your own problems to solve and take full ownership of them. You'll have a great learning experience working in the Product team. It is a good place to start if you want to explore the product management domain. Eltropy also offers international exposure, working directly with employees and clients from the US.

The highlight of my PS II was Eltropy's All Hands meeting at the Leela Palace, Bengaluru, where the entire global team gathered for five days of celebration. We marked Eltropy's 10th anniversary with a blast. During this event, I learned more about the company, and its business, and got to know my colleagues better. It was truly an elegant affair.

Academic courses relevant to the project : Technical report writing

PS-II Station : Elusiv Association , Switzerland

Faculty

Name: Ashish Narang

Student

Name: BANSAL ARIHANT ALOK(2020A3PS0567G)

Student Write-up

PS-II Project Title: Developing Elusiv web applications and SDK development

Short Summary of work done during PS-II : Developed SDK for Elusiv's core privacy protocol, enabling developers to integrate their programmable privacy layer into their applications with ease. Designed abstraction layer for core cryptography circuits. Wrote documentation relating to it, and examples to help others understand how to use the SDK.

Tool used (Development tools - H/w, S/w) : Programming Languages - Rust, TypeScript; Other tools - Mermaid.js, Markdown, LaTeX

Objectives of the project : To build SDK for Elusiv's core protocol

Major Learning Outcomes : Hands-on experience writing production-grade code in Rust, learning about complex cryptography, how to program mathematical constructs, how to design software systems.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Working environment was extremely supportive and helpful, focusing on learning and understanding the need for building the project. My mentor expected me to complete deliverables within reasonable time and helped me with resources and guidance to learn the topics required to complete the task assigned.

Academic courses relevant to the project : Computer Programming, Object Oriented Programming, Foundations of Discrete Structures and Algorithms, Cryptography

PS-II Station : Ergon Technologies , Kochi

Faculty

Name: Sindhu S

Student

Name: JITHESWAR J(2018A8PS0694G)

Student Write-up

PS-II Project Title: Digital Marketing

Short Summary of work done during PS-II : Our job was to create ads for various brands on Facebook and Instagram.

Tool used (Development tools - H/w, S/w) : FB Ads Manager

Objectives of the project : Making ads for social media

Major Learning Outcomes : None

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : We got the option of remote working which was very convenient. The tasks itself were simple and repetitive.

Academic courses relevant to the project : None



PS-II Station : Ergon Technologies , Kochi

Faculty

Name: Sindhu S

Student

Name: SIDDHARTH RATHI(2019B2A80730G)

Student Write-up

PS-II Project Title: Warehouse and inventory management feature development

Short Summary of work done during PS-II : Developed inventory management and warehouse production feature on the company' ERP system.

Tool used (Development tools - H/w, S/w) : VS Code, Postman, MySql,Insomnia,Github

Objectives of the project : To develop inventory and warehouse management feature on the ERP System of the company

Major Learning Outcomes :

Learned about the core concepts of web development. Got a great hands-on development experience.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : At starting it was very hectic but eventually it became easy over the time. Work life balance is not that great but learning wise it was a good opportunity.

Academic courses relevant to the project : CP

PS-II Station : Ergon Technologies , Kochi

Faculty

Name: Sindhu S

Student

Name: DIVYANSHU PRAKASH .(2019B5A80678P)

Student Write-up

PS-II Project Title: Software Development: Inventory Management System

Short Summary of work done during PS-II : Developed several components of a full-stack web application for the Inventory Management System. This included the workflows for incoming deliveries, inspections, production, outsourcing, outgoing deliveries, inventory storage, and generation and storage of related documents for the processes in shipping and offshore rig operations.

Tool used (Development tools - H/w, S/w) : React, Node.js, Express.js, MySQL, Postman

Objectives of the project : Development of an Inventory Management System

Major Learning Outcomes : Learned the fundamentals of Supply Chain and Inventory Management.

Learned fundamentals of "0 to 1 Product Development".

Developed a full-stack web application for the Inventory Management System.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Small company, hectic and fast-paced work culture, long but somewhat flexible working hours, no set provision for work from home. Decent learning experience for me, as I wanted to learn the tech stack and product development fundamentals.

Academic courses relevant to the project : Computer Programming, Database Systems

PS-II Station : Ergon Technologies , Kochi

Faculty

Name: Sindhu S

Student

Name: PIYUSH SAINI(2020B2PS1300P)

Student Write-up

PS-II Project Title: Optimizing organizational process for excellence

Short Summary of work done during PS-II : As a part of process excellence team, I have done the Management work at ANS commerce like, Infosec policies approval process, TPRM(Third party vendor risk management), Vendor onboarding, Affiliate tracker maintainence etc.

Tool used (Development tools - H/w, S/w) : ASANA, Jira

Objectives of the project : The objective of Process Excellence is to enhance the efficiency, effectiveness, and adaptability of an organization's processes to drive superior performance and deliver consistent value to customers and stakeholders.

Major Learning Outcomes : Develop management and Communication skills

Details of Papers/patents : Process excellence is all about making sure that the way things are done in a business is as efficient and effective as possible. It means constantly looking for ways to improve processes to save time, reduce costs, and ensure high quality.

My Internship Tasks

During my internship, I worked on several tasks related to process excellence. Here's what I did:

- 1) Maintain a affiliate tracker
- 2) Infosec policies approval process
- 3) Third party vendor risk management
- 4) Vendor onboarding
- 5) Kartify backend training to clients.

Brief Description of working environment, expectations from the company : The work environment is okay. As an intern, you might find it a bit challenging at first because everyone is busy with their own tasks. However, over time, you'll learn how things work.

Academic courses relevant to the project : Business Analysis

PS-II Station : Ergon Technologies , Kochi

Faculty

Name: Sindhu S

Student

Name: ABHISHEK PATIDAR(2022H1030087H)

Student Write-up

PS-II Project Title: Development of ERP management system.

Short Summary of work done during PS-II : During my PS2 internship, I focused on building and optimizing user interfaces using React, as well as enhancing server-side functionality with Node.js. I was involved in several projects where I contributed to both the design and implementation phases, improving site responsiveness and implementing RESTful services. Additionally, I worked closely with senior developers and cross-functional teams, gaining insights into the software development lifecycle and best practices. This experience greatly improved my coding skills, problem-solving abilities, and understanding of client-server interactions.

Tool used (Development tools - H/w, S/w) : Javascript, React, Mysql, Express, Figma, Git, Node JS, HTML, CSS

Objectives of the project : Development of ERP software system for managing companies Inventory within the ERP portal for efficient management of the Company's Workshop and Warehouse Inventory.

Major Learning Outcomes : During my PS2, I gained hands-on experience in both front-end and back-end technologies, which significantly enhanced my coding skills and understanding of web architectures. I learned to efficiently utilize frameworks like React for frontend development and Node.js for server-side programming, which allowed me to contribute to complex project builds and real-time data processing tasks. The internship also improved my problem-solving abilities, as I navigated through debugging issues and implementing features based on client requirements. Additionally, I developed strong teamwork and communication skills by collaborating with developers, designers, and project managers, ensuring that projects were

delivered on time and met high quality standards. This experience has not only solidified my foundation in web development but also prepared me for a successful career in the tech industry.

Details of Papers/patents : No paper to be published

Brief Description of working environment, expectations from the company : PROS -> During my web development internship, the work environment was lively and cooperative, with a focus on using the latest technology. The company expected us interns to take initiative, learn quickly, and actively participate in projects. They valued creativity, skill, and teamwork. This supportive yet demanding setting helped me learn and grow a lot, building strong practical skills and a professional attitude.

CONS->The only thing is that the mentor is not that technical sound despite being the technical manager, we have to give him suggestion regarding how things can be done and also the company is taking students as a intern and want them to work like full time employee without any suitable future PPO.

Academic courses relevant to the project : Database management systems, Computer Networks, Cloud Computing, Algorithms and Data Structures

PS-II Station : Ergon Technologies , Kochi

Faculty

Name: Sindhu S

Student

Name: SAURABH KUMAR(2022H1540807P)

Student Write-up

PS-II Project Title: Analytics on Production and Warehouse Management

Short Summary of work done during PS-II : During my PS-II, I focused on developing a dashboard and implementing a Retrieval-Augmented Generation (RAG) system using Llama Index to enhance production and warehouse management. The dashboard provided a centralized platform to monitor various aspects of the system. By utilizing the Llama Index, I created a RAG system to efficiently retrieve and generate relevant information, thereby improving decision-making processes. Additionally, I developed SQL queries to support various website functionalities. These included an attendance monitoring system that tracked employee attendance and generated detailed reports, and a mandays employee availability system that calculated available mandays for employees, facilitating effective resource planning and allocation.

Tool used (Development tools - H/w, S/w) : Software Tools: Llama Index SQL jspdf auto table library React Node.js Git Visual Studio Code Web browsers (for testing and debugging) Hardware Tools: Personal computer or laptop Servers (for hosting applications and databases) Networking equipment (for connectivity and remote access)

Objectives of the project : To optimize production and warehouse management through data analytics, improving efficiency, and reducing operational costs.

Major Learning Outcomes : Enhanced understanding of production and warehouse management principles.

Proficiency in using data analytics to optimize operations.

Details of Papers/patents : not applicable

Brief Description of working environment, expectations from the company : very good and collaborative

Academic courses relevant to the project : Machine learning, Database administration, Supply chain analytics etc

PS-II Station : Ericsson Global India Pvt. Ltd. , Bengaluru

Faculty

Name: Lucy J. Gudino

Student

Name: VANSH CHHABRA .(2019B1A71039P)

Student Write-up

PS-II Project Title: Evaluating RAG Pipelines using RAGAS Framework And A comparison of Sentence Embeddings within the Telecom Domain

Short Summary of work done during PS-II : The work done was research based and was dedicated to understanding the evaluation metrics and procedures for RAG (Retrieval - Augmented Generation) pipelines, focusing on their utility within the telecommunications domain. The primary objective was to gain deeper insights into the effectiveness of RAG through the construction and evaluation of the pipeline. In a further study, we used various approaches to compare the effect of embeddings on retrieval accuracies.

Tool used (Development tools - H/w, S/w) : Python and its libraries, API calls, LLMs, RAG, nltk, JSON, Pickle, RegEx, GPT 3.5 API, GPT 4 API, NumPy, Pandas, Matplotlib, Bootstrap stats library, IsoScores library, LaTeX, Overleaf

Objectives of the project : - Evaluate a set of metrics known as RAGAS for the RAG Pipeline. - Compare the performance of different sentence embeddings models

Major Learning Outcomes : Python and its libraries, RAGs, LLMs, Sentence Embedding models

Details of Papers/patents : Papers submitted to 2 conferences - NeurIPS and ICML

Brief Description of working environment, expectations from the company : The working environment was really good. All the team members were very supportive. I had a tremendous learning experience as well as a steep learning curve.

Academic courses relevant to the project : Data Science, Computer Science, Programming courses

PS-II Station : Ericsson Global India Pvt. Ltd. , Bengaluru

Faculty

Name: Lucy J. Gudino

Student

Name: NEERAJ GUNDA(2020A7PS0169H)

Student Write-up

PS-II Project Title: Evaluation Of RAG

Short Summary of work done during PS-II : The current study is dedicated to understanding the evaluation metrics and procedures for RAG (Retrieval- Augmented Generation) pipelines, focusing on their utility within the telecommunications domain. The primary objective is to gain deeper insights into the effectiveness of RAG through the construction and evaluation of the pipeline, incorporating diverse embeddings and exploring parameter variations. This study also focuses on a popular framework called RAGAS, and we store the verdicts and reasonings

provided to gain deeper insights into how the metrics perform in the telecom domain and in general.

Tool used (Development tools - H/w, S/w) : Python

Objectives of the project : Understand how useful RAG can be in telecom domain and explore a popular framework 'RAGAS' used for evaluating RAGs

Major Learning Outcomes : Understood how embeddings and LLMs impact various metrics of RAGAS, was able to identify useful metrics and was able to evaluate the verdicts and reasonings provided by metric manually.

Details of Papers/patents : 1. Evaluation of RAG Metrics for Question Answering in the Telecom Domain (submitted, result awaited)
2. A Compass for Navigating the World of Sentence Embeddings for the Telecom Domain (submitted, result awaited)

Brief Description of working environment, expectations from the company : Mostly research-oriented work, timings are a bit flexible.

Academic courses relevant to the project : NLP, DL, Info Retrieval

PS-II Station : Ericsson Global India Pvt. Ltd. , Bengaluru

Faculty

Name: Lucy J. Gudino

Student

Name: SANCHIT GUPTA(2020A7PS2069H)

Student Write-up

PS-II Project Title: Power BI Automation

Short Summary of work done during PS-II : Developed an automated solution using Python and Selenium web drivers for web scraping to retrieve excel files from Jira and Replir eliminating manual intervention and reducing file search and download time. Wrote VBA macros to process downloaded excel files from Jira, Replir, and Export data. This automation minimized preprocessing tasks for Data Engineers as it will apply macros automatically, allowing them to focus on more critical tasks. Created multiple Power BI Dashboards with seamless integration, enabling automatic data uploads and updates after processing. This removed the need for manual file creation and upload, streamlining the data analysis workflow. Impact: These innovations collectively reduced the manual effort for Data Engineers by 95%, significantly reducing the time and enhancing the data analysis.

Tool used (Development tools - H/w, S/w) : Python, Selenium Web drivers, VBA, Power BI

Objectives of the project : Create .exe applications for Windows for Power BI Automation. The application can itself go to the Ericsson internal websites (Jira and Replir Websites) using Selenium web drivers, download the required excel files, apply VBA macros and load the data into Power BI for data analysis. These innovations collectively reduce the manual effort for Data Engineers, significantly reducing the time and enhancing the data analysis.

Major Learning Outcomes : Python, Selenium Web drivers, VBA, Power BI, MS Excel

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Ericsson is known for its collaborative and inclusive work culture. By fostering a dynamic and supportive working environment, Ericsson aims to provide interns with a valuable and enriching experience that prepares them for future careers in data science. The company promotes diversity and encourages open communication, creating a positive and supportive environment for employees.

Expectations - Strong Analytical Skills, Technical Proficiency, Problem-Solving Ability, Learning Agility, Communication Skills, Team Collaboration

Academic courses relevant to the project : Database Management System, Data Structures & Algorithms, Operating System

PS-II Station : Ericsson Global India Pvt. Ltd. , Bengaluru

Faculty

Name: Lucy J. Gudino

Student

Name: RACHIT CHAUDHARY(2020A8PS1786G)

Student Write-up

PS-II Project Title: AI-powered RAN for Energy Efficiency

Short Summary of work done during PS-II : I was part of the GAIA department is majorly and R&D department so alot of the work was focuses on the R&D side only, additionally the project that I was assigned to was being rolled out to the new clients so I was also asked to provide support for the whole process by doing data analysis, cleaning, pre-processing and compare various different algorithms and mappings to find out which ones are better. Along with this I was also asked to write a documentation on how we could improve the current system by introducing Reinforcement Learning and making the whole system a closed loop system.

Tool used (Development tools - H/w, S/w) : python, vscode, numpy, pandas, chatgpt, reinforcement learning, matplotlib

Objectives of the project : Enhance the current system design of AI-powered RAN for Energy Efficiency using Reinforcement Learning and also provide support for the rollout of the system to new clients

Major Learning Outcomes : natural language processing, literature reviews, machine learning, reinforcement learning

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The working environment is exceptionally professional. Everyone in the team and the entire office were incredibly friendly and welcoming. The atmosphere is both supportive and collaborative, making it a pleasure to come to work each day. Team members are always willing to offer help and share their expertise, creating a positive and productive workspace.

Academic courses relevant to the project : NLP, AI, ML, Data Science Minor

PS-II Station : Ericsson Global India Pvt. Ltd. , Bengaluru

Faculty

Name: Lucy J. Gudino

Student

Name: DHRUV RAGHAVAN(2020AAPS2202H)

Student Write-up

PS-II Project Title: Summarization Using Iterative Prompting and Entity Recognition / Out-of-Domain Analysis and Summarization using Language Models

Short Summary of work done during PS-II : My project deals with conducting an out-of-domain analysis on textual corpora sourced from various publicly-available datasets. These datasets vary widely in terms of type and length of textual content. We first generate and store word embeddings obtained from these documents. We then run the documents through a language model framework (Phi-2 + LlamaIndex) to obtain summaries for each document. These summaries are then run through the same word embedding process and the embeddings of these are stored separately. With the two groups of embeddings, we can conduct our experiments. One such experiment involves calculating the RMD (Relative Mahalanobis Distance) between the group of input embeddings (the original documents) and the output embeddings (the summarized documents). With this RMD value, we can predict if a particular test document lies inside the distribution of our foreground data (in-domain) or outside (out-of-domain or OOD).

Tool used (Development tools - H/w, S/w) : Kubernetes, Turing007, Python, Jupyter notebook

Objectives of the project : A novel approach to out-of-domain analysis in conjunction with summarization, mainly utilizing the Microsoft's small language model, Phi-2, and the language model framework LlamaIndex.

Major Learning Outcomes : - Pros and cons of different language models when it comes to various summarization and OOD classification tasks.

- Effect of fine-tuning a model's performance on OOD tasks and the different approach needed to make up for the result when it is not fine-tuned.

- Deliberate and consistent method to generate summaries using a combination of a small language model and a language model framework.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Weekly syncs (3-4 times a week) with mentor(s) and a bi- or tri-weekly meet with manager to update progress and evaluate whether a change in course is needed in terms of approach. Environment is mostly

work-from-home, with the exceptions being when there is a lot to discuss or on Thursdays, which are compulsory office working days.

Expectation to be online and available on Microsoft Teams from 9 am to 6 pm through the work week.

Academic courses relevant to the project : Machine Learning, Foundations of Data Science, Applied Statistical Methods, Natural Language Processing

PS-II Station : Ericsson India Global Services Pvt. Ltd. , Chennai

Faculty

Name: Lucy J. Gudino

Student

Name: DEVASHISH SIWATCH .(2020A7PS0113P)

Student Write-up

PS-II Project Title: OMC KPI Collector Tooland Dimensioning of OMC System Using Machine Learning

Short Summary of work done during PS-II : Develed a Key Performance Indicator Collector Tool to get an entire overview of the cluster manager by the user. Collected important KPI data for ML team to use for their model training for dimensioning of OMC system

Tool used (Development tools - H/w, S/w) : VS Code primary code editor Apache Kafka for real time analytics and monitoring Victoria Metrics as database Prometheus for queries using PromQL MobaXterm for connecting to remote servers Git for version control

Objectives of the project : 1) OMC KPI Collector Tool: The development of a tool that will be used by Ericsson OMC Customers to get an overview of the entire network that they're managing with summaries of the various data metrics that are collected with only relevant information that can be later on processed or read due to being in a JSON format. 2) Dimensioning of OMC System Using Machine Learning: The goal is to collect important metrics from OMC system to train a Machine Learning model for the dimensioning of OMC system.

Major Learning Outcomes : Kubernetes, Docker, Kafka, Prometheus

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Great environment with very less micromanagement from the mentors and freedom to provide inputs in discussions with stakeholders.

Academic courses relevant to the project : Computer Networks

PS-II Station : Es Magico Experiences Pvt. Ltd. - Nontech , Mumbai

Faculty

Name: Niranjan Swain

Student

Name: PRIYA .(2020D2PS1290P)

Student Write-up

PS-II Project Title: Business operations and Market research

Short Summary of work done during PS-II : In this given project I have learn how to find Real simple syndication, how to find XML and HTML , how to find prospecting outbound

Tool used (Development tools - H/w, S/w) : Both

Objectives of the project : Communication with alumni embodies

Major Learning Outcomes : It facilitates effective and efficient method of dissemination of information

Details of Papers/patents : The system also should collect actual information about working experience of graduates, which can improve faculty credits and teaching process.The aim of this project is to build an alumni management system online dashboard.

Brief Description of working environment, expectations from the company : We should keep in mind that external factors and internal factors can influence each other and work together to affect a business.

Academic courses relevant to the project : New ventures creation

PS-II Station : ESH Value Technologies , Mohali

Faculty

Name: Sandeep Kayastha

Student

Name: AKSHAT SINGHAL(2019B2A40936G)

Student Write-up

PS-II Project Title: Product Analysis

Short Summary of work done during PS-II : The executive summary provides a comprehensive overview of the project "Sales Team Management, Leads Generation, and Process Automations," focusing on optimizing lead generation processes, enhancing sales team management, and streamlining workflow through advanced technological tools. The project utilizes APIs from backend portals and Google Apps Script to automate lead extraction and manipulation tasks, previously handled manually. This approach aims to increase efficiency in sorting leads, utilizing Google Sheets functions for tasks like VLOOKUP and duplicate removal. Key highlights include the implementation of CRM software for the sales team, specifically "ozonotel," to automate dialing processes and enhance conversion rates. The project also emphasizes lead tracking and reporting functionalities within Google Sheets, facilitating real-time updates and generating insightful reports for decision-making. The methodology underscores the significance of technological integration in improving operational effectiveness and team productivity. The project leader's role in navigating complex data and fostering team collaboration is highlighted, showcasing enhanced analytical, communication, and management skills. Overall, the project's success in optimizing workflows and driving revenue underscores the importance of innovation and continual learning in achieving organizational goals.

Tool used (Development tools - H/w, S/w) : Excel, Postgre SQL,

Objectives of the project : To enhance the conversions of a team by analysing data and developing business intelligence strategies

Major Learning Outcomes : I learned technical skills like : Advanced Excel, Google sheets, Postgre, SQL, Databases, Logical reasoning

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The company culture at this organization can be characterized as mixed. While the working environment is described as hectic with long hours and compensation is not considered good, there is an acknowledgment that learning opportunities are exceptional, particularly when involved in the right projects. Employees appreciate the accountability and autonomy they are afforded, which enables them to make decisions autonomously. However, there seems to be a noted lack of recognition for good work done, which contrasts with the positive aspects of learning and decision-making autonomy.

Academic courses relevant to the project : NA

PS-II Station : Etalogue Software Private Limited , Hyderabad

Faculty

Name: Jyotsana Grover

Student

Name: NEEL SUDARSHAN SHELGAONKAR(2020A3PS0424P)

Student Write-up

PS-II Project Title: Work Management Platform

Short Summary of work done during PS-II : The project aimed to develop a comprehensive Work Management Platform to simplify work management across industries. Neel was involved in various aspects of the project, including front-end and back-end development, database management, and UI/UX design. The technologies utilized in the project include JavaScript, ReactJS, NodeJS, MongoDB, Tailwind CSS, MVC architecture, and ETL methodologies.

Tool used (Development tools - H/w, S/w) : MongoDB, ReactJS, NodeJS, Tailwind CSS

Objectives of the project : To design a work management platform end to end.

Major Learning Outcomes : In conclusion, we have introduced the concepts of web development specifically, full stack web development. To go deeper into how to design an efficient and effective user interface, we also familiarize ourselves with several popular front-end and back-end technologies.

We have also systematically understood the basics, importance, and advantages of various tools such as NodeJS, ReactJS, Tailwind, and MongoDB. This is important to substantiate why we chose one developer tool over another as different tools have different benefits. As a full-stack developer, we must first choose the right tool for the right job.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : As an intern working from home (WFH), the experience was both exciting and challenging. The flexibility and autonomy of a remote setup offered a unique opportunity to develop self-discipline and time management skills. Setting up a comfortable and productive home office environment was crucial, involving ergonomic furniture, reliable internet connectivity, and essential technology like a laptop and communication tools.

From the company, clear and consistent communication was vital. Interns needed detailed guidance on tasks, deadlines, and performance expectations to navigate their roles effectively. Regular virtual meetings, check-ins, and feedback sessions were essential for maintaining a sense of connection and understanding of the company's goals and culture.

Interns valued flexibility in work hours, which helped balance personal commitments and work responsibilities, contributing to a healthy work-life balance. Access to virtual collaboration platforms, such as video conferencing and project management tools, was crucial for staying connected with the team and managing tasks efficiently. Additionally, opportunities for professional development through online training and webinars were highly appreciated, as they enhanced learning and skill-building.

A supportive company culture that emphasized mental health and well-being was especially important for interns. Virtual social events, mentorship programs, and mental health resources

helped interns feel more integrated and supported. Recognition of contributions, even small ones, boosted morale and motivation.

Trust and accountability were fundamental in a WFH setup. Interns were often evaluated based on their output and results rather than the hours logged. This environment fostered independence and responsibility, providing a valuable learning experience.

Overall, a successful WFH internship required a balance of independence, effective communication, and robust organizational support. By meeting these expectations, companies ensured that interns had a productive, engaging, and rewarding experience.

Academic courses relevant to the project : OOP, Information Technology (IT), Web Development

PS-II Station : Everwell Health Solution , Bengaluru

Faculty

Name: Preethi N. G

Student

Name: HRIDAY KEDIA .(2019B2A70964P)

Student Write-up

PS-II Project Title: Bug fixes and automation scripting

Short Summary of work done during PS-II : I was a part of the on-call team working on bugs reported from the field, detected on exception reports or irregular behaviour observed during testing.

Tool used (Development tools - H/w, S/w) : IntelliJ, Pycharm, git

Objectives of the project : - work as part of the oncall team to fix bugs along with writing scripts to automate a few tasks

Major Learning Outcomes : Learnt in depth about backend engineering.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Company operates from a 4bhk in Bangalore. work environment is chill and follows 3 days wfo policy.

Academic courses relevant to the project : DSA, DBMS

PS-II Station : FischerJordan LLC , Mumbai

Faculty

Name: Anjani Srikanth Koka

Student

Name: PARTH SHARMA .(2020A3PS1229P)

Student Write-up

PS-II Project Title: Software Development of a Financial Chatbot for US Based Financial Data Aggregator

Short Summary of work done during PS-II : I worked on various stages of the project including research and planning, backend development, NLP and machine learning integration, frontend development, deployment, and user testing.

Tool used (Development tools - H/w, S/w) : Github, Python, React

Objectives of the project : The objective was to develop a innovative financial chatbot for a US-based financial data aggregator. The chatbot aims to provide users with a seamless and intuitive experience when inquiring about financial data on private and public companies. The system interprets user queries, converts them into SQL queries, and retrieves relevant data from the client's extensive SQL database.

Major Learning Outcomes : I learnt about the architecture and implementation of scalable AI systems, the integration of advanced NLP techniques, and how to deploy and maintain an AI chatbot.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Good working environment

Academic courses relevant to the project : OOP, DSA

PS-II Station : Fix Health , Bengaluru

Faculty

Name: RAMESH VENKATRAMAN

Student

Name: ASHWIN V VENKATESH(2019B2A40912G)

Student Write-up

PS-II Project Title: Project Growth and operations

Short Summary of work done during PS-II : I worked on the management of the community of users that we had in the project. Since most of our users were of the 40-60 age group, mostly women, and not very tech savvy, all operations were to be run on whatsapp. This included communication to users about the program, regular operations such as class links, reminders, prizes and certificates etc. Along with this, I was managing the database of users wherein collection and storage of user data was extremely important to understand our user base and how we can cater to them in a cost effective manner. This included performing analytics on many things such as different persona characteristics such as age, gender, location, type of pain faced, and also other technical aspects such as website tracking, link click data, website activity and visits etc.

Tool used (Development tools - H/w, S/w) : Airtable(spreadsheet/database hybrid), Youtube studio, NoApp (Whatsapp chatbot)

Objectives of the project : Growth of a new service offered by the company

Major Learning Outcomes : User categorization and user persona understanding, Project operations and management, Database management and data analytics for particular outcomes,

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment was great. A lot of the work was left up to us to complete, not giving room for unnecessary spoon feeding. Required amount of assistance and guidance was always given and there was no shortage of work. It was a great environment to learn about a startup environment,

and what it takes to grow something from scratch to a certain stage, the importance of operations etc.

Academic courses relevant to the project : NA

PS-II Station : Fix Health , Bengaluru

Faculty

Name: RAMESH VENKATRAMAN

Student

Name: KEYUR PANKAJ DANDE(2020A4PS1910H)

Student Write-up

PS-II Project Title: Business development via Social Media Channels

Short Summary of work done during PS-II : During my internship at Fix Health, I enhanced online physiotherapy services by editing live classes with Dr. Sheetal, creating engaging social media content, and optimizing the production process using Premiere Pro, After Effects, and Airtable. I played a key role in monthly themed free programs, developing referral strategies that boosted user engagement and growth. I also contributed to data analysis and strategy development, refining service offerings and improving user experience. My creation of testimonial clips for the UK market helped build trust and facilitated Fix Health's expansion. This internship allowed me to gain valuable skills in video editing, content management, user engagement, data analysis, and market adaptation, preparing me for a successful career in digital healthcare services.

Tool used (Development tools - H/w, S/w) : Premiere Pro

Objectives of the project : Expand Social Media Reach

Major Learning Outcomes : SEO

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The work culture at Fix Health is casual and collaborative. Creativity and innovation are encouraged, with flexible schedules and an open office environment. Team members share ideas freely, fostering a dynamic and supportive atmosphere where everyone's contributions are valued and respected.

Academic courses relevant to the project : N/A

PS-II Station : Flint - Growth , Bengaluru

Faculty

Name: Vaishali Pagaria

Student

Name: MANUROOP SINGH GILL(2019B4A40799G)

Student Write-up

PS-II Project Title: Growth and Product Management

Short Summary of work done during PS-II : My role as the Growth Product Intern at LogX, a leading DeFi platform, focused on driving user acquisition, brand awareness, and community engagement. **Attracting Power Users:** I spearheaded initiatives to attract high-value traders and liquidity providers, significantly boosting weekly trading volume and user base. This involved targeted marketing campaigns, strategic partnerships with complementary dApps (like Kartel), and leveraging influencer marketing. **Building a Strong Community:** I fostered a thriving community through research-driven content creation, active engagement on platforms like Discord, and building the LogX Vanguard, a passionate group of brand advocates. This resulted in a significant increase in daily active users and a more positive user experience. **Data-Driven Growth:** While not directly involved in product development, I utilized data analysis to inform strategic decisions and conducted research & development for product and network expansion. This ensured our growth efforts were aligned with user needs and market trends. **Growth Hacking Expertise:** My rapid community building efforts on Kartel's social media platforms showcased the power of growth hacking strategies. These efforts, alongside my overall contributions, significantly strengthened LogX's position within the competitive DeFi landscape. Overall, this internship provided me with an invaluable education in DeFi and the multifaceted strategies that drive growth within this dynamic space.

Tool used (Development tools - H/w, S/w) : Excel, Zealy, Galxe, Insomnia, Postman

Objectives of the project : Multiple Projects on Growth and Product

Major Learning Outcomes : This project honed my skills in user acquisition, DeFi marketing, community building, and research, equipping me to navigate the dynamic world of Decentralized Finance.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The work environment at LogX sounds fast-paced and dynamic, driven by the ever-evolving nature of Decentralized Finance (DeFi). As a Growth Product Intern, you likely experienced a blend of:
Collaborative atmosphere: Working alongside marketing, research, and community management teams to achieve common growth goals.

Data-driven decision making: Utilizing analytics and market research to inform marketing campaigns, community initiatives, and product development strategies.

Emphasis on innovation and creativity: Exploring new marketing channels, community growth hacking techniques, and user acquisition strategies.

Ownership and initiative: Being entrusted with projects, managing your workload, and driving projects forward independently.

Expectations from the company might have included:

Strong work ethic and ability to manage multiple projects simultaneously.

Excellent communication and interpersonal skills to collaborate effectively with various teams.

Analytical skills and an aptitude for data analysis to interpret user behavior and market trends.

Proficiency in research methodologies to gather insights and inform growth strategies.

A passion for DeFi and a strong understanding of the current market landscape.

Ability to learn quickly and adapt to a fast-paced environment.

By demonstrating these qualities, you likely contributed significantly to LogX's growth and positioned yourself for success in the competitive world of DeFi.

Academic courses relevant to the project : None

PS-II Station : Flipkart - Planning Analysts , Bengaluru

Faculty

Name: Arindam Roy

Student

Name: ISHAN KUNDU(2020A1PS1987G)

Student Write-up

PS-II Project Title: 1.DC Spillage Solutioning through Capacity Shifting 2.Last Mile Capacity Shuffling 3. Grocery Last Mile Performance Improvement

Short Summary of work done during PS-II : As part of the Large Planning Team, I was given the task of creating a logic to shuffle capacities across multiple "cutoffs" of a DC. Keeping this in mind, a code was developed using R. The data was tested and code was validated against multiple datasets at different times of the day to check for its foolproofness in all Event/BAU days. Some benefits observed by shuffling of capacities using this automation with respect to the manual method---5-10mins vs 1.5-2hours. •Negligible manual intervention required while running this code. ---Hassle free and reliable performance • A goodness of around 3 % is observed --- This translates to roughly 1500 orders if we consider a daily order count of 40000. • This would ensure maximum utilization of our manpower and capacities.

Tool used (Development tools - H/w, S/w) : RStudio, Microsoft Excel, Google Sheets.

Objectives of the project : To devise a solution which would lay down a systematic operating procedure in shuffling of available capacities.

Major Learning Outcomes : 1. Learnt about the basics of supply chain and planning.2. Understood and comprehended major jargons used.3. Communication with stakeholders and team members for ironing out difficulties.4. Learnt about Root Cause Analysis to determine and iron out errors.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The organization had planned everything to ensure a smooth onboarding process. The Large Supply Planning team had structured my work and had introduced me to the basics of supply chain, in a crisp and effective way, which ensured a smooth internship period. HR Team was also supportive enough in terms of evaluations or any other concerns.

Academic courses relevant to the project :

PS-II Station : Flipkart - Planning Analysts , Bengaluru

Faculty

Name: Arindam Roy

Student

Name: SRIVENUKA VILLA(2022H1540815P)

Student Write-up

PS-II Project Title: Efficiency Model Building To Improve Market Share For Inventory Planning And Control Team.

Short Summary of work done during PS-II : This project, which was carried out in conjunction with the Inventory Planning Team, sought to accelerate a particular model that is used in inventory planning procedures. I evaluated the effectiveness of the current model and pinpointed opportunities for development by utilizing data-driven approaches and added improvements to speed up the model's execution time without sacrificing accuracy using iterative testing and optimization techniques.

Tool used (Development tools - H/w, S/w) : Advanced Excel, Power Query,, R studio, SQL, Power BI

Objectives of the project : To create a intelligent system to track performance trends, market share , zonal utility, and enhance customer experience

Major Learning Outcomes : Understanding Flipkart business and values.
Business models and their working across various Bu.

Desired planning model market share analysis and metrics affecting it.

Various KPIs that can be observed for insights.

Large data handling and understanding supply chain operations terminologies.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : It was a lively work environment at flipkart and you get to contribute to live projects that impact the market.

Academic courses relevant to the project : MBA business Analytics curriculum is very much aligned to industry demands.

PS-II Station : Flipkart (Software Development) , Bengaluru

Faculty

Name: Vineet Kumar Garg

Student

Name: VIDHANI HITEN JITENDRA(2019B4A70812H)

Student Write-up

PS-II Project Title: Refund enhancement

Short Summary of work done during PS-II : I was in Flipkart FPG. I was assigned a bunch of tasks but my major project was to implement features on a console. I basically had to develop the complete flow including UI to help operations team and developers to interact with APIs from

console. Did complete testing and local environment and then deployed the service on production environment as well.

Tool used (Development tools - H/w, S/w) : Java, Dropwizard, Message Bus, Scheduler, Hystrix, React, Node js, IntelliJ, Github

Objectives of the project : Optimisations around older service and refund modes

Major Learning Outcomes : Technical: Typescript, Shell scripting, Java, SOLID principles
Non-Tech: Project Management, Collaboration, Team work, Problem-solving

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The work culture is good. People are goal-oriented and eager to finish their tasks. They are very helpful and will guide exactly how to go about doing the tasks.

Academic courses relevant to the project : Software Engineering, OOPS, DBMS, OS

PS-II Station : Flipkart (Software Development) , Bengaluru

Faculty

Name: Vineet Kumar Garg

Student

Name: SHREYAS KETKAR(2020A7PS0075P)

Student Write-up

PS-II Project Title: CRONJOB KUBERNETES MIGRATION, LOGGING API AND ENHANCING INTERNAL ORDER TRACKING SYSTEM

Short Summary of work done during PS-II : Project 1: Application Fulfillment UI Enhancement

The goal of this project was to improve order visibility for internal teams, reducing escalations and enhancing decision-making. Key tasks included enabling the display of archived orders by integrating API calls and modifying the UI, enriching the system with detailed plan data (e.g., source and destination pin codes, logistics types), creating a mapping compartment for better navigation, and reorganizing UI elements to enhance clarity and functionality. This involved tasks like moving specific identifiers, sorting unit history, displaying failure reasons for grocery orders, and eliminating duplicate entries in plan change history. Project 2: Logging Service for Client-Level Interactions This project focused on developing a logging service for the Oculus application to improve accountability and resolve discrepancies between teams. I created a POST API in Ruby and an AngularJS module to log client-level interactions, integrated this logging service into all frontend flows, and conducted rigorous testing. The service was successfully deployed to production, and I monitored backend logs to ensure accuracy. Project 3: Migrating Cronjobs to Kubernetes The objective was to migrate cronjobs from a VM-based setup to Kubernetes for enhanced reliability and management. I developed Docker and Helm configurations, including a Dockerfile, values.yaml, and cronjob.yaml files. After migrating the cronjobs, I optimized them for performance, implemented failure handling and retry mechanisms, and conducted comprehensive testing to validate their functionality in the new environment.

Tool used (Development tools - H/w, S/w) : Ruby on Rails, MySQL, Postman, Nodejs, AngularJs, Git, Kubernetes, Docker

Objectives of the project : Project 1: Application Fulfillment UI Enhancement The primary objective of this project was to increase visibility of order-related attributes to Flipkart's internal teams, thereby reducing the need for escalations and improving decision-making and order processing efficiency Project 2: Logging Service for Client-Level Interactions Develop a logging service to log client-level interactions in the Oculus application to resolve discrepancies and improve accountability between the L1 team and the shipping team. Project 3: Migrating Cronjobs to Kubernetes Migrate cronjobs from a VM-based application to Kubernetes to enhance reliability, eliminate single points of failure, and simplify the management of scheduled tasks

Major Learning Outcomes : Major Learning Outcomes

Technical Skills:

API Integration: Enhanced my ability to integrate and work with APIs, specifically in fetching and displaying archived order data and detailed plan information.

UI Development: Improved proficiency in frontend technologies, including Node.js and AngularJS, to create and enhance user interface components.

Logging Services: Learned how to develop and implement logging services using Ruby and AngularJS to improve application accountability and troubleshooting.

Containerization and Orchestration: Acquired hands-on experience in using Docker and Kubernetes for migrating and managing cronjobs, including creating Dockerfiles, Helm charts, and cronjob configurations.

Testing and Validation: Developed skills in unit and integration testing, ensuring the robustness and reliability of new features and services.

Performance Optimization: Gained insights into optimizing cronjobs for better performance and reliability in a Kubernetes environment.

Soft Skills:

Teamwork: Collaborated effectively with cross-functional teams, including developers, testers, and operations staff, to deliver project outcomes.

Communication: Enhanced my ability to communicate technical details and project updates clearly and effectively to both technical and non-technical stakeholders.

Problem-Solving: Developed strong problem-solving skills by addressing and resolving various technical challenges, such as optimizing UI elements and ensuring accurate logging.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company :

The working environment at Flipkart was highly conducive to both professional and personal growth. The company culture was excellent, characterized by a supportive and collaborative atmosphere. My manager provided guidance and support, organizing biweekly one-on-one meetings to offer and receive feedback.

We followed an agile methodology, with structured sprints that included comprehensive planning, daily standups, and retrospectives. This ensured tasks were clearly defined and progress was continuously monitored, facilitating effective communication and collaboration within the team.

Team members were exceptionally helpful and approachable, readily assisting with any queries. Their support greatly enhanced my learning experience and allowed me to successfully complete my projects.

Expectations were clear and reasonable. Flipkart valued accountability, encouraging interns to take ownership of their tasks and projects. The emphasis was on delivering high-quality work while fostering continuous learning and improvement. Interns were expected to actively participate in team activities, contribute ideas, and embrace agile practices.

Overall, the supportive management, structured workflow, and collaborative team environment at Flipkart created an ideal setting for a productive and enriching interns

Academic courses relevant to the project : DSA, OOP, DBMS

PS-II Station : Flipkart (Software Development) , Bengaluru

Faculty

Name: Vineet Kumar Garg

Student

Name: RANIPA JASH RAMNIKLAL .(2020A7PS0119P)

Student Write-up

PS-II Project Title: Immerse and Intent Improvements

Short Summary of work done during PS-II : My work was mainly focused on enhancing the Immerse project and Intent Module Improvements. I worked on planning, design, implementation, and testing in various languages and frameworks like Java, Python, Dropwizard, and Apache Spark. Initial tasks involved Immerse, including fine-tuning recommendation algorithms and

updating prompts via APIs. Subsequent tasks aimed at improving CI intents for better product relevance. The internship provided practical experience, enhancing my skills in software development, project management, and collaborative problem-solving.

Tool used (Development tools - H/w, S/w) : IntelliJ, PyCharm, Postman, Airflow, Github.

Objectives of the project : The main objective of the projects was to enhance the Immerse Models and improving the quality of intents.

Major Learning Outcomes : Java, Python, Scala, Apache Spark, Docker, Kubernetes

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The work environment was really positive. The peers were very helpful. The HR department was also really helpful for on-boarding process and other things during internship.

Academic courses relevant to the project : OOPS, DSA, DBMS, OS

PS-II Station : Flipkart (Software Development) , Bengaluru

Faculty

Name: Vineet Kumar Garg

Student

Name: SARTHAK NAHTA(2020A7PS0958G)

Student Write-up

PS-II Project Title: FF-Promise Services

Short Summary of work done during PS-II : Migrating from Ruby to Java in the Fulfillment Orchestrator aims to leverage Java's robust performance and scalability to enhance system efficiency and maintainability. This transition involves rewriting the codebase to ensure seamless integration with existing APIs and systems. Geoservice, a critical component, provides essential geographical data and mapping functionalities, such as geocoding and route optimization, vital for applications requiring real-time location tracking and spatial analysis. During this migration, integration testing plays a crucial role in verifying that different modules and services interact correctly, ensuring smooth data flow and identifying interface defects early. Additionally, the system must support store pickup and B2B functionalities, where store pickup allows customers to collect online orders at physical locations, and B2B services cater to business transactions, facilitating bulk orders and customized business solutions. Together, these components aim to create a robust, efficient, and customer-centric fulfillment system.

Tool used (Development tools - H/w, S/w) : Migrating from Ruby to Java in the Fulfillment Orchestrator involves using several development tools to ensure a smooth transition. Software tools include IntelliJ IDEA for Java development, RubyMine for managing the existing Ruby code, and build tools like Maven or Gradle for Java and Rake for Ruby. Git, along with platforms like GitHub or GitLab, is used for version control and collaboration. Continuous Integration/Continuous Deployment (CI/CD) tools streamline the testing and deployment processes, ensuring a robust and efficient migration.

Objectives of the project : Fulfillment Services act after the customer has placed an order and then it is the responsibility of this system to ensure that the item is delivered to the customer as and when promised by the Promise System. Hence this being a very critical system. This is in sync with the idea to provide the customer with the best services possible with the cheapest options for us. Along with this it is the duty of the Fulfillment System to deal with flows related to cancellation at various levels of the order booking flow. Hence its interactions with Seller, Warehouse and Order management Systems to update them about the latest status of the item and taking the required information from them

Major Learning Outcomes : Java, API Writing, IntelliJ, Communication Skills, Software Development

Details of Papers/patents : No papers/patents

Brief Description of working environment, expectations from the company : The working environment during the migration from Ruby to Java in the Fulfillment Orchestrator is dynamic and collaborative, involving cross-functional teams of developers, testers, and project managers. The company expects a focus on maintaining high code quality and system reliability throughout the migration process. Developers are anticipated to actively engage in code reviews, integration testing, and troubleshooting to ensure seamless functionality. There is an emphasis on using modern development tools and best practices, fostering an agile workflow to adapt to any challenges swiftly. Clear communication and documentation are crucial, as is the ability to work efficiently both independently and as part of a team. The ultimate goal is to achieve a robust, scalable system that enhances performance and meets business needs.

Academic courses relevant to the project : DBMS, OOPs, SDPD

PS-II Station : Flipkart (Software Development) , Bengaluru

Faculty

Name: Vineet Kumar Garg

Student

Name: KONDUR SAI YESHWANTH VARMA(2020A7PS0971G)

Student Write-up

PS-II Project Title: Creating And Updating Few Services in Search Infrastructure

Short Summary of work done during PS-II : At flipkart , i got to work with three major tasks , during my internship. The first task was to Create REST API's for some search related services in grocery for data retrieval and manipulation based on certain keys. it involved usage of java frameworks like drop-wizard,hibernate and testing using postman. The 2nd task was to Make a graph of the Users Search data for different products. I was provided a json file that contained a huge list of products with their unique product id's and the goal was to construct a graph having all these tags as nodes and all nodes that belonged to a single product , needing to have an edge between them. it mostly involving knowledge of graph data structure and handling Json files in java. The 3rd task was vernac to iris migration , it was basically To reduce the Bootup time of one of the vital engines in Flipkart search, By Migrating vernacular languages support services from using databases for translation , to a newly written flipkart service that has ability to store translated data in a cache and update that cache frequently. This required a lot of understanding of the exsisting architecture of flipkarts search and thorough debugging through the entire engines codebase.

Tool used (Development tools - H/w, S/w) : Java , IntelliJ , DropWizard , Hibernate , Postman , oop Design patterns, Kubernetes , Python , Mysql , Maven dependency management

Objectives of the project : To reduce the Bootup time of one of the vital engines in Flipkart search, By Migrating vernacular languages support services from using databases for translation , to a newly written flipkart service that has ability to store translated data in a cache and update that cache frequently

Major Learning Outcomes : As a part of my six months internship at Flipkart , I have had the opportunity to learn a lot of exciting tools and technologies. i have learnt creating and hosting RESTful webServices using dropwizard , writing production standard code , kubernetes , communicating and co-ordinating with in a team, navigating through huge codeBases , oop design patterns etc..

Details of Papers/patents : Not a research oriented project (hence not applicable)

Brief Description of working environment, expectations from the company : The working environment of the company was excellent , Entire team was very supportive and patient during the initial phase of the internship , which encouraged me to learn things very quickly and start contributing in the assigned tasks. they were clear on the outcomes they were expecting for an intern. The team members and the company culture were very inclusive in nature. The whole workspace was supportive towards clarifying doubts. The mentor assigned was open for doubts all the time.

Academic courses relevant to the project : Object Oriented Programming , Data Structures and Algorithms , Database Management , Operating Systems.

PS-II Station : Flipkart (Software Development) , Bengaluru

Faculty

Name: Vineet Kumar Garg

Student

Name: DEV BANSAL(2020A7PS2051H)

Student Write-up

PS-II Project Title: Flipkart-in-a-box

Short Summary of work done during PS-II : During the internship, weekly tasks were assigned rather than a single project. Responsibilities included setting up services in the FCC environment, developing key features, writing automation scripts, managing databases. The work spanned across different charters such as Payments, Customer Experience, and Seller Platform, contributing to various aspects like service setup, feature development, and process automation

Tool used (Development tools - H/w, S/w) : Java, python, kubernetes, postman

Objectives of the project : The primary objective of the project "Flipkart-in-a-box" is to develop a comprehensive SaaS platform for Flipkart Commerce Cloud (FCC), aimed at providing a full marketplace solution to clients globally.

Major Learning Outcomes : During my internship at Flipkart, I gained substantial knowledge and skills in several key areas. I developed a strong understanding of Continuous Integration and Continuous Deployment (CI/CD) tools, particularly Flow, and honed my skills with Docker and Kubernetes for setting up services in production environments. My experience also included extensive work in database management, setting up MySQL databases, config buckets, Solr (a search platform similar to Elasticsearch), Redis, and Zookeeper. I learned the intricacies of service setup and configuration, from cloning repositories and configuring components to integrating various services within Flipkart's Commerce Cloud environment. Additionally, I contributed to charter-specific projects, setting up critical services for the Customer Experience and Payments charters, which enhanced my understanding of how different components work together to achieve seamless operations. This internship also provided me with valuable experience in project management and collaboration, as I worked closely with different teams to add functionalities and meet specific project requirements. Overall, the internship significantly bolstered my technical expertise and provided a comprehensive understanding of the operational and developmental aspects of a large-scale e-commerce platform.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Very chill and supportive environment

Academic courses relevant to the project : OOPS, DBMS

PS-II Station : Flipkart Internet Pvt Ltd - Business Analyst , Bengaluru

Faculty

Name: RAMESH VENKATRAMAN

Student

Name: PRAKHAR AGARWAL(2019B1A41092G)

Student Write-up

PS-II Project Title: Business Analyst

Short Summary of work done during PS-II : I worked on extracting data from the Flipkart Database Platforms for daily requirements. In addition I also made multiple dashboards that would give the live status of different metrics.

Tool used (Development tools - H/w, S/w) : Sql, python, adobe Omniture, MS Excel

Objectives of the project : Fetching the data as per requirements

Major Learning Outcomes : Sql, Python, MS Excel, Adobe Omniture

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Great experience

Academic courses relevant to the project : None

PS-II Station : Flipkart Internet Pvt Ltd - Business Analyst , Bengaluru

Faculty

Name: RAMESH VENKATRAMAN

Student

Name: MAITHILI BANGINWAR(2019B1A81007G)

Student Write-up

PS-II Project Title: Competitive Intelligence: Meesho and Amazon Charters

Short Summary of work done during PS-II : I optimised a pipeline to pull data related to Meesho and reduced the extraction lag from 6 to 2 days, and introduced more accurate logic. I also conceptualized a metric to be used as a proxy while dealing with data from Amazon.

Tool used (Development tools - H/w, S/w) : S/W: SQL, Python, Excel

Objectives of the project : 1. To optimise and reduce lag of a data pipeline used to target Meesho, Flipkart's competitor, 2. To conceptualize a proxy metric focused on Amazon

Major Learning Outcomes : Technical skills like SQL and Excel, Business knowledge

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Healthy working environment, relaxed timings and very less pressure in terms of deadlines (varies team to team)
Hybrid working mode is advantageous

Academic courses relevant to the project : -

PS-II Station : Flipkart Internet Pvt Ltd - Business Analyst , Bengaluru

Faculty

Name: RAMESH VENKATRAMAN

Student

Name: PRATYUSH PANDEY(2020A2PS2459H)

Student Write-up

PS-II Project Title: Ads Analytics - Analysis and Deepdive into trends

Short Summary of work done during PS-II : Utilize SQL, excel and python to analyse and extract relevant data to drive business decisions for the organization.

Tool used (Development tools - H/w, S/w) : SQL, Excel, PowerBI, Python

Objectives of the project : 1) Analyse and find out reasons for underperforming stores and business units 2) Forecast floor proces for sellers for optimal revenue generation 3) Analyse drop offs of sellers on the platform. 4) Find out gaps in ads relevance, leading to low customer interaction and revenue

Major Learning Outcomes : SQL

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Quick deliverables. Working hours and expectations vary from team to team. Team allocation is done by tests that takes place during a 15 day bootcamp. Workload is team dependent as well. My team expected fluency with sql quiet early on and had adhoc tasks to be completed everyday.

Academic courses relevant to the project : -

PS-II Station : Flipkart Internet Pvt Ltd - Business Analyst , Bengaluru

Faculty

Name: RAMESH VENKATRAMAN

Student

Name: SHIVANSH GUPTA .(2020A4PS1587P)

Student Write-up

PS-II Project Title: Creating and Implementing an RTO Driver Model

Short Summary of work done during PS-II : My main work was to create an RTO Driver Model and implement it on real time data. This RTO Driver Model will predict which are some of the important variables affecting RTO as focusing on those variables will reduce RTO to a significant level. By implementing the RTO Driver Model, it will be possible to reduce return processing times, minimize transportation costs and enhance the overall customer experience, thereby driving customer retention.

Tool used (Development tools - H/w, S/w) : SQL, Python, Advanced Excel, Machine Learning.

Objectives of the project : Predicting the metrics responsible for the cancellation(RTO) of products ordered through Flipkart, thus enhancing the customers' overall experience in future.

Major Learning Outcomes : Before joining Flipkart, I had no knowledge about coding. So it was very difficult for me in the starting to cope up with the pace. But the training given here was very helpful and the constant support given by my mentor helped me a lot to overcome the obstacles and I started gaining interest in this domain and contributed to the company's success to a very little extent.

Details of Papers/patents : No papers/patents were published.

Brief Description of working environment, expectations from the company : Flipkart has a well established infrastructure and provides a very good overall working environment. The people there are very helping and provide great support in every possible way. There is no discrimination between the seniors and the newly joined freshers. The company has a lot of expectations from their people but there is never a pressure. Along with the work, there are lot of ways to keep yourselves fresh like outdoor and indoor sports, etc.

Academic courses relevant to the project : SQL, Supply Chain Management and any coding language.

PS-II Station : Flipkart Internet Pvt Ltd - Business Analyst , Bengaluru

Faculty

Name: RAMESH VENKATRAMAN

Student

Name: PANCHAL BHARGAV RAJESHKUMAR .(2020A4PS1862P)

Student Write-up

PS-II Project Title: Business Analyst Intern - BGMH Department

Short Summary of work done during PS-II : My role generally involves writing and developing queries to extract data from Flipkart's data platform - FDP. Using this data is the primary step involved in any project. I usually work on multiple projects under the guidance of a mentor and other team members. Also, I assist the team in their daily business operations and tasks involving data extraction, cleaning, analysis, and presentation. The projects completed to date uses the following tools: SQL Query, MS Excel, Google Sheets, FDP, and Pivot Tables.

Tool used (Development tools - H/w, S/w) : SQL, FDP, Query, Excel

Objectives of the project : Utilised various tools and platforms to analyze data and provide insights to stakeholders.

Major Learning Outcomes : SQL, FDP, Query, Excel

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Good

Academic courses relevant to the project : Computer Programming, Database

**PS-II Station : Flipkart Internet Pvt Ltd - Business Development ,
Bengaluru**

Faculty

Name: RAMESH VENKATRAMAN

Student

Name: PUNYA TEWANI(2020A4PS1903G)

Student Write-up

PS-II Project Title: Facilitating growth of the category as AM-BD intern

Short Summary of work done during PS-II : My work was related to Planning and Monitoring. I used to plan targets for SDS and FBF projects in Flipkart as well as monitoring Ads through proper phasing. In addition, I used to do weekly RCA of brands to see how to improve their conversions.

Tool used (Development tools - H/w, S/w) : Sheets, Excel, SQL

Objectives of the project : Worked on projects related to improving Selections and Speed.

Major Learning Outcomes : Problem Solving Skills, Business Skills, Data Analysis, Ability to face challenges

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Working environment was really good. Company has horizontal structure where anyone can approach senior leadership.

Academic courses relevant to the project : -

PS-II Station : Flipkart Internet Pvt Ltd - Business Development , Bengaluru

Faculty

Name: RAMESH VENKATRAMAN

Student

Name: RACHIT HEGDE(2020A4PS1945G)

Student Write-up

PS-II Project Title: Data And Analytics/Brand Mgmt/Event Planning/Investment Strategy and Selection Charter for Women Clothing - Flipkart

Short Summary of work done during PS-II : On a broad level, the work involved managing the sellers (and everything related to them) for a category , handling large data sets and carrying out analysis for valuable insights, devising strategies and planning for various events on the platform.

Tool used (Development tools - H/w, S/w) : SQL, Microsoft Excel, Google Sheets and other internal tools of the company.

Objectives of the project : Grow Women Clothing Business at Flipkart.

Major Learning Outcomes : Learnt a lot about running a business as a whole. Got to carry out a variety of tasks which were aimed at growing the presence of women clothing at Flipkart in the e-commerce market.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Extremely good work environment. Everyone is friendly and willing to help. However, no one has the time to handle everything related to an intern, the student is expected to be highly proactive in trying to learn more about his/her tasks.

Academic courses relevant to the project : Manufacturing Management in BE Mechanical helped me as they teach Forecasting techniques in the course.

PS-II Station : Flipkart Internet Pvt Ltd - Corporate Strategy , Bengaluru

Faculty

Name: RAMESH VENKATRAMAN

Student

Name: KARODE PRAKHAR VISHAL(2020A1PS0822G)

Student Write-up

PS-II Project Title: Business Analyst

Short Summary of work done during PS-II : NA

Tool used (Development tools - H/w, S/w) : SQL

Objectives of the project : NA

Major Learning Outcomes : NA

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Good only

Academic courses relevant to the project : None

PS-II Station : Flipkart Internet Pvt Ltd - Corporate Strategy , Bengaluru

Faculty

Name: RAMESH VENKATRAMAN

Student

Name: MAUSMI SHARMA(2022H1540801P)

Student Write-up

PS-II Project Title: Corporate Strategy

Short Summary of work done during PS-II : Do competitors analysis, Work on closing market share for ecommerce industry, create POV on different business problems, perform secondary research

Tool used (Development tools - H/w, S/w) : Excel, Google Slides, MS suites, Similarweb, FDP etc

Objectives of the project : Work closely with strategy team to create POV on different business problems

Major Learning Outcomes : Strategic Management, competitors analysis

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The team is very supportive, any ideas are highly welcomed, got guidance and mentorship in each step

Academic courses relevant to the project : MBA all subjects especially Strategic Management

PS-II Station : Flipkart Internet Pvt Ltd - Data Engineering , Bengaluru

Faculty

Name: Vineet Kumar Garg

Student

Name: KHARE NEEL YASHODHAN(2019B4A70620G)

Student Write-up

PS-II Project Title: Improving efficacy of ingestion and storage management system

Short Summary of work done during PS-II : Hands on experience using big data tools

Tool used (Development tools - H/w, S/w) : Java spark , sql

Objectives of the project : Improve efficiency of data ingestion by increasing throughput of an ingestion service and jobs for storage management

Major Learning Outcomes : Adopting to changing requirements
Introduction to data engineering field

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : great working environment

Academic courses relevant to the project : NA

PS-II Station : Flipkart Internet Pvt Ltd - Data Engineering , Bengaluru

Faculty

Name: Vineet Kumar Garg

Student

Name: RAHUL MOONDRA .(2019B4A70718P)

Student Write-up

PS-II Project Title: Golden Dataset and Hourly Data Quality Check

Short Summary of work done during PS-II : For the project Golden Dataset I was supposed to create the input and output payloads. To create the output payloads I understood the business logic. So, code for testing the pipeline was already written by someone just creating the dataset part and testing the same on that code finishes the project. For Hourly Data Quality Check project I write the Python script which interacted with Apache Druid, SQL, BigQuery to fetch the metrics and compare them.

Tool used (Development tools - H/w, S/w) : BigQuery, Apache Druid, Azkaban, Git, Github, Python, IntelliJ, Java etc

Objectives of the project : For the project Golden Dataset the objective was to create the input and output payloads to test the existing click stream pipeline. For Hourly Data Quality Check project the objective was to write the Python script to fetch the data from two different pipelines i.e. real time and batch and compare the responses.

Major Learning Outcomes : Learned about Distributed Computing and related concepts

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Work environment is good. In my case, we were having the regular standup in the team where we have to tell what we did last day and what we are targeting for the day and any blocker we are facing.

Academic courses relevant to the project : Distributed Computing (but I never did that in college)

PS-II Station : Flipkart Internet Pvt Ltd - Data Engineering , Bengaluru

Faculty

Name: Vineet Kumar Garg

Student

Name: PANDE SHIVAM ABHAY(2020A7PS0124P)

Student Write-up

PS-II Project Title: BigQuery Autoscaler Optimization

Short Summary of work done during PS-II : BigQuery is a tool to run query and batch jobs consuming huge amounts of data, and the capacity to them is provided in the form of slots. The slots are billed for a minimum of 1 minute duration, but since most queries execute within seconds, they would not free up the slots till the minute ends resulting in ~60% wastage. Using a custom autoscaler to control the maximum number of slots being allotted, using metrics like previous utilization, query execution time and a time-series history of jobs, it reduced the wastage to ~10% which resulted in annual savings of around Rs. 3.36 crores to the organization. Apart from that, I also developed an automated test suite using Playwright that was integrated as a part of the CI pipeline for an internal application which was essential to ensure integrity before being pushed to production.

Tool used (Development tools - H/w, S/w) : Java, Javascript, Playwright, SQL, gcloud-tools, GCP, Kubernetes, Helm, Docker

Objectives of the project : Develop a custom autoscaler to solve Google's aggressive slot allocation, which resulted in ~55-60% wastage. Integration of this autoscaler into CI/CD pipelines for quality check and automated deploys. Create an automation test suite to provide an end to end integrity check before rolling new features out to production.

Major Learning Outcomes : Testing Strategies, CI pipelines, Ephemeral namespaces and containers, Cloud architecture.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment is quite lax. You can approach anyone from the organization and they'd be happy to help you. The organization is also very supportive of your interests and would be happy to shift you to a project/domain which you would prefer. As an intern, you'd be expected to deliver your tasks on time with the right procedures (no hacky workarounds).

Academic courses relevant to the project : NA

PS-II Station : Flipkart Internet Pvt Ltd - Product Management , Bengaluru

Faculty

Name: RAMESH VENKATRAMAN

Student

Name: NANDHINI R SHENOY(2019B3A70565G)

Student Write-up

PS-II Project Title: Seller Growth : APM internship

Short Summary of work done during PS-II : Build tools to help sellers analyse their performance and grow on Flipkart.

Tool used (Development tools - H/w, S/w) : Jira, mixpanel.

Objectives of the project : To help sellers grow their business on Flipkart.

Major Learning Outcomes : Project management, execution and product thinking. Cross functional collaboration.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Very collaborative, great work atmosphere and mentorship.

Academic courses relevant to the project : Economic environment of business, principles of economics and management.

PS-II Station : Flipkart Internet Pvt Ltd - Site Reliability Engineering , Bengaluru

Faculty

Name: Vineet Kumar Garg

Student

Name: ARJITA NEMA(2019B4AA0814H)

Student Write-up

PS-II Project Title: Central SRE - Image Bakery

Short Summary of work done during PS-II : During my internship at Flipkart, I contributed to two major projects: Image Bakery and Runtime Upgrade. Project 1: Image Bakery I worked on automating the pipeline for building Docker base images, supporting various base OS and runtime environments to streamline developers' workflows. I redesigned the project's architecture, focusing on reducing manual interventions and enhancing automation. Key enhancements included the development of RESTful APIs using Flask for dynamically fetching and generating Dockerfiles, incorporating Trivy for automated vulnerability scanning, and implementing Apache Airflow DAGs for workflow orchestration. Additionally, I developed a user-friendly React interface to facilitate easy selection and request of Docker images, improving user experience and

efficiency. Comprehensive unit test cases were created to ensure the accuracy and reliability of the Docker images generated. Project 2: Runtime Upgrade The objective was to automate the process of upgrading projects from older runtime versions to newer ones. I analyzed and executed the OpenRewrite Recipe for JDK migration across different Flipkart project repositories. I meticulously documented errors and fixes, creating a detailed analysis to aid in automating future upgrades.

Tool used (Development tools - H/w, S/w) : Docker, GCS, Apache Airflow

Objectives of the project : The project aims to automate the entire process of creating, testing, and deploying Docker images of different runtime and OS, ensuring security with thorough vulnerability scanning. Key features include a unified user interface for image requests, automated generation of Dockerfiles, unit testing, and integration with Trivy tool for vulnerability assessments. The development of a user-friendly UI enhances accessibility, allowing users to effortlessly select or request images.

Major Learning Outcomes : During my internship at Flipkart, I acquired a multitude of valuable skills and insights, pivotal to my growth as a developer. I honed my technical abilities, particularly in Docker, Flask, API, GCS, and Apache Airflow, through hands-on experience. I learned the intricacies of designing and implementing automated pipelines, enhancing my understanding of workflow automation and orchestration. The project also allowed me to delve into vulnerability scanning tools.

The internship significantly improved my problem-solving skills as I tackled various challenges, such as optimizing workflows, reducing manual interventions, and ensuring reliable Docker image builds. I developed a keen eye for detail through the creation of comprehensive unit test cases and meticulous documentation of errors and fixes during JDK migrations using OpenRewrite Recipe.

Moreover, my collaboration and communication skills were sharpened as I worked closely with different teams, understanding their needs and aligning the project objectives accordingly. I also gained exposure to industry-standard practices in CI/CD pipelines, artifact management, and API development, which are crucial for efficient software development and deployment.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The working environment at Flipkart was highly collaborative and supportive, fostering both personal and professional growth. The company culture emphasized teamwork and open communication, enabling me to work closely with various teams and gain insights from experienced professionals. During the onboarding process, Flipkart provided comprehensive technical and HR training. The technical training covered essential tools and technologies, ensuring that I was well-prepared to contribute effectively to my projects. The HR training sessions were equally valuable, offering insights into the company's structure, values, and expectations, which helped me integrate smoothly into the organizational culture.

Expectations from the company were clear and well-defined. The emphasis on delivering high-quality work within deadlines encouraged a disciplined and organized approach to tasks. Additionally, the company supported continuous learning and encouraged interns to explore new technologies and methodologies, promoting a culture of innovation.

Academic courses relevant to the project : Object Oriented Programming

PS-II Station : Flipkart Internet Pvt Ltd - Site Reliability Engineering , Bengaluru

Faculty

Name: Vineet Kumar Garg

Student

Name: DIVYAM KUMAR(2020AAPS2112H)

Student Write-up

PS-II Project Title: Cloud Orchestration Tool - Cloudyzy

Short Summary of work done during PS-II : During my internship at Flipkart, I focused on developing and implementing this automation solution. Initially, I gained hands-on experience with Google Cloud Platform, Docker, and Kubernetes. I conducted a proof of concept on Stackstorm, evaluating its suitability for our needs. After comparing multiple workflow engines, we chose Apache Airflow for its flexibility in customization. I developed a comprehensive Airflow workflow DAG for managing IAM permissions, integrating it with cloud services, Jira for approvals, and Google Chat for notifications. Post-midsem, I worked on creating a user-friendly UI, allowing users to interact with Airflow DAGs easily. I built an API gateway using Node.js and Express to ensure efficient communication between the UI and the database. Additionally, I integrated Flipkart's internal security tools to enhance authentication and authorization. A CI/CD pipeline was established, including rigorous test cases to ensure high code coverage and proper validation of DAGs. The project was then demoed to various teams, gathering valuable feedback for further improvements. Overall, this automation solution aims to transform manual cloud operations into a more efficient, reliable, and automated workflow.

Tool used (Development tools - H/w, S/w) : Airflow,Stackstorm,Google Cloud Platform,React,Express,Node,MySQL,Python,Javascript,JIRA,Github,

Objectives of the project : Aimed at automating repetitive cloud operations with minimum human intervention

Major Learning Outcomes : During my internship, I gained invaluable insights into the roles and responsibilities of a Site Reliability Engineer (SRE) and how they collaborate seamlessly with various teams. I delved into the process of conducting proof of concept (POC) for different tools, understanding their potential, and implementing automation workflows to enhance efficiency. Additionally, I mastered full-stack development into my project, thereby enriching my technical expertise and contributing to the overall success of the team.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : At Flipkart, I relished the enriching working environment where I was entrusted with full ownership of my assigned tasks. There was no undue pressure from managers, and ample time was provided to

immerse myself in understanding Flipkart's vibrant culture and exploring diverse avenues. The supportive nature of colleagues was truly commendable; they generously shared their knowledge, offered guidance whenever required, and were always ready to lend a helping hand. The flexibility in work timings further facilitated a productive and enjoyable work experience, allowing me to work at my optimal pace and convenience.

Academic courses relevant to the project : OOPs,DBMS,Cloud Computing,Software Engineering,Computer Networks

PS-II Station : Flipkart Internet Pvt Ltd - UI , Bengaluru

Faculty

Name: Vineet Kumar Garg

Student

Name: SIMRAN KAUR SODHI .(2018B4A70845P)

Student Write-up

PS-II Project Title: Shield Console Development

Short Summary of work done during PS-II : Following work was done in the implementation phase of the console, leading to its successful deployment in the production environment: Extensive discussions with the Shield Team refined specific product requirements and design aspects, ensuring clear scope alignment. Detailed API mapping exercises finalised integration points, crucial for seamless data exchange between website and backend systems. Meticulously crafted page layouts facilitated the completion of the first Limit view, featuring versatile custom components like FileActionModal and DetailDisplay for enhanced user interaction and flexible

limit management. These components streamlined operations and laid a robust foundation for future enhancements. Additionally, a comprehensive unit testing framework, enhanced from minimal coverage to 80%, underscored the team's commitment to quality assurance, ensuring code reliability and system integrity. This improvement reflects diligent efforts and contributes significantly to the project's overall success.

Tool used (Development tools - H/w, S/w) : ReactJS, ExpressJS, HTML/CSS, Maven, Postman, Kubernetes, Sonar, Docker, and Git.

Objectives of the project : 1. Develop a bespoke website tailored specifically for the Shield team's requirements. 2. Implement key functionalities such as imposing quantity limits on product orders, restricting cash on delivery for specific buyers or products, and facilitating dispute resolution. 3. Incorporate advanced functionality for implementing limits at five different levels: FSN, Vertical, Expiry Based, Grouped FSN, and Account Whitelist. 4. Enhance flexibility and granularity in setting limits to improve management capabilities and streamline operations. 5. Improve overall operational effectiveness by enhancing efficiency in handling various situations encountered by the Shield team.

Major Learning Outcomes : The major learning outcomes encompassed proficiency in a variety of technologies including ReactJS, ExpressJS, HTML/CSS, Maven, Postman, Kubernetes, Sonar, Docker, and Git. Additionally, essential project management skills were acquired, such as effective requirement gathering, API mapping, user interface design, functional implementation, testing framework establishment, and collaborative stakeholder communication. These experiences collectively enhanced technical skills and provided valuable insights into project management, problem-solving, and continuous learning.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The working environment was lively and fast-paced, with a healthy sense of competition. Employees were expected to deliver quality work efficiently. Despite the pace, collaboration and innovation were encouraged, fostering a supportive and inclusive atmosphere. The company valued excellence and initiative, providing opportunities for growth and meaningful contributions from all team members.

Academic courses relevant to the project : Computer Programming

PS-II Station : Flipkart Internet Pvt Ltd - UI , Bengaluru

Faculty

Name: Vineet Kumar Garg

Student

Name: SAKSHAM MAHAJAN(2019B4A70627P)

Student Write-up

PS-II Project Title: Integrated Retail Solutions: Streamlined Interfaces & Component Library

Short Summary of work done during PS-II : As part of the project team working on the Fulfillment UI (FF UI), we accomplished significant tasks related to the development and enhancement of the seller dashboard, retail hub, vendor hub, and MURV (an internal component library). For the seller dashboard, new features for inventory and sales management, optimized performance, and ensured responsiveness across devices were added. In the retail hub, addition of new filters and features to improve user experience and streamline operations was done, while in the vendor hub, updation of existing pages to enhance the user interface and functionality, providing better tools for vendors to manage products and orders was carried out. Additionally, worked on development and integration of MURV, an internal component library, to standardize and streamline the development process across these platforms. These upgrades collectively aimed to enhance functionality, usability, and efficiency across these apps, ultimately improving the fulfillment process for sellers, retailers, and vendors.

Tool used (Development tools - H/w, S/w) : HTML, CSS, Bootstrap, JavaScript, TypeScript, React, Redux, Context API Angular, Git,

Objectives of the project : Development and upgradation of seller dashboard, retail hub, vendor hub and MURV in order to make them more customer friendly and cost effective.

Major Learning Outcomes : Effective business ethics, effective time management and working coherently in a team.

Knowledge related to ReactJS and redux, handling errors and fixing them which enhanced the my coding skills as well.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The company's core values include audacity, bias for action, customer-first, integrity, and inclusion. These values guide the behavior and decisions of all team members, from leadership to entry-level positions. Employees are expected to be bold and innovative (audacity), take initiative and act decisively (bias for action), prioritize the needs and satisfaction of customers (customer-first), maintain honesty and strong moral principles (integrity), and contribute to a welcoming and diverse workplace (inclusion). Overall, the company seeks individuals who can thrive in a diverse and inclusive environment, contribute to a culture of boldness and proactive behavior, and uphold strong ethical standards while prioritizing customer needs.

Academic courses relevant to the project : Computer Programming, Object Oriented Programming, Database Management Systems

PS-II Station : Flipkart Internet Pvt Ltd - UI , Bengaluru

Faculty

Name: Vineet Kumar Garg

Student

Name: ANISH ATUL KULKARNI .(2020A7PS0975P)

Student Write-up

PS-II Project Title: Enhancing Grocery User Interface Experience

Short Summary of work done during PS-II : 1. Horizontal Product Merchandising Units (HPMUs) Revamp The Horizontal Product Merchandising Units (HPMUs) on the Grocery home page were revamped to be more compact, allowing the carousel to display more products. Enhancements included odometer-like and sliding animations, support for vernacular languages, and integration of the updated widgets across Android, iOS, and mobile sites. An A/B experiment flag was also created for a phased rollout. 2. Sponsored Tag Addition A sponsored tag was added to product cards within HPMUs to highlight sponsored products. This required collaborating with the backend team, implementing the feature with mock data and integration testing with backend API. 3. In-App Notifications Template To enhance notification visibility, a new template was developed that included a value proposition in the notification header and pricing information. This task involved backend interface modifications to incorporate a SpecialCallout object for rendering the value proposition text and Price Drops. 4. Grocery Bottom Bar Development The Grocery Bottom Bar was redesigned to improve navigation and user conversion rates to grocery marketplace. This project included developing a scalable Widget, integrating a D2R component for user offer progress tracking, and using Euclid instrumentation to monitor user behavior. 5. New Customer Cold Start Widget To improve the conversion rate of new users, a widget with a carousel of filters and existing Product Merchandising Widgets was created. This widget dynamically updates based on user interactions and tracks user behavior. 6. Bug Fixes and Minor Tasks Various issues were addressed, such as fixing the TargetedSamplingWidget, adjusting RBO Widget tags, adding offer titles on search and browse pages (desktop), and fixing an AB exposure imbalance.

Tool used (Development tools - H/w, S/w) : Typescript, React Native, Github, Jenkins, Jira, Confluence

Objectives of the project : Developing features, Widgets. Handling on-call issues. Interacting with stakeholders. Bug fixes

Major Learning Outcomes : My role was primarily as a developer for making required code changes for different platforms. It involved understanding the custom UI framework that Flipkart uses. I learnt about A/B experiments, Widgets, Action Handling and basics of architecture. I learnt how timelines are made for developing a feature and the various stages involved in it. Proper coding practices and OOP principles were followed according to the framework used. The internship is helped me get industry exposure and understand how to interact with various stakeholders and POCs. It has expanded my technical knowledge and the culture and values followed at the organization have helped me understand the importance of collaboratively finding solutions and interacting with people.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Great work environment, Helpful people, Good learning experience

Academic courses relevant to the project : Object Oriented Programming, Database Systems, Computer Networking

PS-II Station : Flipkart Internet Pvt Ltd - UI , Bengaluru

Faculty

Name: Vineet Kumar Garg

Student

Name: HARSH SHARMA(2020A7PS1383G)

Student Write-up

PS-II Project Title: Pricing: CI Match

Short Summary of work done during PS-II : During PS-II, I focused on structuring and automating the match process within the Pricing team's Competitive Intelligence framework. This involved developing tools and services to streamline data handling, improve accuracy, and enhance operational efficiency. Also I did work on MySQL database where I had to migrate data and remove redundant tables.

Tool used (Development tools - H/w, S/w) : Development Tools: Python, Multiprocessing, Logging Libraries, Database Management Tools(MYSQL)

Objectives of the project : Structure Match Process and Automation

Major Learning Outcomes : Enhanced understanding of backend development: Through practical application, I gained a deeper understanding of backend development concepts and techniques.

Automation proficiency: Developed skills in automating processes to improve operational efficiency.

Data management: Learned effective ways to manage and manipulate data for streamlined processes.

Problem-solving: Faced various challenges that honed my problem-solving abilities within a real-world context.

Details of Papers/patents : No papers or patents were directly associated with the project during PS-II.

Brief Description of working environment, expectations from the company : The working environment was dynamic and collaborative, with a strong emphasis on innovation and problem-solving. Expectations from the company revolved around delivering within specified timelines, actively contributing to team discussions, and continuously improving skills and knowledge.

Academic courses relevant to the project : Database Systems, Data Structure and Algorithms, Operating Systems , Artificial Intelligence

PS-II Station : Flobiz , Bengaluru

Faculty

Name: Vineet Kumar Garg

Student

Name: RONIT CHANDNANI(2019B2A11097G)

Student Write-up

PS-II Project Title: Product Management - Monetisation & Growth

Short Summary of work done during PS-II : Lead the e-Invoicing product roadmap which included execution of e-Invoice on mobile and e-Invoice validations. Worked with growth team for various projects on lead generation and lead qualification for Inside sales team.

Tool used (Development tools - H/w, S/w) : Amplitude, VWO, GA, Houseware, Metabase, Clevertap

Objectives of the project : Improving acquisition & building revenue driving features — enhancing our new user conversion and increasing overall revenue for myBillBook.

Major Learning Outcomes : PLM, Amplitude, User Research

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Complete ownership was given for all projects.

Academic courses relevant to the project : NA

PS-II Station : Force Structural Engineers Pvt. Ltd. , Mumbai

Faculty

Name: Mahesh K Hamirwasia

Student

Name: BISWAJEET NAIK(2022H1430016H)

Student Write-up

PS-II Project Title: Bridge Engineering, Design and analysis of bridge structures

Short Summary of work done during PS-II : First it started with section design. Then bridge superstructure and substructure design process learned and completed. Designed Skew deck and Box girder.

Tool used (Development tools - H/w, S/w) : Sofistik, Ms- Excel, Staad-Pro

Objectives of the project : To provide practical based knowledge about Bridge Engineering

Major Learning Outcomes : A full conceptual based learning about bridge engineering

Details of Papers/patents : IRC-6, IRC-112

Brief Description of working environment, expectations from the company : It was really encouraging and friendly environment.

Academic courses relevant to the project : Bridge Engineering, Design of Concrete Structures

PS-II Station : Fortanix , Bengaluru

Faculty

Name: Preethi N. G

Student

Name: AADITYA RAGHAVAN(2020A3PS1251G)

Student Write-up

PS-II Project Title: Confidential Computing Manager

Short Summary of work done during PS-II : I worked on the backend implementation of securing the feature of multi-party data collaboration, which involved enabling masking of table columns when one party shares its data with another party for analysis purposes, and the results

are stored in a remote storage location. I also worked on internal API migrations, replacing beta APIs with their non-beta equivalents and adding support wherever required.

Tool used (Development tools - H/w, S/w) : Rust, Git

Objectives of the project : Secure multi-party data collaboration

Major Learning Outcomes : Technical: Rust (Programming Language), Git

Non-technical: Collaborating with team members across multiple time zones, work-life balance

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Working hours are flexible, since most teams are spread across different time zones. Team meetings might occur early mornings (8am) or at night (9pm, in my case). The engineering teams are extremely professional and helpful, but responses from directors and senior engineers often get delayed due to other commitments. PR reviews take very long for the same reason. No restrictions on WFH; in-office meetings are extremely rare.

Academic courses relevant to the project : OOP, OS, DBMS, DSA

PS-II Station : Fortanix , Bengaluru

Faculty

Name: Preethi N. G

Student

Name: MRITUNJAY KUMAR(2020A3PS2138H)

Student Write-up

PS-II Project Title: Tag Integration , Vulnerability fixes , Task Management System

Short Summary of work done during PS-II : Debugged client website for errors , created test cases and carried out testing . Updated the pre-existing code for production .Removed various vulnerabilities from backend code , Made an entire full stack Task Management System

Tool used (Development tools - H/w, S/w) : Charles software , Browserstack ,github ,intelliJIDE

Objectives of the project : Place our tags in client websites for tracking user action , remove vulnerabilities from the backend repo , create task management system

Major Learning Outcomes : Javascript , Spring-boot framework , Java

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The work environment is not the best , very frequently the interns are expected to work beyond the office hours and the help is very limited

Academic courses relevant to the project : None

PS-II Station : Fortanix , Bengaluru

Faculty

Name: Preethi N. G

Student

Name: SHASHWAT TRIPATHI(2020A3PS2210H)

Student Write-up

PS-II Project Title: Accelerator development as part of Center of innovation team

Short Summary of work done during PS-II : We were tasked to develop a tool from scratch to automate the testing of the data ingestion pipeline. We primarily worked on Snowflake. We were assigned to create a tool from scratch to automate the testing of the data ingestion pipeline. Our primary focus was on Snowflake. We created three validations: one to check the data before the start of the ETL process and two more to validate the data after the process is completed. Our goal was to ensure that the loaded data was accurate and reliable for further analysis. We made sure that our data pipeline begins with verified files and maintains high data quality through rigorous validation, which ultimately leads to more reliable and accurate data analysis. We created three validations, one before the start of the ETL process and the rest after the process is done, to ensure the data that gets loaded is correct and can be further used for analysis. We ensured that our data pipeline begins with verified files and maintains high data quality through rigorous validation, leading to more reliable and accurate data analysis.

Tool used (Development tools - H/w, S/w) : Snowflake, SQL, Postgres, AWS ,Python, Postgres, Great Expectations

Objectives of the project : Build an automation tool for end-to-end testing of data ingestion pipelines across providers like Snowflake, and Databricks using Python, Pyspark and Pandas.

Major Learning Outcomes : We learn about ETL pipelines, working and how to ensure the quality of data throughout the transfer.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The environment in the company was chill, and we were given entire ownership of the tool with

minimum oversight. This meant we had to learn a lot of things on our own, and decisions regarding the tool were within our own purview. The office timings were flexible, and only the work mattered.

Academic courses relevant to the project : DBMS, OOPS

PS-II Station : Fortanix , Bengaluru

Faculty

Name: Preethi N. G

Student

Name: SAHIL BHORE(2020A7PS2065H)

Student Write-up

PS-II Project Title: Key Insights

Short Summary of work done during PS-II : Writing APIs, unit testing them , Implimenting CLI for APIs testing.

Tool used (Development tools - H/w, S/w) : S/w - Rust,AWS

Objectives of the project : Build a new platfrom for anazlyzing cloud accounts.

Major Learning Outcomes : Rust language, Writing maintainable and readable code,unit testing , how systems work

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Excellent work environment depends on team you can take WFH. No office timing as such.

Expectations from company :- Must deliver work assigned to you on time, slight delay accepted , well versed in Rust language (Backend) .

Academic courses relevant to the project : Cryptography,Computer Networks,Operating System

PS-II Station : Frontier Tower Associates Philippines Inc. , Singapore

Faculty

Name: Manoj Subhash Kakade

Student

Name: DEBAAYUS SWAIN(2019B2A30983P)

Student Write-up

PS-II Project Title: Opportunities in M&A

Short Summary of work done during PS-II : The work was mostly day-to-day tasks involving financial modelling, creating decks, analysing data and project management which contributed to a larger deal or strategy project

Tool used (Development tools - H/w, S/w) : Excel, powerpoint

Objectives of the project : To contribute to deal deliverables and long term strategy projects

Major Learning Outcomes : Strategy, corporate finance, project management

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment was extremely conducive to learning. The company expected us to put in the effort to learn new things and develop structured thinking towards every problem statement.

Academic courses relevant to the project : BAV, FUFA, FINMAN

PS-II Station : Frontier Tower Associates Philippines Inc. , Singapore

Faculty

Name: Manoj Subhash Kakade

Student

Name: AVINASH SINGH(2020B3PS1268P)

Student Write-up

PS-II Project Title: M&A Opportunity in APAC

Short Summary of work done during PS-II : The project was an immersive dive into the realms of strategy and corporate finance, offering a profound exploration of company operations and the intricate logistics of deal management. Through rigorous research and analysis, I gained invaluable insights into strategic decision-making, corporate finance dynamics, and the

complexities of mergers and acquisitions. This experience not only broadened my understanding but also honed my skills in navigating the strategic landscapes of modern infra businesses.

Tool used (Development tools - H/w, S/w) : Microsoft Excel and PowerPoint

Objectives of the project : Acquire TMT assets in country of Interest

Major Learning Outcomes : Financial Modelling, Corporate Finance, Strategic Thinking, Stakeholder management

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Highly supportive and competent team comprising of Ex-BITSians, Flexible working environments and ample learning opportunities.

Academic courses relevant to the project : Fundamentals of Finance and Accounting, Business Analysis and Valuation, Financial Management

PS-II Station : GE , Bengaluru

Faculty

Name: Paramesw Chidamparam

Student

Name: AFIFAH ZAYNAB(2022H1060090G)

Student Write-up

PS-II Project Title: Effect of hydrogen as fuel on gas turbines

Short Summary of work done during PS-II : The performance of the GTs using hydrogen as a fuel is influenced by several factors, including the performance of the components, the operating condition, ambient condition, etc. Hence it is important to obtain a comprehensive understanding of all these factors. This understanding is obtained through analysing the hardware and operability conditions observed during different inspections of GE GT units running on hydrogen blends.

Tool used (Development tools - H/w, S/w) : Inhouse databases of GE

Objectives of the project : To study field experience and impact on hardware life from units operating on H₂ and understand how different it is from NG operation.

Major Learning Outcomes : Hardware knowledge on combustor and hot gas path components, combustor operability, failure modes in gas turbine components, different combustion technologies

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The mentors in the organization were friendly and took efforts to help me out in understanding new concepts and clearing queries

Academic courses relevant to the project : Thermodynamics, Heat Transfer, Material Science

PS-II Station : GE , Bengaluru

Faculty

Name: Paramesw Chidamparam

Student

Name: SHUBHIKSHA SUNDARARAMAN(2022H1060155H)

Student Write-up

PS-II Project Title: Stress analysis of tie bolt for baseline and optimum case

Short Summary of work done during PS-II : It was mainly optimising the vaseline compressor tie bolt so that it's load capacity can be increased, and validating the results.

Tool used (Development tools - H/w, S/w) : NX Cad ,Ansys Workbench

Objectives of the project : Part of CAPA

Major Learning Outcomes : RCA and CAPA

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment was really good and all my mentors and seniors were easily approachable.

Academic courses relevant to the project : Design, Strength of material

PS-II Station : GE , Bengaluru

Faculty

Name: Paramesw Chidamparam

Student

Name: SHUBHAM WAHAL(2022H1060212P)

Student Write-up

PS-II Project Title: Design of alternate fuel dryer for application in cement industry

Short Summary of work done during PS-II : During my internship at NCCBM, I participated in a project focused on designing a sustainable alternative fuel dryer system for industrial applications, specifically targeting the cement industry. I investigated the use of low-temperature drying technology (e.g., low-temperature belt dryer) for processing alternative fuels like refuse-derived fuel (RDF). • I performed a literature review and wrote a journal article justifying the use of belt dryers over other types of drying technologies. • I gained expertise in heat and mass transfer analysis to optimize the drying process for efficient moisture removal. • I employed 3D modeling and airflow simulation tools to design the dryer geometry and optimize airflow patterns to ensure uniform drying of material. • I delved into the material properties of alternative fuels to understand their drying characteristics. This internship experience provided me with valuable technical skills in drying technology, project management abilities, and a strong foundation in sustainable practices relevant to the cement industry. Along with the above project, I also was part of a preliminary stage in another project titled, "Integrated capture and conversion of CO₂ to CH₄ using a water-lean, post-combustion CO₂ capture solvent". For this project, I developed a research proposal and other required documents to present to my seniors at NCCBM

Tool used (Development tools - H/w, S/w) : Solidworks, Catia, Ansys fluent, MS Excel, MS word

Objectives of the project : This project tackles the issues of sustainability faced by today's cement industry by exploring the use of Alternative Fuels (AFs) as a fuel source in cement kilns. This project investigates the design and performance of a vertical, low-speed belt dryer as a potential solution for efficient drying of AFs in the cement industry.

Major Learning Outcomes : 1. In-depth understanding of drying technologies
2. Developed proficiency in heat and mass transfer analysis
3. Gained experience in 3D modeling and airflow simulations

Details of Papers/patents : Written a review paper for journal. Yet to be sent for publishing.

Brief Description of working environment, expectations from the company : The working environment at NCCBM during my internship was technically enriching, collaborative and moderately paced. As the project involved engineering design and analysis, expect to work alongside engineers and researchers with expertise in mechanical engineering with a specialisation in heat & mass transfer analysis. The project involved working with a team of researchers and engineers. Effective communication and collaboration will be crucial. Here is what all one can expect from NCCBM during internship:

- Enhancement of technical skills
- Improvement in problem solving abilities
- Implementation of text-book knowledge and theoretical concepts into real world and practical engineering problems

Academic courses relevant to the project : Thermodynamics, Heat transfer, CAD, CFD

PS-II Station : GE , Bengaluru

Faculty

Name: Paramesw Chidamparam

Student

Name: VAIDYA SAATHWIK(2022H1410151P)

Student Write-up

PS-II Project Title: Experiment development in EV lab

Short Summary of work done during PS-II : Through this practice school project, I gained valuable hands-on experience in interfacing Texas Instruments hardware products like permanent magnet synchronous motors, LaunchPads, and BoosterPacks with MATLAB and Simulink software. By performing experiments focused on blinking an LED, estimating motor parameters using field-oriented control, controlling a dual motor dynamometer setup, and working with the hybrid vehicle trainer system, I developed a deeper understanding of the integration between TI's cutting-edge solutions and industry-standard modeling tools.

Tool used (Development tools - H/w, S/w) : MATLAB & simulink, TI hardware such as LaunchPads, Boosterpacks and PMSM

Objectives of the project : The central focus of my project revolves designing the experiments in the lab for the WILP students in hybrid and electric vehicles, encompassing the execution of experiments utilizing Texas Instruments (TI) hardware components like Permanent Magnet Synchronous Motors (PMSM), LaunchPads, and BoosterPacks. Subsequently, the project involves interfacing these hardware elements with MATLAB & Simulink software to conduct the experiments effectively. On successful completion of the experiment, a detailed step-by-step PPT is made showcasing the steps to perform the experiment.

Major Learning Outcomes : It was a great learning experience to explore the emerging field of H&EV and get the hands-on experience in the control system algorithms by interfacing the hardware with the software.

Details of Papers/patents : All the required documents and presentations are made and are submitted to concerned instructor and the faculty.

Brief Description of working environment, expectations from the company : It was a great experience to work in such a healthy environment and the remote access labs are just too good.

Academic courses relevant to the project : Electrical Engineering, Mechanical Engineering

PS-II Station : Genpact , Bengaluru

Faculty

Name: Arindam Roy

Student

Name: ANKIT ASHOK(2019B4A40452H)

Student Write-up

PS-II Project Title: Media Mix Modelling (MMM)

Short Summary of work done during PS-II : Primarily worked on developing analytical tools for a prominent media client. Optimized and automated existing data science pipelines and tasks that saved time and effort for various teams. Worked directly with a client on a migration project that would set up a new modelling pipeline for a part of their business that hadn't been optimized for costs.

Tool used (Development tools - H/w, S/w) : Python, R, Excel

Objectives of the project : Data Science and Engineering related tasks for various projects of the MMM team.

Major Learning Outcomes : Efficient data science practices in a large corporate setup

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Relaxed work culture with flexible deadlines. Team members and mentors are respectful and supportive.

Academic courses relevant to the project : Computer Programming, DSA, ML, Applied Statistical Methods, Linear Algebra

PS-II Station : GeoIQ (Quantduo Technologies Pvt. Ltd. , Bengaluru

Faculty

Name: Febin A Vahab

Student

Name: AMIREDDY VINAY KUMAR REDDY(2020AAPS1405G)

Student Write-up

PS-II Project Title: Retail IQ

Short Summary of work done during PS-II : I worked on multiple projects during my PS-II. One of my projects was adding features and optimizing RetailIQ - An all-encompassing retail solution that covers everything from site selection to defining the merch-mix of each store. I worked on multiple pages of the site. The later part of the internship mainly focused on Application development using React-Native, where I worked on building two apps, Market Connect and proplQ, which help clients find properties in the retail expansion areas, which we suggest through our RetailIQ. Overall, in the internship, I have worked on both Web Development and App Development with a steep learning curve.

Tool used (Development tools - H/w, S/w) : ReactJS, NextJS, TailwindCSS, Styled Components, React Native, Expo, Git, Javascript,

Objectives of the project : Adding features and optimizing already existing website and building two new products/apps for customers/clients

Major Learning Outcomes : Learnt in detail how to structure code in ReactJS ,NextJS and React Native, Learnt

how to use TypeScript and TailwindCss, learnt how to build a website from a design using styled components, learnt how deployment of websites and pipelines work on Amazon AWS.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : It is a very calm and friendly place to work at. The office has no hierarchy, so all the employees are easily approachable. Everyone is always ready to help and teach us when in doubt. My mentors are easy to talk to and approach, and they are always welcoming for conversations, whether work-related or not. The daily catchup system is also very effective in terms of productivity, as you always have some tasks to present to the entire team at the end of the day. They are also very understanding about leaves and work-from-home requests. As it is a startup, they do not have a fixed work time, so it is quite flexible during any emergencies, delays, etc.

Academic courses relevant to the project : none

PS-II Station : Glocol Networks (IOT and AI) , California

Faculty

Name: -

Student

Name: JAGRIT PAREEK .(2019B2A11024P)

Student Write-up

PS-II Project Title: Future of Crowd Analytics with PeopleSense

Short Summary of work done during PS-II : Handling Crowd Analytics by developing Dashboards and Monitors, utilizing APIs and IoT devices for seamless dataflow.

Tool used (Development tools - H/w, S/w) : S/w :- AWS Services, MERN Stack, Wordpress, Next.JS, Clerk auth, etc.

Objectives of the project : Handling Crowd Analytics by developing Dashboards and Monitors, utilizing APIs and IoT devices for seamless dataflow.

Major Learning Outcomes : Use ChatGPT wherever possible

Details of Papers/patents : .

Brief Description of working environment, expectations from the company : remote work was decent in terms that I was not bound to go anywhere and could work comfortably with my family supporting me all the time. At the same time the lack of corporate environment also took a toll on the mindset since most of the times problems need to be tackled alone any you can not talk about your work with any one. Expectations were high from the company since it's a startup based in US, but alas!!!

Academic courses relevant to the project : None.

PS-II Station : Goldman Sachs - IT (Project 1) , Bengaluru

Faculty

Name: Harish Kumar Aggarwal

Student

Name: GHANEKAR SANIKA NACHIKET(2020AAPS2111H)

Student Write-up

PS-II Project Title: Maintenance & Feature Enhancement of Application To Manage Data Entitlements

Short Summary of work done during PS-II : The application under consideration managed user data entitlements, ensuring data is only accessible to authorized individuals. The project aims to optimize, update, and maintain the application based on user feedback, fix bugs, and enhance performance. Key tasks included: Bug Fixes on Application UI: Utilizing React and Redux, fixed issues such as placeholder resets and inconsistent UI states, and validated fixes using the React Testing Library. Request Filter and Custom Annotation in Java: Replaced a deprecated package by implementing a ContainerRequestFilter and a custom annotation using Java and Dropwizard. Wrapper for Redirecting API Calls: Transitioned from cookie-based to token-based authentication by redirecting API calls through the server, using RESTful endpoints. Demise of Cookie-Based Authentication: Migrated to token-based authentication, registering a security filter and integrating with PingFederate for OAuth protocol. Tools and methodologies employed included React, Redux, Java, Dropwizard, and PingFederate. Comprehensive testing, code reviews, and documentation were integral throughout the process. Key learnings involved mastering JavaScript, React, and Java, understanding authentication mechanisms, and enhancing coding and documentation skills. Future work includes phasing out cookie-based authentication entirely as dependencies fully transition to token-based methods.

Tool used (Development tools - H/w, S/w) : IDE, Git, Gradle, Maven

Objectives of the project : To enhance the application with addition of features; to handle RTB task for the application; to come up with solutions to any bugs in the application.

Major Learning Outcomes : Technical Skill Enhancement, Communication Skills, Soft Skills.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Collaborative working environment, with a flat hierarchy. Easily approachable associates, always willing to help. Expectations from interns include, willingness to work in a team, strong technical skills, ability to adapt to changing requirements.

Academic courses relevant to the project : Data Structures and Algorithm, OOP, OS.

PS-II Station : Goldman Sachs - IT (Project 2) , Bengaluru

Faculty

Name: Harish Kumar Aggarwal

Student

Name: AVIRAL JAIN .(2019B3A70317P)

Student Write-up

PS-II Project Title: Quant Strategist (Private Wealth Management Team)

Short Summary of work done during PS-II : Analyzed ETFs with high liquidation charges and improved the accuracy of estimating risk exposure for clients holding these ETFs. Enhanced risk calculations for accounts holding Dual Currency Notes (DCNs) by building a quantitative model for DCNs. Additionally, Facilitated better risk monitoring for clients trading near-expiry options and enhanced the functionalities of the internal Risk Dashboard. This included making troubleshooting easier, improving data integrity, and developing data visualization and summarization techniques to effectively convey key findings in dashboards and presentations to senior management.

Tool used (Development tools - H/w, S/w) : GS proprietary tools, Excel, PowerPoint, Java

Objectives of the project : Building quantitative model , Improving risk assessment techniques, enhancing features of dashboard and developing visualisation tools for displaying derivatives modal description and payoff diagrams

Major Learning Outcomes : I learned about different financial securities, derivatives, risk management models, how to analyze financial data and build dashboards. I also learned how to work with senior management and business teams, and improved my communication skills with team members.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment here is highly conducive to productivity and professional growth. The workload varies depending on the team and the volume of tasks assigned to them. My team expects a person with good quantitative and analytical skills, with a background in finance. Additionally, expects person to demonstrate a proactive attitude, effective communication skills, continuous learning, adaptability and the ability to work in team work.

Academic courses relevant to the project : Econometrics Methods, Fundamentals of Finance & Accounting, Derivatives & Risk Management, Database Systems, Data Structure & Algorithms

PS-II Station : Goldman Sachs - IT (Project 2) , Bengaluru

Faculty

Name: Harish Kumar Aggarwal

Student

Name: POGULA REETHIKA(2019B3A70571H)

Student Write-up

PS-II Project Title: Data Reconciliation during on-going Data Migration

Short Summary of work done during PS-II : Creating Data Reconciliation jobs for around 100-110 tables, that run daily, on an internal GS tool. Monitoring these jobs and reporting to the team in case of any data mismatches or gaps. Documenting the results of the recon jobs and fixing the errors, to showcase a successful data migration, which will lead to termination of the old database and shifting to the new one.

Tool used (Development tools - H/w, S/w) : Internal GS Data Quality tool, Dbeaver for querying data.

Objectives of the project : To validate data between source and target to ensure successful data migration.

Major Learning Outcomes : Data Engineering, SQL, Dbeaver, Checking Data Quality.

Details of Papers/patents : None.

Brief Description of working environment, expectations from the company : The working environment was very positive, friendly and helpful. The interaction with managers much higher

up is also quite common. Managers and buddies are very helpful and will answer any questions you have, small or big. You can do the work assigned to you in your own pace, the expectations from interns is quite low most of the cases, so you can truly be curious and learn a lot without having much pressure of deadlines.

Academic courses relevant to the project : Database Management Systems

PS-II Station : Goldman Sachs - IT (Project 2) , Bengaluru

Faculty

Name: Harish Kumar Aggarwal

Student

Name: VAISHNAVI SHRIVASTAVA(2019B3A70592H)

Student Write-up

PS-II Project Title: React Concepts Learnt And Design Decisions During Internship

Short Summary of work done during PS-II : During my internship at Goldman Sachs' Bengaluru office, I worked as a software developer. My main project was developing a React-based application using the Nx library. I was responsible for understanding user expectations through Figma designs, creating UI screens in React, and incorporating feedback from the design team and users. Later, I worked on the Java-based backend. I implemented best practices in React with TypeScript, used Redux for persistent storage, researched firm-specific best practices, and documented design decisions. I used Figma's Developer mode to ensure UI screens matched design specifications. I designed unit tests with Jest, set up Nx library for Cypress end-to-end testing, and learned Selenium and Cucumber for user testing during an internal hackathon. In

Java Springboot, I developed API endpoints and explored Spring Data JPA Query. Additionally, I gained knowledge of Kubernetes for Gitlab project configurations and learned to debug CI/CD pipelines. This comprehensive experience allowed me to integrate front-end and back-end development with effective testing and deployment practices.

Tool used (Development tools - H/w, S/w) : S/w Software: IntelliJ, React, Typescript, Cypress, Springboot, Java, API

Objectives of the project : Build a React based web app with appropriate Unit testing

Major Learning Outcomes : React frontend development, unit testing, API building using Springboot Java

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : For my team - Working environment was flexible and goal and task driven. Every employee is assigned tasks for a given sprint (3-4 weeks duration) and is expected to finish those tasks during that time. how and when to finish the task is left upto individual discretion.

Academic courses relevant to the project : Object oriented Programming (OOP) and Database Management System (DBMS)

PS-II Station : Goldman Sachs - IT (Project 2) , Bengaluru

Faculty

Name: Harish Kumar Aggarwal

Student

Name: YAGYA DHYANI(2020A3PS2131H)

Student Write-up

PS-II Project Title: Varied Tasks

Short Summary of work done during PS-II : Confidential

Tool used (Development tools - H/w, S/w) : Tableau, Python, SQL

Objectives of the project : To support audits with data analytics solutions

Major Learning Outcomes : SQL, Python, Tableau

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Good

Academic courses relevant to the project : Database Systems

PS-II Station : Goldman Sachs - IT (Project 2) , Bengaluru

Faculty

Name: Harish Kumar Aggarwal

Student

Name: PARTH NILESH THAKKAR .(2020A7PS0088P)

Student Write-up

PS-II Project Title: Liability Optimizer

Short Summary of work done during PS-II : During my internship at Goldman Sachs, I worked on enhancing the Liability Optimization Tool (LO) used by the Corporate Treasury division. The tool generates optimal funding plans to meet the firm's asset-side requirements while minimizing interest costs. My responsibilities included adding new constraints by converting non-linear constraints into linear approximations and using Tableau for data visualization. I collaborated with tech team to refine the optimization model and ensure robust data handling. This work supported the firm's liquidity management, regulatory compliance, and strategic financial planning, ultimately enhancing decision-making and resource allocation.

Tool used (Development tools - H/w, S/w) : Python, Gitlab, Tableau, Pycharm

Objectives of the project : Enhance a liability optimizer that minimizes interest costs

Major Learning Outcomes : Financial Optimization Skills

Data Management Proficiency

Technical Tool Mastery

Problem-Solving Abilities

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : It was a relaxed work culture, with not too hard deadlines but there was enough workload to keep me occupied for most of my time. We were expected to stay a bit late since I worked with the the US team, but we were allowed to come in late as well. The people were very supportive of new people and made me feel welcome

Academic courses relevant to the project : DSA, Computer Programming, Financial Engineering, SAPM, DRM

PS-II Station : Goodera - Engineering , Bengaluru

Faculty

Name: Ashish Narang

Student

Name: AARTHI SHREE SENTHIL KUMAR(2020A3PS0479H)

Student Write-up

PS-II Project Title: ARCHITECTURAL SHIFT OF GOODERA's VOLUNTEER MANAGEMENT SYSTEM TO MONOLITHIC FRAMEWORK

Short Summary of work done during PS-II : Goodera's web application architecture from a microservice Node.js based to a monolithic Nest.js based architecture for the implementation of one tightly coupled service network for the backend, powered by a React.js and CSS Tailwind frontend. It focuses on Entity development using Typescript, Postgres and Typeorm. Factory, Adapter, Strategy Design patterns have been used to create interfaces to link technologies like Meeting Providers, Booking Providers, Cloud Storage options. The projects aims at improving the operational efficiency overall and customer experience.

Tool used (Development tools - H/w, S/w) : Javascript, React JS, Node JS, NestJs, Postgres, Express JS, CSS, Tailwind, AWS, Postman

Objectives of the project : - Shift from microservice to monolithic architecture

Major Learning Outcomes : Building modules as per business logic, intergrating various develop API's, implementing designs and interfaces in our code.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The team consists of eight members - frontend, backend and testing. There is a standup daily, where the team's progress is discussed.

Academic courses relevant to the project : IS F341 SOFTWARE ENGINEERING

PS-II Station : Goodera - Engineering , Bengaluru

Faculty

Name: Ashish Narang

Student

Name: AGARWAL NIDHI NARESH(2020A4PS2009H)

Student Write-up

PS-II Project Title: REVAMPING THE WEBSITE AND IMPLEMENTING NEW FEATURES USING SERVICE BASED ARCHITECTURE AT GOODERA

Short Summary of work done during PS-II : The work involved a comprehensive approach to developing backend APIs, designing business-critical entities, implementing authentication guards, and conducting a proof of concept (POC) for Google APIs and ICS files integration. The

backend API development started with thorough requirements analysis, followed by the design and implementation of endpoints using Node.js and Express, and rigorous testing using Postman and unit tests. For designing business entities, detailed discussions with stakeholders led to the creation of entity-relationship diagrams (ERDs) using tools like Miro, and subsequent integration into the software with defined constraints and characteristics. The implementation of authentication guards involved analyzing security needs, using Passport.js and Express Session for token validation, and extensive testing to ensure secure access control. The POC for integrating Google APIs and ICS files aimed to automate calendar invites, involving research on API capabilities, setting up a prototype to import calendar invites, and iterative testing to refine the integration. Additionally, methodologies like Scrum were employed to ensure agile development, regular feedback, and continuous improvement, supported by extensive testing and validation to ensure deliverable reliability. Technologies such as SendGrid, Amazon SNS, AWS Lambda, and Redis were utilized across various aspects to enhance scalability, performance, and maintainability.

Tool used (Development tools - H/w, S/w) : 1)NestJS 2)PostgreSQL 3)React

Objectives of the project : 1) Redesigning the existing website for Goodera. 2) Implementing new features for the same

Major Learning Outcomes : 1) NestJS 2) AWS SDK 3)Design Patterns 4)Authentication Principles

Details of Papers/patents : none

Brief Description of working environment, expectations from the company : The working environment was both pleasant and motivating, fostering a strong learning atmosphere. Knowledge transfers were provided whenever needed, ensuring that everyone had the necessary information to perform their tasks effectively. Ample space was given to explore problem statements and develop creative solutions, encouraging innovation and personal growth. The team was consistently understanding and helpful, contributing to a supportive and collaborative workplace.

Academic courses relevant to the project : 1) System Design 2) OOP 3) DSA 4)DBMS
5)Software Engineering

PS-II Station : Goodera Growth Strategy, Customer Experience (Business Analyst) , Bengaluru

Faculty

Name: Sandeep Kayastha

Student

Name: ADITYA AMIYA PANDA(2019B1A10910G)

Student Write-up

PS-II Project Title: Business Analyst - Partnerships Team

Short Summary of work done during PS-II : Learnt about Go-to-marker strategies, how markets function with respect to the volunteering world. Developed the Volunteer Scorecard.

Tool used (Development tools - H/w, S/w) : HubSpot, Apollo, Outreach, LinkedIn Sales Nav

Objectives of the project : Go-to-marker strategies

Major Learning Outcomes : Go-to-marker strategies

Details of Papers/patents : none

Brief Description of working environment, expectations from the company : Workhours are not fixed, else the company's environment is flexivle

Academic courses relevant to the project : None

PS-II Station : Goodera Growth Strategy, Customer Experience (Business Analyst) , Bengaluru

Faculty

Name: Sandeep Kayastha

Student

Name: PRIYANSHU NOUGRAHIYA(2019B1A31073G)

Student Write-up

PS-II Project Title: Assisting clients to fulfill their Corporate Social Responsibility Goals through the development of Volunteering Initiatives

Short Summary of work done during PS-II : I have extensive experience in volunteering with an organization dedicated to coordinating activities for corporate volunteers, facilitating the assembly and delivery of essential supplies to beneficiaries. My role involved managing various projects, with a focus on two major initiatives. I contributed significantly by designing coding exercises and overseeing the implementation of hands-on activities such as electric circuit projects. Additionally, I actively participated in brainstorming sessions for hackathons and innovative projects, including initiatives like Solar Fans. Among other notable contributions, I played a key role in projects such as Mental Health Coping Kits, AI for Good, and GoodyOS, demonstrating a versatile skill set and commitment to impactful volunteer work.

Tool used (Development tools - H/w, S/w) : Excel, Powerpoint, Canva

Objectives of the project : The objective of the project is to enable clients to achieve their Corporate Social Responsibility (CSR) goals by developing effective volunteering initiatives. This involves creating and implementing structured programs that facilitate employee engagement in community service activities. By focusing on CSR through volunteering, the project aims to align corporate values with social impact, fostering a positive corporate image and community relationships. Summary of the work done by the student and his/her learning from the project

Major Learning Outcomes : Activity development, Supply chain, Business development

Details of Papers/patents : no

Brief Description of working environment, expectations from the company : The work primarily falls under the categories of Research, Design, and Improvement in productivity and efficiency of products and services. It involves conducting research into various projects such as AI for Good and Mental Health Coping Kits, indicating a focus on developing innovative solutions to social challenges. Design activities include creating coding exercises, designing electric circuit activities, and brainstorming hackathons, highlighting efforts to innovate and create new products or programs. Additionally, the emphasis on improving productivity and efficiency through initiatives like Solar Fans and GoodyOS underscores a commitment to enhancing the effectiveness and impact of delivered services. These efforts collectively demonstrate a comprehensive approach to integrating research, design, and continuous improvement to deliver meaningful outcomes and foster sustainable community impact.

Academic courses relevant to the project : No

PS-II Station : Goodera Growth Strategy, Customer Experience (Business Analyst) , Bengaluru

Faculty

Name: Sandeep Kayastha

Student

Name: SHIMOLY SHRIVASTAVA(2019B1A31558H)

Student Write-up

PS-II Project Title: Ideating and developing new volunteering opportunities to help corporates reach their CSR goals

Short Summary of work done during PS-II : Worked on various goodera campaigns like mental health awareness month, pride month, etc. and developed volunteering initiatives for them to help corporate firms meet their CSR goals.

Tool used (Development tools - H/w, S/w) : Majorly used Google sheets and Google docs. Company's online software was used for tracking.

Objectives of the project : The main object is to enhance volunteering opportunities and create an 11/10 volunteering experience while partnering up with NPOs and create a positive impact on the society.

Major Learning Outcomes : Learnt about the huge spectrum of corporate social volunteering and how a company reaches its CSR goals. Also got a deep understanding of how these volunteering events are ideated, developed and pitched to these corporate firms.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : There is good work life balance and flexibility of working from home. The people are goal oriented and helpful. However, there is not a lot of scope for improving your skills. The work did not require any special expertise and can be stagnant and repetitive, not adding a lot to the resume.

Academic courses relevant to the project : None

PS-II Station : Goodera Growth Strategy, Customer Experience (Business Analyst) , Bengaluru

Faculty

Name: Sandeep Kayastha

Student

Name: SHAMITHA OBULU(2019B1A41554H)

Student Write-up

PS-II Project Title: Goodera Growth Strategy- Customer Success

Short Summary of work done during PS-II : My work until now has been backend and front end handling of the clients requests. I have worked on data analysis of our client Kennametal: year end review. It involves an overview on average volunteers, campaigns, strategy workshops. I was handling most of the Internal work as communicating the clients requirements to our respective internal team. One of my biggest project was with Arrow client where we could curate 107+ events for them globally. I have managed the entire Internal logistics for over 200+ events in which 180+ are In person. I was also responsible for 20+ clients. This kind of work brings out

creativity and efficiency to deal with situations. Being in corporate world, communication is everything, simple yet effective. I could say CSMs are the key for the business dev and for running the org. The more you are doing a client facing task, it is important to understand the psychology of the other person and manipulate with smart words.

Tool used (Development tools - H/w, S/w) : None

Objectives of the project : To work in the Global CSM team- communicate with our clients and help team manage execution of services.

Major Learning Outcomes : More about client and the rules they follow.

Business developments, Strategy workshops.

How to work internally with different teams and timelines.

Learnt a lot about the attention to detail and using various analytical tools to form informed conclusions.

Learned being process oriented while doing the root cause analysis. Acquired knowledge on using Google sheets effectively for my analysis.

Negotiating terms and requirements with third parties.

Soft skills, Business creativity, Management skills, Presentation skills, Google sheets

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Good working environment, motivating and understanding managers and seniors, flexible work hours

Academic courses relevant to the project : None

PS-II Station : Goodera Growth Strategy, Customer Experience (Business Analyst) , Bengaluru

Faculty

Name: Sandeep Kayastha

Student

Name: KAJAL KUKREJA .(2019B2A41021P)

Student Write-up

PS-II Project Title: 1. Event coordination and Booking 2. Volunteer Registration Management 3. Checking of Non-Profit w.r.t Relevancy 4. Impact Reports and Catalogs 5. Dashboard Management for clients of my team which includes IBM, Redhat, CSAA,Mcdonals, GXO Logistics

Short Summary of work done during PS-II : This project aims to optimize event management, enhancing efficiency and impact. Firstly, in Event Coordination and Booking, streamlining scheduling via manual methods and the Self-Service Portal (SSP), with automated communication for timely bookings of volunteering events of clients organised by Goodera. Secondly, in Volunteer Registration Management, we establish a robust system for seamless sign-ups, ensuring effective communication of registration details where volunteers get easy access to signup for events according to their convenience. Thirdly, we focus on Checking Non-Profit Relevancy, verifying alignment with event objectives to maximize impact. Fourthly, we develop Impact Reports and Catalogs, summarizing outcomes and offering a diverse range of volunteer opportunities for clients to make better decisions and planning for their volunteering initiatives. Finally, managed Dashboards for Clients like IBM, Redhat, CSAA, McDonald's, and GXO Logistics, providing real-time updates and insights for effective decision-making. These efforts aim to enhance event management processes, volunteer engagement, non-profit partnership relevancy, and client satisfaction.

Tool used (Development tools - H/w, S/w) : Excel/Google sheets and In house tools

Objectives of the project : The primary objectives of this project are to streamline event coordination and booking processes, manage volunteer registrations efficiently, and ensure the relevancy of non-profit partnerships. By leveraging both manual methods and the Self-Service Portal (SSP), we aim to simplify the event booking process and automate communication workflows to provide essential event links and information promptly. Our robust volunteer registration management system will facilitate easy and accurate sign-ups, ensuring that all registration details are effectively communicated to event champions and participants. Additionally, we will conduct thorough checks to verify the alignment of non-profit organizations with event objectives, mapping the most appropriate non-profits to maximize the impact and relevance of volunteering activities. Furthermore, the project focuses on creating comprehensive impact reports and maintaining detailed activity catalogs to provide valuable insights and a diverse range of volunteer opportunities. We will develop and enhance dashboards for our key clients, including IBM, Redhat, CSAA, McDonald's, and GXO Logistics, ensuring they offer real-time updates and actionable insights. These dashboards will be designed with an emphasis on usability, stability, and data accuracy to support effective event management and decision-making. Through these objectives, we strive to optimize event management processes, enhance volunteer engagement, ensure the relevancy of non-profit partnerships, and deliver high-quality, insightful dashboards for our clients.

Major Learning Outcomes : Excel/Google sheets, Data Analysis, Soft skills, Client Interaction

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : People around are great and helpful, but do not expect data analysis role in non tech project its majorly usage of their in house tools which won't be useful later, working hours are from 2pm to 10pm and can extend upto 12 in certain days which is a little different from other companies.

Academic courses relevant to the project : Some Courses in Mechanical gives basics of Excel

PS-II Station : Goodera Growth Strategy, Customer Experience (Business Analyst) , Bengaluru

Faculty

Name: Sandeep Kayastha

Student

Name: HRUTHVIK M(2019B3AA0535G)

Student Write-up

PS-II Project Title: GTM Strategy and Customer success

Short Summary of work done during PS-II : I worked in the GTM demand forecasting team at goodera. The main tools used were Hubspot(CRM software), Excel and general management topics. We were successful in launching an industry first report and we were glad that it was well received in the industry

Tool used (Development tools - H/w, S/w) : Hubspot, Python, Excel

Objectives of the project : Go to market strategy for a B2B software company in the US

Major Learning Outcomes : GTM strategy,

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The work culture in goodera is very good, and there is no hard rules on how you do your work.

Academic courses relevant to the project : Principles of Management, Econometrics to some extent, Data science courses

PS-II Station : Goodera Growth Strategy, Customer Experience (Business Analyst) , Bengaluru

Faculty

Name: Sandeep Kayastha

Student

Name: ANUBHAV DHAL(2019B4A30757G)

Student Write-up

PS-II Project Title: CUSTOMER SUCCESS & TECHNOLOGY

Short Summary of work done during PS-II : During my tenure as a business analyst at Goodera, I embarked on a multifaceted project aimed at driving revenue growth and enhancing client experiences. I engaged with clients to understand their needs, successfully upselling premium analytics packages that boosted annual client spending by 5%. I meticulously created comprehensive social impact reports that significantly improved stakeholder engagement and satisfaction. In terms of event management, I played a pivotal role in planning and coordinating a major client event that included over 200 individual activities, ensuring seamless execution and positive client feedback. On the technical front, I contributed to software development by designing and implementing developer APIs and rate-limiting mechanisms, which enhanced the performance and reliability of Goodera's platform. This holistic approach not only met the project's objectives but also provided a robust foundation for future enhancements and collaborations.

Tool used (Development tools - H/w, S/w) : NodeJs, Javascript, Looker Studio, G Suite, Zapier

Objectives of the project : The main objective of my project was to drive revenue growth and enhance social impact through strategic client engagement and advanced technological solutions. Specifically, I aimed to develop and upsell premium analytics packages, create comprehensive volunteering impact reports, plan and execute major client events, and implement robust developer APIs and rate-limiting mechanisms. These efforts were designed to provide value to clients and enhance the efficiency and effectiveness of Goodera's platform.

Major Learning Outcomes : Through this project, I gained profound insights into strategic client engagement and the intricacies of business analytics. I learned how to effectively upsell services, enhance client satisfaction, and manage large-scale events. Additionally, I developed technical skills in designing and implementing developer APIs and rate-limiting mechanisms, which improved my understanding of software engineering principles and platform optimization techniques. The experience also highlighted the importance of detailed impact reporting and strengthened my ability to communicate complex data insights to stakeholders.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The working environment at Goodera was dynamic and collaborative, fostering an atmosphere of innovation and continuous learning. The company encouraged a culture of open communication, allowing me to freely share ideas and receive constructive feedback. My expectations from the company included opportunities for professional growth, exposure to diverse projects, and a supportive mentorship structure. Goodera met these expectations by providing access to various resources and training sessions that enhanced my skill set. The organization's emphasis on social impact and client satisfaction resonated with my professional values, making the experience both rewarding and enlightening. Regular team meetings and brainstorming sessions were instrumental in aligning our efforts with the company's strategic goals. The supportive and inclusive environment enabled me to take ownership of my tasks and contribute meaningfully to the project. Overall, Goodera provided a conducive environment for both personal and professional development, aligning with my career aspirations

Academic courses relevant to the project : Object Oriented Programming , Computer Programming , Principles of Economics,

PS-II Station : Goodera Growth Strategy, Customer Experience (Business Analyst) , Bengaluru

Faculty

Name: Sandeep Kayastha

Student

Name: YASH KASLIWAL(2019B4A80106G)

Student Write-up

PS-II Project Title: Customer Success for CSR

Short Summary of work done during PS-II : Work was to help the Customer Success team at Goodera with their usual tasks which often included some data analytics and making presentation and also working with their in house app for booking events called vvapp

Tool used (Development tools - H/w, S/w) : Google Sheets, Slides

Objectives of the project : Make contributions to the Customer Success team at Goodera

Major Learning Outcomes : Learnt a lot about CSR, Work Culture

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Work culture at the company is good but the work is a bit repetitive and simple

Academic courses relevant to the project : TRW

PS-II Station : Goodera Growth Strategy, Customer Experience (Business Analyst) , Bengaluru

Faculty

Name: Sandeep Kayastha

Student

Name: N KARTHIKEYA KOUSHIK(2019B5A40617G)

Student Write-up

PS-II Project Title: Product

Short Summary of work done during PS-II : During my internship at Goodera, I contributed significantly to several key projects that enhanced the platform's functionality and client engagement. A notable project was the Volunteer Report Card, which transformed client data into actionable insights, providing industry benchmarks, identifying areas for improvement, and empowering clients to optimize their CSR programs. This tool also served as a lead generation magnet, attracting new clients by showcasing our data-driven approach. I played a crucial role in the development of Goody OS, an internal platform designed to streamline operations across Goodera's diverse teams. My responsibilities included writing Product Requirement Documents (PRDs), creating wireframes, and collaborating closely with engineering and other departments to ensure the tool met organizational needs. This project aimed to enhance efficiency, promote

collaboration, and drive innovation within the company. Additionally, I worked on the client portal, a centralized platform providing clients with easy access to invoices, meeting minutes, catalogs, and other resources. This portal improved user experience, streamlined communication, and enhanced transparency, thereby fostering better client relationships.

Tool used (Development tools - H/w, S/w) : Figma, Jira, Wati, Notion, Hotjar, Amplitude, looker studio

Objectives of the project : Develop Internal Tools: Create and optimize internal tools like the Goody OS to enhance operational efficiency and user experience at Goodera. Client Empowerment: Design and implement features such as the Volunteer Report Card to provide clients with actionable insights and improve their CSR programs. Streamline Processes: Automate and streamline processes, including host onboarding and event management, to reduce manual workload and improve organizational efficiency.

Major Learning Outcomes : Data-Driven Insights: Learned to transform raw data into actionable insights, enhancing client engagement and CSR program optimization.

Product Development and Collaboration: Gained experience in writing PRDs, creating wireframes, and collaborating with cross-functional teams to develop internal tools.

Automation and Training: Developed automated training programs for event hosts, streamlining the onboarding process and improving operational efficiency.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The working environment at Goodera was dynamic and collaborative, reflecting the company's commitment to driving social impact through technology. Interns were encouraged to take ownership of their projects, contributing actively to team discussions and delivering innovative solutions. Clear expectations focused on high-quality, client-aligned work, supported by regular feedback and open communication channels. The supportive culture emphasized learning, professional growth, and creativity, with mentorship from experienced professionals fostering skill development. This enriching experience provided valuable insights into the intersection of technology and social impact, preparing us to contribute meaningfully to Goodera's mission.

Academic courses relevant to the project : -

PS-II Station : Goodera Growth Strategy, Customer Experience (Business Analyst) , Bengaluru

Faculty

Name: Sandeep Kayastha

Student

Name: ANANYA RAMANATHAN IYER(2020A1PS1964G)

Student Write-up

PS-II Project Title: CSM Management at Goodera

Short Summary of work done during PS-II : During my time at Goodera, I worked as a Client Success Manager, where I had been entrusted with overseeing a diverse range of CSR projects and coordinating both virtual and in-person volunteering initiatives. In this role, I've been responsible for not only strategic planning and meticulous data analysis but also ensuring clear and effective communication with our valued clients. One of the main things of my experience has been my involvement in fostering seamless collaboration among internal teams, ensuring that our events are executed flawlessly. From creating Benevity links to conducting regular business reviews, I've been deeply involved in every aspect of our operations. Moreover, my interactions with both clients and colleagues have provided invaluable insights into the intricate dynamics between them, enriching my understanding of effective CSR implementation. Working together with dedication, I've improved my abilities in managing projects, building relationships with clients,

and making decisions based on data. This has given me the power to make real changes in the areas of social and environmental responsibility.

Tool used (Development tools - H/w, S/w) : Lark, Excel, Slides and Adobe

Objectives of the project : As a Client Success Manager at Goodera, my objectives are to maximize client satisfaction, deliver impactful CSR projects, and foster strong client relationships while boosting employee engagement and driving continuous improvement.

Major Learning Outcomes : Working at Goodera, I will enhance my project management and data analysis skills, gain expertise in client relationship management, and deepen my understanding of CSR strategies and impact measurement. Additionally, I will develop stronger communication and teamwork abilities.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company :

The work environment at Goodera was fantastic. Even as an intern, my opinions were valued and listened to. The team I worked with made me feel incredibly welcome and comfortable, like I was part of the family. The work culture is great, and everyone gets along well within the internal teams, ensuring that all events are completed successfully. It's a place where collaboration and teamwork thrive, and where everyone supports each other to achieve common goals. Overall, my experience at Goodera was incredibly positive, and I felt like I was part of a supportive and inclusive community.

Academic courses relevant to the project : POE

PS-II Station : Google India - Hardware , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: SANKIRTHANA KN(2022H1240096P)

Student Write-up

PS-II Project Title: Emulation of smart NICS

Short Summary of work done during PS-II : I was asked to migrate build scripts which were written in shell. These scripts are used by them emulator to access the compute clusters.

Tool used (Development tools - H/w, S/w) : Shell, TCL, python

Objectives of the project : Migrate build scripts from one compute domain to another compute domain

Major Learning Outcomes : Good understanding of emulation work environments, build scripts in various languages

Details of Papers/patents : --

Brief Description of working environment, expectations from the company : Good environment to learn

Academic courses relevant to the project : VLSI design, VLSI architecture

PS-II Station : Grasim Industries - Pulp & Fiber , Nagda

Faculty

Name: Arun Maity

Student

Name: PREM SHANKAR .(2020A4PS0557P)

Student Write-up

PS-II Project Title: Online Prediction of viscosity of viscose and control of the viscosity

Short Summary of work done during PS-II : I did EDA on the dataset of the plant process and built various ML models on the dataset and I was able to improve the R2-score of the online prediction from 0.18 to 0.34

Tool used (Development tools - H/w, S/w) : Python, Jupyter Notebook

Objectives of the project : The viscosity of the viscose affects the quality of the fiber produced hence it should be maintained between certain limits . In this project I aimed to reduce the variation in the viscosity through the use of AI and ML.

Major Learning Outcomes : Time Series Analysis, Post Model Analysis and Deep Learning

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment was very friendly and supportive and expectations are just about giving your best .

Academic courses relevant to the project : Machine Learning, Data Mining and Deep Learning

PS-II Station : Greaves Electric Mobility , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: SANYAM AGARWAL(2019B2A41115G)

Student Write-up

PS-II Project Title: Strategy & PMO

Short Summary of work done during PS-II : The work mostly revolved around finding the clients in the B2B and B2C space in Tier-1 cities like Delhi, Bangalore, Pune, Hyderabad. Was asked to call them for potential business opportunity and also involved in on-ground marketing.

Tool used (Development tools - H/w, S/w) : N/A

Objectives of the project : To find potential B2B & B2C clients in Tier - 1 cities

Major Learning Outcomes : Nothing as such, mainly a little bit of Zoho CRM

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The team was very chill with respect to the office timings and the work. But don't expect much from the company. My team got fired before my internship ended and not 1 or 2 but 5 out of 7 which included the CEO and the Head of the department. Mostly the company in the 3W segment will go bankrupt in a few days or so. No PPO expectations whatsoever. Prefer some other companies over this.
P.S. IT'S A SINKING SHIP.

Academic courses relevant to the project : N/A

PS-II Station : Greaves Electric Mobility , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: MANAN MUKHERJEE .(2019B5A40716P)

Student Write-up

PS-II Project Title: Product Planning at GEMPL

Short Summary of work done during PS-II : The work was centred around market research of 2W and 3W evs, and benchmarking of competition such as Ola, Ather, TVS etc. in 2W and Piaggio, Mahindra n Mahindra in 3Ws. It also included price mapping and research based exercises on swappable batteries and solid state & Sodium ion batteries. The aim was to understand customer requirements and help in planning the products of Ampere, and to understand how can the new Nexus, and the old magnus and primus models could compete against Ola's S1 Pro, Ather's 450, and TVS's iQube. I also performed customer surveys, talking to auto rickshaw vendors, and people using 2W EVs, and also took test rides to understand the pain points of customers and what features are necessary and what features good be a good addition to Ampere's scooters but not very necessary. The pricing also gets affected depending on the number of features incorporated.

Tool used (Development tools - H/w, S/w) : Excel, powerpoint, Word

Objectives of the project : 1. To understand 2 & 3 W EV markets 2. To understand solid state and sodium ion battery technologies.

Major Learning Outcomes : 1. 2W and 3W EV markets 2. Competition benchmarking 3. Price strategizing 4. Sodium ion/Solid state batteries and swappable battery stations

Details of Papers/patents : No patents

Brief Description of working environment, expectations from the company : The working environment is decent. There is decent amount of work pressure but there's lot's of learning too. My mentor gave me exposure to a lot of market research, and I do think that I learnt a lot. However, the needs to be a bit more strategic in its product selling to be able to compete with other companies. I do think that Ampere lacks a bit when it comes to product quality and the corresponding pricing. I also expected slightly better stipends, but the company is apparently not generating enough revenue and stuck amidst mass layoffs. The EV market seems to be slightly down, and i hope that everyone will bounce back with time.

Academic courses relevant to the project : Automotive Vehicles, Engines Motors & Mobility

PS-II Station : Greaves Electric Mobility , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: RUNWAL AYUSH PRASHANT(2020A4PS1619G)

Student Write-up

PS-II Project Title: Benchmarking of Quality Management System

Short Summary of work done during PS-II : During my internship, I gained a deep understanding of Quality Management Systems (QMS) and quality standards critical to the automotive industry, specifically ISO 9001 and IATF 16949:2016. My role involved benchmarking and improving the existing QMS to ensure compliance with these standards, thereby enhancing overall operational efficiency. I conducted a thorough analysis to identify gaps and proposed actionable improvements. Additionally, I developed an automated email system for the After Sales Team, streamlining communication and increasing responsiveness to customer inquiries. This experience provided me with practical insights into quality management and the implementation of industry standards, as well as valuable skills in automation and process optimization.

Tool used (Development tools - H/w, S/w) : MS Excel

Objectives of the project : To Benchmark the Quality Standards at the Manufacturing Plant

Major Learning Outcomes : Quality Management System, ISO:9001, IATF 16949:2016

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Very experienced seniors, Plenty of learning opportunities.

Academic courses relevant to the project : Quality Control

PS-II Station : Greaves Electric Mobility , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: CHINMAY HEGDE(2020A8PS1902H)

Student Write-up

PS-II Project Title: Market Analyst

Short Summary of work done during PS-II : My task at Ampere has been to benchmark the after sales service products of Ampere against its competitors Ola, Ather, Okinawa, Chetak, Hero Electric, Vida, TVS. Having chosen the above small, medium and large size companies, I had effectively mimicked the entire EV segment to benchmark Ampere against. This would give an accurate picture of where Ampere truly stood as opposed to a skewed image that would result if fewer companies of similar kind had been chosen. The next step was to benchmark each after sales service product based on select parameters, i.e Warranty, Roadside Assistance, Care, Accessories. The entire data had to be collected from scratch given that very little data was available in public domain. This meant contacting and personally visiting dealerships of competitors and also interacting with customers. The collected data was then organised in a tabular format in Excel and the best services was highlighted to be compared with what Ampere was offering.

Tool used (Development tools - H/w, S/w) : MS Excel

Objectives of the project : Benchmarking After Sales Service Products

Major Learning Outcomes : Understood how the EV sector is growing in Bharat and the challenges it faces, in specific, the importance and role of after sales service products and support. Understood the significance and implemented the basics of bench-marking

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : My co-workers were extremely friendly and sympathetic to a first-timer like me. I could ask for help and advise regarding any problem that I encountered right from logistics, food to work-related. My manager was very kind and allowed me to explore new ways to solve a problem. The expectations from the company were in accordance with the capability of an intern. There was no excessive pressure to deliver and the deadlines were very much achievable.

Academic courses relevant to the project : Energy Storage Systems, Smart Grid For Sustainable Energy

PS-II Station : Greenland Investment Management , Mumbai

Faculty

Name: Arindam Roy

Student

Name: SUJAY RASTOGI .(2019B4A70741P)

Student Write-up

PS-II Project Title: Signal Alphas & Data Preprocessing

Short Summary of work done during PS-II : The work involved conducting comprehensive analysis and automation of various financial data processes, focusing on enhancing data integrity, trading insights, and system capabilities. This included analyzing volumes and identifying liquid contracts for commodities, processing trade files to provide detailed performance insights, and improving data granularity for nuanced analysis by enhancing hourly data retrieval from Bloomberg. An algorithmic trading environment was established, with signal alphas implemented

and technical indicators integrated for precise trading. Data procurement and patching were automated to ensure uninterrupted trading operations, while trade performance evaluations and data validation were conducted at the NS level. Detailed statistical tables were generated to inform strategic decisions, and the selection of liquid contracts for accurate rollover dates was automated. Scripts were developed for extracting and transforming summary statistics, trade record comparisons were automated, and trade remarks were integrated into databases for improved backtesting accuracy. Extensive ETF data was scraped, processed, and validated for completeness, and exchange holiday updates were automated for operational accuracy. Management of extensive equity and index data enhanced analytical capabilities, and a pipeline for predicting ETF outstanding shares using machine learning models was developed. Soybean futures data was scraped and analyzed for market trend insights, and signal verification and anomaly detection were automated for better trading decisions. The processing and validation of equity datasets were automated, comprehensive trading performance metrics and visualizations were generated, and robust mechanisms for accurate historical data retrieval and insertion were developed.

Tool used (Development tools - H/w, S/w) : MS-Excel, MySQL, Python, Bloomberg terminal

Objectives of the project : Help with the day-to-day functioning of the company

Major Learning Outcomes : Learnt about commodity markets and futures trading.

Handled large scale data cleaning & processing.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Fast paced environment of a startup. Although the internship role might be Quant Researcher but you get to work in a lot of different areas- including the trading platform, fund accounting and data preparation. Tasks are given on a day to day basis and people are helpful enough to provide you with ideas in case of blockers.

Academic courses relevant to the project : No pre-req as such. Familiarity with databases, excel and python programming is beneficial

PS-II Station : GreyOrange Ltd , Gurugram

Faculty

Name: Nishit Narang

Student

Name: PARIKSHIT VYAS(2019B2A70691P)

Student Write-up

PS-II Project Title: Warehouse automation using Erlang

Short Summary of work done during PS-II : (Put team) : Created a gen_server and client chat application as learning task. Afterwards worked on different stories for client requirements.

Tool used (Development tools - H/w, S/w) : Erlang, Python, Git, Docker, ELK stack, Postgres, Kafka

Objectives of the project : Creation of features in already developed server for different warehouse clients

Major Learning Outcomes : Learnt how warehouse automation is done from the software side.

Details of Papers/patents : nil

Brief Description of working environment, expectations from the company : A little hectic near planning sprint end otherwise relaxed manner of working. Manager and teammates were really supportive and solved doubts whenever asked.

Academic courses relevant to the project : Nil

PS-II Station : GreyOrange Ltd , Gurugram

Faculty

Name: Nishit Narang

Student

Name: SAMAY TYAGI(2020A7PS1708G)

Student Write-up

PS-II Project Title: Automation of audit and inventory management in warehouses

Short Summary of work done during PS-II : The learning curve is good, the language used in most of the teams is Erlang which is pretty old and not widely used but is easy to learn and code. Learnt about the software development cycle, used tools like postgresql, postman, docker in various tasks, got hands on with the development environment, version management, issue/bug management and such valuable skills apart from the backend development.

Tool used (Development tools - H/w, S/w) : Erlang, Postgresql, Postman, Docker, Jira

Objectives of the project : Solving bugs in the code and developing new features

Major Learning Outcomes : Erlang, backend development, Software development cycle

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Work environment is good, most of the seniors are helpful and friendly. The team/project was pre allotted to us. Most of the teams work in erlang which is a functional programming language, but there are teams which have work related to UI, Development in java (Platform) and data as well. Overall the learning is good.

Academic courses relevant to the project : PoPL

PS-II Station : Grid Dynamics , Hyderabad

Faculty

Name: Chennupati Rakesh Prasanna

Student

Name: OWAIS ALI(2019B3A30490G)

Student Write-up

PS-II Project Title: Docker Decoded

Short Summary of work done during PS-II : Good work done, completed the modules and did a capstone project

Tool used (Development tools - H/w, S/w) : Docker

Objectives of the project : Docker decoded

Major Learning Outcomes : Devops

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Very cooperative

Academic courses relevant to the project : DSA OOPS

PS-II Station : Grid Dynamics , Hyderabad

Faculty

Name: Chennupati Rakesh Prasanna

Student

Name: BONDALAPATI VARUN(2019B4A80685H)

Student Write-up

PS-II Project Title: Digital Twin Contextualization

Short Summary of work done during PS-II : During the initial phase (around 3 months), we were tasked to learn about things in our domain and were provided with a learning portal where we were also supposed to finish some tasks as assignments. Later after getting the project we started working on it.

Tool used (Development tools - H/w, S/w) : Java, Spring Boot, JPA, Neo4j

Objectives of the project : To improve the process of creating digital twins using LLMs

Major Learning Outcomes : Worked on Java Backend. Got to know a lot about LLMs and building robust applications around it.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The first 3-4 months will be mostly learning and doing assignments. After that you are supposed to do a capstone project. Your team will have interns in other roles like UI, Backend, Devops, Python Developer

Academic courses relevant to the project : Software Engineering and OOPS

PS-II Station : Grid Dynamics , Hyderabad

Faculty

Name: Chennupati Rakesh Prasanna

Student

Name: MANCHALA SAI KRUTHIKA REDDY(2020AAPS0377H)

Student Write-up

PS-II Project Title: Digital Twin Contextualisation

Short Summary of work done during PS-II : Learnt Html CSS JavaScript React and implemented them in real time projects

Tool used (Development tools - H/w, S/w) : VS code GitHub Gitlab

Objectives of the project : To build Knowledge graphs based on LLMs for Digital Twin

Major Learning Outcomes : Modern web development

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Everyone is cooperative and approachable. Good environment but a little hectic work.

Academic courses relevant to the project : DSA , OOPS, AI and ML

PS-II Station : Growth Jockey Pvt. Ltd , Gurugram

Faculty

Name: Anjani Srikanth Koka

Student

Name: ARYAN RITESH NIGAM(2019B5A41039G)

Student Write-up

PS-II Project Title: Productizing Data Analysis & Logic Maps for Digital Utilization

Short Summary of work done during PS-II : Over the past six months, I focused on data-driven analyses in performance marketing to achieve tangible business outcomes. I gathered and

transformed data from Amazon and Flipkart through elementary data analysis. A key project involved analyzing Polycab's pricing strategy using Helium 10 data, leading to the creation of a Pricing Ladder and targeted promotional insights. Additionally, I developed a comprehensive mapping system for campaign performance analysis, from platform level to ad creatives, through cross-functional collaboration. Research into developing our flagship product, Intellsys, included integrating necessary data and visual representations. These efforts highlighted the importance of data-driven decision-making and interdisciplinary collaboration.

Tool used (Development tools - H/w, S/w) : Google Sheets, Google Ads Studio, Meta Business Suite, Google Analytics 4, Postman, LinkedIn Business Manager, Tata Dialer, Zoho CRM, Notion, Canva, VSC, Amazon Ads, Flipkart Ads, EasyEcom, Seller Hub, Shopify

Objectives of the project : To inculcate data driven insights to improve ROI in Digital Marketing Landscape

Major Learning Outcomes : Digital Marketing, Data Analytics, Venture Building, Campaign Optimization

Details of Papers/patents : NIL

Brief Description of working environment, expectations from the company : The working environment was very conducive. I learned a lot in terms of Digital Marketing & utilising data analytics in digital advertising landscape. I was assigned short-term as well as long-term projects with deliverables that I was supposed to complete within strict deadlines. Through all the projects, I was constantly supported by my mentors and was provided right motivations towards completion of my deliverables.

Academic courses relevant to the project : Business Development, Probability & Statistics, Computer Programming

PS-II Station : Hakimo AI , Bengaluru

Faculty

Name: K Venkatasubramanian

Student

Name: ADARSH RANJAN YADAV .(2019B3A70443P)

Student Write-up

PS-II Project Title: Panic Alarm Button, Location Details Page, Configurable Audio Alert, Pagination Revamp, Download Excel Data

Short Summary of work done during PS-II : I was involved in making full-stack features for Hakimo AI portal. These features were either requested by the customer or done for product enhancement. These features helped the internal team as well as customers to use Hakimo portal more easily and gave extensive control over their needs.

Tool used (Development tools - H/w, S/w) : Python, SQLAlchemy, Flask, React, TypeScript, TailWind CSS, PostMan, Gitub, Swagger

Objectives of the project : Creating new features for Hakimo product to enhance their existing product and increase customer satisfaction

Major Learning Outcomes : Learnt about overall feature Development, Testing and deployment of the product

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The work environment is hectic, but learning curve is exponential. Great people work here and you will get to learn a lot from them, not only about Software Development but also other skills. You will be solely responsible for the features you develop and have independence in it's implementation but mentors are there to guide you too.

Academic courses relevant to the project : DataBase Management Systems, Computer Networks, Data Structures and Algorithm

PS-II Station : Hakimo AI , Bengaluru

Faculty

Name: K Venkatasubramanian

Student

Name: ANSH GUPTA(2020A7PS0116P)

Student Write-up

PS-II Project Title: Integrations with 3rd party systems like Everbridge, Zoom, Gallagher and Backend changes

Short Summary of work done during PS-II : During the internship at Hakimo AI, the focus was on understanding the software architecture, backend development, API integrations, and production support. Initially, efforts were directed at comprehending the architecture and setting up the development environment. The intern then integrated automated functionalities, explored Docker, Kubernetes, and cloud computing, and enhanced API integration skills with Prowatch and ACS APIs. Significant achievements included achieving 100% code coverage in unit testing

for Everbridge ACS integration and integrating Yoursix VMS into the AI engine. The internship concluded with diagnostics and debugging for Gallagher ACS, emphasizing problem-solving and system reliability.

Tool used (Development tools - H/w, S/w) : Python for backend development, Docker for containerization, Kubernetes for orchestration, API integrations with Prowatch, Everbridge ACS, Yoursix VMS, Zoom, Gallagher ACS, SQL databases with SQLAlchemy and MYSQL connectors, Git for version control, GitHub for collaborative development, Grafana for monitoring, Elasticsearch for debugging, Kubernetes for monitoring and ensuring high availability.

Objectives of the project : s Integrations with 3rd party ACS and VMS systems

Major Learning Outcomes : python, backend, on call support, access control systems

Details of Papers/patents : N.A.

Brief Description of working environment, expectations from the company : The working environment at Hakimo AI was dynamic and collaborative, fostering a culture of continuous learning and innovation. The team was composed of skilled professionals who were passionate about technology and eager to share their knowledge. The company provided a supportive atmosphere, encouraging open communication and teamwork.

Academic courses relevant to the project : Relevant CS B.Tech courses include Data Structures, Database Management Systems, Operating Systems, Computer Networks, Object-Oriented Programming, Software Engineering, Cloud Computing, Web Technologies, Distributed Systems, Cyber Security, Software Test

PS-II Station : Harness , Bengaluru

Faculty

Name: Y V K Ravi Kumar

Student

Name: SHASHWAT SHARMA(2019B3A70277G)

Student Write-up

PS-II Project Title: CLOUD COST MANAGEMENT

Short Summary of work done during PS-II : During my internship at Harness, I undertook a multifaceted role, significantly contributing to various projects aimed at enhancing the company's products and services. Following are my contributions: 1) Worked on enhancing the forecasting feature in Cloud Cost Management, introducing a new architecture for the forecasting calculation. 2) Introduced an advanced FB Prophet model written in Python, significantly improving forecasting accuracy. 3) Wrote automation tests for various domains in the Harness Automation Repo, including: a) Budgets b) Anomalies c) Cost Categories d) Recommendations 4) Enhanced the system to fetch customer AWS account names along with account IDs in both anomalies and recommendations. 5) Introduced pagination in budgets for a faster and better user experience, addressing customer complaints about slow loading times on the Harness platform. 6) Enhanced the handling of the total cost call in Perspectives. 7) Implemented an enhancement to support anomaly drill-downs from Perspectives. 8) Improved the BI Dashboards by enabling simultaneous fetching of both account IDs and names. 9) Fixed numerous configuration issues related to BigQuery and redesigned the workflow for some events to ensure the smooth functioning of various CCM services. 10) Actively responded to numerous Q&A tickets raised by customers. 11) Fixed all existing test failures in the production customer environment. 12) Enhanced support for Cluster, AWS, and Azure recommendations on Perspectives. 13) Added support for displaying AWS account names in anomalies Slack and email notifications. 14) Fixed the issue of users not receiving emails when a new account is created on the platform. 15) Enhanced the system to allow users to create custom filters in Contributors and fixed some existing filters. 16) Automated the process of updating the commons version with each DDL change on any database object. 17) Implemented a feature to support the deletion of an account and all related data upon request from the platform.

Tool used (Development tools - H/w, S/w) : IntelliJ IDEA, PyCharm, Postman, Robo3T, Db Visualizer, Github, Testing platforms - Ce-Dev, Pre QA, QA and Prod

Objectives of the project : There were no such objectives specified. Considering my skills and past experience in the field, I was allowed to contribute to the codebase and deploy my contributions to the production from the very first day. My work was the same as the other senior developers in the team and hence was assigned sprint tasks, CFD and other enhancements raised by our customers in daily stand-up meetings.

Major Learning Outcomes : During my internship, I mastered essential frameworks such as Spring, Spring Boot, and Spring Batch, along with gaining proficiency in various other frameworks used in the Harness codebase. Additionally, I seized the opportunity to explore Go programming, enriching my skill sets. Moreover, I significantly increased my expertise in languages I was already familiar with, namely Java, Python, and MySQL. This experience increased my real-time problem-solving abilities, enabling me to implement innovative solutions while adhering to industry best practices for code development. Furthermore, I expanded my knowledge by acquainting myself with new features in everyday software tools like Db Visualizer, Robo 3T, Postman, and various testing platforms like Ce-Dev, Pre QA, QA and Prod, which have become integral to my daily workflow at Harness.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : As a backend developer in Harness's cloud cost management team, the working environment is dynamic and collaborative, emphasizing innovation and efficiency. Expectations from the company include contributing to the development of scalable and reliable solutions that optimize cloud costs for our clients. This involves working closely with cross-functional teams to understand client requirements, designing and implementing robust backend systems, and continuously improving existing features to meet evolving needs. Additionally, Harness expects proactive communication, initiative, and a commitment to staying updated with the latest technologies and best practices in cloud cost management and software development.

Academic courses relevant to the project : Object-oriented programming, Data Structures and Algorithms and Design & Analysis of Algorithms

PS-II Station : Harness , Bengaluru

Faculty

Name: Y V K Ravi Kumar

Student

Name: SAMYAK JAIN .(2020A7PS0089P)

Student Write-up

PS-II Project Title: Admin portal/bazel build optimization

Short Summary of work done during PS-II : During my PS2 at Harness, I worked on two major projects. First, I designed and implemented APIs for an internal tool admin portal using Java Spring Boot. This involved understanding business requirements, coding the APIs, and testing them with Postman to ensure they met specified needs. The robust APIs enhanced the portal's user management and data retrieval capabilities, improving overall functionality and user experience. Second, I optimized the Bazel build system by adding granular build files and eliminating cyclic dependencies. This required analyzing the existing build structure, modularizing dependencies, and refactoring the build files.

Tool used (Development tools - H/w, S/w) : Spring boot, mongoDB, Jira, slack, postman

Objectives of the project : Internal portal for CXE team and bazel build optimization

Major Learning Outcomes : Java, Spring Boot, bazel, postman, GCP

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment was great at harness. I have been assigned a mentor and manager. Everyone in my team were helping. We have 3 days work from office. Office provides free snacks and we gets Zomato coupons for our lunch. I had a good work life balance although sometimes you need to work beyond 5PM.

Academic courses relevant to the project : Object oriented programming, Database systems.

PS-II Station : Harness , Bengaluru

Faculty

Name: Y V K Ravi Kumar

Student

Name: SHADAN HUSSAIN .(2020A7PS0134P)

Student Write-up

PS-II Project Title: Bazel Build Optimization

Short Summary of work done during PS-II : In the first month I had to get familiar with Harness CI Platform and set up a few pipelines for some GitHub repos. I had to compare the results of Harness CI and GitHub Actions, specifically in relation to Test Intelligence(TI) feature of Harness which is able to identify the testcases relevant to the changes made in a PR and thus reduces the

PR's build and test time. From the second month I started working with the Build and Tool(BT) team. The project that my team was working on was optimizing the build time of the harness-core repo. This repo at that time had a build time of around 50-60 minutes due to which the build and test time for making even small changes in the repo was huge. The team came up with a systematic workflow to optimize the build time of the repo. Each of the team members were assigned modules in the repo to optimize. We first wrote scripts to inject granular build files in a module. Then for each module, we followed this workflow: 1. Identify the cyclic dependencies present between submodules in the module and resolve those cycles. 2. Run the script to inject granular build files in the module. 3. Ensure build hygiene and sanity. 4. Run devspace sanity for services dependant on the module. 5. Raise a PR and get the required approvals. I was able to optimize the build time of around 30 modules. Each module was unique and posed its own challenges. In the final weeks I had to return to CI team and I worked on writing automation testcases for testing a secret variables feature added in the CI platform.

Tool used (Development tools - H/w, S/w) : Bazel build tool, Java, Harness CI Platform

Objectives of the project : Optimize the build time of harness-core repo

Major Learning Outcomes : Teamwork, Build and Test cycle, Optimizing build time

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working Environment is good, the people here are helpful

Academic courses relevant to the project : Any course related to CI/CD

PS-II Station : Harness , Bengaluru

Faculty

Name: Y V K Ravi Kumar

Student

Name: AKSHAT AGRAWAL .(2020A7PS0994P)

Student Write-up

PS-II Project Title: Cloud Cost Management

Short Summary of work done during PS-II : During my internship at Harness.io, I worked on several projects that enhanced both product functionality and team efficiency. Key contributions included revamping the connector creation flow, implementing retry policies for updating bucket policies, handling production hotfixes, and conducting root cause analyses. I optimized code by removing unnecessary dependencies, participated in team activities like bug bashes and hackathons, and delivered a presentation on new software. Additionally, I added email validation using YAML schema and field validation during connector creation. My role also involved writing and optimizing PostgreSQL queries, addressing code debt, and adding support for policy bindings via IAM Groups. These tasks significantly improved my technical skills and understanding of cloud computing and DevOps practices.

Tool used (Development tools - H/w, S/w) : Programming Languages: Java, Python Cloud Data Management: MongoDB, PostgreSQL, ClickHouse Containerization and Orchestration: Docker, Kubernetes Cloud Platforms: Google Cloud Platform (GCP), Microsoft Azure, Amazon Web Services (AWS) Build Tool: Bazel Version Control: Github

Objectives of the project : Help the company create a dashboard to manage their cloud costs

Major Learning Outcomes : Gained practical experience in cloud computing, software development, and DevOps methodologies.

Improved technical skills in programming languages (Java and Python), cloud data management (MongoDB, PostgreSQL, ClickHouse), containerization (Docker), and orchestration (Kubernetes).

Enhanced problem-solving skills through tasks like enabling cost true-up and finding scalable solutions for role assignments.

Developed an understanding of agile software development processes, including rapid release cycles and daily scrum meetings.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at Harness.io was collaborative and dynamic, with a strong emphasis on agile methodologies. The company fostered a culture of innovation and continuous improvement, encouraging participation in activities like bug bashes and hackathons. Daily scrum meetings and rapid release cycles were integral to the workflow. The team was supportive, providing opportunities to tackle complex problems and implement scalable solutions. The expectations from the company included delivering high-quality code, actively participating in team activities, and continuously improving the product's functionality and user experience. The environment promoted learning and development, helping interns gain valuable industry skills and practical experience .

Academic courses relevant to the project : Cloud Computing

Software Engineering

Database Systems

Data Structures and Algorithms

PS-II Station : Havells , Noida

Faculty

Name: Nithin Tom Mathew

Student

Name: KRISTAM VAMSI KRISHNA(2022H1060100G)

Student Write-up

PS-II Project Title: Stack Up Multi Compartment Electric Vegetable Chopper

Short Summary of work done during PS-II : In short, I designed home appliances according to the industry standards. Followed the product design methodology in implementing and execution. Designed and made working prototype of vegetable chopper

Tool used (Development tools - H/w, S/w) : PTC Creo

Objectives of the project : The aims of the designing of this Stack-Up Multi Compartment Vegetable Chopper is to improve the time constraint problem to cut different types of vegetables into smaller size in one go and to design and fabricate a simple electrically operated machine that is easy to control with multipurpose function for daily kitchen usage.

Major Learning Outcomes : Designing according to industry standards. Implementing product design tools in real time projects

Details of Papers/patents : No papers

Brief Description of working environment, expectations from the company : Working environment is not bad. Some hands on experience has to be provided. Company expects us to be very fluent in our work and expects to execute the tasks according to industry standards.

Academic courses relevant to the project : Product Design, Engineering Drawing, Strength of Materials, Materials

PS-II Station : Heaps Health Solutions Pvt. Ltd. - Non Tech , Bengaluru

Faculty

Name: Bharathi R

Student

Name: TANMAY YADAV(2020A1PS0836G)

Student Write-up

PS-II Project Title: Customer success

Short Summary of work done during PS-II : During my internship at Heaps.ai, as part of my academic curriculum at BITS Goa, I engaged in several key projects related to due diligence, financial analysis, and client onboarding in the healthcare sector. I conducted comprehensive due diligence on over 10 pharmaceutical companies. This involved analyzing their financial health, market positioning, and compliance with industry regulations, providing insights that informed strategic decision-making. I also performed Return on Investment (ROI) calculations for a client, assessing the financial viability and projected outcomes of potential investments. This analysis was crucial in guiding the client's investment strategy and optimizing their financial returns. Furthermore, I calculated the project utilization rates for various state government health insurance schemes. By evaluating these schemes' effectiveness and efficiency, I provided valuable data that helped improve their implementation and resource allocation. In addition, I successfully onboarded Medanta The Medicity for a three-month client engagement. This included coordinating with stakeholders, integrating their systems into our platform, and ensuring a seamless start to the project. This effort enhanced our client's operational efficiency and fostered a strong collaborative relationship. These experiences honed my analytical skills, deepened my understanding of the healthcare sector, and equipped me with practical knowledge in due diligence, financial analysis, and client management.

Tool used (Development tools - H/w, S/w) : Excel

Objectives of the project : Onboarding Medanta the medicity for a 3 month pilot

Major Learning Outcomes : Dealing with clients, data analysis, Identifying use cases.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The work environment in gurgaon office was really professional yet chill at the same time. I was encouraged to question, brainstorm, provide my own opinions and take up initiatives. The work was challenging for me, as I had no knowledge of the healthcare industry. My manager helped me a lot in understanding the industry and putting me out of my comfort zone to grow.

The work can extend beyond office hours since it's a startup, but then you can expect a team dinner post that.

Academic courses relevant to the project : None

PS-II Station : HEAPS Health Solutions Pvt. Ltd. , Bengaluru

Faculty

Name: Vimal S P

Student

Name: MD YUSRA MAAZ(2020A3PS0611H)

Student Write-up

PS-II Project Title: Multiple Projects Involving ML Models and Gen AI Applications

Short Summary of work done during PS-II : During my PS-II at Heaps.ai, I was involved in multiple projects aimed at improving healthcare data management and analysis. I developed a script to extract and structure data from hospital discharge summaries in PDF format, exporting the information to CSV using Python, pdfplumber, and regex. Additionally, I created a diagnosis mapper model employing NLP techniques with NLTK and SpaCy to map patient diagnoses to definite codes. I designed and implemented a Retrieval Augmented Generation (RAG) application using large language models to generate personalized patient education materials. Furthermore, I automated data entry from scanned medical bills using optical character recognition (OCR) with Tesseract-OCR and developed algorithms for extracting and organizing the data. I also had the opportunity to design and develop a readmission prediction model using machine learning techniques with Scikit-learn and XGBoost and various other libraries and on that built a survival analysis model to predict hospital readmission probabilities in given time. These tasks not only enhanced my technical skills but also improved my ability to handle real-world healthcare data challenges, contributing to my professional growth and understanding of the healthcare technology domain.

Tool used (Development tools - H/w, S/w) : ### Tools Used (Development Tools - Hardware, Software) Python3, pdfplumber, regex, Selenium, NLTK, SpaCy, HuggingFace, LangChain, Zephyr 7b beta, Pypdf2, Mypdf2, Tesseract-OCR, Fuzzy-Wuzzy, Scikit-learn, XGBoost, Excel

Objectives of the project : Build ML Models to help company reduce running costs in particular divisions. Explore GenAI and its applications and develop solutions to benefit clients. Design and build new features to add on to already existing solutions.

Major Learning Outcomes : During my time at Heaps.ai as part of the PS-II program, I significantly enhanced my technical skills. I had to work particularly with Python, NLP libraries such as NLTK and SpaCy, and various data extraction techniques. I also developed practical expertise in implementing machine learning algorithms using scikit-learn, xgboost, and feature engineering to improve my models metrics. Additionally, I gained experience in applying large language models (LLMs) and Retrieval Augmented Generation (RAG) models to build custom models and features to enhance the existing features of the company's chief products. I also worked on Optical Character Recognition (OCR) for data extraction. I also got the opportunity to

work on real life projects and on actual data that benefitted me by providing me a corporate environment. My soft skills improved through effective communication, teamwork, and time management while handling multiple projects simultaneously, contributing to my overall professional growth.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Overall a decent work environment. Helpful mentor.

Academic courses relevant to the project : AI, DSA, Discrete Mathematics, Probability and Statistics

PS-II Station : HEAPS Health Solutions Pvt. Ltd. , Bengaluru

Faculty

Name: Vimal S P

Student

Name: SANKET JAISWAL(2020AAPS0356H)

Student Write-up

PS-II Project Title: Compliance Management Portal

Short Summary of work done during PS-II : The first 2.5 months would be extensive training on Angular, PostgreSQL, ExpressJS and NodeJS. Simultaneously you'll be given mini projects related to the current tech area being assessed, after the training there'll be one major full-stack

project as a final assessment. After the training is complete you'll be required to work on one of companies project for 2.5 - 3 months. work load is chill and your mentor/office colleague won't be much friendly, there's lack of culture but everyone is helpful.

Tool used (Development tools - H/w, S/w) : vs code, PostgreSQL, postman, AWS.

Objectives of the project : Creating a management portal for the internal compliance team to ensure clients are compliant

Major Learning Outcomes : Angular, PostgreSQL, Express, nodeJs

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The work environment of company is mediocre, they don't have a great culture I would say. The mentors assigned are really helpful but again there won't be any communication apart from work.

Academic courses relevant to the project : oops, cryptography, dsa, computer networks

PS-II Station : Hevo Technologies India Pvt. Ltd. , Bengaluru

Faculty

Name: Jyotsana Grover

Student

Name: SHAMEEK KUMAR BARANWAL(2019B1A71099G)

Student Write-up

PS-II Project Title: Maintain and Enhance 1.0 Destinations

Short Summary of work done during PS-II : As part of the Destinations team, I worked on several major and minor projects for enhancing the load flow of the product. Worked on the RCA and fix for several critical customer-facing defects, improving functionality of existing systems, and building new ones as part of business requirements.

Tool used (Development tools - H/w, S/w) : Worked with Java, Dropwizard, Kafka, Redis, Snowflake, Databricks, Redshift, MySQL, PostgreSQL

Objectives of the project : Maintain and enhance the backend platform

Major Learning Outcomes : Learned how to work as part of an experienced team on a large-scale application. Learned about various software engineering and system design principles associated with distributed systems.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The company is a fast-paced startup, and the expectation from interns is no different compared to that from full-time engineers. The work environment varies from team to team, but as long as you stick to the deadlines, there's never any pressure. There's plenty of time in the beginning of the internship for onboarding and getting familiar with the tech stack, after which the responsibility starts increasing gradually.

Academic courses relevant to the project : OS, DBMS, DSA

PS-II Station : Hevo Technologies India Pvt. Ltd. , Bengaluru

Faculty

Name: Jyotsana Grover

Student

Name: ADITYA AGARWAL(2019B5A71110G)

Student Write-up

PS-II Project Title: S3 cost optimisation

Short Summary of work done during PS-II : The project that I worked on was aimed at reducing the cost the company incurs via AWS S3 usage. The first objective was to reduce the cost due to ListObjects() S3 API calls. This was done by changing how merge queries were run on the Redshift destination. The second initiative was to reduce the number of backup files being created in the code. There was a bug that resulted in many small backup files being uploaded on S3. Since the cost of API S3 includes the number of files uploaded, hence this was an issue. Multiple code fixes were done to fix this. The third and final initiative to reduce AWS S3 cost was to partially remove the use of backup files and using Kafka itself as a backup in case of load failures. This change required a lot of code changes and design reviews.

Tool used (Development tools - H/w, S/w) : AWS, Kafka, Athena, CloudTrail, Java

Objectives of the project : Reduce cost to the company from AWS S3 services.

Major Learning Outcomes : Understanding the codebase/ code reading skills

Writing industry-level code

Interaction within and outside the team

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The working environment is very good and the team members are also very supportive. There is always enough time to get familiar with concepts before we start working on a new project.

Academic courses relevant to the project : Object Oriented Programming, DBMS, Operating Systems

PS-II Station : Hevo Technologies India Pvt. Ltd. , Bengaluru

Faculty

Name: Jyotsana Grover

Student

Name: ATHARVA A LIMAYE(2020A7PS1721G)

Student Write-up

PS-II Project Title: Klaviyo V2 Connector

Short Summary of work done during PS-II : I was a part of the team that manages the source side of the pipeline. I was assigned the task to upgrade existing Klaviyo Connector API to the latest version. The API had undergone a major change so it was like writing a new connector. I had to make proper document on how I will be proceeding before starting the coding. The technical document involved making sequence diagrams and ER Diagrams. Here OOPS helped me a lot. I was also assigned on call weeks where I solved customer issues that came up.

Tool used (Development tools - H/w, S/w) : Java, Kafka, Redis, SQL, Python, IntelliJ, PyCharm

Objectives of the project : To upgrade Klaviyo to the latest version. To help with Source Team in developing and maintaining software

Major Learning Outcomes : I learnt to write industry level code and take ownership of the projects.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The company is having flexible model of work. The company's work environment is characterized by its fast pace and strong focus on achieving results. Senior staff members are readily available for knowledge transfers (KTs) and collaboration on projects, maintaining an approachable demeanor throughout. During the initial onboarding phase, ample time is provided to familiarize oneself with the array of tools, technologies, and the product's architecture. It does not differentiate very much between interns and full timers and does not hesitate to give big project to interns thus helping in the learning.

Academic courses relevant to the project : DBMS,OOP, DSA

PS-II Station : Houseware (CMD CTR Private Limited) , Bengaluru

Faculty

Name: Raja Vadhana P

Student

Name: LAVANYA SUREKA .(2019B5A20620P)

Student Write-up

PS-II Project Title: Product Marketing, Growth and Customer Success

Short Summary of work done during PS-II : During my PS-II at Houseware, I focused on Product Marketing, Growth, and Customer Success. My role involved optimizing our online presence to better communicate our product offerings and drive customer acquisition. I created and maintained monthly product changelogs, updated help documentation, and drafted regular product updates and usage tips. I also developed website landing pages and managed social media marketing campaigns to attract new customers. I gained proficiency in several B2B SaaS tools, including Hubspot, Intercom, Arcade, Canva, and Miro, which enhanced my workflow efficiency. In the realm of Customer Success, I worked closely with a leading US-based Edtech startup, Quizizz, conducting workshops and preparing detailed usage reports to increase product adoption. With Houseware's pivot to AI, I expanded my knowledge in AI-related technologies and contributed to marketing efforts by creating AI-focused content, managing our content calendar, and developing the new AI-focused website. I also crafted a comprehensive FAQ document to address customer queries during this transition. Additionally, I participated in internal company hackathons, bridging the gap between technical innovation and market readiness by creating compelling sales decks and pitching products to stakeholders. This diverse set of experiences has equipped me with valuable skills in product marketing, customer success, and AI integration, preparing me for future roles in these fields.

Tool used (Development tools - H/w, S/w) : Software Tools: Hubspot: For inbound marketing, sales, and customer service. Intercom: For customer messaging and support. Arcade: For interactive product demos. Canva: For creating marketing visuals and graphics. Miro: For collaborative whiteboarding and brainstorming sessions. Notion: For project management and note-taking. ReadMe: For maintaining and sharing product documentation. Google Suite (Docs, Sheets, etc.): For document creation, data analysis, and collaboration. ClearFeed: For integrating communication channels. ScreenStudio: For recording and editing screen demos.

Objectives of the project : 1. Increase leads for customer acquisition 2. Increase usage amongst existing customers

Major Learning Outcomes : My major learning outcomes from the Product Marketing, Growth & Customer Success project at Houseware include mastering various product marketing strategies,

gaining proficiency in essential B2B SaaS tools, and enhancing my customer success management skills. I optimized Houseware's online presence, managed customer relationships, and increased user engagement through strategic communications and presentations.

Additionally, I expanded my knowledge in AI-related technologies and contributed to AI marketing initiatives. My involvement in creating content, managing lifecycle and social media marketing, and engaging with stakeholders has prepared me for future challenges in product marketing and customer success.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at Houseware was dynamic and collaborative, fostering a culture of innovation and continuous learning. The team was composed of highly skilled professionals who were always willing to share their knowledge and support each other. This collaborative spirit was particularly evident during internal hackathons and brainstorming sessions, where everyone contributed ideas and solutions.

The company maintained an open and transparent communication style, encouraging feedback and suggestions from all team members. Regular team meetings and one-on-one sessions with supervisors ensured that everyone was aligned with the company's goals and objectives. The use of various collaboration tools like Miro and Notion further facilitated effective teamwork and project management.

Houseware had high expectations for its employees, emphasizing accountability, creativity, and proactive problem-solving. As an intern, I was entrusted with significant responsibilities, such as managing customer relationships, creating marketing content, and optimizing the online presence. This level of trust motivated me to perform at my best and continuously seek improvement.

The company's pivot to AI introduced new learning opportunities, and I was expected to quickly adapt and contribute to AI-related marketing initiatives. Houseware provided ample resources and support for professional development, including access to training materials and regular knowledge-sharing sessions.

Overall, the supportive yet challenging environment at Houseware helped me grow professionally and personally, equipping me with valuable skills and experience in product marketing, customer success, and AI integration.

Academic courses relevant to the project : Principles of Economics, Organisational Psychology

**PS-II Station : HSBC Electronic Data Processing India Pvt. Ltd. ,
Bengaluru**

Faculty

Name: Sidharth Mishra

Student

Name: PULKIT GOEL(2022H1030009G)

Student Write-up

PS-II Project Title: Wdesk Dashboard Automation

Short Summary of work done during PS-II : Had automated various different part of business process in both Actuals reporting and Forecasting Activities for RWA Analytics team under Regulatory Reporting, helping the team in saving a large amount of hours to do the manual work so that they can focus on the analysis instead during the peak reporting time. These projects were of medium to large level and were a part of their monthly, quarterly and annual reporting which helped in reducing the scope of human errors while performing the process manually. Some of the projects are - Wdesk Dashboard automation along with rounding and casting logics, Materiality Dashboard Development, CFO Sign off packs, DTA file automation, MHD file automation, RCT file for CC.

Tool used (Development tools - H/w, S/w) : Microsoft Excel, VBA, Power Query, TM1

Objectives of the project : Automation of Wdesk Dashboard used for Actuals reporting by RWA Analytics along with Rounding and Casting activity

Major Learning Outcomes : Learnt how the regulatory reporting works in both Actuals Reporting and Forecasting Activities and how RWA works for an organization.

Details of Papers/patents : Not Applicable

Brief Description of working environment, expectations from the company : The work environment is good and the company follows a hybrid model. All the colleagues are approachable and helpful. I got to learn a new aspect of business while working at HSBC and was happy to contribute in the team.

Academic courses relevant to the project : Data structures and algorithm

**PS-II Station : HSBC Electronic Data Processing India Pvt. Ltd. ,
Bengaluru**

Faculty

Name: Sidharth Mishra

Student

Name: PATWA JEHAN VISPI(2022H1030012G)

Student Write-up

PS-II Project Title: Automation and Testing

Short Summary of work done during PS-II : Automated the manual reporting tasks for monthly, quarterly and yearly activities using VBA carried out the UAT to assure that the tool works and provides the reports as desired.

Tool used (Development tools - H/w, S/w) : VBA, Power Query, Excel

Objectives of the project : To automate the manual reporting tasks for monthly, quarterly and yearly activities.

Major Learning Outcomes : Working in the corporate environment

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : It was a very much professional environment with hybrid working culture. My entire team was from CA background and it was good interaction with the brilliant minds. Company expects to deliver the workings within the given deadline along with high accuracy tools.

Academic courses relevant to the project : NA

**PS-II Station : HSBC Electronic Data Processing India Pvt. Ltd. ,
Bengaluru**

Faculty

Name: Sidharth Mishra

Student

Name: WAGH ASHUTOSH AJIT(2022H1030052H)

Student Write-up

PS-II Project Title: Business Banking Data Submission

Short Summary of work done during PS-II : The internship at HSBC EDPI started with the mandatory trainings, which consisted of technical and finance related topics. After the trainings, I was given few tasks related to Data Analytics and Automation. Then, I was handed over few Automation projects, which were to be completed during the internship period. I started with the Business Banking Data Submission project, where the manual process having inconsistent approach had to be removed, and now it is end-to-end automated, also saving nearly 3 hours for 12 sites monthly. Later, I worked on other minor Automation projects, which are also saving a lot of time in the monthly submission processes.

Tool used (Development tools - H/w, S/w) : Python, SQL, Visual Studio Code, Jupyter Notebook

Objectives of the project : To make a consistent approach for different sites in Business Banking Data Submission & automate the entire process

Major Learning Outcomes : Learned to automate the manual process carried out in Microsoft Excel.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at HSBC EDPI is very good. My Manager has guided me very well in the internship, also he has been supportive and encouraging throughout these 6 months. My teammates are quite co-operative, also they helped me whenever I was in a dilemma. The company's expectations are that, along with the technical knowledge, we should know the basics of finance as well.

Academic courses relevant to the project : NA

**PS-II Station : HSBC Electronic Data Processing India Pvt. Ltd. ,
Bengaluru**

Faculty

Name: Sidharth Mishra

Student

Name: BHARTHIPUDI LAXMI MEGHANA(2022H1030109P)

Student Write-up

PS-II Project Title: Light automation

Short Summary of work done during PS-II : My work includes development of use cases where we mainly automate the business processes. I have done 4 projects till date using different technologies to automate the financial process. I have successfully completed these projects assigned to me and by each project we saved the time and effort of the business.

Tool used (Development tools - H/w, S/w) : Python, power query, VBA macro, Xceptor

Objectives of the project : To save the business time and effort

Major Learning Outcomes : I have gained practice experience on the technologies used in automation by developing the use cases

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Working environment in my team is very much positive and encouraging. Teammates are very much friendly they do help us when we are facing any impediments. I can say it is a ideal environment where everyone expect to have so.

Academic courses relevant to the project : Software engineering and management

**PS-II Station : HSBC Electronic Data Processing India Pvt. Ltd. ,
Bengaluru**

Faculty

Name: Sidharth Mishra

Student

Name: KEYA ARUNAKAR(2022H1030120P)

Student Write-up

PS-II Project Title: Power BI Dashboard

Short Summary of work done during PS-II : Analyzing Banks Information Using Bloomberg
Bloomberg is a vital tool for analyzing financial data of banks. It offers comprehensive datasets including balance sheets, income statements, and market data, which help in assessing a bank's performance, risk factors, and market position. Advanced features like real-time data, analytical tools, and customized reports provide deep insights into financial health and strategic decisions. Analyzing Banks Information Using Bloomberg Bloomberg is a vital tool for analyzing financial data of banks. It offers comprehensive datasets including balance sheets, income statements,

and market data, which help in assessing a bank's performance, risk factors, and market position. Advanced features like real-time data, analytical tools, and customized reports provide deep insights into financial health and strategic decisions. Power BI and QlikSense for Dashboard Making Power BI and QlikSense are powerful tools for creating interactive and insightful dashboards. Power BI, known for its user-friendly interface and robust integration with Microsoft products, allows users to visualize data through various charts, graphs, and maps. QlikSense offers advanced analytics and is valued for its associative data model, enabling users to explore data intuitively. Both tools facilitate real-time data updates and sharing, making them essential for data-driven decision-making in businesses.

Tool used (Development tools - H/w, S/w) : PowerBi, Excel, QlikSense

Objectives of the project : Importing a detailed excel dashboard on Microsoft Powerbi for enhanced visualization and better insights.

Major Learning Outcomes : In-depth working of PowerBI and excel.

Details of Papers/patents : nil

Brief Description of working environment, expectations from the company : Work environment is nice, but the team where i got my internship is not the correct place for people from technical background.

Academic courses relevant to the project : Data Visualisation.

**PS-II Station : HSBC Electronic Data Processing India Pvt. Ltd. ,
Bengaluru**

Faculty

Name: Sidharth Mishra

Student

Name: JYOTSANA CHANDRAKAR(2022H1120286P)

Student Write-up

PS-II Project Title: RWA Functional Testing - FCD

Short Summary of work done during PS-II : Testing and Managing Changes: Ensure accurate changes for FOTC RWA and downstream systems within the Finance Change Delivery department. Functional Testing: Perform rigorous testing on data files from FCDP and FOTC layers. Posting Adjustments: Manage and validate posting adjustments. Regression Dashboard: Contribute to generating and maintaining the regression dashboard.

Tool used (Development tools - H/w, S/w) : SQL, Qlik Sence, RCT (Reporting and Consolidation Tool), Tableau, GCP, MS Excel.

Objectives of the project : Contribute to regulatory compliance and smooth implementation by testing and managing changes for FOTC RWA and its downstreams.

Major Learning Outcomes : Technical Skills:

- * Proficiency in writing and optimizing complex SQL queries.
- * Experience with GCP services like BigQuery and Cloud Storage.
- * Knowledge of functional testing methodologies and defect tracking.

Financial Knowledge:

- *Understanding the calculation and significance of risk-weighted assets (RWA).
- *Familiarity with Basel II/III regulatory frameworks.

Analytical Skills:

- *Enhanced data analysis and problem-solving abilities.
- *Improved decision-making based on financial data insights

Details of Papers/patents : Our team performs monthly testing for bugs and assigned epics. Each month, we systematically test and address issues.

Brief Description of working environment, expectations from the company : Company fosters a supportive and collaborative working environment where everyone is kind and helpful. They prioritize work-life balance, ensuring employees have the flexibility they need. Team members are always willing to assist each other, creating a positive and productive atmosphere.

Academic courses relevant to the project : Database Management: Focuses on SQL for querying and managing databases.

Cloud Computing: Covers Google Cloud Platform (GCP) for cloud-based testing and infrastructure management.

Software Testing: Teaches the creation and management of test cases, espe

PS-II Station : HSBC Electronic Data Processing India Pvt. Ltd. , Bengaluru

Faculty

Name: Sidharth Mishra

Student

Name: SOUMYA AGRAWAL(2022H1120289P)

Student Write-up

PS-II Project Title: Control and Automation

Short Summary of work done during PS-II : I am part of control and automation team where we closely work with team in understanding their requirements and automating their processes using python, other automation tools.

Tool used (Development tools - H/w, S/w) : Python, power BI,MS excel,VBA,Vue js,Fastapi, sqlite3

Objectives of the project : I am part of control and automation team where we closely work with team in understanding their requirements and automating their processes using python, other automation tools.

Major Learning Outcomes : I learnt how to take business requirements from SME,Also how to do full project end to end.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The environment at HSBC is very good.Our team is very friendly with us.Everyone helps whenever needed.Work load is there in our team but it is also chill as we have group lunch every month.

Academic courses relevant to the project : Software engineering, DBMS

**PS-II Station : HSBC Electronic Data Processing India Pvt. Ltd. ,
Bengaluru**

Faculty

Name: Sidharth Mishra

Student

Name: VASANT SINHA(2022H1540804P)

Student Write-up

PS-II Project Title: Automation of weekly/monthly MI reports

Short Summary of work done during PS-II : This summary highlights the key functions and contributions of HSBC Global Service Centre (GSC), which centralizes and streamlines back-office processes to enhance efficiency and cost-effectiveness. GSC's strategic global presence supports HSBC's operations around the clock, emphasizing innovation, automation, and strict adherence to regulatory standards. Within the CCO department, my role primarily involved analyzing Investment Banking (IB) products, monitoring their performance, and generating business summary reports tailored to stakeholders' needs. Additionally, I assisted in preparing weekly and monthly management information (MI) reports and quarterly business reviews (QBR). Key projects included the automation of MI reports, development of custom-made dashboards for tracking key performance indicators (KPIs), and creating a dataset comparing tool to identify inconsistencies. The automation project significantly improved process efficiency by 80% and enhanced data accuracy. The custom-made dashboard facilitated better visualization of KPIs such as market wallet revenue and HSBC's market rank. The dataset comparing tool ensured data integrity by highlighting discrepancies.

Tool used (Development tools - H/w, S/w) : Microsoft Excel, Power Query, Power BI, Python

Objectives of the project : Efficient tracking of business KPIs

Major Learning Outcomes : Soft skills, Learning about the business, stockholder management and pressure handling

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : I loved the work culture of this organization. Here people have a systematic process basically agile methodology for implementing the project and prefer quality over time.

If given chance I would surely love to work within this organization.

Academic courses relevant to the project : MPBA G511, MPBA G516

PS-II Station : HSBC Electronic Data Processing India Pvt. Ltd. , Bengaluru

Faculty

Name: Sidharth Mishra

Student

Name: CHAMARTHI SAI SARAN(2022H1540808P)

Student Write-up

PS-II Project Title: Real Assets and Structured Finance Transformation

Short Summary of work done during PS-II : As an analyst in RASF (Real Assets and Structured Finance) Transformation at HSBC, my role revolves around meticulously reviewing facility agreements and deal documents from HSBC's various transactions. This entails a deep dive into each deal's specifics, comprehensively understanding its terms and conditions. I then translate this understanding into actionable insights by inputting precise details into the SPARTAN tool. Through this process, I contribute to the bank's risk management strategies, ensuring accuracy and clarity in our financial dealings while optimizing efficiency in data processing.

Tool used (Development tools - H/w, S/w) : SPARTAN

Objectives of the project : To analyze the stability of Real Asset and Structured Finance deals in HSBC

Major Learning Outcomes : Post-closure deal maintenance at HSBC.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : NA

Academic courses relevant to the project : Corporate Finance, Financial modeling

**PS-II Station : HSBC Electronic Data Processing India Pvt. Ltd. ,
Bengaluru**

Faculty

Name: Sidharth Mishra

Student

Name: PRASAD A(2022H1540814P)

Student Write-up

PS-II Project Title: Data Analysis and Automation

Short Summary of work done during PS-II : Data Analysis and Task Completion.

Tool used (Development tools - H/w, S/w) : Python,Excel.

Objectives of the project : Data analysis and Task Completion.

Major Learning Outcomes : Python,Excel.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : None

Academic courses relevant to the project : Big Data Analytics,Data Analytics and Statistics.

**PS-II Station : HSBC Electronic Data Processing India Pvt. Ltd. ,
Bengaluru**

Faculty

Name: Sidharth Mishra

Student

Name: NIKUNJ MOONA(2022H1540816P)

Student Write-up

PS-II Project Title: Spartan Back-Book Input

Short Summary of work done during PS-II : NA

Tool used (Development tools - H/w, S/w) : Microsoft Excel

Objectives of the project : To update the RAF deals in a home grown software name SPARTAN.

Major Learning Outcomes : Banking Finance and Risk Management domain.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working Environment is pretty good. Everyone is very helpful.

Academic courses relevant to the project : Corporate Finance and Accounting

**PS-II Station : HSBC Electronic Data Processing India Pvt. Ltd. ,
Bengaluru**

Faculty

Name: Sidharth Mishra

Student

Name: IYER ADITYA ANAND(2022H1540818P)

Student Write-up

PS-II Project Title: Portfolio Analytics Management

Short Summary of work done during PS-II : Assisted the team in streamlining the MIs through python automation and assisted in various data analysis on different internal parameters.

Tool used (Development tools - H/w, S/w) : Python, Power BI, Excel and other internal tools.

Objectives of the project : To optimize the wholesale credit and lending portfolio of the bank.

Major Learning Outcomes : Financial calculations and judgements to

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The team is very helpful and everyone is quite helpful. One can expect an immersive corporate experience with real life situations and they unfold. Also on the technical aspect, a good knowledge on finance and credit risk analytics can be learnt during the tenure.

Academic courses relevant to the project : Statistics and Principles of Econometrics, Corporate Finance, Managerial Economics,

PS-II Station : HSBC Electronic Data Processing India Pvt. Ltd. , Bengaluru

Faculty

Name: Sidharth Mishra

Student

Name: PANUGANTI SAI PRAVEEN(2022H1540824P)

Student Write-up

PS-II Project Title: BASEL 3 to 3.1 RWA impacts and changes

Short Summary of work done during PS-II : During my PS-II, I undertook two significant projects: the Basel 3 to Basel 3.1 impacts project and the automation of limited partners' details for exposure reporting to the PRA UK. **Basel 3 to Basel 3.1 Impacts Project:** I developed an end-to-end Power BI dashboard to analyze the changes and impacts of transitioning from Basel 3 to Basel 3.1. This involved importing and cleaning data from various Excel files, performing data modeling, and creating comprehensive reports. The dashboard provides key insights into the regulatory changes, highlights the impacts on capital adequacy and risk-weighted assets, and allows for detailed comparisons between the Basel 3 and Basel 3.1 frameworks. By integrating real-time data feeds and enabling user-specific customization, the dashboard enhances regulatory compliance and strategic decision-making. **Automating Limited Partners Details for Exposure Reporting:** I also automated the process of compiling and analyzing the details of limited partners to determine the total exposure that needs to be reported to the Prudential Regulation Authority (PRA) in the UK. This involved creating an automated data pipeline using Python.

Tool used (Development tools - H/w, S/w) : Python, Power BI, QlikSense, Pyspark

Objectives of the project : To develop an end to end dashboarding project including BRD, FRD, TRD, Power BI developed dashboard file, insights from the dashboard

Major Learning Outcomes : Knowledge on Banking finance, dashboarding tools, python

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Collaborative, emphasizing teamwork, innovation, and continuous improvement. With a strong focus on regulatory compliance and financial stability, the company provides the resources and support necessary for successful project execution.

As part of the Basel 3 to Basel 3.1 impacts dashboard project, I am expected to deliver an end-to-end solution that encompasses data collection, cleaning, modeling, and visualization. This involves working closely with cross-functional teams, including compliance, risk management, and IT, to ensure accurate and timely data integration

Academic courses relevant to the project : Financial modelling, Programming for analytics, Data visualization and data ethics, financial accounting

**PS-II Station : HSBC Electronic Data Processing India Pvt. Ltd. ,
Bengaluru**

Faculty

Name: Sidharth Mishra

Student

Name: RASHMI(2022H1540827P)

Student Write-up

PS-II Project Title: Data Analysis

Short Summary of work done during PS-II : I working on emission modelling.

Tool used (Development tools - H/w, S/w) : Jupyter notebook, neo4j

Objectives of the project : To develop a predictive model using machine learning algorithms that accurately forecasts sales for the next quarter based on historical sales data, with the goal of improving inventory management and operational efficiency.

Major Learning Outcomes : EDA, Python, Machine Learning Algorithms, Data gathering process

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : HSBC, a global banking and financial services institution, offers a dynamic and diverse working environment that emphasizes collaboration, innovation, and professional development. The company operates on a global scale, providing employees with opportunities to work across different markets and cultures, fostering a rich and inclusive workplace. The company encourages innovation and digital transformation, embracing new technologies to improve customer experience and operational efficiency. Employees are expected to adapt to changes in the financial industry and contribute innovative solutions to address challenges and opportunities. HSBC values continuous learning and development, supporting employees in enhancing their skills and advancing their careers within the organization.

Academic courses relevant to the project : Yes

**PS-II Station : HSBC Electronic Data Processing India Pvt. Ltd. ,
Bengaluru**

Faculty

Name: Sidharth Mishra

Student

Name: SHASHANK SHEKHAR(2022H1540829P)

Student Write-up

PS-II Project Title: Loan syndication recording using SPARTAN

Short Summary of work done during PS-II : Capturing of live and past deals done in a reporting software SPARTAN

Tool used (Development tools - H/w, S/w) : SPARTAN

Objectives of the project : Backbook upload of deals done by HSBC

Major Learning Outcomes : Loan syndication process and banks assessment of risk

Details of Papers/patents : na

Brief Description of working environment, expectations from the company : Work culture of HSBC balances the professional and personal life very well

Academic courses relevant to the project : Corporate Finance

**PS-II Station : HSBC Electronic Data Processing India Pvt. Ltd. ,
Bengaluru**

Faculty

Name: Sidharth Mishra

Student

Name: MUTTEVI SAI YASASVI(2022H1540831P)

Student Write-up

PS-II Project Title: Portfolio Management Analytics

Short Summary of work done during PS-II : Analysing and Reporting the financial data , Market parameters data for public listed companies and Internal Parameters data for private listed companies to support global portfolio management teams for better decision making on risk management using advanced tools and techniques in data analytics. Automating the analytics, visualization and reporting process and streamlining the process using python.

Tool used (Development tools - H/w, S/w) : Python, Alteryx, Tableau, SQL, Excel

Objectives of the project : Supporting the Portfolio Management Teams across the world for better decision making and risk management using Analytics

Major Learning Outcomes : Martek parameters analysis for risk management , Internal Parameters analysis for risk management, Portfolio securitization and management, NLP, Deep Learning for NLP , Machine Learning for NLP , NLP Algorithms, Data Analysis and Visualization using Python , Python Automation , Python to excel Report generation, Python to PPT Report Generation, Python Application creation using Streamlit, Automatic Reports generation using python , Pricing Tool product management.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Excellent working environment and lot of learning opportunity within the team as there are 4 different verticals covering from origination and pricing of financial products to radar and early warning indicators, MI Reporting and Portfolio Securitization. Opportunity to implement all the Python, Data Analytics and Data Science skills and concepts on real life financial data and develop better practical real life understanding of these. Team expects the interns to be good in python coding skills for data analytics , able to perform different varieties of analytic techniques and generate complex visualizations using python , Process Automation using python and Analytics - (python to excel report generation, python to ppt reports generation), building Streamlit applications using python and NLP concepts.

Academic courses relevant to the project : Data Analytics and Visualization using Python , Predictive Analytics, NLP , Deep Learning For Business , Corporate Finance , Financial

Accounting , Financial Modeling and Valuation, Statistics , Time Series Analysis, Financial Derivatives.

PS-II Station : HSBC Electronic Data Processing India Pvt. Ltd. , Bengaluru

Faculty

Name: Sidharth Mishra

Student

Name: DAGGUPATI SAI ARAVIND KASYAP(2022H1540832P)

Student Write-up

PS-II Project Title: Basel Regulation Impact Analysis

Short Summary of work done during PS-II : The main objective during the PS duration is to help the team in their transition to analytics. All the functional teams are willing to migrate to a better digital capacity, that involves a lot of process automations, dashboard development and application development. As a business analytics student, you should be able to assist them in this digital transformation by using your technical and domain expertise in analytics. I have worked on many Adhoc tasks and requests on python automations, Power Bi dashboards for impact analysis across functions etc.

Tool used (Development tools - H/w, S/w) : Python, Power BI, Gen AI

Objectives of the project : Access the impacts that drive the basel 4 transition and its impact in different regions, platforms and sectors.

Major Learning Outcomes : Functional banking finance knowledge, use of analytics across financial sector.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : In HSBC, work environment is very good mainly in terms of the team, flexibility and encouragement. The company is accommodating and will provide all the resources needed for you to learn. The main expectation from the company or the team would be learning, they are only focused on what you have learnt in the time spent with HSBC. The guidance from the mentors or the team is very good and work timings can also be flexible based on the team. The team would be expecting some support on your expertise in academics that can be used by them such as technical knowledge, business knowledge etc. which are not supposedly included in the team. Overall, HSBC is a great place to work with lot of opportunity to learn and implement.

Academic courses relevant to the project : Python, Data Visualization, Database management systems, Predictive analytics, Deep Learning, Corporate Finance

PS-II Station : HSBC Electronic Data Processing India Pvt. Ltd. , Bengaluru

Faculty

Name: Sidharth Mishra

Student

Name: R NAVEN(2022H1540835P)

Student Write-up

PS-II Project Title: SPARTAN - Backbook

Short Summary of work done during PS-II : Work is more of recording information in a platform, but can't say much because of compliance.

Tool used (Development tools - H/w, S/w) : Excel, PPT

Objectives of the project : Connecting with different project and deal leader and getting all the information streamlined in a single web platform called SPARTAN

Major Learning Outcomes : Gained more knowledge on finance apart from what taught in class.

Details of Papers/patents : Nil

Brief Description of working environment, expectations from the company : HSBC has a good culture and working environment

Academic courses relevant to the project : Corporate Finance, Financial Derivates and Modelling

PS-II Station : Hurix Digital Pvt Ltd , Mumbai

Faculty

Name: Gaurav Nagpal

Student

Name: ARCHIS KELKAR(2020B1PS1032G)

Student Write-up

PS-II Project Title: Performance Marketing

Short Summary of work done during PS-II : Working at Whatfix as a company includes work assigned by all teams inside a specific Department, as a Perf. Marketing Intern, my work included ABM, Campaign Reporting, LinkedIn Researching, Account Scoring, Account Analysis, Sales Integration and Outbound Management. These are few of the tasks taken into hand by myself which helps gain an overall perspective of what the OKRs for a certain team are. Out of them all, ABM was my primary task, meaning everything under Account Based Marketing was completed by me, that included 2 certifications from a Platform Whatfix uses, multiple use cases for QoQ working, account analysis for Quarterly Designations, Scoring to see which accounts have viable intent to go after and Sales Integration to work hand in hand with Sales Dept to make them known which accounts are ripe for Outreach. All of this has multiple processes so as an intern, it is expected you to keep up with all teams, Campaign Reporting was done only for Search and PPC, which is Google and Bing, which included reports on how campaigns were running and their data collation. Overall there were a few more tasks also integrated to my work which included Sales Tasks and Automation Tasks, which gave an eagle eye view to the future working and if it is viable and has efficient ROAS and ROI to execute.

Tool used (Development tools - H/w, S/w) : Salesforce, DemandBase, LinkedIn Sales Nav, Lemlist

Objectives of the project : Analysis of Market in B2B Space and Capturing Accounts through Outbound Marketing Efforts

Major Learning Outcomes : Marketing, Sales Processes, ABM, Outbound Marketing Processes, Demand Generation

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Working at Whatfix as a company includes work assigned by all teams inside a specific Department, as a Perf. Marketing Intern, my work included ABM, Campaign Reporting, LinkedIn Researching, Account Scoring, Account Analysis, Sales Integration and Outbound Management. These are few of the tasks taken into hand by myself which helps gain an overall perspective of what the OKRs for a certain team are. Out of them all, ABM was my primary task, meaning everything under Account Based Marketing was completed by me, that included 2 certifications from a Platform Whatfix uses, multiple use cases for QoQ working, account analysis for Quarterly Designations, Scoring to see which accounts have viable intent to go after and Sales Integration to work hand in hand with Sales Dept to make them known which accounts are ripe for Outreach. All of this has multiple processes so as an intern, it is expected you to keep up with all teams, Campaign Reporting was done only for Search and PPC, which is Google and Bing, which included reports on how campaigns were running and their data collation. Overall there were a few more tasks also integrated to my work which included Sales Tasks and Automation Tasks, which gave an eagle eye view to the future working and if it is viable and has efficient ROAS and ROI to execute.

Academic courses relevant to the project : None

PS-II Station : Hurix Digital Pvt Ltd , Mumbai

Faculty

Name: Gaurav Nagpal

Student

Name: JAYANT RAWAT .(2020D2PS1282P)

Student Write-up

PS-II Project Title: How to Organizing and Branding a Product Through Digital Marketing

Short Summary of work done during PS-II : n Digital marketing you don't have to rely on single brand, because if we focus on single brand and we have a large team behind us, so we have to make multiple brand signing for us, just a team with 10 people or more or less. So, we have to distribute all brand for team and project leader

Tool used (Development tools - H/w, S/w) : Shopify, Kartify, google ads , meta ads

Objectives of the project : This project depends on the whole work on digital marketing of the brand through the different types of different sites, like Facebook, Google, and Gmail. After marketing, we have to talk with brands and have a discussion with the settlement of their brand at which amount they are required to broadcast, and how much their budget,

Major Learning Outcomes : Communication , soft learning , healthy conversion with team

Details of Papers/patents : After advertising the brand, we must make a whole Excel sheet in which we

have to counter the daily basic amount of reach and how much influence on people we must write down on different timelines like the last 30 days, at 1 pm noon, 5 pm noon. So that if there is boost is low, we can easily give a boost to that product

Brief Description of working environment, expectations from the company : Just like I am working in a brand For Daniel Wellington, so first all I have to prepared a dsr sheet, after the make a inventory sheet, how much we have a inventory, how much people are buy or called order, how much we earn a revenue. This is my basic work for Daniel wellington after that I also have make a weekly report, in that I have a make an NPD Revenue sheet, also Revenue sheet, after that I have to make Top 10 product in weekly in which people buying for Daniel Wellington. So, this is work for after that, I have to attend a meet with team members we have attend a meet for client so what we have to

produce them the idea, we can do better like this.

Digital marketing work on brand

Digital marketing is a crucial aspect of building and maintaining a strong brand presence in today's digital age. It involves using various digital channels to promote a brand, connect with potential customers, and drive business growth. Here's a breakdown of the key aspects of digital marketing work on brand:

Academic courses relevant to the project : management courses

PS-II Station : HyperVerge Technologies Pvt. Ltd. , Bengaluru

Faculty

Name: Arindam Roy

Student

Name: CHEKKA AKHIL SAI(2019B3A20570H)

Student Write-up

PS-II Project Title: Business Finance Intern

Short Summary of work done during PS-II : Implemented sophisticated revenue forecasting models in a FP&A project, utilizing historical data analysis, market trends, and industry benchmarks to predict future revenue streams from clients, facilitating strategic decision-making and driving organizational growth initiatives. Predicted revenue from Jan to June (two quarters) with 95% accuracy. • Worked with immense ownership in SaaS tool cost optimisation. Performed Secondary Market Research to find out potential service and finalised two leads who could help

the firm in optimising the cost. Reconciled TDS receivables FY 23-24 worth ~ Rs.4 Cr. Analyzed the travel cost of the employees in the firm and concluded with necessary changes required.

Tool used (Development tools - H/w, S/w) : Excel

Objectives of the project : Forecast two quarter revenue of client, Reconcile TDS and approach clients for mismatches, Analyze travel costs

Major Learning Outcomes : Financial Modelling, Excel Proficiency, Business finance strategies, TDS

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Work environment felt good but the managers were less approachable and felt lost at sometimes. Expected a bit of cross functional learning and much more interactions with superiors but the situation is not as expected.

Academic courses relevant to the project : FoFa, BAV

PS-II Station : HyperVerge Technologies Pvt. Ltd. , Bengaluru

Faculty

Name: Arindam Roy

Student

Name: KUNAL MALL .(2019B4A40431P)

Student Write-up

PS-II Project Title: Business Associate in Revenue Operations

Short Summary of work done during PS-II : During my PS-II internship at HyperVerge, I actively contributed to the Revenue Operations team, focusing on optimizing revenue processes and enhancing data analysis capabilities. One of my primary tasks was to streamline CRM workflows by cleaning and structuring existing data in HubSpot. This effort improved data accuracy and operational efficiency across the organization. I also conducted in-depth pipeline forecasting and analysis, providing valuable insights for strategic planning and revenue projection. Creating customized dashboards for inside sales and enterprise sales allowed for better performance tracking and informed decision-making. These dashboards enabled the sales team to identify trends, track key metrics, and make data-driven decisions to drive revenue growth. In addition to technical tasks, I played a key role in developing and implementing Go-to-Market (GTM) strategies. This involved aligning revenue initiatives with broader business objectives and contributing to the overall growth strategy of the organization. My work in this area helped streamline the revenue operations process and optimize the effectiveness of sales and marketing efforts. Throughout the internship, I honed essential soft skills such as stakeholder management, effective communication, and problem-solving. I collaborated closely with internal stakeholders, ensuring smooth project execution and fostering strong team dynamics. Furthermore, I adhered to ethical standards by maintaining confidentiality and handling sensitive information with discretion. Overall, my internship at HyperVerge provided a comprehensive learning experience, equipping me with the skills and knowledge to contribute effectively to revenue operations and strategic initiatives within a dynamic business environment.

Tool used (Development tools - H/w, S/w) : HubSpot, Excel, Microsoft Suite

Objectives of the project : Optimize revenue processes, enhance data analysis capabilities, and contribute to strategic initiatives within the Revenue Operations team.

Major Learning Outcomes : Gained expertise in optimizing CRM workflows, performing data analysis, and contributing to strategic revenue initiatives, while enhancing stakeholder management and ethical practices. Developed a comprehensive understanding of revenue operations and its impact on organizational growth.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : In my current role, I thrive in a dynamic environment where I oversee crucial aspects of revenue operations and operational efficiency:

I'm responsible for implementing systems to track realized revenue from HubSpot, leveraging tools like Metabase for comprehensive reporting and analysis. This involves ensuring data accuracy and gaining valuable insights into the impact of our sales and marketing strategies.

I actively contribute to optimizing HubSpot workflows and maintaining data integrity, which enhances our overall efficiency in sales and marketing processes. Renewing and managing legal agreements for key accounts is also a priority, strengthening client relationships and driving sustained business success.

I'm deeply involved in sales analysis, creating insightful dashboards that provide actionable metrics and support data-driven decision-making across the organization.

Additionally, I conduct competitive research and maintain contact information for venture capitalists, which aids in strategic decision-making and cultivates valuable networking opportunities. Financial reviews, such as assessing the profitability of business modules like APIs, ensure alignment with our strategic business objectives.

In essence, my role demands organizational agility, meticulous attention to detail, and strategic thinking to drive operational excellence, maintain compliance, and foster growth through effective management of critical business functions.

Academic courses relevant to the project : Probability and Statistics, Communication courses (HuELs)

PS-II Station : HyperVerge Technologies Pvt. Ltd. , Bengaluru

Faculty

Name: Arindam Roy

Student

Name: JAYANT PANT .(2020A3PS1555P)

Student Write-up

PS-II Project Title: Ensuring Client & Customer Success in a B2B SaaS environment.

Short Summary of work done during PS-II : In the initial month of my internship, I was engaged in knowing more about the products and services that Hyperverge offered, and how we had positioned our services to solve the KYC onboarding journey problems faced in India's BFSI segment. Following the initial phase of the internship, I took over the responsibilities of handling clients, communicating as the Single Point of Contact(SPoC) and handling the client communications over mail and phone. Herein, I also saw through multiple new deployments of technologies with various clients, and even oversaw the process of going-live with one of our newer clients. Post this phase, I got assigned multiple clients under a portfolio of \$4500 combined monthly revenue. My Key Performance Indicators were to grow this portfolio by 10% in the current Quarter, through upselling and cross selling. By thoroughly exploring these fundamental concepts, the report aims to establish a solid foundation for elucidating my efforts and initiative undertaken during this internship, which delve into the practical experiences and valuable insights gained during the enriching six-month internship program.

Tool used (Development tools - H/w, S/w) : Elastic Search, Kibana, Slack, Zoho, Freshdesk

Objectives of the project : To ensure customer fulfillment and Strategically increase the Monthly Revenue of the company.

Major Learning Outcomes : Account Management, Client Interaction,

Details of Papers/patents : none

Brief Description of working environment, expectations from the company : Working environment was very flexible, with no boundations on in and out times. People are friendly, and lunch and breakfast is also served. There are different management tools for project management and defined SLAs for responding.

Academic courses relevant to the project : Derivatives and Risk Management,

PS-II Station : IBM Hardware , Pan India

Faculty

Name: Manoj Subhash Kakade

Student

Name: SOMYA GUPTA(2022H1230231P)

Student Write-up

PS-II Project Title: Implementation of RISC-V CMO instruction for Boom core

Short Summary of work done during PS-II : implemented the cache memory operations instruction in core to manage the data of cache memory and to ensuring the security of chip.

Tool used (Development tools - H/w, S/w) : cadence sim vision

Objectives of the project : to add instruction in data cache of boom core to manage the data of cache

Major Learning Outcomes : scala, chisel, out of order core

Details of Papers/patents : cannot be disclosed

Brief Description of working environment, expectations from the company : working environment is good, mentors and all other are very supportive and helpful.

Academic courses relevant to the project : Vlsi architecture.advance vlsi architecture

PS-II Station : IBM Hardware , Pan India

Faculty

Name: Manoj Subhash Kakade

Student

Name: JAIN KINJAL RANJEET PUSHPA(2022H1230240P)

Student Write-up

PS-II Project Title: "FIFO for asynchronous communication between Boot Engine and Service Processor"

Short Summary of work done during PS-II : I worked on studying the designs of two functional unit blocks present in power processor chip of ibm. Verified those on simulation environment & enhanced them.

Tool used (Development tools - H/w, S/w) : Tools Used - S/w - Cocotb, GVIM, GIT, VS code.

Objectives of the project : To study the functional units of power systems of IBM and verify them by using simulation environment by creating some enhancements.

Major Learning Outcomes : Study versatility of various functional units present in power processor chip. Learned Linux, GIT, GVIM, etc

Details of Papers/patents : No papers/patents

Brief Description of working environment, expectations from the company : Working environment was quiet good. People here are welcoming, supportive & caring too. Company expected us to ramp up with the organizational level clarity on technical aspects. We were given quiet sufficient time to do so. They expect us to know basics things like Linux commands, GIT, etc.

Academic courses relevant to the project : VLSI design, Reconfigurable Computing, Computer Architecture, etc

PS-II Station : IBM Hardware , Pan India

Faculty

Name: Manoj Subhash Kakade

Student

Name: NIKHIL GUPTA(2022H1230253P)

Student Write-up

PS-II Project Title: Converting event-based simulations into cycle simulation for the functional verification of I/O subsystems at the PHY layer for IBM Mainframes

Short Summary of work done during PS-II : Verified DUV (DiagCapture block) which is responsible for data integrity and also detects error if any occurs in the data stream. My job is to verify it that it meet the expected behavior and talk to designer if something not working out also making a test plan which is a flow of how to verify it.

Tool used (Development tools - H/w, S/w) : C++, Python, Bash, OOPs,

Objectives of the project : Verification of DUV (Design under Verification)

Major Learning Outcomes : C++, Verification Environment, Building Test Plan, Reading specification and understanding Design, Some OOPs concepts.

Details of Papers/patents : Nop

Brief Description of working environment, expectations from the company : Work environment is too good, everyone is very helpful not only for technical but also to personal life best place to work.

Academic courses relevant to the project : 1) Test and Testability: had System Verilog and UVM, basic knowledge helps in understanding testbench architecture.

2) all the VLSI courses: helps in understanding the big Picture of Design which makes life bit easier

3) RC (Reconfigurable Computing): h

PS-II Station : IBM Hardware , Pan India

Faculty

Name: Manoj Subhash Kakade

Student

Name: BHARATHI SHRINIVASAN T R(2022H1400182P)

Student Write-up

PS-II Project Title: Hardware Designing and Implementation of AES Cryptography Algorithm Based on RISC-V Crypto Vector Extension Instruction Set

Short Summary of work done during PS-II : My work is a part of logic design delivery for an on-going development of RISC-V Crypto Engine. • Involves implementation of AES (Advanced Encryption Standards) security algorithm as RISC-V cryptographic vector instructions with dedicated custom designed execution unit for performing AES transformations. • Developing firmware microcode to implement various cryptographic modes of operation (i.e., Block ciphers, Stream ciphers). • And, finally taking up the integration of design into the Crypto Engine.

Tool used (Development tools - H/w, S/w) : IBM Specific HDL programming language

Objectives of the project : To design RISC-V Crypt ext. implementation of NIST standard algorithm

Major Learning Outcomes : Understand RISC-V implementation for Cryptographic instruction sets

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Good. Planned approach.

Academic courses relevant to the project : VLSI Architecture, Embedded System Design

PS-II Station : IBM India Software Group , Bengaluru

Faculty

Name: Raghu Sesa Iyengar

Student

Name: ATHARVA RAKESH DHANWATE(2022H1030037G)

Student Write-up

PS-II Project Title: MXZ to CMD transformation tool

Short Summary of work done during PS-II : Learned about IBM mainframes, architecture of zCore. Worked on a transformation program that runs traces collected from hardware runs on a simulation model. Performed various analysis at instruction level. Once done with the internship project, I was tasked with developing features for dashboard tool used for visualization, along with learning Assembler course for Z architecture. I also worked on developing various automation scripts in python.

Tool used (Development tools - H/w, S/w) : linux, vscode, git

Objectives of the project : To design and develop a tool that allows to gain performance insights of various workloads simulated on core simulation model.

Major Learning Outcomes : learned

IBM Z architecture

C programming

Assembly

Python

shell script automation and linux

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Very supportive team. not much work pressure. sometimes meetings may be scheduled after working hours as some part of the team may be from other countries such as USA, Germany. Weekly scrums and 1 on 1's with manager. 1 mentor assigned to help you with your project. 5 days WFO for interns, 3 days WFO for full time employees. Good work if interested in hardware/ architecture. Career growth is slow since most work revolves around in house technology. no other perks.

Academic courses relevant to the project : algorithms, computer architecture, C programming

PS-II Station : IBM India Software Group , Bengaluru

Faculty

Name: Raghu Sesha Iyengar

Student

Name: SAIKAT BISWAS(2022H1030100P)

Student Write-up

PS-II Project Title: Enhancing testcase evaluation with custom cover point event addition.

Short Summary of work done during PS-II : Added custom coverage point to the existing codebase for testcase evaluation. Developed a visualization infrastructure to extract coverage

information pertaining to testcases after a set of simulations from real time data collection. The web app interacts with the coverage data collection server through REST API calls and fetches relevant data for the visualization. It has certain endpoints defined to interact with the real time data collection server. The backend logics defined are responsible for the raw data processing and apply functional logic to prepare the comparison data as per the visualization requirement. It also generates relevant graphical plots to facilitate better coverage comparison in the UI. The frontend is responsible for facilitating a seamless user interaction. It takes inputs from the user and passes on the request to the backend where the data fetching and processing is done. Once the data is ready, it is rendered to the frontend UI in a nice tabular and graphical format.

Tool used (Development tools - H/w, S/w) : VScode, IBM internal tool, Git, Automation scripting

Objectives of the project : The problem statement is to create a methodology by leveraging existing infrastructure to define complex events for profiling testcases. Also create a visualization infrastructure to determine the efficacy of the testcases with respect to the coverage events defined.

Major Learning Outcomes : Python, FastAPI, Web development, Automation scripting

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Flexible and supportive environment with good learning opportunities.

Academic courses relevant to the project : NA

PS-II Station : IBM India Software Group , Bengaluru

Faculty

Name: Raghu Sesha Iyengar

Student

Name: CHINMAY KUMAR RATH(2022H1030106P)

Student Write-up

PS-II Project Title: Moving Power ISA instructions in QEMU

Short Summary of work done during PS-II : My objective was to move Power ISA instructions in QEMU to Decodetree specification. QEMU is an open-source emulation software used in the Linux KVM too. I work with the KVM Linux team. First few weeks were all about understanding the Decodetree specification, reading the official documentation. My courses of Cloud computing and ACA in ME BITS provided a very good foundation. I then spent a couple days understanding the QEMU internals and Power ISA, then started moving instructions to the said specification in batches of categories of : fixed-point, floating-point, VMX and VSX instructions. Contributions made were sent to the open source community. By the end of May, I had moved > 300 instructions and started working on new stuffs.

Tool used (Development tools - H/w, S/w) : QEMU, Vim, basic code editing tools and virtualization tools.

Objectives of the project : Moving Power ISA instructions in to Decodetree specification in QEMU.

Major Learning Outcomes : Hands-on experience on QEMU software/ virtualization/ Linux kernel. Open source software contribution and community engagement.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Work env was very chill. Everyone was super amiable and very supportive and fun.

Academic courses relevant to the project : Cloud Computing, Advanced Computer Architecture

PS-II Station : IBM India Software Group , Bengaluru

Faculty

Name: Raghu Sesha Iyengar

Student

Name: MOHAPATRA SWATI BIPIN SASMITA(2022H1030108P)

Student Write-up

PS-II Project Title: Making A software for IBM in Golang

Short Summary of work done during PS-II : There is a client application which is already written in different languages like c, cpp. I basically had to replicate it in Golang.

Tool used (Development tools - H/w, S/w) : Golang

Objectives of the project : To create a socket communication and handle all communication n security things between client n server

Major Learning Outcomes : Learnt socket programming, Golang, command line , linux,

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The culture is IBM is too good. People are so helpful, polite n kind. You will get all type of support needed if u r struck anywhere.

Academic courses relevant to the project : None

PS-II Station : IBM India Software Group , Bengaluru

Faculty

Name: Raghu Sesa Iyengar

Student

Name: KEDARISSETTI SAI KUMAR(2022H1030113P)

Student Write-up

PS-II Project Title: EP11 test case migration to Nala framework

Short Summary of work done during PS-II : Learnings of Z mainframe, working of algorithms and library structures in z. Porting of APIs to Nala.

Tool used (Development tools - H/w, S/w) : Nala

Objectives of the project : Porting of algorithms to Nala framework

Major Learning Outcomes : Nala

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Extremely pathetic. Please don't allow IBM to prestigious institutions like BITS. In the job description they gave all development roles. Even in interview they asked me if I want to be AI engineer or OS developer. I said AI is my first preference. But when we started internship they threw us in testing. This is the technique they follow and have been following from years. I met a girl from other college that had gone through the same. The current batch interns have NITians and IITians thrown into testing too. If they want testers they should ask for it in JOB DESCRIPTION.

Academic courses relevant to the project : c.

PS-II Station : ICT , New Delhi

Faculty

Name: Nithin Tom Mathew

Student

Name: SOLANKI JAY UJJVALBHAI(2022H1300033H)

Student Write-up

PS-II Project Title: Learning out come for Different Technical Division at ICT

Short Summary of work done during PS-II : Highway design, Traffic & Transportation, Survey and Hydrology
Abstract: The work concerned itself with carrying out insights of TOR of 4 laning of Ramban Banihal Section (Km- 151 to Km 187), Detailed Project Report (DPR), Inception report, Alignment Report, Feasibility Report under the guidance of Highway Division. Based upon the existing terrain, building clearances and existing road network, the new alignment is to be set up

in such a way that it must fulfil the two conditions: (1) Network connectivity to the existing nearby road by creating junctions and (2) minimizing the cut and fill volume for the economical design. The major objectives Highway Division is to - (1) Understand how different division like Environment Clearance, Social Impact Assessment Division, Alignment Design Division integrally work together toward common objective of preparation of DPR. Bridge Division gave exposure regarding different design standards, Retaining Wall Design, Culvert Design and Solid Slab Design. The other live project going through under Aviation Division which is deals with the preparation of Feasibility Report of Njombe – Tanzania Airport which gave exposure to showcase theoretical knowledge regarding Runway Design as well as planning of different structures.

Tool used (Development tools - H/w, S/w) : Civil 3D, Mx Road, MS Excel, MS Word.

Objectives of the project : Development of proposal for DMRC(Delhi Metro Rail Corporation)

Major Learning Outcomes : Learn Data analysis and it's interpretation

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : It is a very nice learning experience we got training from all Technical Division at ICT. ICT plan out training schedule in such a way that through which we got overview of each and every Technical Division at ICT.

Special Thanks to Asim Prabhakar sir(Exe.Director-ICT), Sir arrange our accommodation at company guest house which was a nice hospitality. I hope so it will continue for our upcoming juniors too.

Academic courses relevant to the project : Highway Design, Traffic System Analysis, Pavement Design.

PS-II Station : ICT , New Delhi

Faculty

Name: Nithin Tom Mathew

Student

Name: RAHIL GARG(2022H1300074P)

Student Write-up

PS-II Project Title: Influence zone planning of Dwarka Sector 21 and Majlis Park Metro Station

Short Summary of work done during PS-II : Highway design concerns the design of road alignment that conforms to the site constraints and standards. The basic objectives are to optimize efficiency and safety while minimizing cost and environmental damage. . With MX Road, you can quickly create design alternatives to build the ideal road system. A detailed design of a 4.150 km stretch of road (Four-lane) from Bodeli to Vapi in the state of Gujarat was carried out which includes horizontal and vertical alignment, super-elevation, earthwork, and different pavement layers. Road inventory is a comprehensive survey that can be used to study the profile of roads in the study area. Features such as road/pavement widths, road pavement types, street lighting, luminosity, drain types, encroachments, the presence of vendors/street furniture, bus stops, and so on can be studied and detailed, resulting in the most accurate and detailed profiling of the existing conditions. A detailed road inventory survey of Dwarka Sector 21 and Mukund Pur was carried out, all the information we collected was entered in an Excel file. With the software Qgis, we used the information to do mapping of the surveyed area, link and nodes are shown in Qgis, the link denoted the road which contain specification of the road and node denoted the junction on the road. A commuter survey is at least an annual survey of habitual occupants that examines daily mobility patterns from home to work.

Tool used (Development tools - H/w, S/w) : Qgis, Ms Excel

Objectives of the project : During the course of 5 months, we have to work on 5 different divisions of company i.e. Highway division, Bridge division, Traffic Division, Pavement division, Pavement Material and Geotech Division

Major Learning Outcomes : We have worked in Live project of DMRC, in which we have to perform Commuter survey, Household Survey and Road inventory Survey, from which we get to know about existing condition of roads, we have analysed the travel pattern of commuter using Delhi metro.

Details of Papers/patents : Not Used

Brief Description of working environment, expectations from the company : Working Environment of the company was very good, the employees at the company helped us whenever we had a doubt.

Academic courses relevant to the project : Pavement Material Characterization, Highway Design, Highway Construction Technique

PS-II Station : ICT , New Delhi

Faculty

Name: Nithin Tom Mathew

Student

Name: JASODA SIYAG(2022H1300083P)

Student Write-up

PS-II Project Title: Influence zone plan for Dwarka sector-21 & Mukundpur

Short Summary of work done during PS-II : overview of TOR inception feasibility reports. culvert design Road inventory hh and bus transit survey. Influence zone plan creation. Basic information about contracts and rate analysis

Tool used (Development tools - H/w, S/w) : Civil 3D, QGIS, Google Earth, MS excel

Objectives of the project : planning of Influence Zone

Major Learning Outcomes : Planning techniques for traffic management and development around key infrastructure

Details of Papers/patents : TOR, Inception and feasibility

Brief Description of working environment, expectations from the company : 1.Healthy competition
2. A canteen must be there, faced lot of problem during 5 months

Academic courses relevant to the project : Traffic engineering

PS-II Station : iDrive Capital , Bengaluru

Faculty

Name: Uma Nagarajan

Student

Name: ARNAV BHATARA(2019B4AA1304H)

Student Write-up

PS-II Project Title: Investment Banking

Short Summary of work done during PS-II : i helped the team in preparing market and industry research reports for startups invubated at top incubators and accelerators. Helped the team with pitchbook preparation and subsequent fundraising advisory

Tool used (Development tools - H/w, S/w) : Ms Office Suite and GSuite

Objectives of the project : Prepare market research and Investment thesis for early stage startups at top incubators and accelerators

Major Learning Outcomes : Learnt how to prepare investment thesis and conduct market research

Details of Papers/patents : Na

Brief Description of working environment, expectations from the company : Part of a small team, reporting directly to the Partner and MD

Academic courses relevant to the project : Business analysis and Valuation, financial Managament

PS-II Station : IFB Industries , Goa

Faculty

Name: Pavan Kumar Potdar

Student

Name: MIHIL JACO GEORGE(2022H1410134P)

Student Write-up

PS-II Project Title: Precooling of Condenser

Short Summary of work done during PS-II : During my internship, I focused on a project aimed at enhancing the performance and sustainability of split air conditioning systems. The project began with an exploration of Refrigeration and Air Conditioning (RAC) basics through product teardowns and theoretical studies. I investigated current industry technologies, ultimately selecting evaporative cooling of the condenser as the final project topic. Seven concepts were developed, utilizing condensate water and additional water from the supply, directed either onto an evaporative media or directly onto the condenser. To regulate the device, I developed a control mechanism using Arduino coding. Prototypes for three concepts were created and tested, yielding promising results. In addition to the main project, I conducted a comprehensive benchmarking analysis to assess the presence of top and bottom foam on the condensers of Outdoor Units (ODU) in split air conditioners at IFB. This involved measuring gaps and foam dimensions to understand airflow restrictions. I also undertook initial research for a clean air innovation project, focusing on understanding clean air concepts and identifying air purification technologies. This included studying different purification methods, their mechanisms, effectiveness, and applications. Findings from this research were presented to upper management for further consideration. Overall, my internship provided valuable experience in project management, practical application of theoretical knowledge, and the development of innovative solutions in the HVAC industry.

Tool used (Development tools - H/w, S/w) : C++, Arduino, CREO

Objectives of the project : To increase COP of current air conditioner

Major Learning Outcomes : Working of Split AC, Improvement of efficiency of split ac, Control System Design

Details of Papers/patents : NIL

Brief Description of working environment, expectations from the company : The working environment at the company was dynamic and collaborative, fostering a culture of innovation and continuous learning. Open communication and teamwork were highly encouraged, enabling the exchange of ideas and knowledge across different departments. Regular meetings provided opportunities to discuss progress, address challenges, and receive constructive feedback from peers and supervisors.

One of the unique aspects of the working environment was the hands-on experience with the products. We had the opportunity to work on the products manually, gaining insights into their construction and functionality. This included seeing how the products were made on the production line, providing a comprehensive understanding of the manufacturing process.

Expectations from the company were clearly defined and aligned with its mission to deliver high-quality products and services. Employees were expected to demonstrate a strong work ethic, take initiative, and contribute proactively to their teams. Attention to detail, adherence to deadlines, and maintaining a high standard of professionalism were emphasized. The company valued creativity and encouraged employees to think outside the box, offering support for innovative ideas and solutions.

Performance reviews were conducted regularly to ensure alignment with career goals and provide guidance for improvement. Overall, the working environment was conducive to both individual and collective success, with a clear expectation for us to strive for excellence, collaborate effectively, and continuously seek opportunities for growth and development.

Academic courses relevant to the project : Heating and Cooling

PS-II Station : IFB Industries , Goa

Faculty

Name: Pavan Kumar Potdar

Student

Name: MALANI KHANTIL BHAVESHKUMAR(2022H1410152P)

Student Write-up

PS-II Project Title: Air Conditioning Outdoor Unit with Vertical Type Discharge

Short Summary of work done during PS-II : The aim of this project is to design, develop, and prototype a highly efficient and space-efficient vertical discharge outdoor unit for air conditioners. The objective is to create a product that addresses the limitations of traditional side discharge units and meets the evolving needs of customers for compact, versatile, and energy-efficient cooling solutions. By leveraging innovative design, engineering, and manufacturing techniques, we aim to deliver a vertical discharge unit that offers superior performance, reliability, and ease of installation, thereby providing value to residential, commercial, and industrial customers.

Tool used (Development tools - H/w, S/w) : Creo 4.0

Objectives of the project : robust outdoor unit with enhanced efficiency

Major Learning Outcomes : In depth knowledge in RAC and soft skills

Details of Papers/patents : NIL

Brief Description of working environment, expectations from the company : The working environment at the company was dynamic and collaborative, fostering a culture of innovation and continuous learning. Open communication and teamwork were highly encouraged, facilitating the exchange of ideas and knowledge across departments. Regular meetings provided opportunities

to discuss progress, address challenges, and receive constructive feedback from peers and supervisors.

A unique aspect of the working environment was the hands-on experience with the products. Employees had the opportunity to work on the products manually, gaining insights into their construction and functionality. Observing the production line provided a comprehensive understanding of the manufacturing process.

Expectations from the company were clearly defined and aligned with its mission to deliver high-quality products and services. Employees were expected to demonstrate a strong work ethic, take initiative, and contribute proactively to their teams. Attention to detail, adherence to deadlines, and maintaining a high standard of professionalism were emphasized. The company valued creativity and encouraged employees to think outside the box, offering support for innovative ideas and solutions.

Performance reviews were conducted regularly to ensure alignment with career goals and provide guidance for improvement. Overall, the working environment was conducive to both individual and collective success, with a clear expectation for employees to strive for excellence, collaborate effectively, and continuously seek opportunities for growth and development.

Academic courses relevant to the project : Refrigeration and Air Conditioning (Applied Thermodynamic)

PS-II Station : IFB Industries Ltd. , Kolkata

Faculty

Name: Benu Madhab Gedam

Student

Name: PACHPANDE NISHIT CHANDRASHEKHAR(2020A4PS1935G)

Student Write-up

PS-II Project Title: Design of Fine Blanking Tools

Short Summary of work done during PS-II : A comprehensive training was given describing the entire design process. A sample design was given initially to understand the technical drawings. Based on that, I was given a task to design a tool by own, referring the sample drawing. Furthermore, we were given a sub-project to investigate the static and fatigue loading on a component called "hole-punch", using ANSYS Mechanical

Tool used (Development tools - H/w, S/w) : AutoCAD, Ansys Mechanical

Objectives of the project : Learning the design process of the fine blanking tool

Major Learning Outcomes : CAD Software proficiency. Computer-Aided Engineering

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The overall environment was indeed good. The design and shop floor department were very supportive and assisted in any problems faced by me.

Academic courses relevant to the project : Mechanics of Solids, Material Science and Engineering, Quality Control Assurance and Reliability, Computer Aided Design

PS-II Station : Imagine Marketing Ltd (boAt) , Mumbai

Faculty

Name: Manoj Subhash Kakade

Student

Name: RISHI KHANDELWAL(2019B4A70755G)

Student Write-up

PS-II Project Title: DBR

Short Summary of work done during PS-II : Enhance DBR

Tool used (Development tools - H/w, S/w) : Emarsys

Objectives of the project : Enhance DBR

Major Learning Outcomes : Marketing techniques

Details of Papers/patents : Nothing

Brief Description of working environment, expectations from the company : Work environment is good, company is good

Academic courses relevant to the project : none

PS-II Station : Imagine Marketing Ltd (boAt) , Mumbai

Faculty

Name: Manoj Subhash Kakade

Student

Name: BARATH M(2020A8PS0715G)

Student Write-up

PS-II Project Title: Supply chain management strategy for audio and wearable devices

Short Summary of work done during PS-II : Updating excel dashboard tabs that track materials and payments to provide insights based on weekly updated data to factory officials and vendor managers

Tool used (Development tools - H/w, S/w) : Excel

Objectives of the project : To track and have visibility of the supply chain through various excel dashboards so that various interactions with vendors can take place

Major Learning Outcomes : Excel, supply chain

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Great office, flexible work timings and all of the expected excel work was explained clearly to be able to complete it.

Academic courses relevant to the project : NA

PS-II Station : Imagine Marketing Ltd (boAt) , Mumbai

Faculty

Name: Manoj Subhash Kakade

Student

Name: SOMAN YASH NILESH(2020AAPS1429G)

Student Write-up

PS-II Project Title: New Product Development (NPD) and New Product Introduction (NPI) for Wearable Devices

Short Summary of work done during PS-II : 1) Competitor Benchmarking done for 60 competitor products across different price points and companies 2) Helped in creating 4 PCDs and PRDs for upcoming products in collaboration with Product Managers of the same 3) User Acceptance Testing (UAT) performed for 12 (at that time) to-be-launched products 4) Out-called 435 customers across 5 products for holistic feedback 5) Laid down comprehensive, end-to-end, 2-way application-product integration test suite to be used for Quality Analysis and Control team 6) Multi-Generational Product Plan Competitor Analysis of Product Lines and Feature Tiering of existing boAt product portfolio 7) Generative-AI driven Rating and Review Parser-cum-Classifer, and Mobile Model Number-to-Name Searcher

Tool used (Development tools - H/w, S/w) : Google Workspace, Jira, CleverTap

Objectives of the project : To learn about Product, Application Design, Strategy and Operations, Quality Analysis and Control, Marketing of wearable devices such as wireless earphones (Airdopes / Nirvana), neckbands (Rockerz), headphones (Nirvana), and smart watches throughout Product Development Life Cycle (PDLC)

Major Learning Outcomes : Product, Application Design, Strategy and Operations, Quality Analysis and Control, Marketing

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Less hectic for 20-22 year old PS-II student than, say, any generic software development company at same level. Mentors and team members are friendly, and willing to mentor U and help U out if U seek so

Academic courses relevant to the project : NA

PS-II Station : Imagine Marketing Ltd (boAt) , Mumbai

Faculty

Name: Manoj Subhash Kakade

Student

Name: NISHANT SAHOO(2020AAPS2097H)

Student Write-up

PS-II Project Title: Project management intern

Short Summary of work done during PS-II : Good

Tool used (Development tools - H/w, S/w) : Jira

Objectives of the project : HRMS portal onboarding

Major Learning Outcomes : Management

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Brought new HRMS portal

Academic courses relevant to the project : None

PS-II Station : Imagine Marketing Ltd (boAt) , Mumbai

Faculty

Name: Manoj Subhash Kakade

Student

Name: MISHRA SANTHOSH KUMAR RAMJEE(2022H1420196P)

Student Write-up

PS-II Project Title: Development of a platform for tracking, monitoring, and optimizing the aging inventory within the system.

Short Summary of work done during PS-II : After joining the company, I was provided with my laptop and some learning material related to the company. Further my reporting manager Mrs. Vaishali Tiwari briefed me about the business and supply chain of boAt. In the following week my major project was allotted. It was a weekly task where I must update the Excel inventory dashboard by taking data from the inventory department. If any issues arise, we conduct weekly meetings with Quality, warehouse and other related teams to identify the reasons and then update them in the dashboard and prepare minutes of the meeting. The steps involved in the existing inventory dashboard were mostly manual, time consuming and a set sequence was required.

Hence, I tried to optimize the same. I learnt Excel Macros and VBA programming to automate these repetitive tasks. I recorded each step and automated it. As a result, the same task which took an hour earlier, now it was getting done in just 5 to 10 minutes. It really helped to increase productivity. Apart from this major project, I was also involved in market research about boAt's competitors like JBL, OnePlus, Oppo etc. and their key products. I identified USPs of their key products and grouped them into product families based on their use case and price range. We prepared a deck acting as a repository containing comprehensive information on each selected TWS model. This activity would provide product managers with valuable insights to determine which features are feasible to include in future product launches.

Tool used (Development tools - H/w, S/w) : Advance Excel, Excel Macros, VBA programming, SAP

Objectives of the project : 1. To track and confirm the real-time status of aging inventory in the company's warehouses. 2. To provide a convenient and error free Excel inventory dashboard for the user who updates it weekly. 3. To provide proper visibility of aging inventory to the upper management, to help them take informed decisions.

Major Learning Outcomes : The practice School gave me a platform to use my learnings in college by applying it in real-time company project. The major learning outcomes are - First thing I learnt is to correlate things which I learned in college to corporate environment through cross functional interactions, morning meetings, market research and discussions. It also helped me to improve my Excel skills such that I was able to automate the tasks assigned to me using advance Excel formulas and Macros.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : boAt is a leading audio brand in India. I was associated with the Strategy and Operations team at Mumbai office. All my colleagues and seniors – my reporting manager and Strategy head were quite knowledgeable and committed to their work. They were also supportive in getting used to the corporate environment. The work culture at boAt is quite open ended, so one can easily connect with senior managers and CXOs for their concerns. It promotes new talent and appreciates people trying to do improvisation in their work. For instance, I was assigned a manual task to update the

Excel dashboard, but I tried to automate the task using Macros and VBA. They were glad to see this. Overall it was a very good experience at practice school as along with software skills, I tried to correlate things which I learned in college in to corporate environment.

Academic courses relevant to the project : Manufacturing Planning & Control (MSE G512), Supply Chain Management (ITEB G621)

PS-II Station : Immensitas Pvt. Ltd. (Lemnisk) , Bengaluru

Faculty

Name: Raja Vadhana P

Student

Name: MEGHA KHURANA(2020A7PS1316H)

Student Write-up

PS-II Project Title: Optimization of backend services

Short Summary of work done during PS-II : Optimized an already existing application, merged it with another related application and took the merged application live. Worked with scripts and applications in production. Also helped in CDP handover to HCL.

Tool used (Development tools - H/w, S/w) : Java, Maven, Springboot, Python, Grafana, Kafka, AWS

Objectives of the project : To optimize existing applications in the company, fix bugs of new features and help in kubernetes and HCL migration of applications

Major Learning Outcomes : My java, springboot and maven skills got refined.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : You're expected to come into office almost everyday. If you are working on oncall or go-live, you may get calls in the night as well and sometimes on the weekends also. Manager is friendly and understanding.

Academic courses relevant to the project : OOPS

PS-II Station : Immensitas Pvt. Ltd. (Lemnisk) , Bengaluru

Faculty

Name: Raja Vadhana P

Student

Name: SOUMYADIP GUHA(2022H1030092H)

Student Write-up

PS-II Project Title: Data Engineering Internship

Short Summary of work done during PS-II : 1. Wrote SQL query on AWS Athena 2. Implemented new features of Lemnisk's product frontend(React) and back-end(nodejs), 3. Did report automation (Using airflow)

Tool used (Development tools - H/w, S/w) : SQL, React, NodeJS, Athena, Glue, S3, Airflow, Shell

Objectives of the project : Implement new features for the existing product

Major Learning Outcomes : Learned to full stack development, doing automation using airflow

Details of Papers/patents : This internship is not research based so did not publish any paper.

Brief Description of working environment, expectations from the company : Work environment is really good. Team members are really supportive and helpful. They allow work from home also if that is necessary.

Academic courses relevant to the project : 1. Cloud Computing
2. Advanced Database System

PS-II Station : iNaira Healthcare Technologies - Datascience , Bengaluru

Faculty

Name: Saikishor Jangiti

Student

Name: AKSHAY KRISHNA D(2019B3A70551G)

Student Write-up

PS-II Project Title: SaaS Platform Development

Short Summary of work done during PS-II : Developing automation tools using Robot Framework for Data Extraction from sites where API endpoints were not available to collect data. Creating Python based frameworks for client usecases that involve a connector based service. Designing and implementing an AWS based architecture of the same to create a customizable and scalable product.

Tool used (Development tools - H/w, S/w) : Python, Robot Framework, API based programming, MySQL, SQLWorkbench, DBeaver, AWS Lambda, AWS Step Function, AWS Scheduler, AWS EventBridge

Objectives of the project : Create automation tools that can be deployed across multiple clients.

Major Learning Outcomes : Python programming, Software Development Cycles, Cloud Infrastructure(AWS)

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Being a startup, there are clear deadlines to adhere to. Since the startup is quite new, clients were being onboarded very quickly and fast results are expected. Very supportive team and that helps out in personal growth as well.

Academic courses relevant to the project : Object Oriented Programming

PS-II Station : iNaira Healthcare Technologies - Datascience , Bengaluru

Faculty

Name: Saikishor Jangiti

Student

Name: ARVIND RAM(2020A7PS1210P)

Student Write-up

PS-II Project Title: AWS Serverless Architecture and RPA Platform Development

Short Summary of work done during PS-II : We built bots to obtain patient information from the medical websites and then deployed our frameworks on AWS services

Tool used (Development tools - H/w, S/w) : Robot Framework, AWS

Objectives of the project : Build a serverless AWS architecture

Major Learning Outcomes : AWS services

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : A very supportive work environment. You're a part of the main functioning and are completely involved in the product development cycle.

Academic courses relevant to the project : DBS, OOP, DSA

PS-II Station : iNaira Healthcare Technologies - Healthcare , Bengaluru

Faculty

Name: Saikishor Jangiti

Student

Name: VEDIKA GUPTA .(2020ABPS1065P)

Student Write-up

PS-II Project Title: Creating a bot documentation for all iNaira Critical Bots

Short Summary of work done during PS-II : Creating comprehensive documentation for bots developed using the Robot Framework involves meticulous planning, drafting, reviewing, and finalizing. The process starts with engaging stakeholders to gather relevant details and define the documentation's scope and format. Drafting includes writing clear instructions, detailed descriptions of bot functionalities, and providing practical examples and visual aids to enhance understanding. Documenting API details and advanced configurations addresses technical user needs, while usability is improved with troubleshooting guides and FAQs. Iterative reviews with development teams and stakeholders, along with user testing, ensure accuracy and completeness. Finalizing involves consistent formatting and making the documentation accessible to all users. Regular updates and maintenance keep the documentation current. Emphasizing data security, the documentation includes measures like encryption, access controls, and compliance with regulations such as HIPAA. Overall, this structured approach enhances the usability, maintainability, and quality of the bots, supporting ongoing development and collaboration in healthcare settings.

Tool used (Development tools - H/w, S/w) : Robot framework, Pentaho, SQL, Python, GitHub

Objectives of the project : To create a documentation that aids the production support team by providing information about the various functionalities of the bots and the necessary cleanup mechanism along with potential sources of error and how to fix them.

Major Learning Outcomes : Through the comprehensive documentation process for bots developed using the Robot Framework, I have learned the importance of meticulous planning and

structured execution. Engaging with stakeholders early to gather details ensures alignment with user needs. Drafting clear, detailed documentation, including installation instructions, bot functionalities, usage examples, and technical details, is crucial. Visual aids enhance understanding, and documenting API details and advanced configurations caters to technical users. Usability is improved by providing practical examples, troubleshooting guides, and FAQs. Iterative reviews with development teams and stakeholders, along with user testing, ensure accuracy and completeness. Finalizing documentation with consistent formatting and ensuring accessibility for all users is key. Establishing regular updates and maintenance processes keeps documentation current and useful. I also learned the significance of documenting data security measures, ensuring compliance with regulations like HIPAA. Overall, comprehensive documentation enhances the usability, maintainability, and quality of the bots, supporting ongoing development and collaboration, and making them more robust and versatile in healthcare settings.

Details of Papers/patents : -NA-

Brief Description of working environment, expectations from the company : The working environment at iNaira Healthcare is collaborative and dynamic, focused on leveraging automation and data analysis to improve healthcare efficiency and quality. The company emphasizes a user-friendly, robust, and secure technological infrastructure, ensuring HIPAA compliance and data integrity. Employees engage in cross-functional teams, involving frequent stakeholder interactions to align projects with user needs. The environment fosters continuous learning and innovation, with regular reviews, user testing, and feedback integration to refine solutions. Security measures such as encryption, access controls, and regular audits are paramount, reflecting iNaira's commitment to maintaining high data privacy and protection standards.

Academic courses relevant to the project : -NA-

PS-II Station : Incepthink LLP , Mumbai

Faculty

Name: Raja Vadhana P

Student

Name: MANAN MEHULBHAI SHAH(2019B1A40870G)

Student Write-up

PS-II Project Title: Code Restructuring for HashCase Server and Client

Short Summary of work done during PS-II : I migrated the production client and server repos to typescript along with other code quality changes such as improving error handling, request validation, creation of a mini-sdk that provided decorator functions for core infrastructure related APIs, etc.

Tool used (Development tools - H/w, S/w) : Typescript, Solidity, Rust, Sway, Ethers.js, MySQL, Next.js, Express.js

Objectives of the project : Improve code quality by migrating production server and client to typescript, pragmatic error handling and request validations.

Major Learning Outcomes : Learnt software new design patterns and how to structure code in production projects.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Very supportive working environment. Company expects interns to be able to add substantial value after the first month or so.

Academic courses relevant to the project : Information Security, Blockchain

PS-II Station : Incore Semiconductors Pvt Ltd, , Chennai

Faculty

Name: Sindhu S

Student

Name: PRANJAL VINODCHANDRA CHAUBEY(2022H1230197H)

Student Write-up

PS-II Project Title: Exceptions and Trap Handling in RISC V CPU Architecture

Short Summary of work done during PS-II : Handles illegal instructions wherever a trap is occurred

Tool used (Development tools - H/w, S/w) : Vs Code

Objectives of the project : Handles illegal instructions wherever a trap is occurred

Major Learning Outcomes : Learned Functional Verification of RISC V CPU Architecture

Details of Papers/patents : Na

Brief Description of working environment, expectations from the company : Good chill environment

Academic courses relevant to the project : RISC V CPU Architecture

PS-II Station : Indira Gandhi Centre for Atomic Research , Kalpakkam

Faculty

Name: Sindhu S

Student

Name: JOSHITHA MARRIPUDI(2020A3PS0629H)

Student Write-up

PS-II Project Title: Porting and Optimization of VHDL-Based TCP Communication IP for FPGA Devices

Short Summary of work done during PS-II : I began by studying TCP/IP communication protocols and the existing TCP engine design, consisting of an ethernet MAC core and an IP stack. I implemented the design on a custom FPGA development board. I also developed firmware for an STM32 microcontroller, which controls the TCP server's communications. Then, I created a TCP client GUI application using Python to thoroughly test the TCP server design. I studied how the UVVM framework works to verify VHDL designs.

Tool used (Development tools - H/w, S/w) : Xilinx Vivado Design Suite, STM32CubeIDE, Wireshark, STM32L496 microcontroller, FPGA development board.

Objectives of the project : The objective of this project was to port and optimize VHDL-based TCP communication IP for FPGA devices, specifically focusing on an Xilinx Artix-7 FPGA. The goal was to understand the existing design of TCP engine and implement it on the FPGA

development board. The project also aimed to develop verification strategies to ensure the correctness of the TCP engine design.

Major Learning Outcomes : VHDL programming, microcontroller firmware development, thorough understanding of high-speed networking through TCP/IP communication protocols, and knowledge of UVVM framework.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : My PS-II took place in a well-equipped lab at IGCAR, where I worked closely with my mentor throughout the project, resulting in a productive workflow. My mentor was supportive and encouraging, providing guidance whenever I encountered challenges. We would often work together to achieve the desired results. My mentor had high expectations. Meeting project goals sometimes required working extra hours and demonstrating commitment and dedication to the project's success.

Academic courses relevant to the project : Digital Design, Communication Networks, FPGA-Based System Design

PS-II Station : Indira Gandhi Centre for Atomic Research , Kalpakkam

Faculty

Name: Sindhu S

Student

Name: ABHAY R.(2020A3PS1036P)

Student Write-up

PS-II Project Title: Human Activity Recognition using Wearable Sensors

Short Summary of work done during PS-II : Human Activity Recognition (HAR) involves identifying and classifying physical activities using signals from sensors that monitor human movement. HAR has broad applications in fitness tracking, health monitoring, and smart home automation. However, achieving high accuracy and reliability in HAR detection remains challenging. Previous approaches have relied on advanced artificial intelligence techniques and multi-sensor data integration, which are often complex and expensive. This study proposes a simplified solution using a single low-cost sensor to address these issues. The results demonstrate that our cost-effective design achieves superior fall detection accuracy in real world scenarios. This research advances fall detection technology, with potential improvements in elderly care, physical rehabilitation, and personal fitness monitoring.

Tool used (Development tools - H/w, S/w) : Hardware: Arduino, sensors; Software: Python, Matplotlib, Scikit-learn, Pandas

Objectives of the project : To create a working fall detection system, using just an Arduino and a single wearable sensor

Major Learning Outcomes : Research Methodologies, Arduino,

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Very interesting and cutting-edge technology, helping get exposure to different types of equipment, and newer and more efficient technologies for older methodologies

Academic courses relevant to the project : Machine Learning

PS-II Station : Indira Gandhi Centre for Atomic Research , Kalpakkam

Faculty

Name: Sindhu S

Student

Name: ANISH CHANDRASHEKHAR PARALIKAR(2020A4PS1591G)

Student Write-up

PS-II Project Title: Design Optimization of Intermediate Heat Exchanger in Indian FBRs using CFD tools.

Short Summary of work done during PS-II : I have learnt new softwares to analyse IHX in different conditions and situations. My main project was based on analysing the effects caused by plugging a few tubes of IHX to its neighbouring tubes and the overall working of IHX. Flow latter's and temperature distributions were analysed and documented and results were used for safety commissioning of PFBR.

Tool used (Development tools - H/w, S/w) : ANSYS Products(Workbench, Meshing, Fluent, Space claim, CFD Post), HyperMesh, TecPlot.

Objectives of the project : To deploy CFD tools to analyse flow characteristics and temperature distribution in IHX of Indian FBRs

Major Learning Outcomes : Nuclear Engineering, applications of CFD tools in real life problems, research experience

Details of Papers/patents : Currently not published, but in process

Brief Description of working environment, expectations from the company : Research work is excellent. For my case, working environment, facilities provided were more than satisfactory. The support received from mentor and other scientific officers was truly invaluable. They expect to give our 100% and if they see us motivated, they are more eager to help us.

Academic courses relevant to the project : Heat Transfer, Fluid Dynamics, CAD, Numerical Techniques of Heat transfer and fluid flow, material equipment design

PS-II Station : Indira Gandhi Centre for Atomic Research , Kalpakkam

Faculty

Name: Sindhu S

Student

Name: DHYEEY BHATT(2020A4PS2006G)

Student Write-up

PS-II Project Title: High temperature vacuum tribology of Alloy D9

Short Summary of work done during PS-II : My project was related to studying the tribology of D9 alloy at high temperatures and vacuum. The aim was to understand and explain the frictional and wear behaviour under such conditions. The analysis requires processing of raw experimental data and knowledge of contact mechanics. Finite Element simulations were performed to know the stress distribution and enhance the understanding of the phenomenon.

Tool used (Development tools - H/w, S/w) : Confocal microscope, Tribometer. MATLAB, MS Word, Excel, Origin, ANSYS, PowerPoint.

Objectives of the project : Friction & Wear characterization of stainless-steel alloy (D9) under high temperature conditions.

Major Learning Outcomes : Learnt about Contact mechanisms, wear mechanics, metallurgy, experimental analysis.

Details of Papers/patents : Publication of research in progress.

Brief Description of working environment, expectations from the company : The labs are very well equipped however, some are not maintained well. My mentor was very cooperative and helpful. There is no pressure, but a lot of work is expected to be completed. The institute library is abundant in study material. Overall, the work environment is conducive.

Academic courses relevant to the project : Mechanics of Solids, Advanced Mechanics of Solids, Material Science, Design of machine elements

PS-II Station : Indira Gandhi Centre for Atomic Research , Kalpakkam

Faculty

Name: Sindhu S

Student

Name: VISHWA TAPAN SHAH .(2020A7PS0121P)

Student Write-up

PS-II Project Title: Development of AI based models for in-core optimization of positioning of control rods

Short Summary of work done during PS-II : I used a 12-element integer list to store the candidate solutions, where each element stores the position of one control rod. For Ant colony optimization(ACO) the solutions are built starting from a random position, every next position is chosen based on probability that depends on pheromones and heuristic values whereas a population of random feasible solutions are initially generated for Grey Wolf Optimization(GWO). In each iteration, fitness values are evaluated all the generated solutions. In case of ACO, the pheromone values are updated based on these fitness values which improve the decision making of further iterations by increasing/decreasing probability of certain positions based on their fitness evaluation. In GWO the rest of solutions are updated based on the best solution at that point of time using the concept of elitism. This process is repeated until the stopping criterion of running 100 iterations is satisfied.

Tool used (Development tools - H/w, S/w) : Python, Colab, High Performance Cluster, Linux

Objectives of the project : The project, titled "Development of Artificial Intelligence (AI) based models for in-core design optimization of Fast Breeder Reactors", aimed to apply Metaheuristic Algorithms (MHA) to optimize the arrangement of sub-assemblies within the core of Fast Breeder Reactors (FBRs). The objective was to enhance fuel utilization and ensure safe and economical reactor operation by intelligently exploring the large and computationally expensive search space of core configurations. The active core of the reactor consists of 216 positions, out of which 12 positions are to be selected to place the 12 control rods (9 Control & Safety Rods and 3 Diverse Safety Rods), conforming certain operational and safety constraints. Due to the large solution space and computationally expensive nuclear analysis codes involved, this complex combinatorial optimization problem cannot be solved by evaluating all feasible solutions. Therefore, I applied and implemented the Ant Colony Optimization(ACO) and Grey Wolf Optimization(GWO) using Python to search the solution space intelligently and efficiently, reducing the computation time from a trillions of years to about 50 hours.

Major Learning Outcomes : Thinking outside the box, teamwork, focus and determination

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The work environment was decent, sometimes there were tech issues and also some commotion but overall everyone was there to help and motivating

My expectation from IGCAR was met since they gave us a really thought provoking Project, helped me to learn a lot also while providing me necessary resources

Academic courses relevant to the project : Artificial Intelligence(AI), Machine Learning(ML), Data Structures and Algorithms(DSA) and Data Mining(DM)

PS-II Station : Indira Gandhi Centre for Atomic Research , Kalpakkam

Faculty

Name: Sindhu S

Student

Name: AHUJA ABHAYPREET SINGH PARAMJIT SINGH(2020AAPS1738G)

Student Write-up

PS-II Project Title: Development of Network DLP System

Short Summary of work done during PS-II : Built a network DLP system using Golang as primary development language. The system works in pair with a proxy which directs all the traffic to the ICAP server where the analysis takes place and the file is blocked on the basis of the conditions provided.

Tool used (Development tools - H/w, S/w) : Golang, Squid Proxy, ICAP, Linux

Objectives of the project : Building a network DLP system to block the sharing of confidential files

Major Learning Outcomes : Golang, Networking

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The environment was not very favourable from a software development perspective as we had to work alone on the project so some necessary things like communication skills and teamwork, which are needed in the industry were not present.

Academic courses relevant to the project : OOP, DSA, Communication Networks.

PS-II Station : Indira Gandhi Centre for Atomic Research , Kalpakkam

Faculty

Name: Sindhu S

Student

Name: GAUTHAM GUTTA(2020AAPS2204H)

Student Write-up

PS-II Project Title: RISC-V Integrated Verification Environment for Safety Systems

Short Summary of work done during PS-II : Our project is focused on the development of a RISC-V Integrated Verification Framework, aimed at improving the quality of code deployed in nuclear reactors and safety systems. The main motivation was to ensure utmost quality of the software fed to our safety systems/nuclear reactors.

Tool used (Development tools - H/w, S/w) : CSmith, Spike, PK, LLVM, RISC-V GCC, Linux

Objectives of the project : Verification of the software and the compiler to be used in nuclear reactors

Major Learning Outcomes : Linux, Python, RISC-V GNU Toolchain

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Lax working environment, however had to ramp up and pick up on concepts quickly. Otherwise, mentors were supportive and ready to clarify doubts overall.

Only expectation is that student must be willing to learn more, work more and work on projects which may deviate a bit from their intended career track

Academic courses relevant to the project : Computer programming, Computer architecture

PS-II Station : Indira Gandhi Centre for Atomic Research , Kalpakkam

Faculty

Name: Sindhu S

Student

Name: ANIMESH PANDEY(2022H1230104G)

Student Write-up

PS-II Project Title: PRE DELIVERY INSPECTION SYSTEM

Short Summary of work done during PS-II : Pre-Delivery Inspection System : Development of Machine Vision software using OpenCV and python for detecting defects in manufactured parts. The software is universal and can be used by any industry. It uses a template matching algorithm to detect the missing subparts. Also made a testbench using cameras and Raspberry Pi. Users can load the part in the testbench and then use the software to label the subparts. There is a start-stop button which makes the process faster. The test bench can also be used for implementing Poka-Yoke in the industries.

Tool used (Development tools - H/w, S/w) : Python, OpenCV, Raspberry Pi

Objectives of the project : Pre-Delivery Inspection System : Development of Machine Vision software using OpenCV and python for detecting defects in manufactured parts. The software is universal and can be used by any industry. It uses a template matching algorithm to detect the missing subparts. Also made a testbench using cameras and Raspberry Pi.

Major Learning Outcomes : Python and software development, hardware development using raspberry pi

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment was good and comfortable. We had access to various labs to complete our project and the mentors were approachable and helpful. We were required to meet every week and report on our progress. The expectations were manageable and we completed our work before deadlines

Academic courses relevant to the project : NA

PS-II Station : Indus Air , UAE

Faculty

Name: Raghuraman RAGHURAMAN

Student

Name: SHUBHAM MALL(2022H1060214P)

Student Write-up

PS-II Project Title: OPTIMIZATION OF DESIGN AND PRODUCTION SYSTEM

Short Summary of work done during PS-II : Implementation of Magnetic Field Near the Heat Exchanger to Increase Capacity: This project explored the use of magnetic fields near heat exchangers to enhance their capacity. Oval Tube Technology: The study investigated oval tube technology in heat exchangers. Oval tubes, compared to traditional round tubes, offer a larger surface area for heat transfer and better fluid flow characteristics. Comparative analyses revealed significant gains in thermal performance and overall efficiency with oval tubes. Analysis of Nitrogen Consumption and ROI of Implementing a Nitrogen Generator: This project analyzed nitrogen consumption patterns and the financial benefits of installing a nitrogen generator. By assessing current nitrogen usage and costs, the study calculated the return on investment (ROI) for a nitrogen generator system.

Tool used (Development tools - H/w, S/w) : MS-Excel, Uni-LAB, HXSlim

Objectives of the project : 1.Implementation of magnetic field near the heat exchanger to increase the capacity 2.Oval tube Technology 3. Analysis of nitrogen consumption and ROI of implementing a nitrogen generator

Major Learning Outcomes : Understanding how companies approach learning and operation

Details of Papers/patents : Completed "Analysis of Nitrogen Consumption and ROI of Implementing a Nitrogen Generator"

Not completed fully under process "Oval Tube Heat Exchanger with Enhanced Thermal Performance"

Brief Description of working environment, expectations from the company : The company operates in a family business setting, with a strong owner-based management style. The owner is deeply involved in all aspects related to financial matters and prioritizes cost-efficiency and profit margins. The primary focus is on fulfilling orders from customers through a straightforward delivery process, with minimal emphasis on engineering innovation or advanced technical processes.

Engineering involvement is limited, as the company mainly processes and delivers orders without engaging in in-depth technical development or complex engineering projects. The workforce predominantly consists of Maharashtrian employees, reflecting a homogenous cultural environment.

Recently, a new CEO has been appointed with a vision to recruit talented individuals from diverse and reputable backgrounds. This move indicates a potential shift towards improving the company's capabilities and expanding its expertise. However, there is a noticeable lack of long-term vision and strategic planning within the company. The primary focus remains on immediate financial gains and efficient order fulfillment rather than on innovation or growth through engineering excellence.

Academic courses relevant to the project : Thermal Equipment Design, Heat and Mass Transfer

PS-II Station : Indus Insights and Analytical Services Pvt Ltd , Gurugram

Faculty

Name: Gaurav Nagpal

Student

Name: ARYAN MADAAN .(2020A1PS0222P)

Student Write-up

PS-II Project Title: Data Science and Analytics

Short Summary of work done during PS-II : The project optimized and automated the weekly key metrics report generation, reducing the manual process from 11 hours to just over 1 hour. Initially, over 20 SQL files were run sequentially, taking 4-5 hours, followed by 6 hours of Python-based report generation. By rewriting and optimizing the Python code, runtime was reduced to 4 minutes. SQL optimizations, including minimizing window functions and using WHERE clauses, brought SQL runtime down to 1 hour. A comprehensive Python script was developed to automate the entire process, including monitoring and quality checks, ensuring accurate, efficient, and reliable report generation with robust error handling.

Tool used (Development tools - H/w, S/w) : PPT, Excel, SQL, Tableau, Python, Snowflake, Dbeaver, Anaconda, Putty, WinSCP

Objectives of the project : 1) Optimisation and Automation of Key Metrics Report 2) Developments of Tableau Views 3) Development of Monthly Business Review

Major Learning Outcomes : Risk Analytics, Optimisation, Coding best practices,

Details of Papers/patents : Not Applicable

Brief Description of working environment, expectations from the company :

At Indus Insights, the work culture is centered around innovation, collaboration, and continuous learning. The environment encourages employees to take initiative and think creatively to solve complex problems. Teamwork is highly valued, with open communication and knowledge sharing being integral parts of daily operations. The company fosters a supportive atmosphere where employees are encouraged to grow professionally through regular training and development opportunities. Overall, Indus Insights promotes a culture of excellence, inclusivity, and mutual respect and driving high performance for client.

Academic courses relevant to the project : None

PS-II Station : Indus Insights and Analytical Services Pvt Ltd , Gurugram**Faculty**

Name: Gaurav Nagpal

Student

Name: SHAURYA TANDON(2020A4PS1556G)

Student Write-up

PS-II Project Title: The Work and Learning's of a Data Analytics Intern: Software, Skills, and Data Reporting

Short Summary of work done during PS-II : In training, I learnt essential tools like Microsoft Excel, Microsoft PowerPoint, SQL, Tableau, Python, and the basics of lending. My work was majorly in data reporting, making me proficient in using Tableau and SQL. I was tasked with

external (client) projects like adding filters and optimising dashboards as part of dashboard restructuring, creating dashboards with desired views and features, and analysing existing dashboards (Tableau, SQL). I also worked on an internal project requiring me to consolidate all placement data in a tracker (Microsoft Excel). In summary, with my work, I was able to benefit both the client and the PS Station.

Tool used (Development tools - H/w, S/w) : Tableau, SQL, Microsoft Excel, Python, Microsoft PowerPoint

Objectives of the project : Data reporting and analysis for a global independent financing solutions provider

Major Learning Outcomes : Data Analytics, Structured Thinking, Data Reporting, SQL

Details of Papers/patents : None.

Brief Description of working environment, expectations from the company : The work environment is really good - helpful colleagues and seniors, pleasant office space, teams for sports and games and even clubs for different hobbies. The work is very rewarding - it takes time and efforts but when the results show, they are always acknowledged.

Academic courses relevant to the project : Applied Statistical Methods, Machine Learning

PS-II Station : Infineon , Bengaluru

Faculty

Name: Sanjay Vidhyadharan

Student

Name: SURAJ RETHEESH NAIR(2020A7PS0051H)

Student Write-up

PS-II Project Title: Applications of GenAI in the corporate infrastructure

Short Summary of work done during PS-II : created a RAG pipeline and successfully implemented a query engine to query domain specific documents

Tool used (Development tools - H/w, S/w) : Python, VScode , Github ,Jira

Objectives of the project : Come up with AI solutions by leveraging the adavantages of LLM's

Major Learning Outcomes : GenAI applications development

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : working environment was very friendly and respectful . Had a supportive team and manager and faced no issues as such

Academic courses relevant to the project : AI , FODS , ML , Reinforcement Learning

PS-II Station : Infineon , Bengaluru

Faculty

Name: Sanjay Vidhyadharan

Student

Name: UTKARSH RASTOGI(2020A8PS1457H)

Student Write-up

PS-II Project Title: Device driver for DSADC for resolver applications

Short Summary of work done during PS-II : Described everything above, company is great, work culture is good, pay compensation is not that great

Tool used (Development tools - H/w, S/w) : 1. UDE 2. Aurix Triboard for HW testing, Tresos, Enterprise Architect

Objectives of the project : 1. Embedded SW Development 2. AUTOSAR 3. MCAL 4. Embedded C

Major Learning Outcomes : Embedded Core Knowledge, Device driver development

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Described above

Academic courses relevant to the project : MPI, DD, CP, ADVD

PS-II Station : Infineon , Bengaluru

Faculty

Name: Sanjay Vidhyadharan

Student

Name: ARKO SENAPATI(2022H1230233P)

Student Write-up

PS-II Project Title: Design exploration of FFT/IFFT block in WiFi PHY layer

Short Summary of work done during PS-II : 1. Study of 802.11ax WLAN OFDM PHY (Physical Layer) RTL level design, emphasizing the implementation of FFT/IFFT algorithms for wireless communication systems. Proficient in analysing Transmitter (Tx) and Receiver (Rx) waveforms using Synopsys Verdi EDA tool. 2. Applied High-Level Synthesis (HLS) techniques to develop and optimize FFT algorithms in SystemC, ensuring efficient hardware implementation. Led successful simulations for 64-point and 256-point FFT in Cadence stratus HLS. 3. Conducted comprehensive LINT checks on RTL in Synopsys SpyGlass, ensuring compliance with industry standards.

Tool used (Development tools - H/w, S/w) : Synopsys Verdi , Cadence stratus HLS, Synopsys SpyGlass

Objectives of the project : To understand FFT block in RTL (VHDL) and design it in an optimised way in systemC for High level synthesis (HLS)

Major Learning Outcomes : Learnt industry standard RTL projects and HLS of complex modules

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Friendly environment. Good knowledgeable and experienced team. Always helping.

Academic courses relevant to the project : VLSI design, VLSI architecture, Digital electronics, Digital signal processing

PS-II Station : Integrated Active Monitoring Pvt. Ltd. , Pune

Faculty

Name: Suparna Chakraborty

Student

Name: SHIVAM KUMAR(2022H1230198H)

Student Write-up

PS-II Project Title: Estimation of baseline energy consumption using machine learning

Short Summary of work done during PS-II : I have worked in Designing a machine learning model that can estimate the baseline energy consumption of a building . It includes varies internal and external factors which can impact the electricity consumption inside a building. Works is to optimise them and by the past analysis of energy pattern consumption design a baseline which help in doing savings.

Tool used (Development tools - H/w, S/w) : Python , Google colab

Objectives of the project : Design a machine learning model that is capable of estimating the baseline energy consumption of a building and help in doing electricity saving

Major Learning Outcomes : Python , ML , international standard used in energy sector

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Company expectations are to meet the objective of the assigned project to a student. Every one is helpful and support in any problem.

Academic courses relevant to the project : No

PS-II Station : Intel - Hardware , Bengaluru

Faculty

Name: Swapna S Kulkarni

Student

Name: KRITI YADAV(2022H1230110G)

Student Write-up

PS-II Project Title: Structural Physical Design of Ethernet IP

Short Summary of work done during PS-II : Physical design is process of transforming netlist into layout which is manufacturable [GDS]. Physical design process is often referred as PnR (Place and Route) / APR (Automatic Place Route). Main steps in physical design are placement of all logical cells, clock tree synthesis routing. During this process of physical design timing, power, design technology constraints must be met. Further design might require being optimized with respect to area, power and performance. The main objective is to meet the timing constraints

in the block with the efficient placement of the macros and to reduce the congestion within the block and doing the layout signoff and convergence.

Tool used (Development tools - H/w, S/w) : LINUX, EDA tools

Objectives of the project : One of the primary objectives of structural physical design is to ensure the reliability of Ethernet IP networks. This involves selecting resilient components, implementing redundant pathways, and adhering to best practices for cable management to minimize the risk of downtime and data loss.

Major Learning Outcomes : Leant about tcl scripting.

Learnt about the actual process of chip making, from front end to backend

Learnt about floorplanning, routing, voltage area creation

Learnt about how to use the tools for running the flow

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment at Intel is quite good. There is proper work life balance maintained here. There is no strict restrictions on timings. Facilities provided here are great. The people are here helpful.

Academic courses relevant to the project : Advanced Vlsi design, Cad for IC design

PS-II Station : Intel - Hardware , Bengaluru

Faculty

Name: Swapna S Kulkarni

Student

Name: ANJAN SAHA(2022H1230117G)

Student Write-up

PS-II Project Title: 1.Modification of Address Ranges using Perl Scripting 2.Functional Coverage Of CHI2AXI Converter

Short Summary of work done during PS-II : 1. In the first project, we give some configuration files to our Network On Chip IP. In the config files all the bridge, router, switch, slave address ranges information are there. The address ranges was previously multiple of 64B.But now due to some requirement it needed to be changed to 4KB.But the number of files was about 7000+.So we used Perl Scripting to automate the task. Wrote 2 Script File to handle this issue. 2. In the second Project, we had to verify the functionality of CHI2AXI converter which is used to communicate between CHI agent & AXI slave. We used System Verilog to write covergroup/coverpoints to correctly measure the coverage percentage.Then if any coverpoint is not hit fully(100%) we write proper testcase for it. Cadence IMC Tool helps in measuring the coverage percentage.

Tool used (Development tools - H/w, S/w) : GVim, Cadence IMC

Objectives of the project : 1. Using Perl Script to automate the modification process of address ranges. 2.How much percentage of functionality has been covered for CHI2AXI converter

Major Learning Outcomes : 1.Pperl Scripting 2. Linux Commands 3.System Verilog Functional Coverage 4. Address Ranges 5.Regular Expression in Perl

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working Environment is one of the best in Intel. You will have hybrid work culture. You won't have any fixed cubicle, basically you can sit anywhere in the office. And most importantly your helping hand

will be your teammates, they are super helpful. No strict timing, you can work on your own pace keeping in mind the project completion time.

Academic courses relevant to the project : Verilog, Digital Electronics

PS-II Station : Intel - Hardware , Bengaluru

Faculty

Name: Swapna S Kulkarni

Student

Name: PRANAV DESHPANDE(2022H1230134G)

Student Write-up

PS-II Project Title: Area and timing optimization of regbus controller and NOC explore

Short Summary of work done during PS-II : Part-1 After learning the existing RTL repo and microarchitecture of the subsystem in question, multiple register to register logic paths were analyzed. Multiple methods were deployed to reduce the levels of logic in the paths. Learning here was about how intel builds and maintains the RTL repo., various methods of optimizing levels of logic in RTL , how changes in RTL affect the reports, what changes in RTL code can pass through the synthesis tool and change the netlist. Part-2 After understanding intel's client side software and it's internal working, various exercises were conducted in order to find a suitable network on chip. Learned various protocols and their hardware implementations, learned how NOC is built, how routers and switches work, learned how new product development cycle works.

Tool used (Development tools - H/w, S/w) : Synopsys Verdi, NOCStudio (intel software), Fusion compiler, emacs autos, Linux based environment

Objectives of the project : Part-1 Go through the report files of synthesis and find the paths with higher levels of logic. Trace them in the RTL code, analyze, discuss and provide solutions. Part-2 This project aims to find a NOC type among existing NOCs which can accommodate hosts with different protocols throughout the NOC.

Major Learning Outcomes : Working of network on chip components like router, switches.
Understood various protocols
Levels of logic optimization methods

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : What to expect- Intel's work culture is really nice. People are helpful. They will push you and give responsibilities if you show the potential. Company's rate of giving ppo might not be great. But if you like working with nerds who are crazy good at what they do, you may enjoy it at intel. It was difficult for first couple of months as most of the teams work from home and only come on Fridays. But that is changing now.

Now, what company expects from you- Be sincere, regular, and run an extra mile or at least try when you can. Be good at communicating your ideas.

As intel has been a pioneer in the field for many things and is an old company, the rush that you may see or hear in other companies is not there. They take their time to go in-depth while designing new things. If you show potential, they will involve you in the design process and you get to learn how senior engineers think and discuss new ideas.

Academic courses relevant to the project : VLSI architecture, Reconfigurable computing, Advance VLSI architecture, Hardware-software codesign, any other VLSI front-end related course should help.

PS-II Station : Intel - Hardware , Bengaluru

Faculty

Name: Swapna S Kulkarni

Student

Name: SUHAS GHANTA(2022H1230193H)

Student Write-up

PS-II Project Title: Physical Design of a Server-IP block

Short Summary of work done during PS-II : Handled a block/partition in a Server-IP chip. I was tasked with physical design of the block (RTL2GDS) and had been also tasked to run regressions on a new design environment and couple of signoff tools that will be used in the upcoming projects. Regular feedback to the tool development team had to be given, so that the issues were resolved in a timely manner.

Tool used (Development tools - H/w, S/w) : Fusion Compiler

Objectives of the project : To complete a RTL2GDS flow of given block to match the power, performance and area constraints

Major Learning Outcomes : Understood how to design a block based on given constraints

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : I'm honored to have joined such an enjoyable team in an esteemed organization. The work culture here is as good as it gets and people will definitely enjoy their time here. With teammates who are ready to

help you adjust to environment quite quickly and help resolve any issues with their skills and expertise, you'd be always intrigued and motivated to learn new things.

The company does not intend to treat its employees as machines and allows to retain and ingrain your humane side while you work. With team lunches and outings, you'd get enough out of office experience to get to know the team well.

Academic courses relevant to the project : CAD for IC Design, VLSI Design, VLSI Architecture

PS-II Station : Intel - Hardware , Bengaluru

Faculty

Name: Swapna S Kulkarni

Student

Name: GHODEKAR SIDDHESH SUNIL(2022H1230247P)

Student Write-up

PS-II Project Title: Security and Formal techniques for SoC

Short Summary of work done during PS-II : Worked on formal connectivity verification. Had overview of CXL Protocol. Studied System Verilog and UVM fundamentals. Studied Intel's Security Policy for asset Protection.

Tool used (Development tools - H/w, S/w) : JasperGold, Synopsys Verdi

Objectives of the project : Overview of formal verification and Security Policy related tasks

Major Learning Outcomes : Formal Verification, Security Policy for asset protection, CXL Protocol, System Verilog

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment is good.

Academic courses relevant to the project : CAD for IC design, VLSI Architecture

PS-II Station : Intel - Hardware , Bengaluru

Faculty

Name: Swapna S Kulkarni

Student

Name: KALYANI DESHPANDE(2022H1240051H)

Student Write-up

PS-II Project Title: 5G RFIC for MIMO

Short Summary of work done during PS-II : Understood the architecture of vector engine processor and tensilica cores and learnt to code these systems for communication . Majorly worked in the timer module of these processors

Tool used (Development tools - H/w, S/w) : Linux and Git commands , C programming , Python

Objectives of the project : To design 5G RFIC for MIMO

Major Learning Outcomes : Enhanced C and Python coding languages

Details of Papers/patents : N/a

Brief Description of working environment, expectations from the company : My manager , mentor and other team members were quite helpful in making me understand the ongoing project and my role in it .

Academic courses relevant to the project : C and Python

PS-II Station : Intel - Hardware , Bengaluru

Faculty

Name: Swapna S Kulkarni

Student

Name: SRIBANTI CHAKRABORTY(2022H1240097P)

Student Write-up

PS-II Project Title: ERROR HANDLING IN SOC DESIGN

Short Summary of work done during PS-II : Error handling is an important aspect of software development, as It helps ensure that the applications can respond gracefully to unexpected events. By following these good practices, one can improve the error handling of the applications

and provide a better user experience. Additionally, these can minimize the risk of security vulnerabilities and improve the stability and reliability of the applications. Managing power across these diverse components while ensuring optimal performance presents significant challenges. Balancing power and performance requirements across different use cases, workloads, and operating conditions adds another layer of complexity to power management in SoC

Tool used (Development tools - H/w, S/w) : S/W

Objectives of the project : Error Handling refers to the process of detecting, managing, and resolving errors and exceptions that occur during data processing and analytics. It involves implementing mechanisms and strategies to handle unexpected events and ensure data integrity and reliability. Error handling is an important aspect of software development, as It helps ensure that the applications can respond gracefully to unexpected events. By following these good practices, one can improve the error handling of the applications and provide a better user experience. Additionally, these can minimize the risk of security vulnerabilities and improve the stability and reliability of the applications.

Major Learning Outcomes : CONNECTIONS OF ERROR HANDLING IP IN SOC

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : very friendly working environment with stable work -life balance. Company expects one to learn things and implement as appropriately as possible.

Academic courses relevant to the project : digital electronics, vlsi

PS-II Station : Intel - Hardware , Bengaluru

Faculty

Name: Swapna S Kulkarni

Student

Name: KOMMERA TEJITH REDDY(2022H1400069G)

Student Write-up

PS-II Project Title: Formal Property Verification on Bridge IP

Short Summary of work done during PS-II : The project involves understanding the Cadence Formal Property Verification tool, apply system Verilog assertions and understand the IPP(PCIe) and AXI protocols and formal verify the transactions across the IPP to AXI bridge and vice versa. Our methodology utilizes formal verification tools and techniques to rigorously analyze the RTL designs and verify their adherence to the IPP and AXI protocol, functional specifications, industry standards, and design constraints. By employing formal methods such as model checking and property-based verification, we aim to detect design flaws, ensure functional correctness, and identify potential corner-case scenarios that may lead to errors or vulnerabilities.

Tool used (Development tools - H/w, S/w) : Cadence JasperGold

Objectives of the project : To apply formal methodologies to the Bridge IP so that we can uncover the corner case bugs which the functional verification was unable to find.

Major Learning Outcomes : System Verilog Assertion, Formal Fundamentals

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Intel working environment is chill, gives you enough time to learn things.

Academic courses relevant to the project : Hardware software co-design, Embedded Systems, VLSI Architecture, AVLSI Architecture.

PS-II Station : Intel - Hardware , Bengaluru

Faculty

Name: Swapna S Kulkarni

Student

Name: SAI VISHWATEJA TANUGULA(2022H1400127H)

Student Write-up

PS-II Project Title: Design Verification of UCle-SB bridge IP

Short Summary of work done during PS-II : Development of UVM testbench environment with RAL integration, Verifying register accesses using RAL sequences, performing formal verification such as FPV assertions, dangle and tie-off checks using Cadence JasperGold tool. Debugging simulation waveforms using Synopsys Verdi tool

Tool used (Development tools - H/w, S/w) : Synopsys Verdi, Cadence JasperGold, VNC viewer, ION sessions manager

Objectives of the project : To validate the IP using functional as well as formal methodologies

Major Learning Outcomes : Deep understanding of Design verification using SystemVerilog and UVM, development of UVM testbench environment, Verifying register accesses using RAL,

Formal verification techniques such as FPV assertions, dangle and tie-off checks. Hands-on learning experience on Synopsys Verdi and Cadence JasperGold tools

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Intel provides an amazing work environment with a great opportunity to learn from industry leaders. The candidate is expected to regularly discuss about his/her work progress with the team members and clear their doubts regarding the project work.

Academic courses relevant to the project : VLSI architecture, Embedded system design

PS-II Station : Intel - Hardware , Bengaluru

Faculty

Name: Swapna S Kulkarni

Student

Name: ROOPSI VERMA(2022H1400129H)

Student Write-up

PS-II Project Title: Automated IP Integration For Multimillion Gates SoC

Short Summary of work done during PS-II : We use a platform based design approach with standard on-chip integration architecture and rigorous design reuse technique in our methodology. This is an excellent method for ensuring that system components are integrated into subsystems in a timely manner. Because each subsystem design regularly necessitates

unique architectural component variations, a soft IP core solution usually necessarily requires extensive RTL code rewriting and verification to complement those design requirements.

Tool used (Development tools - H/w, S/w) : Defacto , Automation tool

Objectives of the project : The objective is to present a methodology for uniform and transparent integration of any mix of customizable and non-configurable IP's into SOC and to generate RTL with correct functionality. This approach should shorten turnaround time and lessen designer impact

Major Learning Outcomes : Use of industry oriented tool, RTL Design IP Integration

Details of Papers/patents : none

Brief Description of working environment, expectations from the company : Supportive culture, teamwork, and open communication lay the foundation for a thriving workplace. Recognizing and appreciating employees, celebrating diversity, and maintaining a clean, organized space are key to sustaining motivation and efficiency. Ultimately, mutual respect and understanding among team members ensure a harmonious and productive atmosphere.

Academic courses relevant to the project : VLSI Design,

PS-II Station : Intel - Hardware , Bengaluru

Faculty

Name: Swapna S Kulkarni

Student

Name: PLABAN MOHAPATRA(2022H1400160P)

Student Write-up

PS-II Project Title: Pre- Silicon Validation on Debug Technology of Intel Server Chip

Short Summary of work done during PS-II : The project involves pre-silicon validation of debug technology of server SoC chip. The debug technology is a part of the SoC which is implemented with the different IPs present on the SoC. The debug technology is used to control a product's debug capabilities to help protect secure assets residing on Intel products and private user data being processed within the silicon at run-time.

Tool used (Development tools - H/w, S/w) : Synopsys Verdi, Linux, Python, System Verilog

Objectives of the project : To perform functional verification of the debug architecture in a server chip

Major Learning Outcomes : UVM , Linux, Testing and test-run debugging, Pre-silicon validation/verification, Chip-design Process

Details of Papers/patents :
<https://www.intel.com/content/www/us/en/developer/articles/technical/software-security-guidance/secure-coding/intel-debug-technology.html>

Brief Description of working environment, expectations from the company : The work environment was very welcoming for me and also challenging to learn about real-time project and verification . I got the required help and support from all the teammates in acquiring knowledge to actively work in the project.

Academic courses relevant to the project : VLSI Design, VLSI test and testability, Embedded System Design

PS-II Station : Intel - Hardware , Bengaluru

Faculty

Name: Swapna S Kulkarni

Student

Name: YASH KUMAR DUSAD(2022H1400165P)

Student Write-up

PS-II Project Title: Secure state machine using Jasper Formal

Short Summary of work done during PS-II : I work on the soc security. Here in project we work on formal verification. I proved spv and fpv property of the soc.

Tool used (Development tools - H/w, S/w) : Verdi, Jasper formal SPV, Jasper formal FPV

Objectives of the project : Check the security requirement of the SOC

Major Learning Outcomes : I learned formal verification

Details of Papers/patents : I wrote a dttc paper

Brief Description of working environment, expectations from the company : The work environment is good.

Academic courses relevant to the project : vlsi design, vlsi architecture

PS-II Station : Intel - Software , Bengaluru

Faculty

Name: Swapna S Kulkarni

Student

Name: TUSHAR KUMAR BARMAN(2022H1030030G)

Student Write-up

PS-II Project Title: Monitoring the hardware available in the inventory of Intel

Short Summary of work done during PS-II : There were production logs that were stored in the artifactory repository, from where we have to find out the build time. These build time shows for how much time are the machines were getting utilized. After extracting the build time we needed to we store it in the elasticsearch. Now from the elasticsearch we needed to fetch it to the Grafana Dashboard where we performed the utilization calculation and displayed it

Tool used (Development tools - H/w, S/w) : Python, Groovy, Grafana, Elasticsearch, Jenkins

Objectives of the project : To collect the production logs of jenkins and then use them to check for the overall utilization of the hardware

Major Learning Outcomes : DevOps, Jenkins, Groovy

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment is good, there is a good work life balance. No one texts you in the weekends and no meetings on Fridays. The entire team is supportive and always ready to help. The company expects the work assigned to be done properly even if it takes time

Academic courses relevant to the project : Cloud Computing, DSTN, Computer Networks, AOS

PS-II Station : Intel - Software , Bengaluru

Faculty

Name: Swapna S Kulkarni

Student

Name: KRISHNA KUMAR DWIVEDI(2022H1030060H)

Student Write-up

PS-II Project Title: Development and Verification of Network on Chip (NOC) tool.

Short Summary of work done during PS-II : In this project I was working on various feature development task. I also worked on some task related to bug fixing which involves feature verification and hardware simulation bugs.

Tool used (Development tools - H/w, S/w) : GIT,LINUX ,C++, PERL/PYTHON

Objectives of the project : Design and Verify multiple features of NOC tool.

Major Learning Outcomes : Got hands on experience of developing robust software and also got exposure of how Network on chip is developed in industries.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The work-culture is really good in the company and each and every member of the team is really helpful and you are also free to ask any question and they will help you out. Also you will get to learn a lot of things and also you are free to explore many topics. My expectations from the company is to work for them as full time employee so that I can explore more things and become a better developer so that I can create robust products for the society.

Academic courses relevant to the project : C++ Development, DSA, LINUX BASICS

PS-II Station : Intel - Software , Bengaluru

Faculty

Name: Swapna S Kulkarni

Student

Name: KAUSHIK REDDY S(2022H1120297P)

Student Write-up

PS-II Project Title: Development and Verification of Network on Chip (NoC) tool

Short Summary of work done during PS-II : Task 1: Analyzing the difference in output metrics when default properties are set (value changed) before and after new mesh. In any configuration

file, the “new_mesh” command (creates a new mesh) is the starting point of the configuration file. There are some default properties called “prop_defaults” whose values as per the usage guidelines must be set/changed before creating the mesh. But it was reported that some of the customer created configurations had been using these default properties after creating the mesh and had observed few differences in output metrics like bandwidth and latency. So, I was asked to check in about 70 configuration files by replicating the same scenario before and after “new_mesh” and see if there were any output mismatches.

Task 2: Fixing configuration files that were failing hardware simulation run In this task, it was reported that some configuration files were failing in hardware simulation run. With the help of a colleague in the team, on Root Cause Analysis (RCA) it was found that due to the removal of a property called “cell size” from the NoC tool, another dependent property called “vc_width” was misbehaving, the reason for it being was that “vc_width” was previously calculated using cell size. My colleague explained me the fix and accordingly I added a payload with a width multiplier and made vc_width to use this in its value calculation rather than using cell size. The change was fixing the issue and later turned into the main branch.

Task 3: Adding Self-tests Self-tests are the unit tests that needs to be run by the developer after any development change that makes use of the tcl (transaction control language) utilities “EXPECT_RES” and “EXPECT_ERR” for capturing the expected outputs and error messages. This is to make sure the issue which was previously encountered and fixed does not fail in any of the latest NoC tool builds. So, I created these tests targeting all the existing properties which were suspected to be impacted by my development changes and added them to the source tests folder.

Task 4: Fixing Configuration file that was failing. On root causing the issue it was found that the configuration file was violating a required constraint. In our NoC tool, the interface width ratio between any two interfaces (source - host.bridge.port and destination – host.bridge.port) should not exceed 16:1. But it was found that this configuration had an interface width ratio of 256:1. So, I adjusted the payload multipliers to bring down the ratio to 16:1 which fixed the issue. The change was committed and turned into the main branch and the configuration file was added to the daily regression list.

Task 5: Developed signal handler logic for debugging NoC tool crash with segmentation fault In this task, I developed signal handler logic in C++ to debug Noc tool crashes caused by segmentation faults, utilized GDB (GNU Debugger in Linux) for pinpointing the problematic line of code, implemented a signal handler for SIGSEGV to capture crashes with custom error messages, and utilized these messages as input to a delta-script for minimizing the configuration.

Task 6: Folder structure change where the log files generated by NoC tool gets dumped Log files, mainly performance.csv log file, generated by NoC tool run, are typically dumped into the 'project_name' folder, my task was to change the folder structure to that

created based on the profile information specified in the config file, which encompasses parameters such as bandwidth, delay, and other network characteristics configured for specific traffic transactions between source and destination hosts. I was able to achieve this using a combination of C++ and Linux commands. Task 7: Deep Testing □ Happens twice every month for testing NoC tool features/components. □ Thoroughly evaluate the assigned feature/component for any issues or bugs. □ Tested the tool's User Interface and help/tutorials section and reported 2 bugs related to the router and link properties of NoC tool where the default and allowed values specified were incorrect. These were few of the tasks which were completed by me during the internship.

Tool used (Development tools - H/w, S/w) : Microsoft Visual Studio Professional, VnC editor, Splunk dashboard, Jira tool, GIT,

Objectives of the project : This project involves generating dead-lock free synthesizable RTL, fully optimized and balanced NoC topology along with Timing and Physical design constraints, testbench and documentation using a Network on chip (NoC) simulation tool for different customer Intellectual Property (IP) design requirements such as different IP hosts, Interfacing protocols, Connectivity, Application traffic profiles and Quality of Service (QOS).

Major Learning Outcomes : Learnt to use software tools like VnC editor, GIT, Jira. Improved my C++ development skills and learnt new skills like python, perl and concepts such as Network on Chip and Computer networking.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : -

Academic courses relevant to the project : Software Engineering Management, Object Oriented Analysis and Design, Advanced Computer Networks

PS-II Station : Intellect Design Arena Ltd , Chennai

Faculty

Name: Gopalakrishnan Venkiteswaran

Student

Name: ABHIRATH N B(2020A7PS0260H)

Student Write-up

PS-II Project Title: NLP Project - Creation of chatbot

Short Summary of work done during PS-II : The objective is to create a chatbot that can understand the context and answer questions

Tool used (Development tools - H/w, S/w) : Python, OpenAI, Streamlit

Objectives of the project : To create a chatbot that can answer questions based on Government Orders

Major Learning Outcomes : Technical and Soft skills

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The work environment is easy for interns, but the chances of PPO are less. I would suggest to be placed before applying to the company

Academic courses relevant to the project : NLP, ML

PS-II Station : Intellect Design Arena Ltd , Chennai

Faculty

Name: Gopalakrishnan Venkiteswaran

Student

Name: SHAH ARPAN PRINKESHBHAI(2022H1030023G)

Student Write-up

PS-II Project Title: Integrated Marketing campaigns

Short Summary of work done during PS-II : Drive meetings and Take Minutes of the meetings, Engage & learn on how to drive the linkedin campaigns with different personas and Target audience, Learnt using salesforce, Made Post campaign Lead lists so that BDR can Outreach Them to sell our product if they are interested after watching our Advertisement.

Tool used (Development tools - H/w, S/w) : Linkedin Ads, Linkedin sales Navigator, Salesforce

Objectives of the project : To drive marketing Campaigns to target specific account and engage the with our Account manager to buy our product.

Major Learning Outcomes : Drive meetings and Take Minutes of the meetings, Engage & learn on how to drive the linkedin campaigns with different personas and Target audience, Learnt using salesforce

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Work environment is exceptionally good if you are the work you are really interested in. My Colleagues are also very helpful in motivating me to perform further and work environment is not so stressful. I have a good bonding with my team mates and my colleagues.

Academic courses relevant to the project : Marketing.

PS-II Station : Intellect Design Arena Ltd , Chennai

Faculty

Name: Gopalakrishnan Venkiteswaran

Student

Name: MANISH(2022H1030038G)

Student Write-up

PS-II Project Title: Multi experience platform and Selenium web

Short Summary of work done during PS-II : In conclusion, this project showcases the powerful capabilities of SAP MAXP in driving digital innovation. Using Node.js for application development and integration MXP tool to showcase the demo of our customers.

Tool used (Development tools - H/w, S/w) : React.js, HANA DB, selenium Web, node.js, GitHub, MXP

Objectives of the project : I have to build a dashboard for my team and I a web page to maintain the tickets details which is raised by my team and show them in quarterly base

Major Learning Outcomes : How to handle API data and how a industry level code works

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment is very good in SAP Labs. Everyone is very kind and helpful in nature we can ask anyone whenever we got stuck in our assign task.

Academic courses relevant to the project : It's give us a chance to deal with a real life problem solving skills and give us a chance to implement some logic which we learnt during our academic time

PS-II Station : Intellect Design Arena Ltd , Chennai

Faculty

Name: Gopalakrishnan Venkiteswaran

Student

Name: ADIT SAXENA(2022H1030039G)

Student Write-up

PS-II Project Title: Seat Belt Warnings System

Short Summary of work done during PS-II : The Smart Seatbelt Warning System project aims to enhance vehicle safety by automating seatbelt usage alerts using sensor technology, an Arduino microcontroller, and a motorized pulley system. The system detects seat occupancy and

seatbelt status through sensors. When the seat is occupied and the seatbelt is not fastened, or if the vehicle speed exceeds 20 km/h, it triggers warnings via LEDs and buzzers. We validated the system logic using MATLAB/Simulink simulations before physical implementation. The Arduino reads sensor inputs and controls the pulley mechanism, simulating seatbelt engagement. A user-friendly GUI developed in Processing provides real-time control and visualization, sending commands to the Arduino to operate the pulley. Testing demonstrated the system's effectiveness in accurately detecting seat occupancy and seatbelt status, providing timely alerts.

Tool used (Development tools - H/w, S/w) : Hardware - Arduino Microcontroller, Car Seat Pressure Sensor, Magnetic Reed Sensor, Motor (DC), Pulley System, LED; Software - MATLAB/Simulink, Arduino IDE, Processing

Objectives of the project : To develop a seat belt warning system for different case types

Major Learning Outcomes : 1. Integration of Hardware and Software: Gained experience in integrating various hardware components like sensors, motors, and microcontrollers with software tools for real-time control and monitoring.

2. System Simulation and Validation: Learned to use MATLAB/Simulink for simulating and validating system logic before physical implementation, ensuring reliability and functionality.

3. Microcontroller Programming: Enhanced skills in programming Arduino microcontrollers to read sensor inputs and control mechanical systems.

4. User Interface Development: Developed a user-friendly GUI using Processing, enabling effective interaction and control of the system.

5. Real-Time Communication: Acquired knowledge in establishing serial communication between the GUI and Arduino for seamless data exchange and control.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : My internship experience in this working environment has been incredibly positive. The team is supportive, approachable, and always willing to help, fostering a collaborative atmosphere. The workspace is well-organized and equipped with the necessary resources, allowing me to perform my tasks efficiently. Additionally, the company's commitment to professional development has provided me with valuable learning opportunities, making this an enriching and enjoyable internship.

Academic courses relevant to the project : Internet of Things (Arduino Coding)

PS-II Station : Intuit India , Bengaluru

Faculty

Name: Raja Vadhana P

Student

Name: ISHITA KHICHA(2019B3A70417G)

Student Write-up

PS-II Project Title: Product Core

Short Summary of work done during PS-II : During my tenure at Intuit QuickBooks SBSEG, I engaged in rigorous testing procedures utilizing tools such as Postman and MockK within the IntelliJ IDEA environment. The project's codebase was managed through GitHub, employing Git for version control. A diverse array of problem statements was encountered, encompassing tasks such as the inactivation of products and their variants, validation of cost and price parameters, logging of execution times, and the phased removal of outdated monolithic architecture code. Throughout the internship, I actively participated in full-stack development utilizing Kotlin and React frameworks. This hands-on experience facilitated a comprehensive understanding of software engineering principles and practices. Moreover, the collaborative nature of the internship fostered the acquisition of invaluable soft skills, notably in communication and teamwork. Engaging in multifaceted tasks within a professional environment not only honed technical proficiencies but also cultivated adaptive problem-solving abilities and adeptness in coordinating with team members. Overall, the experience significantly contributed to my professional

development, equipping me with a holistic skill set essential for success in the realm of software engineering.

Tool used (Development tools - H/w, S/w) : Mac provided by company, IntelliJ IDEA, Postman

Objectives of the project : Fullstack development

Major Learning Outcomes : Kotlin, React, Postman, Git and GitHub

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Hybrid work, laptop provided by company, mentors and manager was clear, HR communication was good. One month accommodation and flights to and fro were provided.

Academic courses relevant to the project : OOP, DSA, DBMS

PS-II Station : Intuit India , Bengaluru

Faculty

Name: Raja Vadhana P

Student

Name: RISHAM BINDRA(2020A7PS0141G)

Student Write-up

PS-II Project Title: Migration Of V3 API

Short Summary of work done during PS-II : I was assigned to the reporting team in QBO subsidiary of Intuit. QBO mainly deals with processing and generating financial reports for businesses. My work was to migrate the V3 API from the existing Monolith codebase to a microservices architecture. This was done report by report, and during my Internship, I was able to migrate a total of 4 reports. My work was sent to production, and is being used by customers around the world.

Tool used (Development tools - H/w, S/w) : Java, React, REST API, Postman, Github, Splunk, Karate framework,

Objectives of the project : To migrate the codebase for V3 API from monolith to microservices architecture

Major Learning Outcomes : - More familiarity with Java

- Understanding the release process for large projects
- Working as part of a larger team
- Automated testing framework (Karate)

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment was very good, the team members were friendly and inclusive. There were multiple outings in and around Bangalore, including an overnight trip, promotion celebrations, trekking, etc. I was assigned a mentor to guide me during my internship, who was very approachable and helpful.

Academic courses relevant to the project : OOP, Computer Programming,

PS-II Station : Intuit India , Bengaluru

Faculty

Name: Raja Vadhana P

Student

Name: JAVERI SAHIL LOKESH(2020AAPS1743G)

Student Write-up

PS-II Project Title: Benchmarking Tool and Curation of Golden Repos

Short Summary of work done during PS-II : Set up a tool to evaluate the accuracy of the code produced by an AI bot owned and built by the company periodically using string matching algorithms. Curation of golden repositories that is helping an AI tool to be trained against the company specific code to improve developer productivity

Tool used (Development tools - H/w, S/w) : IDEs, Git, Jenkins, Intuit specific tools - Devportal, Argo

Objectives of the project : Improve the Developer Productivity of Intuit Developers. Evaluation of accuracy of the responses produced by the company's AI tool

Major Learning Outcomes : Python, React, Javascript, LLM, Jenkins, Git

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The company policies are very flexible with the work timings, and have adapted well to the hybrid model of working from the office. The work culture is also very good and matches all industry standards and practices. The projects use modern day technologies and the technologies keep evolving as soon as new ones come into the market. The people are very good, keen to work, help, learn and deliver together.

Academic courses relevant to the project : OOPS, DBMS, OS

PS-II Station : ITC Limited , Bhadrachalam

Faculty

Name: Panchagnula Jayaprakash Sharma

Student

Name: RAMANARAYANAN K T(2020A1PS2537H)

Student Write-up

PS-II Project Title: Furnish Management

Short Summary of work done during PS-II : Developed an algorithm for efficient distribution of different types of pulp from SFT, using python. The process and pipelines that were used for pulp supply needed to be understood properly for developing the algorithm

Tool used (Development tools - H/w, S/w) : Python, PI datalink

Objectives of the project : To develop an algorithm and GUI for efficient distribution of required types of pulp from Secondary Fibre Treatment plant

Major Learning Outcomes : Data Analysis, Python, PI datalink

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Very friendly mentors, and work culture along with a conducive environment for learning so much

Academic courses relevant to the project : None

PS-II Station : IUDX Program Unit, Indian Institute of science - Data Kaveri , Bengaluru

Faculty

Name: Swarna Chaudhary

Student

Name: SHASHANK PANDEY(2020A7PS0238H)

Student Write-up

PS-II Project Title: Differential Privacy and its Applications: A R&D Project

Short Summary of work done during PS-II : As an intern at IUDX, I contributed to three primary projects, each focusing on different aspects of data privacy and security. Firstly, I conducted extensive research on Differentially Private Stochastic Gradient Descent (DP-SGD) and investigated privacy-exposing attacks. This involved replicating these attacks on genomic and transport data, aiming to enhance the understanding of privacy vulnerabilities. Secondly, I explored various methods for generating differentially private synthetic data. This effort culminated in the publication of a technical article authored by me on the Center of Data for Public Good's official page. Lastly, I developed an anonymization pipeline supporting k-anonymity and differential privacy for medical data. Additionally, I expanded the pipeline by integrating API calls to extend our anonymization to soil data provided by the Government of Telangana. My work at

IUDX emphasized advancing data privacy techniques and fostering secure data exchange in urban environments.

Tool used (Development tools - H/w, S/w) : IntelliJ, Docker, ARX, PyTorch

Objectives of the project : Research on differentially private gradient descent, develop an anonymization pipeline

Major Learning Outcomes : Privacy concepts, mathematical proofs, Docker, React, ARX

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The company is quite relaxed - great working environment. The mentors and members give you time to scale up and understand the concepts involved. Frequent (weekly) presentations with higher-ups also help you understand the intricacies and skills involved in delivering key learnings.

Academic courses relevant to the project : MATH F432: Applied Statistical Methods,
MATH F111: Mathematics 1,
CS F320: Foundations of Data Science,
BITS F464: Machine Learning,
CS F213: Object-Oriented Programming,

PS-II Station : IUDX Program Unit, Indian Institute of science - Data Kaveri , Bengaluru

Faculty

Name: Swarna Chaudhary

Student

Name: RAJARSHI RAY(2020A7PS1017G)

Student Write-up

PS-II Project Title: Secure Enclaves and Confidential Computing

Short Summary of work done during PS-II : Building a working flow involving multiple token exchanges and report generations for building complete trust between Client and the Secure Enclave. Building applications that are able to utilise confidential computing including Pneumonia Classification.

Tool used (Development tools - H/w, S/w) : Python, C++, Bash Script, Docker

Objectives of the project : Building a Secure Enclave leveraging technologies like AMD-SEV-SNP for cloud based encryption in order to perform Confidential Computing

Major Learning Outcomes : Exposure to research in the field of Computer Science more specifically Cyber Security and Data Privacy. Understanding previous Literature and implementing a working model of Confidential Compute

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Excellent working environment and wonderful people to guide you through the way. Company allowed me to take work from home for 2 days in a week.

Academic courses relevant to the project : Cryptography, Operating Systems

PS-II Station : J29 F&B Consultancy LLP , Gurugram

Faculty

Name: Sudeep Kumar Pradhan

Student

Name: GARVIT SUKHIJA .(2019B2AB0952P)

Student Write-up

PS-II Project Title: Product Management

Short Summary of work done during PS-II : I worked as a product management intern and since it was a small startup, we wore various hats at the work. I designed the UI/UX through Figma, made product roadmap, collaborated with engineers on the PRD.

Tool used (Development tools - H/w, S/w) : Figma, trello, mixpanel, docs and sheets

Objectives of the project : To learn about product management at a saas startup

Major Learning Outcomes : Learnt how to drive product led growth in a competitive segment

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : It is a pretty chill company where everyone helps each other to grow

Academic courses relevant to the project : Supply chain management and Operations Management

PS-II Station : Jacobs , Hyderabad

Faculty

Name: Mahesh K Hamirwasia

Student

Name: SANDHYA KOLUGURI(2022H1300036H)

Student Write-up

PS-II Project Title: Pavement Design and Evaluation

Short Summary of work done during PS-II : Gained good knowledge on DMRB , AASHTO, KSA, QHDM & MOMRA Standards. could effectively design a pavement using above mentioned standards . I have learnt DAPS Software for FWD Analysis as well. Worked on few live projects

Tool used (Development tools - H/w, S/w) : AutoCAD ,Civil 3D ,DAPS , Microsoft Excel

Objectives of the project : To gain knowledge on UK & ME Standards . And assist on few real time projects

Major Learning Outcomes : Pavement design using UK & ME Standards

Details of Papers/patents : No patents

Brief Description of working environment, expectations from the company : Working Environment in Jacobs is really good with flexible timings .

Academic courses relevant to the project : Pavement Material Characterization, Highway Construction Technology, Pavement Analysis and Design

PS-II Station : Jivox , Bengaluru

Faculty

Name: Preethi N. G

Student

Name: YASH VARDHAN SINGH(2020A7PS1712H)

Student Write-up

PS-II Project Title: Dynamic Creative Optimization using Generative AI

Short Summary of work done during PS-II : A very research-intensive role where we had to update ourselves with the latest tools like Stable Diffusion (various models v1, v2, v3, XL) along with different utilities it provides; Amazon Bedrock suite of GenAI tools for industry specific applications. The job involved working in the Labs team and development of Proof of Concepts for different features to be later Integra in the existing platform. Some of the things that we tackled were Image parsing to HTML using GenAI, Create Master template generation, and Product placement using Background fill and Inpainting.

Tool used (Development tools - H/w, S/w) : SpringBoot, Postman, Stable Diffusion, DALL-E, Amazon Bedrock suite, AWS EC2, AWS S3

Objectives of the project : Eradicate the need of third party designers and leverage GenAI capabilities to make creative masters for ad agencies

Major Learning Outcomes : Software Development, Moder Gen AI image tools, Research

Details of Papers/patents : No publications

Brief Description of working environment, expectations from the company : We had work from home flexibility and had to come to office 3 days a week. The environment and expectations are veev conducive to exploration and gives one freedom to use and manage time according to one's convenience. Our manager was very friendly and gave us ample opportunities and time to learn and grow skills that came in handy later while working on specific deliverables. Overall, a healthy environment to grow if you can manage your time well and have the curiosity to explore.

Academic courses relevant to the project : Software Engineering

PS-II Station : JPMC - GR&C - AWM Investment Risk Analytics , Mumbai

Faculty

Name: Vaishali Pagaria

Student

Name: HARSHIT TEJAS MEHTA .(2020A7PS0057P)

Student Write-up

PS-II Project Title: Exposure Analysis Dashboard

Short Summary of work done during PS-II : During my time as an intern at J.P. Morgan, I had the opportunity to work on a fascinating project centered around automating the process of basic

data fetching from Python modules. This project aimed to streamline and expedite data retrieval tasks, ultimately enhancing efficiency within our team. The first step of the project involved thoroughly understanding the existing data fetching process and identifying areas where automation could bring significant improvements. After careful analysis, I determined that certain repetitive tasks, such as fetching basic data from Python modules, were ideal candidates for automation. With a clear objective in mind, I began developing Python scripts to automate these data fetching tasks. Leveraging my programming skills and knowledge of Python, I designed a series of scripts that could seamlessly retrieve the required data from specified modules with minimal manual intervention. One of the key challenges I encountered during the project was ensuring the accuracy and reliability of the automated data fetching process. To address this, I implemented robust error handling mechanisms and conducted rigorous testing to validate the functionality of the scripts under various scenarios. As the project progressed, I collaborated closely with my team members, seeking feedback and incorporating their suggestions to further refine the automation solution. This collaborative approach not only enriched my learning experience but also ensured that the final product met the specific requirements and expectations of our team. Upon completion, the automation project successfully reduced the time and effort required for data fetching tasks, allowing team members to focus on more strategic activities. The project not only demonstrated my proficiency in Python programming but also highlighted my ability to identify opportunities for process improvement and deliver effective automation solutions.

Tool used (Development tools - H/w, S/w) : Tableau, Python, Excel, Bloomberg, Morningstar, Streamlit, Powerpoint,

Objectives of the project : Streamline data analysis and reporting mechanisms to provide more timely and insightful information to stakeholders. Create an visualization tool to help in getting the data streamlined and easier for the senior management to work with

Major Learning Outcomes : Software/Technology: Bloomberg, Morningstar, Python, Tableau, Streamlit

Soft Skills : Cross Team Collaboration, Presentation Skills, Understanding Corporate Culture

Learnt how risk managers challenge and keep strict check on the Investment risks taken by PMs
I developed strong analytical skills, improved my proficiency in financial software, and enhanced my ability to work collaboratively in a team environment

Grew both professionally and personally, providing me with invaluable insights into the financial industry and the dynamics of working in a high-paced corporate environment.

Details of Papers/patents : N.A

Brief Description of working environment, expectations from the company : Working Environment

1. Professional and Collaborative Atmosphere: The working environment at JP Morgan Chase & Co. is characterized by a high level of professionalism and a strong emphasis on teamwork. Interns are integrated into teams where collaboration and communication are essential for success.

2. Fast-Paced and Dynamic: The financial industry is inherently fast-paced, and the environment at JP Morgan reflects this dynamic nature. Interns must be adaptable and able to manage multiple tasks and deadlines simultaneously.

3. Learning and Development Focus: JP Morgan places a significant emphasis on the continuous learning and development of its interns. There are numerous opportunities for interns to attend training sessions, workshops, and seminars to enhance their skills and knowledge.

4. Supportive Mentorship: Interns are paired with mentors who provide guidance, support, and feedback throughout the internship. This mentorship is crucial for personal and professional growth, helping interns navigate their roles and responsibilities effectively.

Expectations:

1. Proactive and Initiative-Driven: Interns are expected to take initiative and be proactive in their approach to work. This includes seeking out new tasks, asking questions, and actively participating in team activities.

2. Strong Analytical and Problem-Solving Skills: Given the nature of the financial industry, interns must possess strong analytical skills and the ability to solve complex problems. They should be comfortable working with data and using analytical tools to derive insights.

3. Attention to Detail and Accuracy: Precision and accuracy are paramount in financial services. Interns must ensure that their work is thorough and error-free, as even minor mistakes can have significant implications.

4. Effective Communication: Interns are expected to communicate effectively, both verbally and in writing. This includes presenting findings, participating in discussions, and writing clear and concise reports.

Academic courses relevant to the project : Python Skills, FRAM, DRM, SAPM

PS-II Station : JPMC CIB R&A Global Research , Mumbai

Faculty

Name: Sidharth Mishra

Student

Name: G.K.KIRUTHIK SRINIVAAS(2019A3B30392G)

Student Write-up

PS-II Project Title: Equity Research

Short Summary of work done during PS-II : My role was to help the team covering various companies in our sector by updating the valuation models, helping initiate new companies in our coverage, solve client queries

Tool used (Development tools - H/w, S/w) : Excel, Bloomberg, R, Python

Objectives of the project : To valuate and initiate various companies covered by the Sector Team

Major Learning Outcomes : Valuation, usage of various finance tools like Excel, Bloomberg

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Very friendly and understanding team members

Academic courses relevant to the project : Business Analysis and Valuation, Security Analysis and Portfolio Management, Derivatives and Risk Management

PS-II Station : JPMC CIB R&A Global Research , Mumbai

Faculty

Name: Sidharth Mishra

Student

Name: SAMANVITHA THEEGELA(2019B1A30969H)

Student Write-up

PS-II Project Title: Sell side equity research

Short Summary of work done during PS-II : Cater to the needs of respective teams allotted, modelling and valuation, publishing research on covered companies

Tool used (Development tools - H/w, S/w) : Excel, Word, Internal tools

Objectives of the project : Supporting senior analysts of the allotted teams

Major Learning Outcomes : Sector knowledge, Bloomberg, Modelling, Research

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Very welcoming, helpful

Academic courses relevant to the project : BAV, FM, SAPM, FOFA

PS-II Station : JPMC CIB R&A Global Research , Mumbai

Faculty

Name: Sidharth Mishra

Student

Name: OJASWE GUPTA(2019B1A40801G)

Student Write-up

PS-II Project Title: GLOBAL RESEARCH - EQUITY RESEARCH

Short Summary of work done during PS-II : An Equity Research Analyst is responsible for conducting in-depth financial analysis and developing detailed financial models to understand a company's performance. This includes analyzing financial statements, staying updated on industry trends, and using advanced valuation methods such as discounted cash flow (DCF) and comparable company analysis. They prepare comprehensive research reports, providing clear investment recommendations based on thorough analysis. Additionally, analysts maintain regular communication with clients, offering tailored insights and updates on market developments. By leveraging these methodologies, Equity Research Analysts deliver valuable insights that aid in informed decision-making and strategic planning in the dynamic financial landscape.

Tool used (Development tools - H/w, S/w) : BLOOMBERG, EXCEL

Objectives of the project : EQUITY RESEARCH

Major Learning Outcomes : BLOOMBERG, VALUATION

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : As an Equity Research Analyst, I play a pivotal role in providing in-depth analysis and insights on companies and industries, guiding investment decisions within the financial markets. Utilizing advanced data analytics and quantitative analysis, I assess the financial health and performance of companies, uncovering trends and opportunities that influence investment strategies.

Academic courses relevant to the project : BAAV, FM

PS-II Station : JPMC CIB R&A Markets - MANSART, EDG Structuring and PST , Mumbai

Faculty

Name: Sidharth Mishra

Student

Name: MADHAV BAJAJ(2019B3A70256G)

Student Write-up

PS-II Project Title: Machine Learning-based solutions for optimizing weights of a portfolio of volatility-dependent payoff equity derivatives.

Short Summary of work done during PS-II : Description of the projects: 1) The first project involved implementing a machine learning model described in a proprietary research paper from JPMorgan's Global Research Centre (GRC). The model predicted the contract payoff, taking specific basket characteristics as input features. Multiple optimization algorithms were utilized to determine the set of weights that maximized the expected payoff. 2) The objective at hand can be framed as Markowitz's portfolio optimization problem with cardinality constraint, which is NP-hard. Multiple heuristics from various research papers were implemented with functionality to accept a user-defined function as the objective or the fitness function. Through the described methodology, weights maximizing specific desirable basket attributes could be obtained.

Tool used (Development tools - H/w, S/w) : Python, Visual Studio IDE

Objectives of the project : Two major distinct projects were undertaken with the same objective: JPMorgan offers its institutional clients certain volatility-dependent payoff equity derivatives (Varswaps / Volswaps). The projects are concerned with developing a weighting strategy for a basket of these securities.

Major Learning Outcomes : Gained valuable insight regarding:

- 1) Exotic derivatives.
- 2) Applicability of machine learning-based solutions for various problems in finance.

Details of Papers/patents : Research papers referred:

[https://doi.org/10.1016/S0305-0548\(99\)00074-X](https://doi.org/10.1016/S0305-0548(99)00074-X)

<https://doi.org/10.1016/j.nonrwa.2008.04.023>

<https://doi.org/10.48550/arXiv.2101.03312>

Brief Description of working environment, expectations from the company : The work environment is excellent. From the team to the wider department, everyone is very helpful.

Academic courses relevant to the project : Derivatives and Risk Management

Security Analysis and Portfolio Management
Machine Learning
Artificial Intelligence

PS-II Station : JPMC CIB R&A Markets - MANSART, EDG Structuring and PST , Mumbai

Faculty

Name: Sidharth Mishra

Student

Name: AISWARYA M.(2019B3A70290P)

Student Write-up

PS-II Project Title: Trading and Structuring - Delta One Structured Products

Short Summary of work done during PS-II : I helped with all BAUs in the team. I helped in creating multiple baskets and indices as per client need and ask.

Tool used (Development tools - H/w, S/w) : Python, Excel, Communication

Objectives of the project : To support the SI team and help in IP creation

Major Learning Outcomes : Learn leverage Python for Financial structuring

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Extremely friendly and inclusive

Academic courses relevant to the project : Fin Minor, OOP

PS-II Station : JPMC CIB R&A Markets - Sales , Mumbai

Faculty

Name: Sidharth Mishra

Student

Name: PATEL PARTH JEETENDRA .(2020A7PS0026P)

Student Write-up

PS-II Project Title: Structured Investments - Sales and Marketing Support

Short Summary of work done during PS-II : I was covering the North America Structured Investments team, responsible for supporting their Sales and Marketing processes. I provided cross-regional support across Tokyo, Hong Kong, London and New York.

Tool used (Development tools - H/w, S/w) : JPMC Proprietary tools, Excel, Bloomberg, Python, Visio, Tableau

Objectives of the project : I was responsible for automating daily tasks/report generation, launching and pricing trades.

Major Learning Outcomes : Derivative strategies and how they can be customized to provide required risk hedging, along with the pricing methods for the same. I got to know about a variety of structured products, how from simple vanilla options we can create exotic strategies. I have become very good at using advanced Excel and Powerpoint. Through a lot of automation projects, I got exposure to Python and mainly VBA macros. The sales team under Markets is an awesome mix of both finance and tech.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : I was a part of a global Structured Investments team that managed multiple stakeholders across Tokyo, Hong Kong, London and New York. The global exposure of the team helped me understand the business in different parts of the world. The team was the best anyone could imagine for the first corporate exposure. My manager and mentor were very supportive in terms of work and otherwise (PPO and interviews stuff). J.P. Morgan as a company is following flat hierarchy culture. You can directly reach out to Executive Directors for a conversation.

Academic courses relevant to the project : DRM, SAPM, OOP

PS-II Station : JPMC CIB R&A Markets - Sales , Mumbai

Faculty

Name: Sidharth Mishra

Student

Name: ANANYA GUPTA(2020A7PS1693G)

Student Write-up

PS-II Project Title: Structuring Derivative Products for APAC Sales Teams and Automating Daily Operational Tasks

Short Summary of work done during PS-II : My main tasks encompass pricing derivative products, applying credit charges, preparing decks for clients, and generating and automating term sheets. Additionally, I am responsible for automating daily operational tasks. I actively supported and took charge of managing their daily workflow, gaining a comprehensive understanding of the role and responsibilities akin to a full-time employee. The automations I implemented initially required significant time and effort but ultimately improved efficiency and streamlined processes. One of the projects has decreased the time required to prepare each term sheet from 30-40 minutes to just 15 minutes per term sheet.

Tool used (Development tools - H/w, S/w) : Bloomberg, Proprietary softwares, Excel, PowerPoint

Objectives of the project : My role primarily involves structuring derivative products (both vanilla and exotic) for sales teams across various regions in Asia, including India, Malaysia, Hong Kong, China, Thailand, Singapore, and Indonesia, on a daily basis. The core focus of our team is on Foreign Exchange (FX) and Interest Rates as the underlying assets.

Major Learning Outcomes : Through this role, I developed a comprehensive understanding of FX, Rates, Fixed Income, and gained a robust foundation in navigating diverse financial markets. Proficiency in MS Excel, including VBA, equipped me with the tools to perform efficient data analysis and automation, pivotal for optimizing financial processes. Effective communication and collaboration skills played a crucial role in a multi-location environment, enabling seamless teamwork and the clear communication of technical insights to diverse audiences. Adaptability to varied work hours underscored my flexibility and responsiveness to global business needs.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment is dynamic and fast-paced, characterized by long hours and high-pressure situations, particularly during live requests. The company values pure professionalism, expecting

employees to demonstrate a strong work ethic and dedication. As an intern, you will be immersed in a learning-intensive role, where you are encouraged to gain financial knowledge through hands-on experience and by engaging with colleagues. The expectation is that you will take initiative in your learning journey, utilizing the resources and expertise available within the team. Collaboration and communication are key, as the company fosters a supportive atmosphere where knowledge sharing is integral to your development. The ability to handle stress, prioritize tasks, and deliver quality work under tight deadlines is crucial. In return, the company provides a challenging yet rewarding environment that promotes professional growth and expertise in the financial sector.

Academic courses relevant to the project : Derivatives and Risk Management

PS-II Station : JPMC GR&C “ Corporate Risk - Controllers , Bengaluru

Faculty

Name: Vaishali Pagaria

Student

Name: CHITVAN AGRAWAL(2019B3A70559G)

Student Write-up

PS-II Project Title: CCAR Reporting and Alteryx Automation

Short Summary of work done during PS-II : The main objective of the project is to ensure consistency between JPMorgan Chase & Co.'s Financial and Risk Systems, which are to be used for the regulatory report CCAR. The Comprehensive Capital Analysis and Review is a stress-test

regime for large US banks. It aims to establish whether lenders have enough capital to cope with a severe economic shock, and assesses their risk modelling practices

Tool used (Development tools - H/w, S/w) : Advanced Excel, Alteryx

Objectives of the project : To do perform monthly as well as quarterly controls on CCAR Reporting and Alteryx Automation

Major Learning Outcomes : Learned Advanced MS Excel and Alteryx Automation

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Working Environment was good I was helped by mentors throughout my project. learned to collaborate with different people.etc

Academic courses relevant to the project : SAPM, FINMAN, DRM

**PS-II Station : JPMC GR&C “ MRGR CIB Ex Trading (Quant Modelling) ,
Mumbai/Bangalore**

Faculty

Name: Vaishali Pagaria

Student

Name: HARI SANKAR .(2019B3A70564P)

Student Write-up

PS-II Project Title: GPG Fraud Detection

Short Summary of work done during PS-II : Confidential

Tool used (Development tools - H/w, S/w) : Python

Objectives of the project : detect fraud

Major Learning Outcomes : Learnt to detect fraud

Details of Papers/patents : Confidential

Brief Description of working environment, expectations from the company : Great work environment

Academic courses relevant to the project : SAPM, BAV

PS-II Station : JPMC GR&C “ WCS Data Science - Product “ Client Risk management , Mumbai

Faculty

Name: Arindam Roy

Student

Name: SPARSH GOYAL .(2019B3A40494P)

Student Write-up

PS-II Project Title: WCS Risk Product – Client Risk management

Short Summary of work done during PS-II : My role more of a Business analyst rather than a product analysts, and WCR product owner team is the only one which does that. BAU consisted of understanding requirements, creating Jira, conducting PBRs.

Tool used (Development tools - H/w, S/w) : JIRA, SQL, Confluence,

Objectives of the project : Understand requirements, craft jira, prioritize demands

Major Learning Outcomes : SQL, improved communication skills

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment is wonderfull, work culture is good and even work life balance is nice

Academic courses relevant to the project : Soft skills, Principle of management, Technical report writing

**PS-II Station : JPMC GR&C CCB Risk - Strategy Analytics - Analyst ,
Mumbai/Bangalore**

Faculty

Name: Vaishali Pagaria

Student

Name: ARYAN UDESHI(2019B3A70206G)

Student Write-up

PS-II Project Title: Reporting and Analytics in Mortgage Risk

Short Summary of work done during PS-II : I was mainly involved in a long term analytics project which looked into the escrow situation in the US. I had to look into different aspects of how rising escrow payments are affecting customers, where the risk is concentrated and how to effectively mitigate them. Other than that I was also involved in BAU reporting work

Tool used (Development tools - H/w, S/w) : Alteryx, Teradata, SQL, Excel, Powerpoint, SAS

Objectives of the project : Identify risks in various segments of the US mortgage industry

Major Learning Outcomes : Learnt about the working of the US mortgage industry and the products offered by Chase, the risks related to each of them and how to effectively identify and mitigate them

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The team that I was a part of helped me throughout the internship. I was allowed to ask questions to anyone on the team and was able to interact with many senior leaders. The managers promote a good work-life balance, even though some days the work can get a little bit hectic, the manager supports me and asked me to take time off once the work was done.

Academic courses relevant to the project : Macroeconomics

PS-II Station : JPMS CIB R&A Banking(CRG)-Banking , Mumbai

Faculty

Name: Uma Nagarajan

Student

Name: SAHIL VARMAN(2019B1A31017H)

Student Write-up

PS-II Project Title: JPMS CIB R&A Banking(CRG)-Banking , Mumbai

Short Summary of work done during PS-II : Capital Raising Investment bankers assist clients in raising debt capital by issuing bonds, notes, and other debt instruments. They provide expert advice on the timing, structure, and pricing of these securities to meet the client's funding needs and market conditions. Structuring and Pricing They structure debt offerings to align with the client's financial strategy and market demand. This includes determining the appropriate maturity, interest rate, and covenants of the debt instruments. Accurate pricing models are developed to ensure competitive and attractive offerings for investors. Market Analysis Investment bankers conduct in-depth market analysis to understand the current trends, investor sentiment, and economic factors affecting the debt markets. This enables them to provide informed advice on market entry strategies and anticipate potential challenges. Due Diligence and Documentation Thorough due diligence is performed to assess the financial health and creditworthiness of clients. This involves analyzing financial statements, evaluating business risks, and preparing comprehensive documentation to support the debt issuance process. Investor Relations Building and maintaining strong relationships with institutional investors is crucial. Investment bankers market the debt offerings to potential investors, ensuring sufficient demand and successful placement of securities. Regulatory Compliance Ensuring all debt offerings comply with regulatory requirements is a fundamental responsibility. Investment bankers navigate the legal and regulatory landscape to mitigate risks and ensure adherence to industry standards. Ongoing Support Post-issuance, investment bankers provide ongoing support to clients, including monitoring market conditions, advising on refinancing opportunities, and managing investor communications.

Tool used (Development tools - H/w, S/w) : Bloomberg, Tableau, in-house software, Excel

Objectives of the project : My practice school experience at JP Morgan has been profoundly fulfilling, laying a solid foundation for my career in finance. The blend of technical expertise and interpersonal skills I have acquired positions me well for future opportunities in the commodities and broader financial markets.

Major Learning Outcomes : Technical Proficiencies

Throughout my tenure, I developed a robust skill set, including:

Portfolio Construction: Building diversified portfolios tailored to client needs.

Pricing Models: Constructing and utilizing models to determine the value of various commodities.

Trading Systems: Navigating and operating within complex trading platforms.

Back-Test Analysis: Conducting retrospective analyses to validate trading strategies.

Market Drivers: Understanding the multifaceted factors that influence commodity prices.

Sector-Specific Insights

My focus on the energy sector, particularly oil and gas, involved:

Contract Pricing: Gaining insights into the pricing mechanisms of various market contracts.

Derivative Contracts: Leveraging my previous experience with derivatives to understand hedging strategies and their significance in global markets.

Interpersonal Skills and Stakeholder Management

Beyond technical skills, my experience at JP Morgan has honed my ability to:

Communication: Effectively present ideas to senior bankers, ensuring clarity and conciseness.

Stakeholder Management: Navigate interactions with diverse individuals while maintaining professional decorum, which is crucial for complex project engagements.

Details of Papers/patents : --

Brief Description of working environment, expectations from the company : My practice school experience at JP Morgan has been profoundly fulfilling, laying a solid foundation for my career in finance. The blend of technical expertise and interpersonal skills I have acquired positions me well for future opportunities in the commodities and broader financial markets. As I transition from this educational phase, I am excited to apply these learnings to real-world scenarios and contribute meaningfully to the finance industry

Academic courses relevant to the project : DRM, FOFA, FM, SAPM

PS-II Station : JPMS CIB R&A Banking(CRG)-Banking , Mumbai

Faculty

Name: Uma Nagarajan

Student

Name: VED GURUDATT ZATEKAR(2020A1PS1958G)

Student Write-up

PS-II Project Title: CIB - Research and Analytics

Short Summary of work done during PS-II : Pretty heavy workload with work hours ranging from 11-12 hours daily. Quality wise work is trivial and monotonous but there are some complex things which need time to get hands on with. Very healthy work culture and ethics, literally best part about the organisation is that even after such a heavy workload people create a productive and healthy environment.

Tool used (Development tools - H/w, S/w) : Excel and PPT

Objectives of the project : To understand concepts on investment banking and finance

Major Learning Outcomes : Learnt a lot on finance in general, and how J.P. functions as a investment bank.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Very friendly attitude, very young crowd doesn't make you feel left out due to age gap.

Academic courses relevant to the project : Fundamental of Finance and Accounting, Financial Management and Business Analysis and Valuation

PS-II Station : JPMS CIB R&A Banking(CRG)-Banking , Mumbai

Faculty

Name: Uma Nagarajan

Student

Name: DHIREN DATTAJIRAO HAJARE(2020A4PS1868P)

Student Write-up

PS-II Project Title: Sell side deck of healthcare real estate investment trust

Short Summary of work done during PS-II : Regular periodicals of the team followed by day to day basis work. Understanding of different financial models and deal structures.

Tool used (Development tools - H/w, S/w) : MS Excel, MS PowerPoint, FactSet, Dealogic

Objectives of the project : To prepare a sell side deck on a healthcare REIT along with the relevant backup

Major Learning Outcomes : Leverage Buyout Model, Dividend Discount Model, Net Asset Value build-up, Merger Model, Reverse Merger Model

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Pretty helpful and welcoming work culture. Had training sessions relevant to the work aligned later on.

Academic courses relevant to the project : Business Analysis & Valuation, Fundamentals of Finance & Accounting, Financial Management

PS-II Station : JPMS CIB R&A Banking(CRG)-Banking , Mumbai

Faculty

Name: Uma Nagarajan

Student

Name: CHAITANYA R IYER .(2020A7PS0012P)

Student Write-up

PS-II Project Title: NA

Short Summary of work done during PS-II : Assisted the team in Investment Banking Pitchbooks for the Energy, Power, Renewables and Metal and Mining sectors

Tool used (Development tools - H/w, S/w) : Excel, PowerPoint, Factset, Bloomberg, Eikon

Objectives of the project : Cannot be disclosed

Major Learning Outcomes : Using financial data sources, Reading the 3 statements, Excel, PowerPoint

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Extremely supportive mentors, emphasis on learning, teaches a lot about working with deadlines and managing expectations

Academic courses relevant to the project : FundaFin, FinMan, BAV

PS-II Station : JPMS CIB R&A Banking(CRG)-Banking , Mumbai

Faculty

Name: Uma Nagarajan

Student

Name: AGARWAL ASHUTOSH(2020A8PS2013G)

Student Write-up

PS-II Project Title: JP Morgan - CRG Banking

Short Summary of work done during PS-II : Major work products include: 1. Pitchbooks and marketing materials made for on-shore bankers in accordance with their ask after thorough research on the company from various databases 2. Earning summaries are made after results

of JPMC covered companies are published to give on shore bankers updates in short and crisp language 3. Valuations of companies using DDM or DCF, Broker reports, past transactions and trading multiples 4. Identifying opportunities for companies in terms of acquisitions and new debt issuances and at the same time prospecting companies for JPMC coverage 5. Thorough reading of company filings to be up to date with recent happenings of the sector as covered by respective teams 6. Maintaining and updating databases of companies in the sector covered with results as published from the recent quarter/annual filing

Tool used (Development tools - H/w, S/w) : Excel, Ppt

Objectives of the project : Help on-shore bankers with ad-hoc research and pitchbooks

Major Learning Outcomes : JP Morgan workflow of various departments, banking operations, method of valuation of companies and making pitchbooks

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Working environment is good, seniors are supportive and friendly culture. Expected to work beyond normal working hours.

Academic courses relevant to the project : Fufa, SAPM, BAV, Finman

PS-II Station : JPMS CIB R&A Data Science , Bengaluru

Faculty

Name: Gopalakrishnan Venkiteswaran

Student

Name: CHIRAG GADIA(2020A7PS1721H)

Student Write-up

PS-II Project Title: ML Matching for reconciliations

Short Summary of work done during PS-II : Worked on optimizing a machine learning model that helps in reconciliations

Tool used (Development tools - H/w, S/w) : Python, AWS, S3, Huggingface

Objectives of the project : Automate Reconciliations

Major Learning Outcomes : Machine learning, Optimization

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The work culture is good and they are very supportive. Expectations include being able to work in a collaborative environment.

Academic courses relevant to the project : ML, FODS, DSA, DAA, Gen AI, NLP, Information Retrieval, OS

PS-II Station : Kanerika Software Pvt. Ltd. , Hyderabad

Faculty

Name: Y V K Ravi Kumar

Student

Name: ANIRUDDHA JOSHI(2020A8PS2152H)

Student Write-up

PS-II Project Title: Provision and Calculation of the Carbon Emission Cost

Short Summary of work done during PS-II : In my internship I have helped to build a application which is intergrated inside Microsoft Teams Application. The app was hosted in Azure and can only be used in the organisational level. After completing that project, I have started working on enhancing and adding features in an already existing website for the client. That website is used for calculating the amount of carbon footprint generated during logistics operations.

Tool used (Development tools - H/w, S/w) : .NET, LINQ, C#, Telerik, Blazor, Entity Framework Core

Objectives of the project : To enhance the website of the client which helps in calculating the carbon emission while performing logistics operations

Major Learning Outcomes : During my internship, I have learnt about .NET framework, the Microsoft Chatbot Framework which is used to integrate bots in MS Teams and also Blazor, C# and .NET Core. Also since the organisation is mainly client based, I have also learnt how to interact with clients.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The working environment is good. The team I was a part of is quite helpful and even if you get stuck, you can ask them doubts and they will tell you how to approach and solve the issue.

Academic courses relevant to the project : Web Dev

PS-II Station : KMK Consulting , Vadodara

Faculty

Name: Bharathi R

Student

Name: DALSANIYA VATSALKUMAR PRADIPBHAI(2022H1530228H)

Student Write-up

PS-II Project Title: Understanding the fundamentals of commercial analytics in the pharmaceutical industry.

Short Summary of work done during PS-II : A comprehensive Tableau dashboard was developed and maintained for a US-based pharmaceutical client, focusing on sales optimization. Key tasks included data loading, preliminary quality checks, data processing, and creating Tableau data extracts. A routine data refresh cycle was implemented, along with thorough quality control on the dashboard. This project provided practical experience in data management, quality assurance, data processing, and Tableau, as well as insights into sales performance analysis and project management, enhancing technical and analytical skills in commercial analytics.

Tool used (Development tools - H/w, S/w) : SQL , Tableau

Objectives of the project : The project aimed to develop and maintain a user-friendly Tableau dashboard for a US-based pharmaceutical client to provide data-driven insights for sales optimization. This included implementing a routine data refresh cycle and ensuring high data

quality through rigorous checks and processing. The dashboard's core objective was to enable the client to analyze sales performance, identify trends, and make informed business decisions to enhance overall sales strategies and business growth.

Major Learning Outcomes : SQL , Tableau , Commercial operation fundamentals

Details of Papers/patents : No details available

Brief Description of working environment, expectations from the company : overall working environment of our company is good , staff is helpful also got learning environment and motivating environment to learn new things from our mentors and managers.

Academic courses relevant to the project : Biostatistics

PS-II Station : Knolskape Solutions Pvt. Ltd. , Bengaluru

Faculty

Name: Sugata Ghosal

Student

Name: YUGAADITYA ACHHARA(2020A7PS1692G)

Student Write-up

PS-II Project Title: Enhancing Digital Presence: A Comprehensive Approach to Marketing Web Development

Short Summary of work done during PS-II : Utilizing Next.js and CSS for frontend, the project included creating some web pages for the company's website . Additionally, a report generation feature was implemented in the backend which was done in Koa.js with TypeORM, leveraging RabbitMQ for efficient load management

Tool used (Development tools - H/w, S/w) : Vs code, Postman, MongoDB Atlas etc.

Objectives of the project : To develop some web pages for the company's website using Next.js CSS

Major Learning Outcomes : Languages- Javascript, TypeScript, GraphQL
Libraries/Framework- React.js, Next.js, Express.js

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Work environment - Good
PPO chances-less as they are looking for experienced people

Academic courses relevant to the project : DSA, OOPS, DBMS

PS-II Station : KPMG , Gurugram

Faculty

Name: RAMESH VENKATRAMAN

Student

Name: EKANSH GUPTA(2020A4PS1952G)

Student Write-up

PS-II Project Title: Work on many different projects so no particular title

Short Summary of work done during PS-II : My internship at KPMG India provided valuable experience in the education sector. I assisted the clients by analyzing data for improvement in national education levels. For a private polytechnic institute, I conducted competitor analysis to identify strategies for boosting enrollment and revenue. Additionally, I documented and reported on seminars promoting STEM education under the Government's initiative. Furthermore, I developed a regulatory compliance checklist for a new medical college and analyzed education trends through data extraction and identification of patterns. Finally, I researched alternative financing models for Higher Educational Institutions (HEIs) in India. This internship equipped me with data analysis skills, knowledge of educational challenges, best practices in the sector, and research methodologies.

Tool used (Development tools - H/w, S/w) : Canva, MS Word, Excel, Powerpoint, Teams, Outlook

Objectives of the project : 1. Analyze data to improve education levels across India. 2. Identify best practices for client institute to increase enrolment and revenue. 3. Develop a checklist for a private institution to establish a new medical college meeting regulatory requirements. 4. Analyze data on education trends and resource allocation to identify patterns and trends. 5. Research alternative financing models for Higher Educational Institutions (HEIs) in India.

Major Learning Outcomes : Gaining experience in data analysis techniques for identifying trends in education data.

Understanding the challenges faced by educational institutions in India, including government and private entities.

Learning about best practices in the education sector, including competitor analysis for polytechnic institutes.

Developing research skills, including data collection and analysis techniques for projects in the education sector.

Exposure to regulatory requirements for establishing educational institutions like medical colleges.

Understanding of alternative financing models for Higher Educational Institutions (HEIs) in India.

The importance of communication and collaboration in working on projects within a team.

Details of Papers/patents : The papers drafted were for clients and not for publishing.

Brief Description of working environment, expectations from the company : The working environment at KPMG India's Advisory department is collaborative and fast-paced. The team comprises experienced professionals who are dedicated to positive change in the education sector. They work together to address complex challenges faced by government agencies and public organizations.

The department structure fosters a clear hierarchy of expertise, with partners and directors providing strategic direction and leadership. Managers and consultants leverage their technical skills and industry knowledge to execute projects and achieve tangible results. Essential support functions like administration, finance, IT, and human resources, ensure smooth operations. This structure focuses on teamwork and knowledge sharing within a well-defined organizational framework.

The company expects interns to be adaptable and eager to learn, ready to undertake a variety of projects requiring data analysis, research, report writing, and collaborating with senior team members. These projects required interns to be self-motivated and take initiative to contribute meaningfully to the team's goals.

Academic courses relevant to the project : As such no academic courses are useful. Extra-curricular activities like clubs and departments help a lot as they teach you how to talk and deal with people professionally. Maybe HELs like Professional Ethics and Business Communication can be helpful. At

PS-II Station : KPMG , Gurugram

Faculty

Name: RAMESH VENKATRAMAN

Student

Name: S SHRI RAM KUMAR .(2020B2PS1254P)

Student Write-up

PS-II Project Title: Academic Trainee at KPMG working in Government and Public Sector (G&PS) specialising in Education and Skills (E&S). (G&PS - E&S)

Short Summary of work done during PS-II : I was working with the Government and Public Services Consulting and Advisory team at KPMG, which specializes in the establishment, operations, and functioning of higher education institutions in India. In this role, I collaborated with various stakeholders including educational institutions, and regulatory agencies, to develop and implement credit framework, investment policy and hiring strategy for an upcoming greenfield skill university in North – Eastern India that will enhance the quality and accessibility of higher education in Northeast. My responsibilities included conducting in-depth market research, analysing policy impacts, and providing actionable recommendations to optimize institutional performance and compliance. This experience has provided me with a comprehensive understanding of the challenges and opportunities in the higher education sector. The recommendations for the university's operations are in line with the guidelines stipulated by the University Grants Commission (UGC) for various aspects of functioning and operations of a higher education institute.

Tool used (Development tools - H/w, S/w) : MS Word, MS Excel, and MS Powerpoint and KPMG in-house software

Objectives of the project : Establish a Greenfield Skill University in North - Eastern India

Major Learning Outcomes : I gained experience and insights in the establishing and managing higher education institutions in India. I got exposure in policy analysis, regulatory compliance, and strategic planning.

I also developed crucial skill of client and stakeholder management and interaction.

This internship provided me key insights and perspective in the current scenario of higher education in India and the operations and financial sustainability of higher education institutes in India.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The work environment at KPMG is dynamic, collaborative, and fast-paced, fostering a culture of continuous learning and professional growth. KPMG provides ample opportunities for networking, career advancement, and personal development within a supportive and inclusive atmosphere.

Students and employees can expect a supportive and stimulating work environment that encourages professional growth and development. They can look forward to opportunities for potential collaboration with talented colleagues. The team also gives honest and constructive feedback to ensure continuous growth and development and excel in the respective sector. Overall, the work environment at KPMG is inclusive, supportive, and collaborative.

Academic courses relevant to the project : Not Applicable

PS-II Station : Legistify Services Pvt. Ltd. - Data Analytics , Gurugram

Faculty

Name: Gopalakrishnan Venkiteswaran

Student

Name: RISHI SINGH BAGHEL(2020A3PS0645H)

Student Write-up

PS-II Project Title: Product Catalyst: Driving Product Evolution and Excellence

Short Summary of work done during PS-II : During my internship, I contributed significantly to various key objectives of the project. I did the web scraping of IPR and trademark data, which streamlined data collection processes and minimized manual efforts. This automation allowed the organization to gather critical information efficiently. Additionally, I handled, manipulated, and cleaned large databases to ensure data integrity and accuracy, enhancing the reliability of the organization's data repositories. I also mapped users to their respective organization IDs, which improved data organization and user management. This task was crucial for accurately tracking user interactions and relationships within the organization's systems. By analyzing IPR databases, I extracted valuable insights that informed strategic decisions and supported the organization in understanding market dynamics and protecting intellectual property more effectively. Conducting comprehensive market research, I gathered and analyzed data, resulting in a detailed report that provided the organization with a clear understanding of market conditions, opportunities, and competitive landscapes. I tracked missed invoices, winbacks, and de-escalations, improving the accuracy and functionality of the Management Information System (MIS), which enhanced financial oversight and customer relationship management. One of my significant contributions was the creation of a customized LMT dashboard for a client. I designed and implemented a user-friendly interface tailored to the client's specific needs, enabling effective monitoring and management of logistics, marketing, or technology metrics.

Tool used (Development tools - H/w, S/w) : Google Data Studio, Microsoft Power BI, Tableau, codepen, amcharts

Objectives of the project : Work closely with the Product Manager to propel the company's products to new heights.

Major Learning Outcomes : Team Work, Communication skills, Multi-tasking

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Legistify is a technology-driven legal solutions provider that fosters a dynamic and collaborative working environment. Interns can expect a fast-paced and agile atmosphere where quick adaptation to changes and new challenges is essential. The culture emphasizes teamwork, with cross-functional collaboration being a key aspect of daily operations, and innovation is highly encouraged as the company leverages the latest technologies to streamline legal processes. Professional development is a priority, offering continuous learning opportunities through workshops, seminars, and mentorship programs..

In this environment, interns are expected to be adaptable, quickly integrating new technologies and processes to meet market demands. Strong teamwork skills and a willingness to collaborate across various departments are crucial. Proactiveness is highly valued, with interns encouraged to take the initiative to identify and solve problems independently. A client-focused approach is essential, as delivering high-quality solutions that meet and exceed client needs is a core objective. Additionally, a mindset geared towards continuous improvement, learning, and staying updated with industry trends is expected.

Academic courses relevant to the project : NA

PS-II Station : Legistify Services Pvt. Ltd. - Tech , Gurugram

Faculty

Name: Gopalakrishnan Venkiteswaran

Student

Name: NAMIT SHRIVASTAVA(2020A2PS1767P)

Student Write-up

PS-II Project Title: Intellectual Property Rights: Image Infringement and Trademark Analysis

Short Summary of work done during PS-II : During PS-II at Legistify, I collaborated on an IPR project involving logo recognition, developed an API for visual data interpretation, and created a trademark similarity system. Additionally, I integrated and analyzed the Legistrak website's API, significantly improving data retrieval efficiency.

Tool used (Development tools - H/w, S/w) : Software: FastAPI, Azure Vision Studio, Postman, Google Colab, Elasticsearch

Objectives of the project : The project aimed to enhance intellectual property rights (IPR) processes by developing algorithms for logo recognition, creating an API for object detection and text extraction, and implementing a trademark similarity detection system.

Major Learning Outcomes : Proficiency in algorithm design for logo recognition.
Experience with API development and integration.
Skill in analyzing and comparing large datasets.
Improved efficiency in data retrieval.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The working environment at Legistify was dynamic and collaborative. As part of the IPR project, you likely collaborated with team members, data scientists, and developers. The atmosphere encouraged creativity, problem-solving, and continuous learning. Expectations included active participation, adaptability, and effective communication.

Academic courses relevant to the project : Object Oriented Programming, Operating Systems, Data Mining, Data Visualization, Artificial Intelligence, Machine Learning, Applied Statistical Methods, Foundations of Data Science, Computer Programming, Probability & Statistics

PS-II Station : Legistify Services Pvt. Ltd. - Tech , Gurugram

Faculty

Name: Gopalakrishnan Venkiteswaran

Student

Name: SUYASH SINGH .(2020A3PS1540P)

Student Write-up

PS-II Project Title: Design & Development of SmartCC Microservice

Short Summary of work done during PS-II : I developed the readGmailService (SmartCC) microservice to efficiently read and process emails from Gmail using webhooks, eliminating the need for continuous polling and saving server time and resources. I also created APIs to update Queue Form Fields in the Contract Template Service, enhancing customization and flexibility for users to tailor contract templates to their specific needs. Thorough testing of the Notification Service ensured its functionality and reliability, resulting in a more robust and dependable system. Additionally, I documented the integration of Salesforce Platform APIs into our Node.js backend, providing a comprehensive guide for developers to enhance system interoperability and efficiency. I implemented the Alert Log Feature, allowing users to opt-in for detailed logging of contract alerts, which improves visibility and tracking of contract activities. I also resolved a bug that prevented updated phone numbers from reflecting in the Auth Service, ensuring data consistency and enhancing the user experience. Lastly, I collaborated with the Sales Team to gather leads and potential new client information, aiding in the company's growth and expansion by providing valuable market research and contact details.

Tool used (Development tools - H/w, S/w) : Node.js, GCP PubSub, AWS S3,

Objectives of the project : The objective of this project is to create a microservice that seamlessly integrates with the LegisTrak CMT dashboard to monitor clients' mailboxes for incoming emails related to specific contracts. The microservice should automatically detect relevant emails, extract key information such as contract ID and any attachments, and display this information on the CMT dashboard.

Major Learning Outcomes : Backend Development, Cloud Services like AWS GCP, Effective Communication

Details of Papers/patents : none

Brief Description of working environment, expectations from the company : The working environment at Legistify Services during the PS-II is dynamic, fast-paced, and collaborative, providing interns with valuable hands-on experience in the legal tech industry. Interns are expected to actively participate in team meetings, contribute ideas, and take ownership of assigned tasks.

The company expects interns to demonstrate a strong work ethic, professionalism, and a willingness to learn and adapt to new challenges. Interns are encouraged to ask questions, seek guidance from mentors, and proactively seek opportunities to enhance their skills.

Interns are expected to adhere to deadlines, communicate effectively with team members, and be open to feedback for continuous improvement. Additionally, interns are expected to uphold the company's values of integrity, innovation, and excellence in their work.

Overall, the company aims to provide interns with a supportive and engaging environment where they can develop their skills, gain valuable industry experience, and contribute to the company's success.

Academic courses relevant to the project : Objected Oriented Programming, Operation Systems, Data Structures and Algorithms, Computer Programming

PS-II Station : Legistify Services Pvt. Ltd. - Tech , Gurugram

Faculty

Name: Gopalakrishnan Venkiteswaran

Student

Name: AWNISH SINGH .(2020A5PS2047P)

Student Write-up

PS-II Project Title: Web Scraping, Legistrak integration , Logo similarity Algorithm development and power automation

Short Summary of work done during PS-II : Collaborated with the IPR team on developing an algorithm for a large image dataset of 2.4 million images. Utilized imagehash and SIFT for perceptual hashing and pixel comparison . Implemented a fastAPI web service for similarity scoring and segment mapping. Integrated EasyOCR for bilingual text extraction in logo analysis. Conducted web scraping of NCLT, DRT, and IP India websites. Handled integration and analysis of Legistrak website's API.

Tool used (Development tools - H/w, S/w) : Python libraries: Beautifulsoup, pdfplumber, tabula. Database: sqlalchemy, elasticsearch, redis . Language used: python programming. Editor: Visual studio code, google colab. Git: for version control and collaboration Various other libraries and tools for specific tasks, such as io, os, pypdf2, mathpix , microsoft azure for power automation of algorithm

Objectives of the project : The primary objective is to automate the data extraction process from legal websites, specifically focusing on PDF documents and web pages related to legal hearings and proceedings. This automation streamlines the data collection process, saving time and effort

while ensuring accuracy and consistency. In another project ,Objective was Collaborating with the IPR team on developing an algorithm for a large image dataset of 2.4 million images.

Major Learning Outcomes : Developing and implementing web scraping scripts for extracting data from legal websites.

Testing and refining the scripts to ensure accuracy and reliability.

Documenting the extraction procedures and any challenges encountered.

Collaborating with team members to address technical issues and optimize the extraction process.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Work environment- Not as per expectations

Expectation From the company - NA

Academic courses relevant to the project : Object oriented programming

Artificial intelligence

Deep learning

PS-II Station : Lenskart Solutions Private Limited , Bhiwadi

Faculty

Name: Sudeep Kumar Pradhan

Student

Name: YASH VIJAYKUMAR CHAVAN(2020A4PS1972G)

Student Write-up

PS-II Project Title: Process improvements in Fitting, QC and OMT department

Short Summary of work done during PS-II : examines the order processing journey at an eyewear manufacturing facility, integrating advanced technologies like ASRS, automated lens cutting, and robotic sorting, alongside human oversight in critical areas. Despite high automation, the analysis identified non-value-adding activities and a concerning rate of order failures. To address these, improvement projects were implemented, focusing on automating data entry, reducing QC failures, developing a productivity dashboard, creating a machine learning model for failure prediction, and automating inventory transfer

Tool used (Development tools - H/w, S/w) : HTML, CSS, Javascript, Python, Excel, SQL

Objectives of the project : 1. Reduction in cycle time 2. Reduction in Multiple QC fail 3.Reduction of NVA (non value Activities) 4. Cost Reduction 5. Reduction in Human Error

Major Learning Outcomes : Team work, Leadership, Coding

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Work Environment depends department to department but the department in which I worked in was very helpful.

Academic courses relevant to the project : NA

PS-II Station : LightSpeed Photonics Pte Ltd , Secunderabad

Faculty

Name: Madhuri Bayya

Student

Name: SAKSHAM JAIN(2019B3A30160P)

Student Write-up

PS-II Project Title: Generation and Transmission of PCIe Sideband Signals using Free Space Optics Techniques

Short Summary of work done during PS-II : Implementation of PCIe sideband signals using proprietary free-space optical transmitters and receivers. My work involved the realisation of a PCIe link between two devices over free space, with no electrical connections between the them.

Tool used (Development tools - H/w, S/w) : FPGAs, Intel Quartus Prime, Electronic testing, Optical transmitter-receivers, OptiSystem, C Language

Objectives of the project : Study of Side Band Signals (logic level, formats, purpose) for PCIe Gen 1.0 to 4.0; Conversion of multiple side band signals into sequential electrical data (multiplexing); Circuit design to separate the Transmitter signals and Receiver Signals into 2 separate channels; HW design to implement the above circuit using LightSpeed's LightKconnect Free space optical channel (2 ch Tx and 2 ch Rx max) using the SBS connectors that we have provisioned in our Hardware; Schematic design; Design Review and approval by HW and Testing team; Bill of Materials (your activity) Component Procurement (purchasing); Layout Design and PCB fabrication (outsourced); Test Plan document generation to test the fabricated PCB; PCB testing; demo of optical PCIe sideband signal transmission; Project Report submission

Major Learning Outcomes : FPGA programming, Device Drivers, Verification and Testing

Details of Papers/patents : Working paper published in OFC 2024

Brief Description of working environment, expectations from the company : Great working environment, all the employees are approachable. I received optimal pressure and the work was fascinating.

Academic courses relevant to the project : Fibre Optics and Optoelectronics, Satellite Communication, Digital Design, Analog Electronics

PS-II Station : Lohum Cleantech Pvt. Ltd - Tech , Greater Noida

Faculty

Name: Nithin Tom Mathew

Student

Name: RISHABH SINGH(2019B2A11056G)

Student Write-up

PS-II Project Title: Mobile, Web and Cloud App development

Short Summary of work done during PS-II : Worked on various domains of apps, including mobile app, web apps and cloud apps. Build a novel app which uses BLE to connect to and transfer data to and from a battery revealing its internal parameters and condition.

Tool used (Development tools - H/w, S/w) : Android Studio, VSCode, AWS, PgAdmin

Objectives of the project : Contribute to the company's ongoing projects and learn

Major Learning Outcomes : Learnt building cloud apps using AWS and various services included in it.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Not a good working environment, HR is oppressive and general treatment of interns in the company is bad. Learning is good.

Academic courses relevant to the project : Object Oriented Programming

PS-II Station : Lohum Cleantech Pvt. Ltd - Tech , Greater Noida

Faculty

Name: Nithin Tom Mathew

Student

Name: KARTIKAY DHALL(2020A7PS2087H)

Student Write-up

PS-II Project Title: Multiple projects

Short Summary of work done during PS-II : Software Development

Tool used (Development tools - H/w, S/w) : Software Development

Objectives of the project : Software Development

Major Learning Outcomes : Software Development

Details of Papers/patents : Software Development

Brief Description of working environment, expectations from the company : Team is good, company culture is bad. Should avoid.

Academic courses relevant to the project : Software Development

PS-II Station : LTIMindtree , Mumbai

Faculty

Name: Swarna Chaudhary

Student

Name: YOGYA CHAWLA(2020AAPS1776H)

Student Write-up

PS-II Project Title: Upload log stream to log group on AWS Cloudwatch

Short Summary of work done during PS-II : Used com.amazonaws dependency to upload log stream to log group using java program. Will be further used to integrate and communicate with servers and so on.

Tool used (Development tools - H/w, S/w) : Azure, AWS and JAVA

Objectives of the project : Upload log stream to log group on AWS Cloudwatch

Major Learning Outcomes : JAVA, AWS, Spring Boot

Details of Papers/patents : No comments

Brief Description of working environment, expectations from the company : I would personally recommend the juniors to LTIMindtree as their PS-2 station. It has great work culture, leave culture and all the seniors can be easily approached for any help.

Academic courses relevant to the project : No comments

PS-II Station : Lumberfi Pvt Ltd , Bengaluru

Faculty

Name: T Venkateswara Rao

Student

Name: KESHAV RATHI(2020A8PS0552G)

Student Write-up

PS-II Project Title: TimeTracking App

Short Summary of work done during PS-II : During my PS-II internship, I played a key role in developing front-end components for a workforce management system using React.js and Material UI. This work significantly improved the system's functionality and user engagement.

Additionally, I designed and deployed automated testing scripts with Playwright, ensuring higher reliability and fewer bugs

Tool used (Development tools - H/w, S/w) : React.js, Playwright, Java, Springboot

Objectives of the project : The objective of the project was to enhance the workforce management system by developing new front-end components, automating testing processes, and improving backend functionality. The scope included: Front-End Development: Create and integrate user-friendly components using React.js and Material UI to improve the system's functionality and user engagement. Automated Testing: Design and deploy automated testing scripts with Playwright to increase code coverage from 0% to 80%, ensuring higher reliability and reducing bugs.

Major Learning Outcomes : During PS-2, I became proficient with React.js, Playwright, and Java. I also gained a deep understanding of industry-standard conventions for these technologies. This experience enhanced my technical skills and prepared me for real-world software development challenges.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : I am pleased to report that my internship at Lumber was an enriching and valuable experience. During my time here, I had the opportunity to delve deep into full stack web development, gaining hands-on experience with the latest tools and technologies. The working environment was dynamic and highly collaborative, fostering a culture of innovation and continuous learning. The team was incredibly supportive, and I benefited immensely from their expertise and guidance.

I felt valued and empowered to contribute. The flexible working hours and emphasis on work-life balance made it easy to manage my responsibilities and focus on my professional growth. I was encouraged to think creatively and propose new ideas, which significantly boosted my confidence and problem-solving skills.

Overall, my internship at Lumber has been a transformative experience, solidifying my passion for technology and my dedication to pursuing a career in software development. I am grateful for the opportunity and look forward to applying the skills and knowledge I gained in my future endeavors.

Academic courses relevant to the project : Object Oriented Programming language

PS-II Station : Lupin Limited , Goa

Faculty

Name: Bharathi R

Student

Name: ANTURE SHALAKA HANMANT(2022H1460202H)

Student Write-up

PS-II Project Title: SIX SIGMA MOLECULES PROJECT

Short Summary of work done during PS-II : My responsibilities included defining the problem statement, and going through the DMAIC phases. I helped in root cause analysis to identify key factors affecting dissolution, such as polymer viscosity and process parameters. Using Minitab for statistical analysis, I facilitated data collection and analysis, interpreting results to guide process improvements.

Tool used (Development tools - H/w, S/w) : Minitab,excel

Objectives of the project : Determine the key process parameters and material attributes that significantly impact the dissolution rate and overall quality of ER tablets. Collect and analyze data to understand the current performance of the manufacturing process and identify areas of variability and inconsistency.

Major Learning Outcomes : I learned the importance of rigorous data analysis and the application of statistical tools like Minitab in identifying and controlling variables that significantly impact product quality. I learnt how a structured DMAIC (Define, Measure, Analyze, Improve, Control) approach helps in systematically tackling complex manufacturing issues. I gained a deeper understanding of how process parameters such as polymer viscosity, turret speed, and feeder speed influence the dissolution profile and thus the drug profile.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment of the company is positive, wherein the employees will motivate you and help you better understand the task given.

Academic courses relevant to the project : Biostatistics , QBD

PS-II Station : Lupin Pharma , Pune

Faculty

Name: Bharathi R

Student

Name: SOHAM RAY(2022H1290011P)

Student Write-up

PS-II Project Title: DIGITAL MARKETING MANMAGEMENT AND ANALYSIS

Short Summary of work done during PS-II : During my internship tenure I was able to interact and learn about the e-commerce domain and the daily requirements that go behind each ad and trend. I have in-depth knowledge of the tasks that are to be taken up and carried out for the client brand to clock in higher revenue. I am able to collate the daily spends data from different channels and make the report for the team to align their spends. I have been a part of multiple client meets providing me the exposure to understand the process of client and company decision. There are multiple funnel levels that represent different customer types and their interaction level with the brand . There are also multiple audiences which are targeted to achieve sale. After these comes the store campaigns which are aligned to ensure higher footfall into a store. There are also sale or other offers that are suggested to the brand team to lure customers . In order for these people to finally reach the end of their website journey and take the final step, it is important that the website is loading fast and smoothly as well all landing pages are functioning without any glitches. The UI/UX and the website journey check were also tasks that I undertook on a regular basis. My tasks also included regular comparative analysis of the brand's website with its competitors and comparative analysis of the prices of the products in different marketplaces. I also had the task of making MOMs for the client meet which provided the concise list of the tasks that needed to be accomplished and also which team the dependency of those were upon. All this gave me a good knowledge of the different avenues from which a client brand can clock in revenue and also gave a clear hands on experience of managing these brands.

Tool used (Development tools - H/w, S/w) : Excel, Word , PowerPoint, Google Meet, Google Ads Report, GA4, Facebook Ads Manager, Kartapult

Objectives of the project : To assist the Senior Business Associates in their daily activities for the smooth running of the digital marketing of client brands.

Major Learning Outcomes : I am now well aware of the details of managing the e-commerce domain for different brands.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The company has a transparent and conducive work environment. Aided with friendly and helpful colleagues . I was able to learn without worries and express my concerns wherever necessary.

Academic courses relevant to the project : Non-Core

PS-II Station : Lupin Pharma , Pune

Faculty

Name: Bharathi R

Student

Name: BARUN GHOSH(2022H1460205H)

Student Write-up

PS-II Project Title: Formulation & Development of triple combination therapy for the treatment of asthma

Short Summary of work done during PS-II : Assisted in the formulation of new drug compounds. Conducted literature reviews to support ongoing research projects. Participated in laboratory experiments, ensuring adherence to safety and quality protocols.

Tool used (Development tools - H/w, S/w) : Crimping Machine, Mixing equipment, Filling machine, High shear blender

Objectives of the project : Formulation & Development of triple combination therapy for the treatment of asthma

Major Learning Outcomes : Formulation of metered dose inhalers

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at Lupin Limited is dynamic and professional, reflecting the company's status as a leader in the pharmaceutical industry.

Academic courses relevant to the project : DFD, Quality by Design, ADDS

PS-II Station : Lupin Pharma , Pune

Faculty

Name: Bharathi R

Student

Name: NAIK BHUSHAN GOPALSING(2022H1460209H)

Student Write-up

PS-II Project Title: FORMULATION, DEVELOPMENT AND OPTIMIZATION OF NASAL SUSPENSION PRODUCT OF CORTICOSTEROID CLASS OF DRUG BY QbD APPROACH

Short Summary of work done during PS-II : Formulation Development: Conducted literature research, selected excipients and active ingredients, and developed initial prototypes for testing. Viscosity Optimization: Performed experiments and rheological studies, iteratively adjusting composition to achieve the desired viscosity. Characterization of Formulation: Analyzed shot weight, droplet size distribution, spray pattern, and plume geometry to ensure consistent and optimal delivery. Trial Batches: Prepared and varied multiple trial batches, recording and analyzing data to identify trends and ensure GMP compliance.

Tool used (Development tools - H/w, S/w) : Homogenization, Stirrer, pH meter, Viscometer, Rheometer, Biovia software

Objectives of the project : To provide non-invasive and efficient way to deliver medication directly through nasal mucosa for rapid absorption. To provide localized treatment

Major Learning Outcomes : Developed the ability to conduct detailed literature reviews and market analysis to

inform formulation choices and identify innovative solutions.

Gained practical experience in designing and developing initial prototypes, understanding the critical factors that influence formulation stability and effectiveness.

Learned how to optimize formulations for various parameters, such as viscosity, particle size, and suspension stability, through systematic experimentation and analysis.

Acquired proficiency in using advanced analytical techniques to evaluate key attributes of nasal sprays, including droplet size distribution, spray pattern, and drug deposition.

Enhanced problem-solving skills by addressing formulation challenges and innovating solutions to improve drug delivery and patient compliance.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment in Lupin Limited's Formulation Research and Development (R&D) Department is characterized by a dynamic and collaborative atmosphere. Teamwork is highly valued, with cross-functional collaboration between scientists, analysts, and engineers to ensure comprehensive project development. Moreover, the work culture promotes a healthy work-life balance, with a supportive environment that recognizes and rewards individual and team achievements.

Expectations: Company should increase the stipend for the interns and also salary during PPO. It's an below average package with respect to both BITS and Lupin's reputation.

Academic courses relevant to the project : Quality by design, Dosage form Design, Quality assurance and regulatory affairs, Biostatistics

PS-II Station : Lupin Pharma , Pune

Faculty

Name: Bharathi R

Student

Name: KOTGIRE PRATHMESH GOVINDRAO(2022H1460223H)

Student Write-up

PS-II Project Title: Optimization of manufacturing process variables for solid oral drug products

Short Summary of work done during PS-II : Formulated the Oral delivery drug products according to the compliance of the associated regulatory bodies. Learned the process parameters to manufacture tablet, oral granules and ophthalmic solutions.

Tool used (Development tools - H/w, S/w) : Rapid Mixer Granulator, Compression Machine, Coating Machine

Objectives of the project : To Optimize manufacturing process variables for solid oral drug products

Major Learning Outcomes : Excipients used in the Oral delivery drug products
Methods to optimise the critical process parameters

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Lupin gave experience of warm gesture starting from the day 1 of internship. The working culture is positive and everyone helps you with the queries.

Academic courses relevant to the project : Dosage Form Design, Quality by Design, Quality Assurance and Regulatory Affairs

PS-II Station : LV Prasad Eye Institute , Hyderabad

Faculty

Name: Bharathi R

Student

Name: MOHITHA AKULA(2020B2PS1388H)

Student Write-up

PS-II Project Title: Corneal Preservation

Short Summary of work done during PS-II : I have worked on many existing projects in the organisation. I have worked on the Product Development journey, from exploration survey, packaging and deployment of a medical device. Later i worked on the corneal preservation and its techniques in the eye bank of the organisation

Tool used (Development tools - H/w, S/w) : Lab Chemicals

Objectives of the project : The preservation techniques of the donor corneal tissues

Major Learning Outcomes : Working in a team, using my academic knowledge in the completion of the project.

Details of Papers/patents : NONE

Brief Description of working environment, expectations from the company : The working environment was very comfortable and the all the mentors were very helpful

Academic courses relevant to the project : Chemistry

PS-II Station : LV Prasad Eye Institute , Hyderabad

Faculty

Name: Bharathi R

Student

Name: CHENNUPATI SREE NIHITHA(2020B4PS1384H)

Student Write-up

PS-II Project Title: Myopia Progression Risk Predictor, HealthCare Blockchain Solutions, Public health dashboards, AI-powered diagnostic tools.

Short Summary of work done during PS-II : Near-sightedness (myopia) is when close-up objects look clear but distant objects are blurry. Near-sightedness is a common eye focusing disorder. It has been on the rise for several decades. It is estimated that by 2050, nearly half the people in the world will have near-sightedness. An eye exam can show if you're myopic. Glasses, contacts, or refractive surgery can usually correct the problem. When 4 you have myopia, your

prescription for glasses or contact lenses will be a negative number. The more negative the number, the stronger your lenses will be. For example, -3.00 is stronger than -2.50. Prescription helps the eye focus light on your retina. That clears up your vision. Eye surgery can improve your vision so much you may no longer need to wear glasses or contacts. The most common procedures for myopia are: Photorefractive keratectomy: Also called PRK, this surgery uses a laser to sculpt the middle layer of your cornea. That flattens the cornea's curve and lets light rays focus closer to or on your retina. LASIK: This is the most common surgery for myopia. The surgeon uses a laser or another tool to create a thin flap on the top layer of your cornea. They sculpt the cornea with another laser and move the flap back into place. EVO Implantable Collamer Lens (ICL): Using a microscopic incision, a contact lens made of a soft, polymeric material is implanted into your eye between your natural lens and your iris. It helps refract light on the retina, producing clearer vision. Before going through this process, we need to have basic idea of our refractive error, so come into the scene Myopia calculator which gives basic idea about refractive error. Dry eye syndrome (DES) is a common ocular condition characterized by insufficient tear production or poor tear quality, leading to discomfort, irritation, and potential damage to the ocular surface. This multifactorial condition can result from various factors such as aging, environmental conditions, systemic diseases, and prolonged screen time. Symptoms include dryness, redness, burning, and fluctuating vision. Diagnosis involves a comprehensive eye examination, including assessing tear production and quality. Treatment options range from artificial tears and lifestyle modifications to prescription medications and advanced therapies like punctal plugs and intense pulsed light therapy. With proper management, including adequate hydration, regular breaks from screens, and targeted therapies, individuals with dry eye syndrome can experience significant improvement in symptoms and overall eye health. 5 Blockchain technology offers transformative solutions for the healthcare industry, addressing key challenges related to data security, interoperability, and patient privacy. By leveraging decentralized ledgers, smart contracts, and cryptographic techniques, blockchain enables secure and transparent management of medical records, streamlines administrative processes, and facilitates secure sharing of health data among stakeholders. Implementing blockchain solutions in healthcare requires expertise in blockchain development, healthcare regulations, and data management. A comprehensive plan of action includes research and feasibility studies, project planning, requirement gathering, architecture design, development, testing, deployment, and ongoing maintenance. With the right skills and strategic approach, blockchain has the potential to revolutionize healthcare delivery, improve patient outcomes, and enhance data-driven decision-making. Public health dashboards are powerful tools for visualizing and analyzing population health data, enabling stakeholders to

monitor trends, track key indicators, and make informed decisions. Skills required for developing public health dashboards include data visualization, software development, public health knowledge, data management, and project management. The plan of action encompasses requirements gathering, design and architecture, development, testing, deployment, training, and maintenance. By providing actionable insights and facilitating data-driven decision-making, public health dashboards play a crucial role in disease surveillance, outbreak response, policy development, and community health promotion. AI-powered diagnostic tools leverage machine learning, deep learning, and natural language processing to analyze medical data and assist healthcare professionals in diagnosing diseases with accuracy and efficiency. Skills required include proficiency in AI algorithms, medical imaging analysis, software development, regulatory compliance, and problem-solving. The plan of action 6 involves research and development, data collection and annotation, model development, integration, testing and validation, regulatory compliance, deployment, training and support, and continuous improvement. By augmenting clinical decision-making and improving diagnostic accuracy, AI- powered diagnostic tools hold immense promise for revolutionizing healthcare delivery and enhancing patient outcomes.

Tool used (Development tools - H/w, S/w) : ML, DP, NLP,Data Visualization dept, have used tools of frontend and backend, DBMS.

Objectives of the project : 1)basic idea of our refractive error, so come into the scene Myopia calculator which gives basic idea about refractive error. 2)Grabi dri helps with proper management, including adequate hydration, regular breaks from screens, and targeted therapies, individuals with dry eye syndrome can experience significant improvement in symptoms and overall eye health. 3)Public health dashboards are powerful tools for visualizing and analyzing population health data, enabling stakeholders to monitor trends, track key indicators, and make informed decisions. 4)blockchain has the potential to revolutionize healthcare delivery, improve patient outcomes, and enhance data-driven decision-making. 5)AI-powered diagnostic tools leverage machine learning, deep learning, and natural language processing to analyze medical data and assist healthcare professionals in diagnosing diseases with accuracy and efficiency.

Major Learning Outcomes : My tech skills have been improved. whatever i have learnt in tech courses, have implemented them successfully. and learned new technical skills. My communication skills have improved alot.

Details of Papers/patents : Bourne, R. R. ((2013): e339-e349.). Causes of vision loss worldwide, 1990–2010: a systematic analysis. *The lancet global health* 1, no. 6 .

Debon, R. J. ((2019)). Mobile health applications for chronic diseases: A systematic review of features for lifestyle improvement. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 13, no. 4 : 2507-2512.

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Lane, N. M. (2012, April). Bewell: A smartphone application to monitor, model and promote wellbeing. . In 5th international ICST conference on pervasive computing technologies for healthcare.

Lechner, B. a. (2014). Towards public health dashboard design guidelines. In *HCI in Business: First International Conference, HCIB 2014, Held as Part of HCI International 2014, Heraklion, Crete, Greece, June 22-27, 2014. Proceedings* 1, pp. 49-59. Springer International Publishing, 2014.

M. Luštrek, B. C. (2015,). Recognising lifestyle activities of diabetic patients with a smartphone,. stanbul, Turkey: 2015 9th International Conference on Pervasive Computing Technologies for Healthcare (PervasiveHealth), pp. 317-324, .

Manoharan, M. K. (2023). Myopia progression risk assessment score (MPRAS): A promising new tool for risk stratification.". *Scientific Reports* 13,no. 1 (2023): 8858.

Mazlan, A. A. (2020). Scalability challenges in healthcare blockchain system—a systematic review. *IEEE access* 8 (2020): 23663-23673.

Melarkode, N. K. (2023). AI-powered diagnosis of skin cancer: a contemporary review, open challenges and future research directions.". *Cancers* 15, no. 4 (2023): 1183.

Pizzo, D. T. (2021). IATos: AI-powered pre-screening tool for COVID-19 from cough audio samples. *arXiv preprint arXiv:2104.13247* (2021).

Rasool, S. M. (2024). "Innovations in AI-Powered Healthcare: Transforming Cancer Treatment with Innovative Methods. *BULLET: Jurnal Multidisiplin Ilmu* 3, no. 1 (2024): 118-128.

Schulze, A. F.-F. (2023). Digital dashboards visualizing public health data: a systematic review. *Frontiers in Public Health*, 11, 999958.

Verkicharla, P. K. ((2015): 3235-3247). Validation of a partial coherence interferometry method for estimating retinal shape. *Biomedical Optics Express* 6, no. 9 .

Yaeger, K. M. (2019). Emerging blockchain technology solutions for modern healthcare infrastructure.". *ournal of Scientific Innovation in Medicine* 2, no. 1 (2019):

Brief Description of working environment, expectations from the company : LV Prasad Eye Institute have very absolute fantastic co- friendly working environment.

Academic courses relevant to the project : DBMS , OOPS , C , FDSA

PS-II Station : Mahindra Accelo Ltd. , Mumbai

Faculty

Name: Pavan Kumar Potdar

Student

Name: TANUSHRI TRIPATHI(2019B4A40617P)

Student Write-up

PS-II Project Title: EV Batteries & Automotive Industry

Short Summary of work done during PS-II : Research into sales trends and markets shares of multiple automotive OEMs; Research into EV battery pack manufacturing processes and possibilities in India

Tool used (Development tools - H/w, S/w) : Ms. Excel, Ms. Powerpoint

Objectives of the project : Business Development, Sales Planning

Major Learning Outcomes : Automotive industry trends and market shares, EV Battery Pack manufacturing processes

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Relaxed and friendly corporate environment, no unnecessary pressure

Academic courses relevant to the project : None

PS-II Station : Mahindra Accelo Ltd. , Mumbai

Faculty

Name: Pavan Kumar Potdar

Student

Name: ANKIT BHATTACHARYA(2020A3PS1283G)

Student Write-up

PS-II Project Title: Mahindra Accelo Worli

Short Summary of work done during PS-II : Helped create the dashboards for the company, which are also used by the CEO to make business decisions, visited the plant in Pune to understand how the orders work and why errors in data were arising, helped fix these errors. Made PowerPoints and attended meetings for advertising as well

Tool used (Development tools - H/w, S/w) : Excel, PowerPoint

Objectives of the project : To digitalize the supply chain and order management system, as well as create dashboards for various sectors of the business

Major Learning Outcomes : Greatly improved my Microsoft Excel and PowerPoint skills, understood how corporate life is, attended meetings and understood the work behind the scenes

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Very good work environment, punctuality is expected and we are expected to be prompt and finish the work in the given deadlines, which are very reasonable

Academic courses relevant to the project : None

PS-II Station : Mahindra Accelo Ltd. , Mumbai

Faculty

Name: Pavan Kumar Potdar

Student

Name: WANI SHREYAS SAKHAHARI(2020A4PS2001G)

Student Write-up

PS-II Project Title: Work on the new customer development and with business excellence team

Short Summary of work done during PS-II : During my time at Mahindra Accelo i worked on multiple small projects in which i got to work with various departments (Business Excellence, Production, Die casting, Machining, Maintenance and Quality).

Tool used (Development tools - H/w, S/w) : H/w - Trimos V7, Epstein Tester, VMM. S/w - Software for operation of the VMM, SolidWorks, AutoCAD,

Objectives of the project : Work with various departments on different projects assigned by the respective Head of the Departments

Major Learning Outcomes : Learned the detailed process of Slitting, Stamping, Die Casting. Also worked on various company Audits.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The work environment is amazing. The people here are very helping. The atmosphere is incredibly dynamic and collaborative. The open-plan office layout really promotes communication and teamwork among colleagues, which I've found to be very beneficial.

The leadership here is very supportive, always encouraging us to improve and grow.

Meeting deadlines and maintaining high-quality standards are key aspects of our roles. Innovation and creativity are highly valued, and we are expected to bring new ideas to the table.

Academic courses relevant to the project : CAD, Engineering Graphics, Manufacturing Process, Design of Machine Elements, Quality Control Assurance and Reliability.

PS-II Station : Mahindra Accelo Ltd. , Mumbai

Faculty

Name: Pavan Kumar Potdar

Student

Name: DHANDE AVINASH LAKHICHAND VARSHA(2022H1060202P)

Student Write-up

PS-II Project Title: Design of 360 degrees Fence for the machine lines and development of Pallet Tracking System

Short Summary of work done during PS-II : During the internship period at Mahindra Accelo, I learned how any plant operates and functions. The tandem working of various departments challenges involved and coming up with ideas and solutions to day to day problems. Along with this I got to be a part of various industrial Audits .

Tool used (Development tools - H/w, S/w) : Solidworks, Powerpoint.

Objectives of the project : To design the Fence structure adhering with the industrial norms and regulations. To propose a system for Pallet tracking

Major Learning Outcomes : Designing and developing algorithms.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The people in the company were very helpful and kind. The working environment was very positive. I learned a lot of new things while working at Mahindra Accelo.

Academic courses relevant to the project : NA

PS-II Station : Masterclass Space LLP , New Delhi

Faculty

Name: Uma Nagarajan

Student

Name: VAIBHAV JAIN .(2020A5PS2038P)

Student Write-up

PS-II Project Title: Brand Marketing & Growth

Short Summary of work done during PS-II : I spearheaded the creation of engaging reels and shorts to boost brand awareness and customer engagement, driving significant traffic to our social media platforms. In addition, I successfully launched two new products, meticulously crafting Product Requirement Documents (PRDs) to ensure their market readiness. To enhance our content marketing strategy, I authored insightful blogs that resonated with our target audience and strengthened our online presence. Furthermore, I collaborated with other companies to establish a new admission consulting team, leveraging our combined expertise to offer unparalleled services to prospective students.

Tool used (Development tools - H/w, S/w) : Excel, After Effects, Premier Pro

Objectives of the project : Increase brand awareness and enagagment

Major Learning Outcomes : Branding & New Product Development

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company :

Academic courses relevant to the project : Nothing

PS-II Station : MasterSoft ERP Solutions , Nagpur

Faculty

Name: Febin A Vahab

Student

Name: SWARNIM KISHOR BARAPATRE(2019B1A10129G)

Student Write-up

PS-II Project Title: Employee Productivity Measurement System

Short Summary of work done during PS-II : Worked as a r&d software engineer at Mastersoft. Worked on and completed multiple projects including: employee performance monitoring system, website vulnerability identifier, suite of automation tools for ms-sql, open ai based products, researched in backend technologies such as FastAPI and Golang.

Tool used (Development tools - H/w, S/w) : (Neo)Vim, Postman, Git, Linux, Nginx, linters, debuggers, formatters

Objectives of the project : To track the daily activity and productivity of employees.

Major Learning Outcomes : Learned python, pascal, powershell, sql, system design of applications as well as database

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The company is a great place to learn a ton of things due to its fast paced and startup like nature. One will get the idea of developing software from scratch and build it to a production level application. A great level of autonomy was given to us while developing numerous projects for the organization by our manager.

Academic courses relevant to the project : -

PS-II Station : Max Pacific Corporation Limited , Gurugram

Faculty

Name: Ashish Narang

Student

Name: PRAJWAL SINGH(2020A7PS0192H)

Student Write-up

PS-II Project Title: Huh!?? "AI aata hai? AI karo, jab hojaye bata dena"

Short Summary of work done during PS-II : "Ek kaam karo website bana do" - Made the website with ReactJs and NodeJs/Express. Thanks to some amazing guidance by LLMs and youtube.

Tool used (Development tools - H/w, S/w) : ReactJs, NodeJs, Express, Figma, Youtube, ChatGPT, Gemini.

Objectives of the project : "Hackathon kiye ho? To hacking karke dikhado"

Major Learning Outcomes : Anger Management

Details of Papers/patents : Huh!?

Brief Description of working environment, expectations from the company : Micromanagement. You can overdeliver 10x but will be in waters for taking a leave because dare you take care of your sanity.

Culture was highly misogynist with the IT head thinking Hackathon is same as hacking and GPT can do anything for you. The only assistance you'll ever get is from youtube. With 8.5 hours everyday and a soul sucking culture may you have enough strength to ask for your salary because dare you expect it before the second month??? Cmon!

Academic courses relevant to the project : HSS F334 Srimad Bhagavad Geeta

PS-II Station : Max Pacific Corporation Limited , Gurugram

Faculty

Name: Ashish Narang

Student

Name: VAIBHAV NEMANI(2020A7PS2195H)

Student Write-up

PS-II Project Title: Still figuring

Short Summary of work done during PS-II : I was supposed to revamp the Customer login for the company ERP using MERN stack but later I had link the React Frontend to Java backend already made by CTO.

Tool used (Development tools - H/w, S/w) : ReactJs, Java, NodeJs, Postman, JWT, YouTube

Objectives of the project : Still figuring

Major Learning Outcomes : Nothing

Details of Papers/patents : None

Brief Description of working environment, expectations from the company :

Academic courses relevant to the project : None

PS-II Station : MBB Labs Private Limited (Maybank) , Bengaluru

Faculty

Name: Pravin Yashwant Pawar

Student

Name: ROHAN KHOSLA(2019B4A70734G)

Student Write-up

PS-II Project Title: Unit Testing, Front end bug fixes and File Automation

Short Summary of work done during PS-II : Unit Testing done using JUnit and Mockito. File Automation using Python and Regex. Minor React big fixes

Tool used (Development tools - H/w, S/w) : JUnit, Mockito, Python, Regex

Objectives of the project : To increase code quality at the company

Major Learning Outcomes : JUnit, Mockito, Python, Regex

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The company requires you to be in office between 8-9 hours. You will very rarely get to touch the backend and will mostly do either front end work or unit testing.

Academic courses relevant to the project : N/A

PS-II Station : MBB Labs Private Limited (Maybank) , Bengaluru

Faculty

Name: Pravin Yashwant Pawar

Student

Name: JATIN BANSAL(2020A4PS0241P)

Student Write-up

PS-II Project Title: Structured Configurable Rating Engine

Short Summary of work done during PS-II : The main work revolves around the software development for the banking services. The company follows agile methodology in which sprints are designed for 28 days and particular stories are assigned to different team members according to their skill set and understanding of the work. The interns mostly work on writing JUnits for the projects to increase the code coverage of the project.

Tool used (Development tools - H/w, S/w) : Spring Boot, SQL, EclEmma, JUnit, Mockito, React JS

Objectives of the project : To generate the rating for the borrower and provide rating services to other projects of Maybank

Major Learning Outcomes : Spring Boot, SQL, React JS, Excel

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment is healthy, where every person even at the seniors level are approachable. The team mates are helpful in providing the guidance whenever necessary and promote learning culture.

Academic courses relevant to the project : 1. Object Oriented Programming

2.Database Systems

3.Data Structures and Algorithms

PS-II Station : MBB Labs Private Limited (Maybank) , Bengaluru

Faculty

Name: Pravin Yashwant Pawar

Student

Name: DHAVAL SHARMA .(2020A4PS1887P)

Student Write-up

PS-II Project Title: TASC

Short Summary of work done during PS-II : Key Modules Spring Core: The core container provides the fundamental functionality of the Spring Framework, including the IoC and DI features. Spring AOP: Provides integration with AspectJ, enabling AOP in Spring applications. Spring MVC: A web framework based on the Model-View-Controller (MVC) design pattern. It's designed for web application development and integrates seamlessly with other Spring components.

Tool used (Development tools - H/w, S/w) : SpringBoot, Java, MYSQL, Eclipse, Junit, Mockito

Objectives of the project : Automated Credit Status tagging

Major Learning Outcomes : SpringBoot, Java, MYSQL, Eclipse, Junit, Mockito

Details of Papers/patents : Nothing

Brief Description of working environment, expectations from the company : Creating a positive and productive work culture is essential for the success and well-being of any organization. Here are some key components and practices that contribute to a thriving work culture:

Key Components of a Positive Work Culture

Clear Vision and Values:

Vision: The organization's vision should be clear, inspiring, and communicated effectively to all employees. It provides a sense of purpose and direction.

Values: Core values define the principles and standards that guide behavior within the organization. These should be consistently demonstrated by leadership and integrated into everyday practices.

Effective Communication

Academic courses relevant to the project : OOPS, OS

PS-II Station : MBB Labs Private Limited (Maybank) , Bengaluru

Faculty

Name: Pravin Yashwant Pawar

Student

Name: VAIBHAV AGRAWAL(2022H1030028G)

Student Write-up

PS-II Project Title: DEVELOPING BACKEND SOLUTIONS FOR ROF

Short Summary of work done during PS-II : started my journey at MBB in R&D for a project before transitioning to API development. Concurrently, I handled unit testing using JUnit, achieving up to 80% project coverage. I then developed questionnaires for Maybank's Singapore and other international divisions. Finally, I supported the ROF Testing team by writing Python scripts for automation and assisting with their automation project.

Tool used (Development tools - H/w, S/w) : Spring Tool Suite, OracleDB, SVN, Excel.

Objectives of the project : The Rating Only Flow Project is a vital component in the lending process of Singapore banks, enabling the generation of credit ratings for borrowers. This initiative involves collecting comprehensive borrower data, processing it within the system, and transmitting it to the SCORE Engine. Utilizing predefined models, the SCORE Engine computes a credit rating, which is subsequently relayed back to the user interface (UI) for review and consideration. This rating serves as a cornerstone in loan approval decisions, providing a detailed assessment of the borrower's creditworthiness and enabling banks to accurately gauge associated risks.

Major Learning Outcomes : Spring Boot, PLSQL, JAVA, RESTAPI, JUnit, Mockito,

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Interns are primarily assigned JUnit work, along with that also handle some minor bug fixes.

Academic courses relevant to the project : NA

PS-II Station : MBB Labs Private Limited (Maybank) , Bengaluru

Faculty

Name: Pravin Yashwant Pawar

Student

Name: RAHUL KUMAR(2022H1540841P)

Student Write-up

PS-II Project Title: Liquidity Risk Analytics

Short Summary of work done during PS-II : Calculation of liquidity coverage ratio (LCR) with different factors

Tool used (Development tools - H/w, S/w) : Excel, SQL

Objectives of the project : Calculation of liquidity coverage ratio (LCR) with different factors

Major Learning Outcomes : Finance, Analytics

Details of Papers/patents : no

Brief Description of working environment, expectations from the company : Average

Academic courses relevant to the project : Yes

PS-II Station : MediaTek Bangalore Pvt. Ltd. , Bengaluru

Faculty

Name: Rekha A

Student

Name: AMEY PRADIP DAMLE(2022H1030013G)

Student Write-up

PS-II Project Title: UEFI Capsule Creation and Firmware Update Implementation in EDK II

Short Summary of work done during PS-II : During the PS-II project, significant progress was made in the development and implementation of UEFI capsule creation and firmware update mechanisms within the EDK II environment. The project involved developing scripts and tools to automate the creation of UEFI capsules, integrating these processes with the EDK II build system, and implementing secure firmware update mechanisms including cryptographic signing and verification. Extensive testing and validation were conducted on various hardware platforms to ensure functionality, compatibility, and reliability. Additionally, rollback mechanisms for firmware updates were developed, and comprehensive documentation was created to guide developers and users. The project improved the overall reliability and security of firmware updates, streamlined the update process, and reduced maintenance costs, significantly contributing to the organization.

Tool used (Development tools - H/w, S/w) : Software: EDK II, UEFI Development Kit, scripting languages (Python, Shell), Visual Studio, Git, cryptographic libraries. -Hardware: Various hardware platforms for testing the firmware updates.

Objectives of the project : 1. To develop scripts and tools for automating UEFI capsule creation. 2. To integrate capsule creation with the EDK II build process. 3. To implement secure firmware update mechanisms using UEFI capsules. 4. To develop rollback mechanisms for firmware updates. 5. To conduct extensive testing and validation on various hardware platforms.

Major Learning Outcomes : - In-depth understanding of UEFI specifications and the EDK II framework.

- Skills in creating and managing UEFI capsules for firmware updates.
- Knowledge of integrating cryptographic techniques for secure firmware updates.
- Enhanced problem-solving skills through testing and troubleshooting.
- Improved technical documentation and communication skills.

Details of Papers/patents : No papers or patents were created.

Brief Description of working environment, expectations from the company : The working environment during the PS-II project at MediaTek was collaborative and supportive, with ample opportunities for learning and professional growth. The company provided the necessary resources and guidance to ensure the project's success, fostering an environment of innovation and continuous improvement. Expectations from the company included regular progress updates, adherence to project timelines, and active participation in testing and troubleshooting sessions. The supportive culture and access to industry-standard tools and technologies significantly enhanced the learning experience and contributed to the successful completion of the project

Academic courses relevant to the project : - Computer Architecture

- Operating Systems
- Cryptography and Network Security
- Embedded Systems
- Software Engineering

PS-II Station : MediaTek Bangalore Pvt. Ltd. , Bengaluru

Faculty

Name: Rekha A

Student

Name: ANANYA KUMARI(2022H1030022G)

Student Write-up

PS-II Project Title: Driver development

Short Summary of work done during PS-II : Initially there were trainings regarding BIOS, ACPI, OS Drivers etc. Now working on implementation of the designs given by the team

Tool used (Development tools - H/w, S/w) : UEFI, BIOS, C, C++

Objectives of the project : Understand the working of drivers and implement parts of it

Major Learning Outcomes : Driver development, BIOS, ACPI, UEFI, DevOps

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Good working environment with helpful colleagues

Academic courses relevant to the project : OS, COA

PS-II Station : MediaTek Bangalore Pvt. Ltd. , Bengaluru

Faculty

Name: Rekha A

Student

Name: MAYURESH SUHAS WANI(2022H1030056G)

Student Write-up

PS-II Project Title: Device Driver Communication & Validation on Emulation Platform

Short Summary of work done during PS-II : The individual contributed to designing, implementing, and testing kernel mode device drivers to enhance system performance. Practical knowledge and skills in system software development were acquired through the project. Collaboration with experienced professionals facilitated learning and problem-solving. The project successfully met its goal of driver development and provided insights into kernel-level operations. This experience sets the stage for future exploration in driver development and system software enhancement.

Tool used (Development tools - H/w, S/w) : HAPS, CVD, Visual studio

Objectives of the project : Validation of Modules and its Functionality

Major Learning Outcomes : Using emulation platforms, Core C fundamentals, Improved skills in system software development, error handling, and optimization. Collaborated effectively with experienced professionals and contributed to design and documentation processes. Enhanced project management abilities by overseeing different project phases and meeting deadlines efficiently.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at MediaTek was highly collaborative and supportive. I was part of a dynamic team of professionals who were always ready to share their knowledge and provide guidance. The company fostered a culture of continuous learning and innovation, encouraging us to explore new ideas and technologies.

Expectations from the company were clear and focused on delivering high-quality, reliable software solutions. We were expected to adhere to best practices in software development,

including thorough testing, documentation, and optimization of our code. Meeting deadlines and maintaining clear communication were also emphasized.

Overall, the environment was conducive to professional growth, providing ample opportunities to learn and apply new skills in a real-world setting.

Academic courses relevant to the project : Advanced Computer Architecture, Software Engineering And Management, Operating System

PS-II Station : MediaTek Bangalore Pvt. Ltd. , Bengaluru

Faculty

Name: Rekha A

Student

Name: SRINIDHI P KATTE(2022H1030075H)

Student Write-up

PS-II Project Title: ADVANCED DRIVER INTERFACES FOR COMPUTING DEVICES

Short Summary of work done during PS-II : The main goal of the project was to assist in enhancing system performance, reliability, and compatibility through the creation of Kernel mode drivers. During the project, practical knowledge was acquired in the design, execution, and assessment of these drivers, guided by seasoned professionals in the domain.

Tool used (Development tools - H/w, S/w) : Visual studio, C++

Objectives of the project : The primary objective of the project was to contribute to the development of Kernel mode drivers aimed at optimizing system performance, reliability, and compatibility. Throughout the project, hands-on experience was gained in designing, implementing, and testing Kernel mode drivers, under the mentorship of experienced professionals in the field.

Major Learning Outcomes : Driver development, UEFI, ACPI

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Good working environment, good training was given and good projects provided

Academic courses relevant to the project : Operating systems, Computer architecture

PS-II Station : MediaTek Bangalore Pvt. Ltd. , Bengaluru

Faculty

Name: Rekha A

Student

Name: DIVYANSHU NIGAM(2022H1030080H)

Student Write-up

PS-II Project Title: Device Driver Communication & Validation on Emulation Platform

Short Summary of work done during PS-II : The individual contributed to designing, implementing, and testing kernel mode device drivers to enhance system performance. Practical knowledge and skills in system software development were acquired through the project. Collaboration with experienced professionals facilitated learning and problem-solving. The project successfully met its goal of driver development and provided insights into kernel-level operations. This experience sets the stage for future exploration in driver development and system software enhancement.

Tool used (Development tools - H/w, S/w) : HAPS, visual studio

Objectives of the project : Valudation of modules

Major Learning Outcomes : Using emulation platforms

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The project's contribution to the organization includes the development of optimized kernel mode device drivers to enhance system performance. This improvement leads to increased reliability and compatibility of the organization's products. The project also fosters innovation and best practices exchange within the team. By addressing specific performance bottlenecks and compatibility issues, the project aligns with the organization's goal of continuous improvement in system software development. Additionally, the project sets a foundation for future research initiatives and collaborations to push the boundaries of kernel mode driver technology.

Academic courses relevant to the project : Advance OS, advance computer architecture

PS-II Station : MediaTek Bangalore Pvt. Ltd. , Bengaluru

Faculty

Name: Rekha A

Student

Name: ANKIT KUMAR(2022H1030086H)

Student Write-up

PS-II Project Title: UNIFIED EXTENSIBLE FIRMWARE INTERFACE CAPSULE CREATION AND FIRMWARE UPDATE IMPLEMENTATION IN EFI DEVELOPMENT KIT II (EDK II)

Short Summary of work done during PS-II : During the course of this project, I focused on the creation of a firmware update capsule within the EDK II (UEFI Development Kit) framework and the subsequent process of triggering the firmware update. This project provided me with a comprehensive understanding of UEFI firmware development and the mechanisms involved in firmware updates.

Work Done:

- Capsule Creation:** Understanding Capsule Structure: I started by gaining a deep understanding of the UEFI capsule structure, including its headers, payload, and various sections that are crucial for a successful firmware update.
- Building the Capsule:** Using the EDK II tools and libraries, I created a capsule file that encapsulates the firmware image. This involved configuring the .inf files and using the EDK II build tools to generate the final capsule binary.
- Validation and Signing:** Ensuring the integrity and authenticity of the firmware capsule is critical. I implemented the signing of the capsule using cryptographic tools and validated the signature to maintain security during the update process.
- Triggering Firmware Update:** Update Mechanism: I studied and implemented the UEFI firmware update mechanism, which involves placing the capsule in a specific location where the firmware can detect and process it during boot.
- Update Process:** I explored various methods to trigger the firmware update, including UEFI Shell commands and utilizing platform-specific tools that interact with the firmware to initiate the update process.
- Recovery and Rollback:** Implemented procedures for recovery and rollback in case of update failures, ensuring that the system remains functional and secure.

Learning Outcomes:

- Deepened Knowledge of UEFI:** UEFI Architecture: Gained a thorough understanding of UEFI architecture, boot process, and the role of different UEFI phases (PEI, DXE, BDS, etc.) in system initialization and firmware updates.
- Firmware Components:** Learned about various firmware components and how they interact with hardware and software to manage system

startup and configuration. Hands-on Experience with EDK II: Development Environment: Became proficient in setting up and using the EDK II development environment, including configuring build settings and using EDK II tools for firmware development. Code Navigation: Improved skills in navigating large codebases, understanding complex code structures, and modifying firmware source code to achieve desired functionality. Security Best Practices: Firmware Security: Understood the importance of firmware security, including the implementation of cryptographic techniques for signing and verifying firmware updates to prevent unauthorized modifications. Secure Boot: Explored the Secure Boot process and how it ensures that only trusted firmware and software are loaded during the boot process. Problem-Solving and Debugging: Troubleshooting: Developed strong problem-solving skills by troubleshooting issues that arose during capsule creation and firmware updates, using debugging tools and logs to identify and resolve problems. Testing: Conducted extensive testing of the firmware update process to ensure reliability and robustness, including edge cases and failure scenarios. Overall, this project has equipped me with valuable skills in firmware development, a solid understanding of UEFI standards, and practical experience in managing secure firmware updates. These skills are not only applicable to UEFI-based systems but also provide a strong foundation for further exploration and contribution to firmware and embedded systems development.

Tool used (Development tools - H/w, S/w) : Visual studio, Gerrit, git, source insight, notepad +, EDK2

Objectives of the project : The objective of this project is to develop a robust, automated, and secure mechanism for creating Unified Extensible Firmware Interface (UEFI) capsules and implementing firmware updates within the EFI Development Kit II (EDK II). This involves: Capsule Creation: Automating the process of creating UEFI capsules that encapsulate firmware updates, ensuring they are structured, signed, and verified for integrity and authenticity. Integration with EDK II: Seamlessly integrating the capsule creation process with the EDK II build system to facilitate efficient and reliable firmware updates as part of the development pipeline. Firmware Update Mechanism: Implementing a secure firmware update mechanism within EDK II, capable of handling capsule-based updates, verifying signatures, and providing rollback capabilities in case of update failures. Testing and Validation: Conducting comprehensive testing and validation to ensure the reliability, compatibility, and security of the firmware update process across various hardware platforms. Documentation and Support: Providing detailed documentation and support

for developers and users to facilitate the adoption and effective use of the new firmware update system

Major Learning Outcomes : Working of Unified Extensible Firmware Interface, Development of Unified Extensible Firmware Interface, Testing of Unified Extensible Firmware Interface, Firmware Update Process

Details of Papers/patents : Not applicable

Brief Description of working environment, expectations from the company : The working environment during my internship was dynamic and collaborative, fostering both individual growth and teamwork. The company emphasized a culture of innovation and continuous learning, providing interns with access to a wealth of resources and experienced mentors. My workspace was equipped with the necessary tools and technologies, including advanced hardware platforms and comprehensive development kits, ensuring I could effectively contribute to projects.

Expectations from the company were clearly communicated from the onset. I was expected to demonstrate a strong understanding of the EDK II framework and firmware development principles. Additionally, the company valued proactive problem-solving skills, requiring interns to identify and address challenges independently while seeking guidance when necessary.

Academic courses relevant to the project : Advanced Operating system, advanced computer architecture

PS-II Station : MediaTek Bangalore Pvt. Ltd. , Bengaluru

Faculty

Name: Rekha A

Student

Name: KUSHAL CHAKRABORTY(2022H1030089H)

Student Write-up

PS-II Project Title: CREATION OF UNIFIED EXTENSIBLE FIRMWARE INTERFACE CAPSULES AND IMPLEMENTATION OF FIRMWARE UPDATES IN EFI DEVELOPMENT KIT II (EDK II)

Short Summary of work done during PS-II : During my internship, I focused on the development and implementation of firmware updates within the EDK II framework. The primary task involved the creation of capsules, which are packages that encapsulate firmware updates, enabling secure and efficient delivery and application of these updates. The work encompassed several key areas:

1. **Capsule Creation:** I developed scripts and tools to automate the creation of firmware capsules. This involved defining the capsule structure, incorporating necessary metadata, and ensuring the integrity and authenticity of the payload through cryptographic signatures.
2. **Integration with EDK II:** I integrated the capsule creation process with the EDK II build system, ensuring seamless generation of capsules as part of the firmware build pipeline. This integration required in-depth understanding of the EDK II build process and modification of configuration files and build scripts.
3. **Firmware Update Mechanism:** I implemented the firmware update mechanism within the EDK II framework, focusing on the secure handling and processing of capsules. This included updating the firmware update driver to recognize and apply updates from the capsules, verifying signatures, and managing rollback mechanisms in case of update failure.
4. **Testing and Validation:** Extensive testing and validation were conducted to ensure the robustness and reliability of the firmware update process. This involved both automated testing scripts and manual testing on various hardware platforms to verify compatibility and functionality.
5. **Documentation and Support:** I documented the entire process, including the capsule creation and update implementation, providing clear guidelines and support for future developers and users.

Overall, the internship project enhanced the security and efficiency of firmware updates in the EDK II ecosystem, contributing to more reliable and maintainable firmware management.

Tool used (Development tools - H/w, S/w) : Visual Studio

Objectives of the project : To create UEFI Capsules and implement an optimized firmware update process

Major Learning Outcomes : Working of Unified Extensible Firmware Interface, Development of Unified Extensible Firmware Interface, Testing of Unified Extensible Firmware Interface, Firmware Update Process

Details of Papers/patents : NOT APPLICABLE

Brief Description of working environment, expectations from the company : The working environment during my internship was dynamic and collaborative, fostering both individual growth and teamwork. The company emphasized a culture of innovation and continuous learning, providing interns with access to a wealth of resources and experienced mentors. My workspace was equipped with the necessary tools and technologies, including advanced hardware platforms and comprehensive development kits, ensuring I could effectively contribute to projects.

Expectations from the company were clearly communicated from the onset. I was expected to demonstrate a strong understanding of the EDK II framework and firmware development principles. Additionally, the company valued proactive problem-solving skills, requiring interns to identify and address challenges independently while seeking guidance when necessary.

Regular progress reviews and feedback sessions were integral to the working environment, helping me align my work with the company's goals and refine my technical skills. Collaboration was encouraged, with frequent team meetings and code reviews fostering a sense of community and shared purpose.

Professional development was a key focus, with the company providing opportunities for training and participation in relevant workshops and seminars. This not only helped in honing technical skills but also in understanding industry best practices and emerging trends.

Overall, the company expected a high level of professionalism, dedication, and the ability to adapt to a fast-paced, ever-evolving technological landscape. The supportive and resource-rich environment empowered me to meet these expectations and contribute meaningfully to the projects I was involved in.

Academic courses relevant to the project : Operating Systems, Computer Organization and Architecture

PS-II Station : MediaTek Bangalore Pvt. Ltd. , Bengaluru

Faculty

Name: Rekha A

Student

Name: MEDHEKAR AJINKYA EKNATH(2022H1030099H)

Student Write-up

PS-II Project Title: Advanced Driver Interfaces for Computing Devices

Short Summary of work done during PS-II : During the project, I worked on the design, implementation, and testing of kernel mode drivers aimed at optimizing system performance, reliability, and compatibility. I gained practical hands-on experience in driver development under the guidance of seasoned professionals at MediaTek. This involved understanding and executing various stages of driver development, from initial design to rigorous testing. Through this project, I enhanced my knowledge of kernel-level operations, system behavior, and the complexities of driver software. Additionally, I learned about collaborative problem-solving and best practices in the field, which has significantly enriched my technical and professional skills.

Tool used (Development tools - H/w, S/w) : Visual Studio, Git, Jira, Notepad++, Putty

Objectives of the project : The primary objective of the project titled "Advanced Driver Interfaces for Computing Devices" was to develop and implement kernel mode drivers tailored to optimize the system performance, reliability, and compatibility for a key client of MediaTek. The project involved designing, implementing, and testing these drivers to meet the specific requirements of the client, thereby enhancing their product's efficiency and performance.

Major Learning Outcomes : Designing, Implementing, Testing and Optimizing CLI, DLL and KMD

Details of Papers/patents : Classified

Brief Description of working environment, expectations from the company : The working environment at MediaTek was collaborative and innovative, fostering continuous learning and improvement. As an intern, I worked alongside experienced professionals who provided valuable guidance. The team environment encouraged open communication and teamwork, essential for achieving project goals. MediaTek offered access to advanced tools and resources for developing and testing kernel mode drivers. The company emphasized a structured approach to project management, ensuring clear task definitions and adherence to deadlines. Regular meetings and progress reviews helped monitor the project's development. From MediaTek, I expected a supportive environment to apply my academic knowledge and gain hands-on experience. The company exceeded these expectations by offering mentorship, exposure to cutting-edge technology, and industry best practices. Constructive feedback helped me identify areas for improvement and professional growth, making my internship a highly enriching experience.

Academic courses relevant to the project : Advanced Operating System, Advanced Computer Architecture

PS-II Station : MediaTek Bangalore Pvt. Ltd. , Bengaluru

Faculty

Name: Rekha A

Student

Name: JOSHI KASHYAP JAYANTKUMAR(2022H1030116P)

Student Write-up

PS-II Project Title: Advanced Driver Interfaces For Computing Devices

Short Summary of work done during PS-II : ### Short Summary of Work Done During PS-II

During my PS-II internship, I developed a comprehensive tool consisting of a CLI application, DLL, and Kernel Mode Driver (KMD Driver) to analyze microprocessor data. The project involved multiple phases: design, implementation, testing, and optimization. Initially, I focused on understanding the project requirements and creating detailed design documents and specifications. I then proceeded to implement the tool using C/C++ and utilized development tools such as Visual Studio, GIT, and Jira. In the testing phase, I conducted unit tests and integration tests to ensure the components worked correctly and seamlessly together. Rigorous testing helped identify and resolve bugs, enhancing the tool's reliability. Optimization efforts were made to improve performance, responsiveness, and compatibility across different hardware platforms. Throughout the project, I collaborated closely with experienced professionals, gaining valuable insights into industry best practices. I also participated in design discussions and contributed to the project's documentation. The first version of the tool was successfully developed, tested, and released, meeting the organization's initial requirements. Overall, the project provided me with hands-on experience in system software development, problem-solving, and project management, significantly enhancing my technical and collaborative skills.

Tool used (Development tools - H/w, S/w) : Visual Studio,GIT,JIRA

Objectives of the project : Driver Development

Major Learning Outcomes : Gained practical experience in developing a CLI application, DLL, and KMD Driver using C/C++. Improved skills in system software development, error handling, and optimization. Collaborated effectively with experienced professionals and contributed to design and documentation processes. Enhanced project management abilities by overseeing different project phases and meeting deadlines efficiently.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : ### Brief Description of the Working Environment and Expectations

The working environment at MediaTek was highly collaborative and supportive. I was part of a dynamic team of professionals who were always ready to share their knowledge and provide guidance. The company fostered a culture of continuous learning and innovation, encouraging us to explore new ideas and technologies.

Expectations from the company were clear and focused on delivering high-quality, reliable software solutions. We were expected to adhere to best practices in software development, including thorough testing, documentation, and optimization of our code. Meeting deadlines and maintaining clear communication were also emphasized.

Overall, the environment was conducive to professional growth, providing ample opportunities to learn and apply new skills in a real-world setting.

Academic courses relevant to the project : Advanced Computer Architecture, Software Engineering And Management, Operating System

PS-II Station : MediaTek Bangalore Pvt. Ltd. , Bengaluru

Faculty

Name: Rekha A

Student

Name: AKSHAY BHARDWAJ(2022H1120287P)

Student Write-up

PS-II Project Title: DEVICE DRIVER COMMUNICATION AND VALIDATION ON EMULATION PLATFORM

Short Summary of work done during PS-II : The project focused on developing kernel mode device drivers to enhance system performance, reliability, and compatibility. The work involved designing, implementing, and testing these drivers on an emulation platform under the guidance of experienced professionals. Through hands-on experience, the team gained practical knowledge in optimizing system operations at the kernel level. The project aimed to contribute to the field of system software development by addressing specific performance bottlenecks and compatibility issues. Future enhancements could include exploring advanced techniques like asynchronous I/O, power management optimization, and security enhancements to further improve driver effectiveness. Collaboration with academia and industry partners may lead to research initiatives advancing kernel mode driver technology and addressing emerging challenges in system software development.

Tool used (Development tools - H/w, S/w) : HAPS, EDK2

Objectives of the project : The objective of the project was to contribute to the development of kernel mode device drivers aimed at optimizing system performance, reliability, and compatibility.

Major Learning Outcomes : The major learning outcome from this project included gaining practical knowledge and skills in designing, implementing, and testing kernel mode drivers under the mentorship of experienced professionals, leading to a deeper understanding of kernel-level operations and their impact on system behavior.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at MediaTek in Bangalore provided a collaborative and innovative setting for the project team to develop kernel mode device drivers. The company likely expected the team to utilize their technical expertise to optimize system performance, enhance reliability, and ensure compatibility through the design, implementation, and testing of these drivers on an emulation platform. MediaTek in Bangalore may have sought innovative solutions to address system software challenges, requiring a deep understanding of communication protocols, operating

systems, and driver development. The company likely encouraged proactive problem-solving, effective communication, and a strong commitment to quality and excellence in software development. Overall, MediaTek in Bangalore may have expected the team to contribute valuable insights, practical experience, and a strong work ethic to drive the project's success and make meaningful contributions to the field of system software development.

Academic courses relevant to the project : Software Engineering, Operating System, Computer Networks, Computer Architecture

PS-II Station : MediaTek Bangalore Pvt. Ltd. , Bengaluru

Faculty

Name: Rekha A

Student

Name: KESHAV SONU(2022H1120290P)

Student Write-up

PS-II Project Title: DEVICE DRIVER COMMUNICATION AND VALIDATION ON EMULATION PLATFORM

Short Summary of work done during PS-II : The project focused on developing kernel mode device drivers to enhance system performance, reliability, and compatibility. The work involved designing, implementing, and testing these drivers on an emulation platform under the guidance of experienced professionals. Through hands-on experience, the team gained practical knowledge in optimizing system operations at the kernel level. The project aimed to contribute to the field of system software development by addressing specific performance bottlenecks and

compatibility issues. Future enhancements could include exploring advanced techniques like asynchronous I/O, power management optimization, and security enhancements to further improve driver effectiveness. Collaboration with academia and industry partners may lead to research initiatives advancing kernel mode driver technology and addressing emerging challenges in system software development.

Tool used (Development tools - H/w, S/w) : HAPS, EDK2

Objectives of the project : The objective of the project was to contribute to the development of kernel mode device drivers aimed at optimizing system performance, reliability, and compatibility.

Major Learning Outcomes : The major learning outcome from this project included gaining practical knowledge and skills in designing, implementing, and testing kernel mode drivers under the mentorship of experienced professionals, leading to a deeper understanding of kernel-level operations and their impact on system behavior.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at MediaTek in Bangalore provided a collaborative and innovative setting for the project team to develop kernel mode device drivers. The company likely expected the team to utilize their technical expertise to optimize system performance, enhance reliability, and ensure compatibility through the design, implementation, and testing of these drivers on an emulation platform. MediaTek in Bangalore may have sought innovative solutions to address system software challenges, requiring a deep understanding of communication protocols, operating systems, and driver development. The company likely encouraged proactive problem-solving, effective communication, and a strong commitment to quality and excellence in software development. Overall, MediaTek in Bangalore may have expected the team to contribute valuable insights, practical experience, and a strong work ethic to drive the project's success and make meaningful contributions to the field of system software development.

Academic courses relevant to the project : Software Engineering, Operating System, Computer Networks, Computer Architecture

PS-II Station : MediaTek Bangalore Pvt. Ltd. , Bengaluru

Faculty

Name: Rekha A

Student

Name: BANGAR GAURAV LAXMINARAYAN(2022H1230105G)

Student Write-up

PS-II Project Title: Logical and Physical Synthesis of SoC

Short Summary of work done during PS-II : We were put under training on RISC8 modules. In that we learnt how to use different EDA tools for doing lint, simulation, synthesis, CDC , spyglass Dft and LEC. From these learning then we were put on live project for synthesis trial and there we utilise our learning to effectively debug the errors and do synthesis trial runs to match the golden PPA reports.

Tool used (Development tools - H/w, S/w) : DesignCompiler

Objectives of the project : To do PPA analysis on project module

Major Learning Outcomes : Got to know how to do effective debugging in Synthesis DesignCompiler

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment is friendly for learning. Seniors members are very helpful in solving our doubts. Expectations from company is to give us enough opportunity to develop our knowledge and become a good RTL Designer.

Academic courses relevant to the project : VLSI design and Advanced VLSI design

PS-II Station : MediaTek Bangalore Pvt. Ltd. , Bengaluru

Faculty

Name: Rekha A

Student

Name: KULKARNI DHANSHRI LAXMIKANT(2022H1400123H)

Student Write-up

PS-II Project Title: RTL Design

Short Summary of work done during PS-II : Learnt basics of design and RTL flow. Quality checks will be performed at every stage of flow. Tools used at each steps, analyzing reports, debugging violation and errors are main focus point.

Tool used (Development tools - H/w, S/w) : Verdi, VCS, DesignCompiler, company specific internal tools

Objectives of the project : Learnings RTL design flow

Major Learning Outcomes : Industrial flow from RTL design till tape out

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : As a student joining this company gave me a vibrant, supportive, and growth-oriented working environment. MediaTek has built on collaboration, open communication, and continuous learning, providing a perfect setting for my professional development. I have had well structured learning plan to start with my journey. Mentor was assigned since day1 and he took weekly status update from me. During initial days, manager himself was taking meeting to clarify our doubts. Team is helpful and always kept friendly environment. Fun event made us comfortable and it was bridge while moving from campus to corporate.

Academic courses relevant to the project : VLSI, ADVD, VTT

PS-II Station : MediaTek Bangalore Pvt. Ltd. , Bengaluru

Faculty

Name: Rekha A

Student

Name: SEPUR BHAVANA(2022H1400138H)

Student Write-up

PS-II Project Title: Synthesis of SOC and FE QC - RTL Design

Short Summary of work done during PS-II : I work with a top module which is the most essential part of the project. I developed a depth understanding by working for a top module and also a wider learning as I belong to a project team whose function is focused on integration of several partitions.

Tool used (Development tools - H/w, S/w) : Synopsys Design Compiler , Cadence Conformal LEC , CLP , Primetime and Company specific tools

Objectives of the project : To develop a chip that will facilitate newly added features for an application. This new chip should integrate well with the already existing chips and work on the latest technology node. Few aspects of the design would be transitional and many are of legacy designs.

Major Learning Outcomes : Handle Various Front end tools simultaneously and also apply constraints to model the design requirements. Develop practical understanding of the design and its application. Learnt new concepts applicable to latest process nodes. Applied several techniques to optimise PPA.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : My work environment is quite supportive and believes in regular learning by interactive team discussions on daily basis. Company's culture gives primary importance to diligence. Integrity and maintaining confidentiality is a must here. The candidate is expected to have basic understanding of latest technology and strong fundamentals. Concepts have to be clear.

Academic courses relevant to the project : VLSI Design, Advanced VLSI Design, VLSI architecture, Advanced VLSI architecture , Embedded System Design

PS-II Station : MediBuddy - Software Development/Data Science , Bengaluru

Faculty

Name: Saikishor Jangiti

Student

Name: RAGHAV KUMAR(2020A7PS1700G)

Student Write-up

PS-II Project Title: Contributing To the Internal Business Management Software

Short Summary of work done during PS-II : Over the past five months, important improvements have been made to Aver Solutions Group's internal business management software. Six key features were added, and the user interface was updated, making the system more user-friendly and efficient. These changes have made it easier to manage projects, estimate costs, track inventory, and handle employee tasks. The Employee's Monthly Hour Log (MHL) and the Inventory Management System (IMS) now help track work hours and materials better. The Hiring/Onboarding System has automated hiring, and the Weekly Automated Reports ensure department heads get the data they need on time. The JWT Authentication system has improved website security, and the Employee Expense Reimbursement Module makes it simple for employees to report and get reimbursed for work-related expenses.

Tool used (Development tools - H/w, S/w) : AngularJS

Objectives of the project : To Contribute to the internal business management software

Major Learning Outcomes : 1. Learned how to work with a full-stack application.
2. Learned how to understand the consumer demands

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The office workplace was very professional

Academic courses relevant to the project : NA

PS-II Station : MediBuddy - Software Development/Data Science , Bengaluru

Faculty

Name: Saikishor Jangiti

Student

Name: DASMOHAPATRA AKANKSHA BIPIN(2020A8PS1777G)

Student Write-up

PS-II Project Title: Non-Tech

Short Summary of work done during PS-II : My work involved anything that comes under the non-tech domain. I led teams as a product/project manager, streamlined client connections, worked on outreach and even did quite a bit of content writing

Tool used (Development tools - H/w, S/w) : Figma, Wix Studio, Miro

Objectives of the project : Drive the growth of the startup

Major Learning Outcomes : Product and Project Management, Communication and Collaboration, Conflict Management, Stakeholder Management, Capabilities Analysis

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The work for me varied a lot. Since its a startup, the workload gets really heavy sometimes and you might have to work weekends as well. Such times for me was very rare though.

Academic courses relevant to the project : NA

PS-II Station : Meesho , Bengaluru

Faculty

Name: Anjani Srikanth Koka

Student

Name: PULKIT SAINI .(2019B1A10844P)

Student Write-up

PS-II Project Title: Enhance the user experience for those receiving refunds and educate first-time users about the returns process on Meesho

Short Summary of work done during PS-II : The project focused on enhancing the user experience related to refunds and returns on Meesho, with a particular emphasis on the Meesho Balance (MB) refund option. The Refund Mode Screen had been redesigned to be more intuitive

and user-friendly, incorporating educational components to help users understand MB. Visual elements (pills) will highlight various refund options, and their impact on user behavior will be monitored. To improve traceability, a visible pill on the homepage displayed the user's Meesho Balance, leading to a dedicated landing page with detailed information and usage instructions. The order details page will also be enhanced to confirm refunds received in MB, making it easier for users to track their funds. Educating first-time users was also a key objective, with onboarding materials and in-app notifications designed to guide them through the returns process. This will ensure new users can navigate the refund system effectively. The projects were deployed on A/B testing to evaluate the effectiveness of the revamped Refund Mode Screen and traceability enhancements. Collaboration is crucial, involving designers, developers, and customer support teams to ensure seamless integration of the new features. User feedback is continuously collected and analyzed to drive ongoing improvements in the refund and returns experience. Overall, the project aimed to make the refund process more transparent, efficient, and user-friendly, ultimately enhancing user satisfaction and trust in Meesho's platform.

Tool used (Development tools - H/w, S/w) : SQL, Figma, Coda, JIRA, Mixpanel, Internal softwares and tools

Objectives of the project : Enhance adoption and overall NPS of Meesho Balance as a Refund Mode

Major Learning Outcomes : Projects at Meesho encompassed aspects such as feature enhancement, user experience optimization, and product roadmap alignment with organizational goals. The aim was to foster a deep understanding of Meesho's target audience, their needs and how we can optimize them. Cross-functional collaboration and communication were emphasized as integral components of effective product management.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at Meesho is dynamic and collaborative, fostering innovation and creativity. As a rapidly growing e-commerce unicorn startup, Meesho offers a vibrant atmosphere where cross-functional teams work closely together to develop and launch new products and features. The environment is fast-paced, with a strong emphasis on agility and responsiveness to market needs.

Employees are encouraged to think outside the box and contribute their ideas, making it an ideal place for individuals who thrive in a setting that values continuous learning and improvement. Overall, the company aims to provide a stimulating and nurturing environment that supports both professional and personal growth, enabling employees to contribute meaningfully to the organization's success.

Academic courses relevant to the project : NA

PS-II Station : Mercedes Benz , Bengaluru

Faculty

Name: Shashank Mohan Tiwari

Student

Name: MUSKAN KANSAL .(2019B1A41020P)

Student Write-up

PS-II Project Title: INJURY SEVERITY PREDICTION USING MACHINE LEARNING

Short Summary of work done during PS-II : Predicting injury severity scores of occupants in accidents using the Indian road safety dataset involves several critical steps and considerations. Firstly, the Indian road safety dataset would need to be thoroughly examined for its variables, which likely include factors such as vehicle type, speed, road conditions, weather, and occupant details like age and seatbelt usage. These variables are crucial as they directly influence the severity of injuries sustained in accidents. Machine learning techniques such as classification or regression could be employed for prediction. Classification models would predict injury severity levels (e.g., minor, moderate, severe), while regression models would predict a continuous

severity score. Given the nature of the problem, regression might be more appropriate if a precise severity score is required. Feature engineering plays a vital role in model performance. Variables may need transformation or encoding to be suitable for the chosen algorithms. For instance, categorical variables might be one-hot encoded, and continuous variables normalized. Model selection should be based on the dataset size, complexity of relationships, and desired interpretability. Commonly used algorithms for such tasks include decision trees, random forests, support vector machines (SVM), and neural networks. Ensemble methods like random forests can handle complex interactions and non-linear relationships effectively. Evaluation metrics like accuracy, precision, recall, and F1-score (for classification) or mean squared error and R-squared (for regression) would assess model performance. Cross-validation techniques ensure robustness and generalizability. Ethical considerations are paramount, especially in sensitive domains like predicting injury severity. Fairness, transparency, and accountability must guide data collection, model development, and deployment. In conclusion, predicting injury severity scores in Indian road accidents involves leveraging advanced analytics techniques on comprehensive datasets, ensuring robust model performance while upholding ethical standards.

Tool used (Development tools - H/w, S/w) : python, jupyter notebook

Objectives of the project : To predict the injury severity score of occupants when in accident using the Indian road safety dataset

Major Learning Outcomes : Machine learning, HP tuning, accident research

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Good Work environments, good work culture, collaborative leaning

Academic courses relevant to the project : Machine learning, statistics, Programming in python

PS-II Station : Mercedes Benz , Bengaluru

Faculty

Name: Shashank Mohan Tiwari

Student

Name: KUSH GAMBHIR .(2019B1A41040P)

Student Write-up

PS-II Project Title: Streamlining the Software Verification and Validation Process in Airspring-HIL as per Industry Standards

Short Summary of work done during PS-II : The project successfully implemented tools for automating test script generation and report processing, resulting in significant improvements in testing efficiency and reliability. The use of Python and other open-source technologies proved effective in handling large datasets and complex string manipulations. These advancements support Mercedes Benz Research and Development India's goals of maintaining high-quality standards and performance in their automotive products.

Tool used (Development tools - H/w, S/w) : Python, Power BI, Microsoft Access, dSpace HiL, Vector HiL

Objectives of the project : Streamlining the software testing process

Major Learning Outcomes : The major learning outcome from this project is the comprehensive understanding and application of automation and data engineering techniques to streamline and enhance the software verification and validation processes within an automotive testing environment.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at Mercedes Benz Research and Development India (MBRDI) is dynamic and collaborative, fostering innovation and professional growth. Employees work in teams, sharing knowledge and supporting each other, guided by experienced mentors. The company emphasizes the use of the latest technologies and encourages employees to engage in research and development to advance automotive technology. The company promotes a healthy work-life balance with flexible working hours and remote work options. Modern office facilities and a supportive infrastructure create a comfortable and productive work setting.

Academic courses relevant to the project : C Programming

PS-II Station : Mercedes Benz , Bengaluru

Faculty

Name: Shashank Mohan Tiwari

Student

Name: B RAMCHARAN(2019B2A41079G)

Student Write-up

PS-II Project Title: GenAI and data science in MBRDI

Short Summary of work done during PS-II : Generative AI is an evolving field . Using it in a way to boost efficiency and productivity. The main programming language used was python. We

also used vector databases for RAG applications, along with AI agents . Frameworks were also researched for this. Data analytics was also carried out.

Tool used (Development tools - H/w, S/w) : Python(multiple libraries/frameworks), Azure(multiple services depending on the need)

Objectives of the project : To research and develop GenAI applications that can boost efficiency. Also data analytics and data science to boost efficiency.

Major Learning Outcomes : Generative AI, data science, python, web dev.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The working environment was great and helped me learn a lot in the industry. They were very helpful too.

Academic courses relevant to the project : AIFR, programming.

PS-II Station : Mercedes Benz , Bengaluru

Faculty

Name: Shashank Mohan Tiwari

Student

Name: VARUN LENKA(2019B4A40074G)

Student Write-up

PS-II Project Title: Integration of multiple cells in Battery pack.

Short Summary of work done during PS-II : My work involved in a doing a preliminary study on integration of different cells in a battery pack. I had to figure out the capacity , voltage , energy based on the number of cells fitting in the battery pack based on the packaging constraints. I also worked on selecting the assembly methods for manufacturing a battery pack.

Tool used (Development tools - H/w, S/w) : Siemens NX , Excel

Objectives of the project : The objective of the project was to understand the components of a battery pack, to understand packaging constraints and tolerances and to learn about how the designing process of a battery pack happens.

Major Learning Outcomes : I learnt a lot about how a battery pack is designed and how its works

.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The working environment was very welcoming and professional. Everyone was very helpful regarding my doubts in my project . The company also promotes a lot of innovation by encouragement to file for patents and papers. A lot of workshops were also conducted which helped in gaining my knowledge about different domains in a vehicle.

Academic courses relevant to the project : IC Engines, Design of Machine Elements, CAD, Advanced Manufacturing Processes, Heat Transfer

PS-II Station : Mercedes Benz , Bengaluru

Faculty

Name: Shashank Mohan Tiwari

Student

Name: AYUSH KISHOR HINSU(2020A4PS1189G)

Student Write-up

PS-II Project Title: AI/ML for Interior Trims

Short Summary of work done during PS-II : Failure of part in interior trims are of utmost importance in an event of an accident, to ensure this parts developed needs to be robust. Predicting expected force values allows one to design a compliant part even during pre development phase.

Tool used (Development tools - H/w, S/w) : Python, Python ML libraries, Jupyter Notebook, ANSA, Animator, Primer

Objectives of the project : Predict force on airbag deployment ramp using ML

Major Learning Outcomes : Applied ML, Numerical Simulation

Details of Papers/patents : No output in terms of papers/patent

Brief Description of working environment, expectations from the company : Conducive learning and growth environment. Excellent infrastructure. Manager goals sometimes far fetched.

Academic courses relevant to the project : ML for mechanical engineer (Reading course),

PS-II Station : Mercedes Benz , Bengaluru

Faculty

Name: Shashank Mohan Tiwari

Student

Name: AMBALGI PUSHKARAJ VINAY(2020A4PS1985G)

Student Write-up

PS-II Project Title: Vehicle ground clearance for Indian Speed bumps

Short Summary of work done during PS-II : Generated various road profiles and setup of simulation file to run the simulation and observe where the car underbody hits the road surface and then provide the maximum dimensional limits of speed bumps.

Tool used (Development tools - H/w, S/w) : Simpack, MATLAB.

Objectives of the project : To obtain maximum dimensional limits of speed bumps of different shapes that a vehicle can maneuver without the underbody hitting the road surface.

Major Learning Outcomes : Multi body dynamics, Simpack software, MATLAB.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment was very cooperative. My mentor and buddy reviewed my work at regular intervals and provided me with all the resources required to execute the project.

Academic courses relevant to the project : Engines, Motors, and Mobility.

PS-II Station : Mercedes Benz , Bengaluru

Faculty

Name: Shashank Mohan Tiwari

Student

Name: VAISHAK VENKITESH SUBRAMANIAN(2022H1060226P)

Student Write-up

PS-II Project Title: Comparative study of noise prediction models in STARCCM+

Short Summary of work done during PS-II : Automotive Heating, Ventilation and Air Conditioning (HVAC) system is essential in providing the thermal comfort to the cabin occupants. The HVAC Noises which are typically not the main source of noise in IC Engine vehicles, is one of the dominant noise sources inside the electric vehicle cabin. As air is delivered through the ducts and enters the cabin through vents, it will create noise that is unpleasant to the occupants inside the cabin. Hence, designing a HVAC system with very low sound pressure level is quite challenging and poses many difficulties. My project focused on developing a simulation method to predict noises in ducts and vents using different aeroacoustics models in STARCCM+

Tool used (Development tools - H/w, S/w) : STARCCM+

Objectives of the project : To do a comparative study of different noise prediction models available in STARCCM+ software to predict HVAC noise inside ducts and vents

Major Learning Outcomes : 1. Basics of STARCCM+ simulation software
2. Good understanding of theory of aeroacoustics

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The work culture at MBRDI is really great. The work environment encourages you to keep working as there is no performance pressure and you are allowed to learn from mistakes. Nobody judges you for leaving early or coming late; as long as you are working sincerely and completing the tasks, you can work at your own pace. The workplace has a warm and friendly atmosphere. The atmosphere within the team is very inclusive and the colleagues make you feel as if you have been working with them for years now. They don't treat you as a student; they treat you on equal terms like a colleague. They give you the freedom to work as you want, but they expect you to be responsible and provide the deliverables. Regular meetings with the mentor are expected, and progress is discussed with the team every week. Overall, if you're willing to put in the effort, this would be a great place to learn and grow.

Academic courses relevant to the project : CFD

PS-II Station : Metadome , Gurugram

Faculty

Name: Sameer Gupta .

Student

Name: KARTIK UPADHYAY(2019B4A40811G)

Student Write-up

PS-II Project Title: Graphics

Short Summary of work done during PS-II : It was great working with the guys , weekly discussion with faculty and other evaluations were helpful, both faculty and manager were in constant in touch with them

Tool used (Development tools - H/w, S/w) : Babylonjs

Objectives of the project : To make graphics pipeline more effective

Major Learning Outcomes : Graphics, js, project management

Details of Papers/patents : Bablylonjs

Brief Description of working environment, expectations from the company : It was great , all were young people so it was easy to get along with them

Academic courses relevant to the project : Nothing

PS-II Station : Microchip Technology , Bengaluru

Faculty

Name: Kranthi Kumar Palavalasa

Student

Name: ELE ABHINAV(2022H1230113G)

Student Write-up

PS-II Project Title: Automating SoC RTL Integration

Short Summary of work done during PS-II : I worked on automating the Top level Integration of the SOC RTL. This includes using script that supports verilog-mode for AUTOs. I created templated to be recognized by the script for every module instance in the top level module and upon running the script, it generates the port connections automatically. I also worked on clearing warnings related to low power using a tool called Synopsys VC LP.

Tool used (Development tools - H/w, S/w) : Synopsys Verdi, Synopsys VC LP, SpyGlass Lint.

Objectives of the project : Automating Top level module using Perl script

Major Learning Outcomes : Integration,

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Work environment at Microchip Technology is very good. Company was expecting me to understand and learn the problems going on in the project and come up with a solution.

Academic courses relevant to the project : Digital Design, CAD for IC Design

PS-II Station : Microchip Technology , Bengaluru

Faculty

Name: Kranthi Kumar Palavalasa

Student

Name: KULKARNI ANOOP KUMAR(2022H1230131G)

Student Write-up

PS-II Project Title: Tools used in Analog & Mixed Signal Verification and Integration.

Short Summary of work done during PS-II : Analog & Mixed Signal Verification and Integration

Tool used (Development tools - H/w, S/w) : FineSim, ERC Insight Analyzer, Cadence Virtuoso, CSM Ansys Tool

Objectives of the project : To learn about the tools used in AMS Verification

Major Learning Outcomes : Types of tools & softwares used in AMS Verification

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment was motivating to try & learn new things.

Academic courses relevant to the project : Analog IC Design

PS-II Station : Microchip Technology , Bengaluru

Faculty

Name: Kranthi Kumar Palavalasa

Student

Name: KORLEPARA SAI VIJAY ROHIT(2022H1400140H)

Student Write-up

PS-II Project Title: Verification of AHB protocol using system verilog and uvm

Short Summary of work done during PS-II : 1)A complex test bench developed for verification of design under test which uses ahb protocol by using uvm and designed in such a manner so that it can be reusable. 2)Also learnt how to reuse the same test bench for the different design and protocol. 3)In addition to these learnt how the arbitration is implemented in soc level

Tool used (Development tools - H/w, S/w) : Mentor graphics, synopsis vcs, cadence irun

Objectives of the project : learn how to develop a test bench using uvm

Major Learning Outcomes : uvm

Details of Papers/patents : Name:-K Srinivas, phno:-8296492889

Brief Description of working environment, expectations from the company : Verification of RTL design of the chip on soc level

Academic courses relevant to the project : reconfigurable computing , vlsi architecture

PS-II Station : Microchip Technology Inc , Hyderabad

Faculty

Name: Sanjay Vidhyadharan

Student

Name: AAKANKSHA JHA(2022H1230103G)

Student Write-up

PS-II Project Title: Flow of DFT

Short Summary of work done during PS-II : I was assigned some blocks to work on. My job was to do test coverage and pattern simulation on the blocks. Also parallely learn about new concepts of DFT and to learn the flow of DFT that is followed in the company. Also i learnt about different debugging methods to resolve miscompares.

Tool used (Development tools - H/w, S/w) : tesseract

Objectives of the project : To do test coverage of blocks on chip level and also pattern generation and simulation so that the chip is easier and efficient to test when manufactured.

Major Learning Outcomes : To learn about the flow of DFT and to know about how the chip is actually designed to make it testable. basically to make it controllable and observable.

Details of Papers/patents : none

Brief Description of working environment, expectations from the company : Working environment was pretty good. my manager and my team mates were very helpful. Also the work provided to me was interesting. I got to learn many things from them right from linux, gvim commands to learning the DFT flow and debugging techniques.

Academic courses relevant to the project : Testability, Reconfigurable computing

PS-II Station : Microchip Technology Inc , Hyderabad

Faculty

Name: Sanjay Vidhyadharan

Student

Name: USGAONKAR SOMENDRANATH MAHENDRANATH(2022H1230126G)

Student Write-up

PS-II Project Title: Silicon Validation

Short Summary of work done during PS-II : As a part of silicon validation group my responsibilities include Designing testcases for the usemodels assigned to me understanding validation plan of model Verify the testcase design by doing simulation Run synthesis, place route tool to implement the design Verify timing report of the project

Tool used (Development tools - H/w, S/w) : Libreoffice & SoftcConsole

Objectives of the project : Silicon Validation of PolarFire FPGA

Major Learning Outcomes : Learnt about post-silicon validation

Details of Papers/patents : No papers

Brief Description of working environment, expectations from the company : As a part of silicon validation group my responsibilities include Designing testcases for the usemodels assigned to me understanding validation plan of model Verify the testcase design by doing simulation

- Run synthesis, place route tool to implement the design
- Verify timing report of the project

Academic courses relevant to the project : Hardware Software co-design, Reconfigurable computing



PS-II Station : Microchip Technology Inc , Hyderabad

Faculty

Name: Sanjay Vidhyadharan

Student

Name: RITANKAR GHOSH(2022H1230129G)

Student Write-up

PS-II Project Title: Design of Analog Sub Block

Short Summary of work done during PS-II : Did device characterisation of varied devices available from foundry; later in these data parameters were helpful in choosing one according to design requirements. Designed Level shifters, current mirrors and BGR circuits improving their performance and testing their limits. Effects of actual pdk on design principles was also investigated for all the above mentioned circuits.

Tool used (Development tools - H/w, S/w) : Cadence; Hspice; Solido

Objectives of the project : Understanding design trade offs and procedures for Analog Blocks

Major Learning Outcomes : Understanding the design principles and effects of device and pdks on design choices

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Cooperative work environment with allowance to learn at one's own pace. Helpful colleagues to give insights and discuss on varied analog topics. Work timings are pretty casual.

Academic courses relevant to the project : Analog IC Design

PS-II Station : Microchip Technology Inc , Hyderabad

Faculty

Name: Sanjay Vidhyadharan

Student

Name: PRAJJWAL SONI(2022H1230132G)

Student Write-up

PS-II Project Title: Block level Verification of BBRAM(Battery Backup SRAM)

Short Summary of work done during PS-II : Did training on System verilog and checked many blocks at block level and few blocks at minichip level and majorly checked BBRAM block at chip control top level and learned more about the vlsi industry from design to tape out.

Tool used (Development tools - H/w, S/w) : PrimeSim, Swave, LinUx, Symphony , Visualizer , cadence Virtuoso.

Objectives of the project : Helps in Verification of different blocks

Major Learning Outcomes : Learned how to use simulators and waveform viewers.

Details of Papers/patents : Checked power and voltages of BBRAM at chip control top level.

Brief Description of working environment, expectations from the company : The working environment at Microchip is excellent and all the mentors are very friendly.

Academic courses relevant to the project : Analog IC design and Analog and mixed signal design.

PS-II Station : Microchip Technology Inc , Hyderabad

Faculty

Name: Sanjay Vidhyadharan

Student

Name: THAKUR SUDHANSHUSHEKHAR SHAILESH(2022H1400077G)

Student Write-up

PS-II Project Title: FPGA Design Updates and Automation of Design Review

Short Summary of work done during PS-II : I implemented design updates on pre-existing FPGA designs and worked on TCL scripts of those designs to facilitate these updates. Additionally, I collaborated with the Technical Publication team to ensure that all documentation was up-to-date and accurately reflected the design changes. Furthermore, I developed a Python script to automate the design review process, streamlining the workflow and enhancing efficiency.

Tool used (Development tools - H/w, S/w) : Libero, Softconsole, SmartDebug

Objectives of the project : 1. Implement design updates for existing FPGA based designs. 2. Develop a Python script to automate the design review process.

Major Learning Outcomes : Verilog, C, TCL, Python

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment of the company is very good. Everyone is extremely helpful.

Academic courses relevant to the project : Reconfigurable Computing, Hardware Software Co-Design

PS-II Station : Microchip Technology Inc , Hyderabad

Faculty

Name: Sanjay Vidhyadharan

Student

Name: PIYUSH DUBEY(2022H1400081G)

Student Write-up

PS-II Project Title: Post silicon Validation

Short Summary of work done during PS-II : Design creation of Use cases to do the system level validation of the RTPF SoC using the libro software.

Tool used (Development tools - H/w, S/w) : Libro, softconsole, audrey

Objectives of the project : To do the designing and validation of the Use models on the silicon chip.

Major Learning Outcomes : SoC validation

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment was great and the team was supportive. The skills learned in the masters were put to use in the project of the company.

Academic courses relevant to the project : Hardware software condesign, Reconfigurable computing

PS-II Station : Micron Technology , Hyderabad

Faculty

Name: Pawan Sharma

Student

Name: S V SHANMUGHA BALAN .(2019B5A30571P)

Student Write-up

PS-II Project Title: Development of Testing Code for NAND Flash Devices

Short Summary of work done during PS-II : Implemented bug fixes and performed program optimizations in terms of yield, test time and memory

Tool used (Development tools - H/w, S/w) : C++

Objectives of the project : To implement bug fixes and optimize the testing code

Major Learning Outcomes : C++, Development Methodology

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Friendly atmosphere and extremely helpful colleagues

Academic courses relevant to the project : Digital Design, Microprocessing Interfacing and Object Oriented Programming

PS-II Station : Micron Technology , Hyderabad

Faculty

Name: Pawan Sharma

Student

Name: VERMA VEDANT .(2020A3PS0356P)

Student Write-up

PS-II Project Title: SSD: Software Development

Short Summary of work done during PS-II : Micron Technology being a world leader in memory innovations, the storage solutions designed by Micron always aim to transform how information is used. As a leader, Micron plays a very important role in helping the world make sense of data. Micron, through their global brands of Micron and Crucial, provide the industry's broadest range of products, by being the only company in the world manufacturing the major memory and storage technologies using the NOR, NAND, and DRAM technologies. Micron meets these expectations by building some of the most complex SSDs in the world. And to make sense of these complex storage drives, a robust range of software tools are required. And so, with SSD designs and capabilities becoming more and more complicated, it is necessary to build complex software to visualize, debug, verify and in general use the various components of the SSD. The SSD Software team provides a much-required supporting role to many core teams at Micron, using our expertise in Software Development to simplify many processes to improve the efficiency and output of the core design and firmware teams at Micron. We also own certain customer-facing products such as Micron's Storage Executive, which I have had the opportunity to work on.

Tool used (Development tools - H/w, S/w) : SW- CPP, Jenkins, Bitbucket, Copilot

Objectives of the project : Replace the existing bulky application and refactor the code in an optimized manner

Major Learning Outcomes : System design

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment was very conducive and people were very professional. It also received Great Place to work award recently! So it was truly a great experience working here for the past 5 months.

Academic courses relevant to the project : System Design, OOPS

PS-II Station : Micron Technology , Hyderabad

Faculty

Name: Pawan Sharma

Student

Name: RUPAREL PRANAV SHAILESH(2020A7PS0973G)

Student Write-up

PS-II Project Title: Equipment Software Design

Short Summary of work done during PS-II : Our project aims to establish seamless communication between a tester power supply and a PLC using the RS485 protocol. The tester power supply supplies power to devices under test, while the PLC functions as an automation and monitoring controller.

Tool used (Development tools - H/w, S/w) : VS Code, Remote Desktop

Objectives of the project : Control System Design

Major Learning Outcomes : Equipment Software System Design

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Very helpful environment

Academic courses relevant to the project : None

PS-II Station : Micron Technology , Hyderabad

Faculty

Name: Pawan Sharma

Student

Name: AAYUSHI SHARMA(2022H1060164H)

Student Write-up

PS-II Project Title: Leadtime variability calculation and Automation of SPO cost calculation

Short Summary of work done during PS-II : The Operations Research team at GSC focuses on efficient supply chain management. A critical task is calculating raw material safety stock (SS) to optimize inventory levels. However, relying on estimated Lead Time (LT) data introduces variability affecting SS calculations. The team proposes analyzing supplier LT data to assess true variability across different orders for the same material, despite challenges like partial shipments and alternate material numbers. In supply chain management and production planning, plan stability ensures consistent and predictable production plans. A stable plan minimizes disruptions,

reduces uncertainty, and ensures smoother operations. It's crucial for efficient resource allocation, meeting customer demand, and overall system reliability. Output variations (AOUT loading) fluctuate with production output (e.g., units produced per day), while input variations relate to demand changes (e.g., customer orders). Balancing these ensures stable production plans aligned with market needs. To enhance plan stability we can use methods like Accurate Master Data Management (GCSR Rules), Frozen Fences & Firming, Optimizing WIP Inventory, Tariff Mitigation, Strategic Sourcing.

Tool used (Development tools - H/w, S/w) : Python, Excel

Objectives of the project : Leadtime refers to the unpredictability in the time it takes for an order to be fulfilled and the difference between stated lead-time and supplier leadtime helps us to calculate the variability which will help us to improve the safety stock calculation process. Also, for SPO cost calculation, we are automating the process to get the data so that the data accuracy can be improved.

Major Learning Outcomes : Lead Time Variability:

Lead time variability refers to the unpredictability in the time it takes for an order to be fulfilled. Imagine ordering a product online—sometimes it arrives early, and other times it takes longer. Factors contributing to this variability include demand fluctuations, supply chain disruptions, and unexpected delays. Also, sometimes there is pull ins and push out in process. So, by calculating lead time variability, businesses can set appropriate safety stock levels to manage uncertainties.

SPO Cost Calculation Automation:

These costs encompass everything related to supply, production, and operations. Automating SPO cost calculations involves using technology (such as python coding) to streamline and optimize these assessments. It provides Improved accuracy, reduced manual effort, and informed decision-making.

Details of Papers/patents : 1. A systematic literature review about dimensioning safety stock under uncertainties and risks in the procurement process by Júlio Barros, Paulo Cortez, M. Sameiro Carvalho

2. Operations research models and methods for safety stock determination: A review João N.C. Gonçalves, M. Sameiro Carvalho, Paulo Cortez

Brief Description of working environment, expectations from the company : At Micron Technology, employees can expect an innovative work environment that encourages thinking outside the box and challenging the status quo. Collaboration and teamwork are emphasized, fostering close interactions with colleagues across departments. Additionally, Micron is committed to environmental, health, and safety excellence, adhering to ISO standards and ensuring employee well-being. Overall, it's a dynamic workplace where breakthroughs in technology are driven by collaboration and forward-thinking approaches.

Academic courses relevant to the project : 1. Excel at advanced level
2. python coding
3. Power BI
4. Tableau

PS-II Station : Micron Technology , Hyderabad

Faculty

Name: Pawan Sharma

Student

Name: NINAD ANIL PARKAR(2022H1230165H)

Student Write-up

PS-II Project Title: Updation of NAND test flow

Short Summary of work done during PS-II : My work involved the updation of code for test flow with the intention of optimising the yield and reducing the test time. This will in the end improve the productivity.

Tool used (Development tools - H/w, S/w) : C++,python,jira,confluence

Objectives of the project : Test flow optimization

Major Learning Outcomes : Code development and test flow methodology

Details of Papers/patents : Confidential

Brief Description of working environment, expectations from the company : The working environment is really helpful and knowledge transfer is made really easy. Focused on the aiding the learning as much as possible.

Academic courses relevant to the project : VLSI design

PS-II Station : Micron Technology , Hyderabad

Faculty

Name: Pawan Sharma

Student

Name: HARSHAL PURUSHOTTAM RAJURKAR(2022H1230171H)

Student Write-up

PS-II Project Title: 1) Overview of DRAM functionality 2) Analyzing effect of pin capacitances on speed grades for DRAM 3) Study of CML buffer 4) Analysis of drivers for speed grades

Short Summary of work done during PS-II : In first few months we were given one block in DRAM every week and subsequent doubt session was also scheduled for that. Also after studying overview of DRAM we were made to focus on various blocks of DRAM.

Tool used (Development tools - H/w, S/w) : Cadence

Objectives of the project : First to learn in brief about each and every block of DRAM. After that as mentioned above in project title various tasks were allotted

Major Learning Outcomes : 1) A very detailed functionality of many blocks of DRAM was learnt by us. Consequently various other things were learnt in tasks that were allotted related to DRAM

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Work environment at Micron Technology is very conducive for growth and learning. Seniors are very helpful and considerate here.

Academic courses relevant to the project : VLSI Design

PS-II Station : Micron Technology , Hyderabad

Faculty

Name: Pawan Sharma

Student

Name: TANVI BANSAL(2022H1230182H)

Student Write-up

PS-II Project Title: IDEBUG TAV

Short Summary of work done during PS-II : I have traced the write and read datapath on various buses , probed the signal on sim vision and understood how data travels before getting written finally to the array. Then I have written the system Verilog code using assertion at the end of each bus to check whether correct data is being latched on each bus or not. If correct data is latched it will pass else it will throw an error. I have used Cadence Virtuoso and SimVision tools.

Tool used (Development tools - H/w, S/w) : Cadence Virtuoso, Simvision

Objectives of the project : To do Automation

Major Learning Outcomes : Leant how data travels through various buses and gets latched to various buses upon toggling of a certain latching signal

Details of Papers/patents : I haven't filed any paper or patents.

Brief Description of working environment, expectations from the company : The working environment in Micron is very nice. People are quite helpful here. They guide you in a proper direction and help you learn better. Expectations from the company are just to perform better in the task given and succeeding towards my goal. In the process of reaching the goal, our journey should be full of learnings.

Academic courses relevant to the project : Test and Testability

PS-II Station : Micron Technology , Hyderabad

Faculty

Name: Pawan Sharma

Student

Name: SWASTIK(2022H1230185H)

Student Write-up

PS-II Project Title: ASIC SOCC overview, Scripting, and exploration of AI tool for various opportunities

Short Summary of work done during PS-II : This project focuses on the understanding of the test cases written for various IPs present in the specific processor. 1.First understanding of test cases is developed then afterwards the same code is tried to be modified using an AI tool which is under consideration for full deployment in the team. 2. Basic details about SoC interconnections, regression and how exactly the transactions for the protocols work in the domain of verification. 3. A C test case is created to identify SER issues in fabric connected memories. 4. Python script is created to convert macro to pointer based form.

Tool used (Development tools - H/w, S/w) : VS CODE, VERDI

Objectives of the project : 1. Understanding the codes written for different testcases of various IPs. 2. Create Intelligent comments with the help of prompts. 3. Provide a full solution with Environment/Infrastructure setting, through which SOC DV users can be fully enabled to develop SOC coding through AI tool. 4. Scripting based on Python and C test case creation.

Major Learning Outcomes : 1.First understanding of test cases is developed then afterwards the same code is tried to be modified using an AI tool which is under consideration for full deployment in the team.
2. Basic details about SoC interconnections, regression and how exactly the transactions for the protocols work in the domain of verification.

3. A C test case is created to identify SER issues in fabric connected memories.

Details of Papers/patents : NONE

Brief Description of working environment, expectations from the company : Micron Technology, a global leader in the semiconductor industry, offers a dynamic and fast-paced work environment. The company encourages innovation, with employees expected to think outside the box and challenge the status quo. Reviews suggest a mix of experiences, with some employees praising the company for its talented teams, transparent management, and exciting future growth. However, others have raised concerns about work-life balance and management practices.

As for expectations, Micron is anticipated to benefit from the boom in artificial intelligence (AI), with its high-bandwidth memory (HBM) chips playing a crucial role in AI applications. The company's sales are highly cyclical, with NAND and DRAM memory chip pricing being governed by global supply and demand. Despite this, analysts expect recovering sales and strong growth over the next three years.

Financial experts' perspectives on Micron are diverse, with 12-month price forecasts ranging from \$80 to \$225. The company's cyclical business means investors should not expect straight-line growth. Despite the promising growth vectors like AI, cyclical downturns and upswings in the memory chip business are expected over the long term as demand and supply inevitably fluctuate. In summary, Micron offers a challenging and innovative work environment, with expectations of significant growth driven by advancements in AI and recovering sales in the memory chip market. However, the cyclical nature of the business suggests that growth may not be linear and could be subject to market fluctuations.

Academic courses relevant to the project : RECONFIGURABLE COMPUTING, HARDWARE SOFTWARE CO-DESIGN, VLSI DESIGN, VLSI TEST AND TESTABILITY, ML for ELECTRONICS

PS-II Station : Micron Technology , Hyderabad

Faculty

Name: Pawan Sharma

Student

Name: MOHAMMED ZAFER AHMED(2022H1230186H)

Student Write-up

PS-II Project Title: ODT and STA in DRAM

Short Summary of work done during PS-II : I have gained theoretical exposure to DRAM during the initial phase. We learnt about simulation, layout and timing analysis of DRAM and then we were onboarded in project

Tool used (Development tools - H/w, S/w) : Cadence virtuoso, primetime

Objectives of the project : To study the ODT and perform timing analysis of read datapath of read datapath

Major Learning Outcomes : Learnt to perform simulation, layout and schematic analysis

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment is great over here and the company expects to gain complete knowledge of DRAM

Academic courses relevant to the project : VLSI Design, Analog design, Verilog

PS-II Station : Micron Technology , Hyderabad

Faculty

Name: Pawan Sharma

Student

Name: ABHISHEK SHRIVASTAV(2022H1230192H)

Student Write-up

PS-II Project Title: Pva

Short Summary of work done during PS-II : Automated the entire flow of package verification assertion. Reduced the time to carry out a PVA from 1 hour to 5 mins.

Tool used (Development tools - H/w, S/w) : System verilog, python, cadence

Objectives of the project : To automate the package verification at micron

Major Learning Outcomes : Python scripting

Details of Papers/patents : Na

Brief Description of working environment, expectations from the company : To quickly adapt to new projects and to actively contribute to new ideas

Academic courses relevant to the project : VLSI Test and Testability

PS-II Station : Micron Technology , Hyderabad

Faculty

Name: Pawan Sharma

Student

Name: BHAIYA NISCHAY KUMAR SINHA(2022H1230259P)

Student Write-up

PS-II Project Title: DRAM Design

Short Summary of work done during PS-II : I, as a part of training for full time employees, got to understand various aspects behind the design of a DRAM Chip which is used widely in various sectors such as mobile, automotive, compute etc. I got a first hand look on all the facets of the design and then have moved onto a deeper dive in the power aspect of DRAM. I am currently involved in the power analysis of LPDDR5.

Tool used (Development tools - H/w, S/w) : Cadence Virtuoso, Finesim

Objectives of the project : Ramping up on all the design aspects of LPDDR5 & DDR5

Major Learning Outcomes : Ramping up on all the design aspects of LPDDR5 & DDR5.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Micron has one of the best working environments, if not the best. The people here are very supportive and help you not only in your work related queries but also extend a helping hand to any challenges you might be facing personally. They guide you very well.

The work here is also at the cutting edge of technology, so you learn a lot in very less time and further you are given full ownership of the work you are doing. Your efforts are well appreciated and you're encouraged to push your limits.

Academic courses relevant to the project : VLSI Design, Analog IC Design

PS-II Station : Micron Technology , Hyderabad

Faculty

Name: Pawan Sharma

Student

Name: PRIYANSHI VARSHNEY(2022H1240084P)

Student Write-up

PS-II Project Title: Knowledge graph creation

Short Summary of work done during PS-II : Basically, I worked on creating python script for Auto automation project. Parallel, I started learning my verification job skillset also

Tool used (Development tools - H/w, S/w) : System verilog, python language, cadence virtuoso

Objectives of the project : Automation

Major Learning Outcomes : Python language, Dram basics, specification knowledge, system verilog

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The working environment in the company is very good. Everyone is very helpful and the Work environment is very good. Everyone is friendly. I am getting all the basic Dram related concepts to be learnt here.

Academic courses relevant to the project : Vlsi design

PS-II Station : Micron Technology , Hyderabad

Faculty

Name: Pawan Sharma

Student

Name: SHRISTY SRIVASTAVA(2022H1400126H)

Student Write-up

PS-II Project Title: Development of Python script to generate a Directed Test Vectors

Short Summary of work done during PS-II : I have worked on python scripting to generate directed test sequences which is required where the design can not get verified with random sequences. I have also learnt about different verification methods and worked on Assertion based system verilog.

Tool used (Development tools - H/w, S/w) : EDA, Verdi, Python3

Objectives of the project : To automate the generation of test vectors and increase efficiency of the verification

Major Learning Outcomes : Python scripting and verification methods

Details of Papers/patents : Worked on the paper for the same project.

Brief Description of working environment, expectations from the company : Micron provides an excellent work environment for freshers. They encourage continuous learning, collaboration, and hands-on experience. Overall, Micron offers a supportive platform for professional growth.

Academic courses relevant to the project : Test and Testability.

PS-II Station : Micron Technology , Hyderabad

Faculty

Name: Pawan Sharma

Student

Name: SONI JAY ASHOKBHAI(2022H1400136H)

Student Write-up

PS-II Project Title: Idebug Tv

Short Summary of work done during PS-II : I work on idbug tv project in which i have written script which will use to automate check from one stage to other stage.

Tool used (Development tools - H/w, S/w) : Fine sim, cadence

Objectives of the project : To automate checks for writedata path and read datapath

Major Learning Outcomes : Understand how verification of circuit

Details of Papers/patents : Idebug TV

Brief Description of working environment, expectations from the company : Working environment in micron was too good, very good recognition of our work, all people are very helpful in nature

Academic courses relevant to the project : Test and Testability

PS-II Station : Micron Technology , Hyderabad

Faculty

Name: Pawan Sharma

Student

Name: JANI URVISH PANKAJBHAI(2022H1400137H)

Student Write-up

PS-II Project Title: Study and Improvement of a scoreboard

Short Summary of work done during PS-II : My work is to study few scoreboards and understand what all the tasks performed by them, then i had to improve the code of a scoreboard,

while doing so, i used to get many scoreboard fails, i had to debug those Fails and rewrite the code, this was my everyday task

Tool used (Development tools - H/w, S/w) : S/w - Cadence, Simvision, GIT, nvim

Objectives of the project : The code that exists currently doesn't comply with full verification principles and it is complex to read and understand, so i have to make changes in such a way that it is more readable and easy to understand and it also fulfills our verification criteria

Major Learning Outcomes : SystemVerilog and UVM, and schematic tracing

Details of Papers/patents : no papers or patterns presented

Brief Description of working environment, expectations from the company : Working Environment was quite supportive, expectations were high but that also helped me work on it.

Academic courses relevant to the project : VLSI Design, VLSI Architecture, Advanced VLSI architecture, Hardware software co design

PS-II Station : Micron Technology , Hyderabad

Faculty

Name: Pawan Sharma

Student

Name: SUDHANSHU BANSAL(2022H1400186P)

Student Write-up

PS-II Project Title: Knowledge graph creation

Short Summary of work done during PS-II : Gained knowledge of Dram and system verilog. Got the opportunity to apply the learnings in the project and also learnt scripting

Tool used (Development tools - H/w, S/w) : Cadence Virtuoso, Simvision, nvim, sublime, xcelium

Objectives of the project : To generate coverage and stimulus automatically which will reduce effort and knowledge requirements of related devices

Major Learning Outcomes : Knowledge regarding DRAM, tools such as cadence virtuoso and simvision. Editor tools such as nvim and gvim. Learning and applying knowledge of system verilog.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : It was great experience working here and resources were in abundance.

Academic courses relevant to the project : VLSI Design, Reconfigurable Computing, VLSI Architecture

PS-II Station : Micron Technology , Hyderabad

Faculty

Name: Pawan Sharma

Student

Name: MUTHUMANIKANDAN R(2022H1420153H)

Student Write-up

PS-II Project Title: Cost to Serve for Micron customer

Short Summary of work done during PS-II : During my PS-II experience, I gained valuable insights and skills across various domains. I delved into mathematical modeling, honed my data modeling expertise, and became adept at data cleaning and visualization. Additionally, I improved my presentation skills and developed a deeper understanding of networking principles. Problem-solving became second nature, and I expanded my proficiency in tools such as Excel, Power BI, SAP HANA, Tableau, and SQL. Overall, it was an enriching journey that broadened my knowledge and prepared me for real-world challenges.

Tool used (Development tools - H/w, S/w) : Excel, Power Bi, SAP HANA, Tableau

Objectives of the project : Many organizations operate without a clear understanding of the true profitability of their activities. The Cost to Serve (CTS) analysis provides a comprehensive assessment of the profitability associated with products, customers, and various routes to market. By examining costs in detail, CTS enables data-driven decision-making, allowing organizations to optimize service mix and operational strategies for each customer.

Major Learning Outcomes : mathematical modeling, Data Cleaning, Data Visualization, presentation skills, Networking, Problem solving skills

Details of Papers/patents : We are working on Special model in Supply chain optimization- Cost to serve

Brief Description of working environment, expectations from the company : Micron Technology is a global leader in memory and storage solutions. Their innovative memory chips power a wide range of devices, from smartphones and computers to data centers and artificial intelligence applications. Micron's corporate culture emphasizes innovation, diversity,

collaboration, ethical practices, and employee well-being. Employees are encouraged to think creatively, work together, and maintain high ethical standards. Wellness programs and professional growth opportunities contribute to a positive work environment.

Academic courses relevant to the project : Supply Chain Management, Manufacturing Planning and Control, Toyota Production System

PS-II Station : Micron Technology , Hyderabad

Faculty

Name: Pawan Sharma

Student

Name: PUNITHAN G(2022H1420188P)

Student Write-up

PS-II Project Title: Sales order time to commit

Short Summary of work done during PS-II : The main objective of SOTC is to define the time for committing an order (SOTC) to a customer (segment-wise) is measured and pain points are identified to reduce it as much as possible. To define SOTC the order created date an order committed date the difference between these two dates will give SOTC. SOTC is different for different segments and for each segment the target days are defined based upon different criteria and the SOTC is measured on the basis of the target days. Overall, the SOTC should not be more than 2 days. The main objective is not only to track but to find out the improvement area by which the SOTC is as minimum as possible and due to which the Customer Service Level (CSL) improves and more the CSL the better for the company and this project focuses on those criteria.

Tool used (Development tools - H/w, S/w) : SAP, SAP Hana, Excel, Power BI

Objectives of the project : TO reduce the number of days to commit the orders

Major Learning Outcomes : Root cause Analysis, Rectification with respect to process driven analysis

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The organization is one of the top companies that work in semi-conductor industry and the major focus for Micron is the people, The people focused organization tries to build around its people and customer focus is one of its main pillar and freshers are never overlooked upon and always are welcomed with respect to any aspect of the company and even the leadership team always tries to promote the freshers and get them the most skills they can acquire.

Academic courses relevant to the project : Operations & Management, Lean manufacturing, Supply chain

PS-II Station : Micron Technology , Hyderabad

Faculty

Name: Pawan Sharma

Student

Name: AKULA SAKETH(2022H1420195P)

Student Write-up

PS-II Project Title: CSP SLA Improvement

Short Summary of work done during PS-II : Learning the Micron Semiconductor supply chain, demand change in the tactical horizon, understanding the customer support plan for demand change to optimise the process and improve Service level agreement for the same and working with cross functional teams.

Tool used (Development tools - H/w, S/w) : Excel, RapidResponse

Objectives of the project : Improving SLA for Customer Support Plan

Major Learning Outcomes : Semiconductor supply chain, process optimisation

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The working environment and the work culture is very exciting and supportive. The scope for learning was good. The teams were very helpful throughout the internship.

Academic courses relevant to the project : Supply Chain Management, Supply Chain Analytics

PS-II Station : Ministry of Tribal Affairs , New Delhi

Faculty

Name: Vineet Kumar Garg

Student

Name: VATSALA TRIPATHI(2019B5AA0739G)

Student Write-up

PS-II Project Title: Spring detection through satellite image analysis using Machine Learning

Short Summary of work done during PS-II : We downloaded satellite image data from NASA's LANDSAT satellite, used already available spring coordinates to create a training dataset for the model to detect where springs may be present in a certain part of an image. Additionally we processed the images by resizing them and labelling them in a binary manner in order to improve the efficiency of the ML model made by us.

Tool used (Development tools - H/w, S/w) : Google earth engine, Google colab

Objectives of the project : Make a machine learning model to analyse satellite images in order to detect natural springs in the tribal regions of Odisha

Major Learning Outcomes : Introduction to the wide domain of ML and AI, analysis of satellite data and how it can be utilised in ML models

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Very flexible and research oriented environment. Remote work under a professor from the Pilani campus. Workload was self paced and generally light.

Academic courses relevant to the project : Intro to AI and ML, Python programming

PS-II Station : Ministry of Tribal Affairs , New Delhi

Faculty

Name: Vineet Kumar Garg

Student

Name: RUKHSAR PARVEEN(2022H1030122P)

Student Write-up

PS-II Project Title: A Satellite Data-based Spring Monitoring System for Water Conservation

Short Summary of work done during PS-II : Our main objective was to develop a machine learning model to accurately predict the locations of natural springs in a given region. Initially we extracted the satellite images using google earth engine and then performed some preprocessing, the created dataset was used to train the model which was used to predict the springs.

Tool used (Development tools - H/w, S/w) : Google earth engine, Colab notebook

Objectives of the project : Our project aims to develop a machine learning model to accurately predict the locations of natural springs in a given region.

Major Learning Outcomes : Over the course of my learning journey, I have developed a comprehensive skill set in geospatial data science, encompassing the entire process from data creation to model training and analysis. I gained proficiency in handling various geospatial data formats and performing essential preprocessing tasks, such as cleaning, normalizing, and feature engineering.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : My working environment was remote, it was flexible yet challenging. The remote setting demanded a high degree of self-discipline and time management to stay productive without the structure of a traditional office environment. Despite these hurdles, the remote experience fostered a strong sense of self-motivation and improved my ability to work autonomously, enhancing my overall efficiency and adaptability in a flexible work environment.

Academic courses relevant to the project : Machine Learning

PS-II Station : MIPS Embedded Technologies Pvt. Ltd , Bengaluru

Faculty

Name: Manoj Subhash Kakade

Student

Name: KALIDINDI HIMAN VARMA(2022H1230125G)

Student Write-up

PS-II Project Title: KingV

Short Summary of work done during PS-II : Have learned to run the MBIST flow for memories . And to run LINT and CDC errors for RTL designs . Generated configs on a project model and verified them through Lint and cdc checks

Tool used (Development tools - H/w, S/w) : Spyglass , Embedit Integrator

Objectives of the project : To create RISC-V IPs

Major Learning Outcomes : MBIST , Lint ,Cdc

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The work environment is great. The scope of learning is excellent.

Academic courses relevant to the project : VLSI Architecture , Digital Design

PS-II Station : Mitsubishi Electric India Pvt Ltd , Pune/Bangalore/Delhi

Faculty

Name: Srinivas Kota

Student

Name: ASHISH SINHA(2022H1400072G)

Student Write-up

PS-II Project Title: Design & Development of Onboard Computer and AXI Wrapper Custom Encoder IP using Kria KR260 SOM starter kit

Short Summary of work done during PS-II : The project is centered around the design, implementation, and testing of an onboard computer solution capable of handling diverse communication protocols and interfacing with essential peripherals for satellite operations. By integrating cutting-edge technologies onto the compact and efficient KR260 SOM board, Dhruva

Space Pvt Ltd seeks to enhance the functionality and reliability of satellite systems while optimizing space utilization and power efficiency

Tool used (Development tools - H/w, S/w) : Vivado 2023.1, Vitis IDE, TeraTerm, Kria SOM FPGA board

Objectives of the project : Interfacing and designing of OBC of the Satellite

Major Learning Outcomes : Took charge of developing customized graphical Verilog design for a multi-protocol (I2C, SPI, UART) OBC on the Kria KR260 SOM FPGA, ensuring seamless integration.

- Demonstrated knowledge in digital and communication protocols like Ethernet PHY, LVDS, SpaceWire, RS422/RS485, verification of reliable data transmission.
- Engineered a RTL design for Controller and AXI memory-mapped Wrapper, integrating FIFO buffers and Encoder module for optimized data processing and analysis on ILA.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company :

At the company, they foster a dynamic and collaborative working environment that values innovation, diversity, and continuous improvement. The office space is designed to be open and inviting, with areas for both focused work and team collaboration. They believe that a comfortable and well-equipped workspace is crucial for productivity, so they provide cutting-edge technology, and a variety of meeting rooms to support different working styles.

They emphasize a culture of inclusivity where every team member's voice is heard and respected. Regular team meetings and open-door policies ensure transparent communication and facilitate the sharing of ideas.

They expect their employees to be proactive, engaged, and aligned with the company's core values of integrity, excellence, and teamwork. As a forward-thinking organization, They encourage our team to embrace a growth mindset, continually seeking opportunities for learning and development. Our performance expectations are high, but we provide the necessary resources and support to help our employees meet and exceed their goals.

In terms of community engagement, They encourage us to participate in corporate social responsibility initiatives like sports and career counselling and volunteer opportunities, reinforcing our commitment to making a positive impact beyond the workplace.

Overall, the company is dedicated to creating a supportive, innovative, and engaging work environment where employees can thrive, contribute meaningfully to the company's success, and achieve their professional aspirations.

Academic courses relevant to the project : Hardware Software Co-Design, verilog

PS-II Station : Mitsubishi Electric India Pvt Ltd , Pune/Bangalore/Delhi

Faculty

Name: Srinivas Kota

Student

Name: AMBUJ SRIVASTAVA(2022H1400073G)

Student Write-up

PS-II Project Title: Digital Video Broadcasting For Satellite Communication

Short Summary of work done during PS-II : In designing a communication system for DVB-S2 applications, I utilized a 16-APSK modulation scheme, a combination of BCH and LDPC codes for error correction, and an interleaver module for enhanced performance. The 16-APSK modulation scheme was chosen for its ability to efficiently handle higher data rates while maintaining robustness against noise and interference, making it ideal for satellite communications. This modulation technique arranges signal points in concentric circles, optimizing both power efficiency and spectral efficiency. For error correction, I implemented a

hybrid encoding module comprising BCH (Bose-Chaudhuri-Hocquenghem) and LDPC (Low-Density Parity-Check) codes. BCH codes provide excellent error-detection and correction capabilities, particularly useful for correcting random errors. LDPC codes are known for their near-capacity performance on noisy channels, ensuring robust error correction even under adverse conditions. Together, these codes form a powerful error correction strategy that significantly enhances data reliability. To further improve the system's performance, I incorporated an interleaver module. The interleaver rearranges the order of the transmitted symbols to spread burst errors over a wider span of data, making it easier for the BCH and LDPC decoders to correct them. This combination of modulation, encoding, and interleaving ensures a highly reliable and efficient DVB-S2 transmission system, capable of delivering high-quality signals even in challenging environments. Overall, this design offers a balanced approach to maximizing data throughput and reliability, addressing the stringent requirements of modern satellite communication systems.

Tool used (Development tools - H/w, S/w) : Xilinx-Vivado , Xilinx-Vitis, Xilinx HLS and Matlab

Objectives of the project : The objective of DVB-S2 (Digital Video Broadcasting - Satellite - Second Generation) is to provide an advanced and efficient method for transmitting digital television and data services via satellite.

Major Learning Outcomes : Verilog, Vitis,Xilinx-HLS and Matlab Simulink Design

Details of Papers/patents : I have used European Telecommunications Standards Institute (ETSI) paper for doing my work. I have read and took reference from paper EN 302 307 - V1.2.1 - Digital Video Broadcasting (DVB) and designed my complete module. I have also verified the expected result to actual result in hardware.

Brief Description of working environment, expectations from the company : At our company, we cultivate an energetic and cooperative work atmosphere that prioritizes innovation, diversity, and constant growth. Our office is designed to be open and welcoming, featuring spaces for both individual focus and team collaboration. We believe that a comfortable and well-equipped workspace is essential for productivity, so we provide ergonomic furniture, state-of-the-art technology, and a variety of meeting rooms to accommodate different working styles.

We champion a culture of inclusivity where every team member's voice is valued and respected. Regular team meetings and open-door policies promote transparent communication and the exchange of ideas. Our leadership team is accessible and dedicated to supporting employee development through ongoing training, mentorship programs, and clear career advancement paths.

We expect our employees to be proactive, engaged, and aligned with the company's core values of integrity, excellence, and teamwork. As a progressive organization, we encourage our team to adopt a growth mindset, continually seeking opportunities for learning and development. Our performance standards are high, but we provide the necessary resources and support to help our employees achieve and surpass their goals.

We highly value work-life balance, offering flexible working hours and remote work options to help our employees maintain a healthy equilibrium between their professional and personal lives. We also organize regular social events and wellness programs to promote a positive and balanced lifestyle.

Regarding community engagement, we encourage our employees to participate in corporate social responsibility initiatives and volunteer opportunities, underscoring our commitment to making a positive impact beyond the workplace.

Overall, our company is committed to creating a supportive, innovative, and engaging work environment where employees can thrive, contribute meaningfully to the company's success, and achieve their professional goals.

Academic courses relevant to the project : Reconfigurable Computing, Digital IC Design, VLSI Design and VLSI Architecture

PS-II Station : Mitsubishi Electric India Pvt Ltd , Pune/Bangalore/Delhi

Faculty

Name: Srinivas Kota

Student

Name: ADITYA CHAUHAN(2022H1400080G)

Student Write-up

PS-II Project Title: Wrist based wearables for measuring different health parameters

Short Summary of work done during PS-II : The project was a multifaceted endeavor focused on the development of wearable technology for monitoring health parameters in real-time. It involved synthesizing research findings to inform the development process, creating algorithms tailored for real-time monitoring, and implementing these algorithms into embedded systems for prototype development. The integration of sensors and components into wearable prototypes was a significant hardware implementation task, complemented by the processing of sensor data to extract meaningful health metrics. The project offered practical experience in embedded systems development, programming for wearable technology, and advanced signal processing techniques. Key learnings emphasized the critical nature of data accuracy, the hurdles associated with real-time processing in environments with limited resources, and the iterative process of hardware and software integration. This experience highlighted the challenges and intricacies of developing reliable and efficient wearable health-monitoring devices.

Tool used (Development tools - H/w, S/w) : Python, Matlab, Petri Nets

Objectives of the project : To make the wrist wearables to measure EDA, MEWS, OSA and Apnea.

Major Learning Outcomes : Coding, Data Analytics, Signal Processing, Embedded Systems

Details of Papers/patents : In the Progress.

Brief Description of working environment, expectations from the company : The company offers a flexible work environment that caters to both in-office and remote arrangements, subject to managerial discretion. The company contributed to new ideas and suggestions from all team members.

Academic courses relevant to the project : Embedded Systems, Artificial Neural Network, Signals and Systems

PS-II Station : MLL - NonTech , Gurugram

Faculty

Name: Uma Nagarajan

Student

Name: SEKHARAMANTHRI ABHINAV(2019B4A41038H)

Student Write-up

PS-II Project Title: Network Planning

Short Summary of work done during PS-II : I was working in the network team. Projects assigned to me were not priority projects as such but something that would significantly contribute to the company by saving costs and delivery time.

Tool used (Development tools - H/w, S/w) : Excel, Python, SQL

Objectives of the project : 1. Analysing an algorithm that loads shipments into trucks 2. Plan network for Out of Delivery Area pincodes

Major Learning Outcomes : Supply Chain, Excel, Python, SQL

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment varies depending on the team and the role. Some teams are more helpful than others. Project deadlines are generous and reasonable. However, they have a strict policy of working for 9 hours a day and anything lesser, even once a month, results in loss of pay. Except for this one policy, the work culture here is pretty good.

Academic courses relevant to the project : Supply Chain Management, Manufacturing Management

PS-II Station : MLL - NonTech , Gurugram

Faculty

Name: Uma Nagarajan

Student

Name: PENTAKOTA YOGESWAR(2020A4PS1908H)

Student Write-up

PS-II Project Title: Operations Excellence and Program Management

Short Summary of work done during PS-II : Worked as an intern in Operational excellence. This team focuses on the Efficiency of the operations both on floor and in tech the company is using. My projects' focus included of both on floor operations and about the in house software operations. I was working on implementation of shop floor management and the other project included of reduction of no.of E way bill tickets that are being raised in the in house software.

Tool used (Development tools - H/w, S/w) : Excel, Python, SQL, Power BI

Objectives of the project : Shop Floor Management Implementation, Reduction of EWB tickets

Major Learning Outcomes : Operations, Optimization, Excel, Program Management

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment was great, but the no proper projects allotted

Academic courses relevant to the project : Operation Research.

PS-II Station : MLL - NonTech , Gurugram

Faculty

Name: Uma Nagarajan

Student

Name: BAGUL KARAN RAVINDRA(2022H1420194P)

Student Write-up

PS-II Project Title: Improving Utilization of PLTCM

Short Summary of work done during PS-II : During my PS-II at JSW Steel Coated Products Limited, Vasind, I worked on improving the utilization of the Pickling Line Tandem Cold Mill (PLTCM) and developing an accurate energy demand forecasting model. I conducted clustering

analysis on historical delay data to identify patterns and key contributors to delays. Using the SARIMA model, I developed an accurate forecasting model for energy consumption. I also created an intelligent chatbot to streamline information retrieval and enhance problem-solving capabilities across various departments. Additionally, I implemented a preventive maintenance task selector and deployment model to optimize maintenance schedules and reduce unplanned downtime. These projects resulted in significant potential improvements in production, cost savings, and operational efficiency. Through this internship, I gained valuable experience in applying advanced analytics, developing chatbots, and optimizing manufacturing processes, while collaborating with cross-functional teams and contributing to the organization's goals.

Tool used (Development tools - H/w, S/w) : Pandas, NumPy, and Matplotlib libraries for data manipulation, analysis, and visualization

Objectives of the project : 1)To improve the utilization of the Pickling Line Tandem Cold Mill (PLTCM) line by identifying and addressing the key reasons for delays and downtime. 2)To develop an accurate forecasting model for predicting the energy consumption of the PLTCM line.

Major Learning Outcomes : Proficiency in applying advanced data analytics techniques, such as clustering and time series forecasting, to real-world manufacturing problems.

Skills in developing intelligent chatbots using natural language processing technologies to streamline information retrieval and enhance problem-solving capabilities.

Knowledge of preventive maintenance strategies and rule-based modeling approaches for optimizing equipment reliability and reducing downtime.

Experience in collaborating with cross-functional teams, communicating insights effectively, and driving operational improvements in a manufacturing setting.

Understanding of the steel manufacturing process, its challenges, and the potential for leveraging data-driven solutions to enhance productivity and efficiency.

Details of Papers/patents : No papers or patents were published or filed during the internship. However, the work done during the internship has the potential for further research and development in the areas of manufacturing process optimization, predictive maintenance, and intelligent chatbots for industrial applications.

Brief Description of working environment, expectations from the company : JSW Steel Coated Products Limited, Vasind, provided a supportive and collaborative working environment during my internship. The company placed a strong emphasis on continuous improvement, innovation, and data-driven decision-making. The expectations from the company were high, as they sought tangible solutions to improve the utilization of the PLTCM line, optimize energy consumption, and enhance overall operational efficiency.

The internship provided exposure to real-world manufacturing challenges and the opportunity to work with cross-functional teams, including production, maintenance, and IT departments. The company encouraged the use of advanced analytics and cutting-edge technologies to drive improvements and welcomed fresh perspectives and ideas from interns.

The mentor and other team members were highly supportive, providing guidance, resources, and opportunities for learning and growth. Regular meetings and presentations were conducted to discuss progress, exchange ideas, and align the project outcomes with the company's goals.

Overall, the working environment at JSW Steel Coated Products Limited, Vasind, fostered innovation, collaboration, and a focus on delivering impactful results. The internship experience was enriching, challenging, and provided valuable exposure to the practical applications of data science and machine learning in the manufacturing industry.

Academic courses relevant to the project : Manufacturing Systems

Data Analytics

Machine Learning

PS-II Station : MLL Express Services Pvt. Ltd. (Rivigo) Tech , Gurugram

Faculty

Name: Ashish Narang

Student

Name: UDAY SEHGAL(2019B2AA1089G)

Student Write-up

PS-II Project Title: Design of Logipace

Short Summary of work done during PS-II : Developed a ticketing software from scratch. I was responsible for developing a lot of key features. Mostly focus is on fast execution and not so much quality of work.

Tool used (Development tools - H/w, S/w) : Java, AWS, Jenkins, SpringBoot, React, Python, Kubernetes

Objectives of the project : Designing a ticketing tool for Mahindra logistics. We had to design this software from scratch.

Major Learning Outcomes : Software Development,

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Working environment is a little hectic, you have to work 9h mandatorily and it is mostly 5 days work from office. WFH is not very easy to get. Work is there and they are dependent on you to complete it.

Academic courses relevant to the project : OOP, OS, DBMS, DSA

PS-II Station : MLL Express Services Pvt. Ltd. (Rivigo) Tech , Gurugram

Faculty

Name: Ashish Narang

Student

Name: DEVANSH SHARMA(2019B5A30895G)

Student Write-up

PS-II Project Title: Enhancements and Operational Contributions: A Report on Key Tasks and On-Call Experience

Short Summary of work done during PS-II : CI file extension remove while uploading - Optimize the client integration API flow to remove multiple file extensions during bulk consignment creation, ensuring streamlined file naming conventions and storage efficiency. Remove PII information from external tracking - Enhance user privacy by removing personal identifiable information from the external tracking page of consignments, aligning with data protection standards and improving overall security. Consignment Appointment Flow Changes - Implement changes in the consignment appointment flow to introduce error-handling mechanisms when users attempt to update using stale data, thereby improving data accuracy and system reliability. Zoom communication (collections) stale event identification - Identify and rectify stale Kafka events that are no longer in use, streamlining system resources and ensuring the efficient operation of the logistics platform. Oncall - Ensure timely resolution of user-related issues by unblocking obstacles promptly, promoting a seamless user experience, and conduct root cause analyses to identify underlying issues, contributing to the continuous improvement of the system's operational efficiency. BF Pickup Charges Scheduler Bug Fix - Resolved a bug causing 4000 BF pickup charges to remain stuck in processing due to empty changelogs and total change values, leading to an IndexOutOfBoundsException. Email Migration - Identified all active microservices from 400 repositories. Catalogued repository emails for updating, segregating individual emails from distribution lists. Developed a Python script to automate the email updates across repositories based on old-to-new email mappings. Thread Dump Analysis - Learned and applied thread dump analysis to identify system bottlenecks. Identified and utilized open-source tools for thread dump analysis. Explored various methods to generate thread dumps and identified additional use cases.

Ewaybill Extension Failure RCA - Analyzed April data to identify awaybills with extension failures. Categorized failures into six categories and performed root cause analysis.

Tool used (Development tools - H/w, S/w) : IntelliJ IDE, Kibana, Grafana, Phabricator, SQL, GIT, Adminer, Sonar

Objectives of the project : To complete development tasks timely and do oncall during shift

Major Learning Outcomes : Software Development

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Dev team has around 10 members. You have to check in between 8:30 am to 9:30 am and then complete 9 hours. 5 days a week. You will be assigned tasks(backend development) during the sprint which you need to complete. Apart from this you will have to do oncall as well once approximately every 5 weeks.

Academic courses relevant to the project : na

PS-II Station : MLL Express Services Pvt. Ltd. (Rivigo) Tech , Gurugram

Faculty

Name: Ashish Narang

Student

Name: ADRIAN JAGNANIA(2019B5AA1498H)

Student Write-up

PS-II Project Title: Enhancements and oncall

Short Summary of work done during PS-II : Have improved the services provided by Rivigo by enhancing their backend

Tool used (Development tools - H/w, S/w) : IntelliJ, Git

Objectives of the project : To enhance the services of Rivigo

Major Learning Outcomes : Learned new tech stack at a very fast pace as well as team collaboration

Details of Papers/patents : Improvement of service provided by Rivigo

Brief Description of working environment, expectations from the company : Work environment was very good, every one was helpful and there was a healthy competition so that everyone can improve

Academic courses relevant to the project : OOPS, OS

PS-II Station : Mobile Premier League , Bengaluru

Faculty

Name: Raghu Sesha Iyengar

Student

Name: SINDHE PANDURANG(2022H1540810P)

Student Write-up

PS-II Project Title: RCA decision system for product management

Short Summary of work done during PS-II : Utilized python streamlit to create a RCA framework

Tool used (Development tools - H/w, S/w) : 1 GCP, SQL3 Time series4 ML Modelling

Objectives of the project : applying data science to optimize Product Management RCA and reduce the time to find the root cause. Our project aims to address this precisely by building a data science-based Root Cause Analysis decision system.

Major Learning Outcomes : How to utilize time series to effectively solve the business problems, how to create a framework for Product RCA analysis

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : --

Academic courses relevant to the project : business analytics

PS-II Station : Morgan Stanley - FID Research , Mumbai

Faculty

Name: Ambatipudi Vamsidhar

Student

Name: NADKARNI ARYAN GAUTAM .(2019B3A70406P)

Student Write-up

PS-II Project Title: CMBS Research

Short Summary of work done during PS-II : My work involved analysing CMBS data to understand how the deals were performing as well as their underlying assets. We worked on several aspects like issuance, default and payoff rates across different types of CMBS deals.

Tool used (Development tools - H/w, S/w) : SQL, Excel

Objectives of the project : The objective of the project was to publish CMBS Research reports.

Major Learning Outcomes : I understood how mortgage backed securities work as well how spreads and default rates vary based on several factors.

Details of Papers/patents : Reports were published each month in the Morgan Stanley Research portal

Brief Description of working environment, expectations from the company : The culture of the organisation is great. Everyone is extremely helpful and kind.

Academic courses relevant to the project : Macroeconomics, Securities and Portfolio Management, Business Analysis and Valuation

PS-II Station : Morgan Stanley- Legal & Compliance , Mumbai

Faculty

Name: Ambatipudi Vamsidhar

Student

Name: TUSHAR SHRIMALI(2019B4A70266G)

Student Write-up

PS-II Project Title: Data Solutions and Data Visualization

Short Summary of work done during PS-II : My work evolved around generation of alerts for financial malpractices across world markets and come up with insights regarding the same. This helped me gain hands on experience in big data analysis and the required domain knowledge.

Tool used (Development tools - H/w, S/w) : Python, Tableau

Objectives of the project : To analyse financial data and generate alerts for possible malpractices.

Major Learning Outcomes : Knowledge of financial data analysis

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The work environment is good. Company has a good work life balance, with the team members being supportive and helping in the learning curve.

Academic courses relevant to the project : Foundation of Data Science, Machine Learning

PS-II Station : Morning Star - Index Management and Analytics , Mumbai

Faculty

Name: Krishnamurthy Bindumadhavan

Student

Name: MEHROTRA PRAKARSH PIYUSH .(2019B2A40738P)

Student Write-up

PS-II Project Title: Index Replication & Automation

Short Summary of work done during PS-II : My work encompasses four primary areas, each contributing to the comprehensive management and optimization of financial indices. The first focus revolves around Index Replication, involving the meticulous construction of an index from the ground up. This endeavor aims to delve into the intricacies of parameters and techniques fundamental to index creation. Concurrently, the second facet involves the Automation of Quality Assurance (QA) Checks for an index family. The objective here is to streamline and enhance the efficiency of QA processes, ultimately reducing time and elevating operational effectiveness. Additionally, a pivotal aspect involves the Market Classification of various countries, where the goal is to categorize and understand diverse markets, providing valuable insights for strategic financial decision-making. Lastly, the implementation of Daily QA Checks forms an integral part of the workflow, ensuring consistent and rigorous quality assessment on a daily basis. Together these were the areas I worked in during the internship.

Tool used (Development tools - H/w, S/w) : Python, SQL and Excel

Objectives of the project : The project aimed at automation of quality assurance checks conducted for various indexes at launch phase and reconstitution/rebalancing phase of index.

Further another project involved replication of an entire index to understand the framework and tools used in index construction.

Major Learning Outcomes :

The principal learning outcome derived from the internship pertains to a comprehensive comprehension of the intricacies surrounding financial indices. This encompasses a nuanced understanding of the entire index lifecycle, spanning from initial construction to the subsequent launch. Additionally, a key insight acquired pertains to the periodic alterations undergone by indices in accordance with established frameworks.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The work environment is business casual, and the mentors are very friendly.

Academic courses relevant to the project : SAPM and DRM

PS-II Station : Morning Star - Index Management and Analytics , Mumbai

Faculty

Name: Krishnamurthy Bindumadhavan

Student

Name: MAJJI DHANUSH(2020A1PS2185H)

Student Write-up

PS-II Project Title: AI-OptiBlack:Transforming Product Development in Carbon black industry

Short Summary of work done during PS-II : Performed Statistical Analysis using six Sigma strategy, SEEQ software. Mined the data from SEEQ server using APIs. Pre processed the data . Utilised various deep learning and machine learning techniques to predict some outputs. Achieved an accuracy of 94%. Implemented the frameworks developed in the industries for the live monitoring.

Tool used (Development tools - H/w, S/w) : Python, Flask, HTML, CSS

Objectives of the project : 1) To digitalize the production process of carbon black so that dependency on human can be reduced . 2) To optimize the quality of carbon black produced

Major Learning Outcomes : 1) Honed programming and data science skills
2) Able to apply AI to a industrial setting

Details of Papers/patents : A journal paper (technical)- Under review

Brief Description of working environment, expectations from the company : Good working environment, decent work culture, work life balance is very good, helpful employees, will help and give their time to you a lot if you are innovative, smart and hardworking. One of the good places to learn entrepreneurial skills as you might have chances (depends on the team though) to involve in the key meetings with top level hierarchy of the conglomerate.

Academic courses relevant to the project : Probability and Statistics, Linear Algebra, Process Dynamics and Control

PS-II Station : Morning Star - Index New Product Development , Mumbai

Faculty

Name: Krishnamurthy Bindumadhavan

Student

Name: SUVIGYA SHARMA(2020A7PS0140H)

Student Write-up

PS-II Project Title: Impact Analysis script & other misc

Short Summary of work done during PS-II : Create a script which can be used by the analyst to get the relevant outputs and analysis, and save upto 15% of the analysts' time. Also replicated and constructed an index, which made me understand the Indexes business

Tool used (Development tools - H/w, S/w) : Python, SQL, Excel

Objectives of the project : Create a script which can be used by the analyst to get the relevant outputs and analysis, and save upto 15% of the analysts' time

Major Learning Outcomes : Python, SQL, Construction of Index

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Good working environment, great team (NPD)

Academic courses relevant to the project : All finance courses

PS-II Station : Mosdorfer India Pvt. Ltd. , Nashik

Faculty

Name: Arun Maity

Student

Name: SHIRASKAR SOHAM VIJAY(2020A4PS2108G)

Student Write-up

PS-II Project Title: To Study Gravity Die Casting (GDC) process and reduce the rejection rate of the process.

Short Summary of work done during PS-II : I have studied the optimization of various parameters crucial to metal casting, leveraging insights from research papers and practical applications within industry settings. The parameters include Pouring Speed, Metal Stir, Die Closing, Pouring Temperature, Degassing, Riser Design, and Holding Time. Research indicates that precise control of Pouring Speed helps prevent defects such as turbulence and air entrapment. Die Closing must be optimized to prevent misalignments and ensure a proper seal. Pouring Temperature is critical for fluidity and solidification; maintaining it within an optimal range avoids defects. Degassing techniques are essential for removing dissolved gases, preventing porosity. Effective Riser Design compensates for metal shrinkage, ensuring complete cavity filling. Lastly, Holding Time is managed to ensure complete solidification and optimal mechanical properties. Practical practices in companies include the use of automated systems and continuous monitoring to achieve these optimizations, ensuring high-quality castings.

Tool used (Development tools - H/w, S/w) : Spectrometer, UTM, Vernier Caliper, CTI tester etc.

Objectives of the project : To reduce the defects occurring in GDC section.

Major Learning Outcomes : Learnt various testing techniques to ensure the quality of the product. Dimensional analysis, Chemical analysis, Mechanical tests etc.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment is very lite. Company doesn't expect much.

Academic courses relevant to the project : QCAR, Manufacturing process

PS-II Station : Mosdorfer India Pvt. Ltd. , Nashik

Faculty

Name: Arun Maity

Student

Name: GANDHARV DHAYATKAR(2022H1410139P)

Student Write-up

PS-II Project Title: New Design for Hexa-Spacer Damper with reduction in weight

Short Summary of work done during PS-II : Referring to various available designs, a new design for the hexa-bundle spacer damper was modelled & analysed. The analysis results were studied and compared to the current design. It was observed that the new model shows smaller stress concentration areas as compared to the current model and also the maximum stresses are lower. Hence, FEA analysis showed that the new design performs better comparatively. A further

experimental test was required to validate the analysis. Created 3D models of various components as needed by the team.

Tool used (Development tools - H/w, S/w) : Siemens NX, ANSYS

Objectives of the project : Create a design for the Hexa-Spacer Damper either by optimization of current design and material or create a new design.

Major Learning Outcomes : The practical working of the design department in industry. Practical FEA applications.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Good working environment, enough time, space and guidance is given to complete your project without any pressure, allowed to develop more skills.

Academic courses relevant to the project : FEM

PS-II Station : Moveworks , Bengaluru

Faculty

Name: Raja Vadhana P

Student

Name: RAGUNANTHAN S(2020A7PS1726G)

Student Write-up

PS-II Project Title: Management, monitoring and migration of apache kafka

Short Summary of work done during PS-II : Utilize Strimzi, a Kubernetes operator for Kafka, to deploy Kafka across all regions for efficient management of Kafka resources. Deploy MirrorMaker2 within the strimzi framework to mirror existing Kafka cluster, which is currently deployed on EC2 instances using Docker containers, to a newly established cluster managed within the Kubernetes environment. Use tools such as Prometheus and Grafana, integrated with Strimzi, for monitoring MirrorMaker2 and Strimzi kafka cluster. Perform necessary modifications to the internal Kafka codebase to support seamless migration without any downtime. Create detailed documentation on the migration process, codebase modifications, and operational procedures for future reference.

Tool used (Development tools - H/w, S/w) : Apache Kafka, Docker, Kubernetes.

Objectives of the project : The primary objective of this project is to create a robust and scalable Kafka deployment within a Kubernetes environment, utilizing Strimzi for the management of Kafka resources. This includes deploying Kafka MirrorMaker 2 in Strimzi to enable the mirroring of an existing Kafka cluster, which is currently deployed on EC2 instances using Docker containers, to a new cluster managed within a Kubernetes environment. Additionally, the project aims to modify the internal Kafka codebase as necessary to support this migration seamlessly. Another goal is to develop a simple log processor service that leverages an event-driven architecture using Kafka. This service will be implemented in both Python and Go, demonstrating the flexibility and interoperability of Kafka within different programming ecosystems.

Major Learning Outcomes : Apache Kafka.

- Developed a simple Log processing service using Go and Python which leverages Kafka's Event streaming architecture.
- Dependency injection.
- Protocol buffers(Protobuf).
- gRPC framework
- Docker
- Kubernetes(basics)

Details of Papers/patents : n/a

Brief Description of working environment, expectations from the company : Lot of young and dynamic people in the company helped me in learning. The community is very helpful regardless of the designated team. Projects spread across multiple teams helped me in learning about the functioning of the organization. Monthly meets with Top executives in the company gave insight into the functioning and state of the organization.

Academic courses relevant to the project : Object oriented programming.

PS-II Station : MSCI - Equity & Fixed Income Index , Mumbai

Faculty

Name: Krishnamurthy Bindumadhavan

Student

Name: UTKARSH SINGH .(2019B1A40911P)

Student Write-up

PS-II Project Title: Index management research - Equity

Short Summary of work done during PS-II : Automation, report generation

Tool used (Development tools - H/w, S/w) : Python, jupyter notebook, sql, Oracle sql, internal spreadsheets

Objectives of the project : Research Equity

Major Learning Outcomes : Finances of indices

Details of Papers/patents : Nil

Brief Description of working environment, expectations from the company : Very supportive and understanding

Academic courses relevant to the project : Fin minor

PS-II Station : National Aerospace Laboratories , Bengaluru

Faculty

Name: Samata Satish Mujumdar

Student

Name: ADITYA KRISHNAN .(2020A4PS0577P)

Student Write-up

PS-II Project Title: Characterization of Fe₃Al Thin Films Synthesized Via Magnetron Sputtering

Short Summary of work done during PS-II : Many sputtering experiments were conducted to synthesize samples of Fe₃Al thin films on various substrates like Si, Stainless Steel, and Cu. These samples were then subjected to various characterization tests, some after annealing them in both air and vacuum at temperatures ranging from 400 to 700 degrees Celsius. These characterization tests included X-Ray Diffraction, X-Ray Photoelectron Spectroscopy, Energy

Dispersive X-Ray Spectroscopy, Nanoindentation, Fracture Toughness Tests, Atomic Force Microscopy, Field Emission Scanning Electron Microscopy, Transmission Electron Microscopy, and Scratch Tests. The objective of the project was to characterize Fe₃Al thin films synthesized via magnetron sputtering, as it turns out that not much research has been conducted on this manufacturing process for this widely-studied material. We wanted to see if it was a viable alternative to existing processes to synthesize Fe₃Al

Tool used (Development tools - H/w, S/w) : Software: Fusion360, Origin Pro, X'Pert Highscore, ImageJ, Microsoft Office. Hardware: Many devices used for characterization in materials science (tests such as XRD, XPS, EDAX, NHT, AFM, etc.)

Objectives of the project : To synthesize Fe₃Al thin films via magnetron sputtering, and to see if it is a viable alternative to existing method of preparing the same

Major Learning Outcomes : Learned about the advantages and disadvantages of Fe₃Al, the methods used to manufacture it, how magnetron sputtering works, and about many different types of characterization tests such as X-Ray Diffraction, X-Ray Photoelectron Spectroscopy, Nanoindentation Tests, Energy Dispersive X-Ray Spectroscopy, etc.

Details of Papers/patents : A research paper is being worked on based on the study undertaken during this internship

Brief Description of working environment, expectations from the company : The working environment was friendly and supportive, albeit with limited Internet access for obvious security reasons. This meant that it was sometimes a bit of a hassle to transfer data to the systems and people that require it. But apart from that, the company had top-notch experimental facilities and equipment, and very well-versed experts and scientists working together on cutting-edge research

Academic courses relevant to the project : Materials Science and Engineering, Advanced Manufacturing Processes, Mechanics of Solids

PS-II Station : National Aerospace Laboratories , Bengaluru

Faculty

Name: Samata Satish Mujumdar

Student

Name: PATEL VRAJ PARIMAL(2020A4PS1848G)

Student Write-up

PS-II Project Title: Study of Flight of a cluster of Flappers (MAVs)

Short Summary of work done during PS-II : During my Practice School-II at National Aerospace Laboratories, Bangalore, I worked on the project titled "Study of Flight of a Cluster of Flappers (MAVs)." This research focused on understanding the flight dynamics of ornithopters, inspired by the V-formation flight of birds like geese. My role involved designing, constructing, and testing flapping Micro Air Vehicles (MAVs) to analyze aerodynamic benefits and collective flight efficiency. Initially, I redesigned an existing ornithopter prototype to achieve symmetric upstroke and downstroke angles using SolidWorks for 2D and 3D modeling. The refined design was 3D printed, and weight optimization was performed on components such as gears and connecting rods. The prototype's performance was tested in controlled environments, with forces and torques measured using a Mini-40 sensor. Subsequent experimentation involved testing the interaction between leader and follower flappers on a test bed, collecting data to determine the aerodynamic effects of the leader's presence. This study aimed to reveal whether the V-formation enhances flight efficiency or serves other purposes. Overall, the project provided significant insights into the design and collective flight behavior of MAVs, potentially benefiting future aerial robotic systems in terms of efficiency and coordination.

Tool used (Development tools - H/w, S/w) : Solidworks, Mini 40 Load cell, DC power supply, stroboscope, excel, 3D printer, basic workshop tools

Objectives of the project : exploration of V-formation flight dynamics in Micro Air Vehicles (MAVs), specifically ornithopters.

Major Learning Outcomes : Gained practical experience in prototype optimization, sensor integration, and troubleshooting mechanical issues during experimental testing.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The working environment at National Aerospace Laboratories (NAL), Bangalore, during my Practice School-II project was intellectually stimulating and collaborative. Everyone is very supportive and willing to learn and teach. Advanced technology research takes place there, and getting to be a part of it is good. Being a government organisation the organisation has to go through all the procedures and everything which sometimes takes time from the project otherwise very good cutting edge-technology research takes place there.

Academic courses relevant to the project : Mechanisms and machines, CAD, Fluid Mechanics

PS-II Station : National Aerospace Laboratories , Bengaluru

Faculty

Name: Samata Satish Mujumdar

Student

Name: ELDRIN C WILSON(2022H1060092G)

Student Write-up

PS-II Project Title: Interlaminar shear stress of a composite laminate

Short Summary of work done during PS-II : The work is mainly focused upon interlaminar shear stress of a composite laminate. Initially studying the composite material and composite laminate. Creating of MATLAB code for the laminate in DD and quad for interlaminar shear stress verification of values using simulation software as 3D element, shell element or 2D element.

Tool used (Development tools - H/w, S/w) : MATLAB, Abaqus, MSC Natran

Objectives of the project : To find the interlaminar shear stress of a composite laminate

Major Learning Outcomes : Understanding about composite laminate structures and their application. How to avoid delamination and increase the load carrying capacity of a composite laminate and comparison of the analytical values with simulation software.

Details of Papers/patents : nothing yet but possible in future

Brief Description of working environment, expectations from the company : The environment is good and also the scientist were helping for solving the problems.

Academic courses relevant to the project : Finite element method FEM and MATLAB coding

PS-II Station : National Centre for Biological Sciences , Bengaluru

Faculty

Name: Bharathi R

Student

Name: PRATI KSHA BHARTI(2022H1290001G)

Student Write-up

PS-II Project Title: To carry out the localisation of neuromodulator receptors and to understand its effect on Purkinje neurons

Short Summary of work done during PS-II : My PS-II project involved preparing clones of neuromodulator receptors, which were prominently present in Purkinje neurons. The aim of the project was to carry out the cloning process. I prepared a set of primers for each receptor and conducted a series of PCR reactions to amplify the receptor from the cDNA, which was prepared from RNA extracted from the heads of larval zebrafish. After successful amplification, I ligated this amplicon with a plasmid and then transformed it. These transformed plasmids were then sent for sequencing after colony PCR to check for false colonies. Lastly, after confirming that they were not false colonies, these clones were used to generate the probes needed for the in-situ hybridization process.

Tool used (Development tools - H/w, S/w) : Gel Electrophoresis, PCR machine, Nanodrop, Snapgene, NEB calculator

Objectives of the project : To localise the neuromodulator receptors

Major Learning Outcomes : This project helped me in gaining hands on experience on how to prepare primers and to carry out the process of colony PCR.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : NCBS is very renowned and one of the best research centers for aspirants in the Biotechnology field. It was a great experience and a significant learning curve for me in the area of neurological science. Research colleagues and guides were very supportive, and they taught me practical experimentation on cloning neuromodulator receptors. The campus was huge, with multiple

disciplines, and I got a chance to interact with various fraternities, experts, and visit an ultramodern lab with the most recent instruments and equipment. The accommodation is also quite decent, with good and economical meal options. I personally learned a lot from this intern assignment. Thank you to the coordinators from BITS for supporting me during this learning period.

Academic courses relevant to the project : Genetic engineering, experimental techniques

PS-II Station : National Centre for Biological Sciences , Bengaluru

Faculty

Name: Bharathi R

Student

Name: MURCHANA SARMAH(2022H1290002G)

Student Write-up

PS-II Project Title: Generation of BRCA2 (Breast Cancer gene 2) knockout using CRISPR-Cas9 dual guide-RNA system in Osteosarcoma-derived cell line

Short Summary of work done during PS-II : The inoculation and isolation of Cas9 and gRNA plasmids were successfully done by Qiagen Mini Prep Kit. Followed by the transfection of gRNA plasmids, the transfection mixture (Serum free media[SFM], DNA, Fugene HD) is added to the U2OS cells and GFP expressions were checked to determine the transfection efficiency. Cells were supplemented with antibiotics i.e. Puromycin and Blasticidin and the cells which survived the toxicity were selected as KO clones. These cells were isolated and allowed to grow till they reach 80-90% confluency in 96-well plate followed by 48-well plate. Western Blotting was done

for the validation in which KO clones showed no expression compared to the wildtype cells. From this, we can conclude that BRCA2 knockout was successfully generated using CRISPR-Cas9 dual guide-RNA system.

Tool used (Development tools - H/w, S/w) : Qiagen Mini Prep Kit, Nanodrop, Agarose Gel Electrophoresis, Fluorescence microscopy, BCA reagent kit, SDS-PAGE, Chemiluminescence

Objectives of the project : To generate BRCA2 Knockout in U2OS cell line using CRISPR-Cas9 dual guide RNA system with antibiotic selection.

Major Learning Outcomes : CRISPR (clustered regularly interspaced short palindromic repeats)-CRISPR-associated protein (Cas9) is one of the most potent gene-editing tools and its technology has illustrated simplicity, applicability and efficient gene editing capability. It consists of two essential components: a guide RNA (gRNA) that is a small piece of RNA with a specifically-designed sequences that guides the Cas9 enzyme to the specific target sequence in the DNA and the Cas9 enzyme, which acts as a molecular scissor that can cut the two strands of DNA at a specific location in the genome, making a double-strand break.

BRCA2 is a Tumor Suppressor gene responsible for DNA Repair and mutations in it can lead to increased risk of cancer. PARP [Poly (ADP-ribose) polymerase], detects single strand or double strand breaks and signals the recruitment of scaffold proteins required for DNA repair. PARP inhibitors in BRCA mutated cells have shown increased efficacy in established cell-systems by causing synthetic lethality. However, they have become clinically less effective with tumor relapse and there is a developed resistance against the existing PARP inhibitors. Consequently, it is essential to improve existing PARP inhibitors to increase their potency and selectivity clinically. Therefore, establishing a cell-system to validate these improved inhibitors is critical, we utilize a combination of gRNA plasmids targeting specific sequences on the BRCA2 gene that can be cut by Cas9 to generate a knockout of the gene.

Details of Papers/patents : none

Brief Description of working environment, expectations from the company : For any intern to perform at their utmost potential, it is vital that an organization provides them with the ideal working conditions as well as a peaceful yet aptly competitive environment.

For me as an intern, the conditions are the same. Speaking about myself, I perform at my utmost potential, when there is enough competition but the competitiveness should be limited to work wherein individuals can be free and yet stay within the guidelines prescribed. I expect a strong management that understands the values that I bring to the organization and wherein they help me fully realize my potential and my capacity to perform to the fullest. A supportive team and an environment of open and free communication is highly important for me as well as any individual to succeed, so that is a virtue that I'd be seeking to exist within the bones of the organization.

Also for me, it is important that a organization provides their interns with enough room to grow and bloom into better version of themselves. A positive environment as well as a strict management goes a great deal in this aspect. An organization that can provide its interns with a work life balance usually has its interns performing at their best capacity. These are certain ideals that me as well as any individual seeks in an organization.

To conclude, these are some expectations and ideals that any individual seeks in their organization and thus are are vital to the personal as well as collective growth of the organization. An organization possessing these ideals and virtues, stands out to me as an ideal work environment as well an ideal company for an individual.

Academic courses relevant to the project : Cell biology

PS-II Station : National Centre for Biological Sciences , Bengaluru

Faculty

Name: Bharathi R

Student

Name: HARSHIT TIWARI(2022H1290015P)

Student Write-up

PS-II Project Title: Understanding tuberculosis and finding the variations in different genes and finding correlation with TB susceptibility

Short Summary of work done during PS-II : our research endeavors into understanding tuberculosis (TB) and its genetic variations have unveiled a significant discovery: the identification of a single nucleotide polymorphism (SNP) associated with citrullinemia that correlates with TB susceptibility. This finding underscores the intricate interplay between genetic factors and disease susceptibility, shedding light on novel avenues for TB prevention and treatment. We found out one SNP in ASS1 gene which can cause citrullinemia means less arginine less NO which will provide hospitable environment to the TB and host will be more susceptible to Tuberculosis. However, the journey from discovery to application is rife with challenges. Implementing activity assays and sequencing of TB patients to further elucidate the correlation demands substantial capital and time investments. Yet, the potential benefits are immense, offering the prospect of personalized interventions and targeted therapies to combat TB. As we navigate the complexities of translational research, it is imperative to mobilize resources and foster collaboration across disciplines. By harnessing the collective expertise of the scientific community and leveraging technological advancements, we can propel our understanding of TB forward, ultimately striving towards the eradication of this global health burden.

Tool used (Development tools - H/w, S/w) : string, chimera, pymol

Objectives of the project : Finding SNPs and correlating them with TB susceptibility

Major Learning Outcomes : learned about different databases, chimera and pymol

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Good working environment, really good place if you want to make a career in research.

Academic courses relevant to the project : immunology

PS-II Station : National Centre for Biological Sciences , Bengaluru

Faculty

Name: Bharathi R

Student

Name: ANUSHA PAUL(2022H1290018P)

Student Write-up

PS-II Project Title: Understanding Inner Ear Development: Impact of Sox2 Gene Knockdown

Short Summary of work done during PS-II : Understanding the intricate development of the inner ear is vital as it directly impacts our ability to hear and maintain balance. In this study, we explore the effects of reducing the activity of the Sox2 gene, which is essential for the proper development of hair cells within the inner ear. Using a comprehensive experimental approach, we employ immunohistochemistry (IHC) staining combined with confocal imaging to observe changes in Sox2 expression and related cellular structures in response to gene knockdown. By comparing normal mice with those where the Sox2 gene is less active, we pinpoint alterations in Sox2 expression levels, hair cell development, and the overall architecture of inner ear tissues. Our results reveal significant disruptions in the formation of sensory organs and noticeable changes in cellular characteristics due to reduced Sox2 activity. These findings provide valuable insights into the molecular pathways and regulatory networks that drive inner ear development. The translational implications of our research highlight its relevance for understanding human auditory health. By elucidating the impact of Sox2 gene activity on inner ear development, we open doors to potential therapeutic interventions aimed at mitigating hearing and balance problems. Looking ahead, our future research will focus on conducting longitudinal studies and

fostering collaborative efforts to further unravel the complexities of inner ear development. These efforts aim to deepen our understanding of inner ear biology and advance the development of effective therapeutic strategies for individuals with inner ear disorders.

Tool used (Development tools - H/w, S/w) : IHC, Confocal, Dissection

Objectives of the project :

- Investigating the molecular mechanisms underlying Sox2-mediated regulation of auditory function.
- Assessing the effects of Sox2 gene manipulation on auditory structures and functions using cellular and animal models.
- Identifying potential targets and pathways for hearing loss treatments based on the modulation of Sox2 expression.
- Developing a comprehensive understanding of the therapeutic potential and limitations of Sox2-based interventions for hearing loss.

Major Learning Outcomes :

This study reveals the critical role of the Sox2 gene in inner ear development, specifically in hair cell and sensory organ formation. It shows that Sox2 knockdown does not cause major phenotypic changes, suggesting its role might be earlier in development or dispensable for utricle development. These findings inform potential therapeutic approaches for hearing loss and highlight the need for further research to understand long-term effects and complex molecular pathways in inner ear development.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The working environment at NCBS Bengaluru is dynamic and research-focused, promoting scientific innovation and collaboration. It offers state-of-the-art facilities and a supportive atmosphere for cutting-edge biological research. Expectations from the company include dedication to high-quality research, active participation in collaborative projects, adherence to ethical standards, and contribution to the academic and scientific community through publications and presentations.

Academic courses relevant to the project : ACT, Molecular Mechanisms, Immunology

PS-II Station : National Chemical Laboratory , Pune

Faculty

Name: Santosh Sopanrao Khandgave

Student

Name: UTKARSH ADHIKARI .(2019B1A11050P)

Student Write-up

PS-II Project Title: Risk Assessment in Chemical process industry

Short Summary of work done during PS-II : The work began with a literature review on Thermal runaway and the various criterias that are extensively used to quantify risk such as thermal runaway in chemical process industry.this was followed by writing a review article(currently underway) on risk assessment in chemical industry.The work finished with the development of a GUI based program to quantify Thermal Runaway based on a relatively newer technique i.e., Inherent Thermal runaway Hazard Index(ITHI))

Tool used (Development tools - H/w, S/w) : Python, Excel, MS Word, Matlab

Objectives of the project : Risk assesment in Chemical process industry

Major Learning Outcomes : The major learning outcomes include the importance of risk assessment in referencne to chemical process industry.Moreover the techniques to identify,mitigate risk and the quantitative criterias that are cuurently used in process industry to analyze risk such as thermal runaways

Details of Papers/patents : Paper underway

Brief Description of working environment, expectations from the company : As the work was remote , the timing was flexible, and the work environment was pretty balanced.Our PS faculty and the mentor were pretty assuring and encouraged any sort of personal feedback related to the project.Moreover, self learning and self paced learning were highly focused on.

Academic courses relevant to the project : Core chemical subjects

PS-II Station : National Chemical Laboratory , Pune

Faculty

Name: Santosh Sopanrao Khandgave

Student

Name: SHUJA JAMEEL SIDDIQUI(2019B2A10948G)

Student Write-up

PS-II Project Title: Risk Assessment in Chemical Process Industries

Short Summary of work done during PS-II : We studied thermal runaway in chemical process industries. We understood the different safety, frameworks mathematical models and response mechanisms to tackle runaway situations and their limitations. We prepared a review paper draft based on literature survey. In the latter half of internship we picked up a particular safety frameork and made a GUI implementation for it and understood limitations and scope of improvement for practical applications.

Tool used (Development tools - H/w, S/w) : Python

Objectives of the project : Understand thermal runaway scenarios, mathematical model, mitigation strategies

Major Learning Outcomes : Risk Assessment, Chemical Process Safety

Details of Papers/patents : In progress

Brief Description of working environment, expectations from the company : The work environment was very independent, giving us the freedom to refine the problem statement and determine the project scope ourselves. The supervisor expected a tangible outcome by the end of the internship, such as a review paper or a working model. Our daily tasks included conducting literature surveys, finding relevant data or datasets, formulating and validating hypotheses, and coding or implementing a valid solution. The specific details of the work cannot be disclosed as it is still under review for acceptance.

Academic courses relevant to the project : Chemical process safety, Chemical Engineering Thermodynamics, Kinetics and Reactor Design

PS-II Station : National Chemical Laboratory , Pune

Faculty

Name: Santosh Sopanrao Khandgave

Student

Name: MANAN TIWARI(2020A1PS2293H)

Student Write-up

PS-II Project Title: A tool to determine the degree of hazard of industrial chemical reactions

Short Summary of work done during PS-II : The first half, i.e. before the midsem presentation, involved writing a review paper on runaway reactions, the different mathematical models used to assess the risk of runaway reactions, and the strategies used to prevent runaway reactions in the present-day chemical industries. The second half of PS-II involved us (I, along with two other members of my team), developing a tool to assess the risk of runaway reactions using python.

Tool used (Development tools - H/w, S/w) : Python, MS Word, Zotero

Objectives of the project : To write a review paper on runaway reactions and write a python code to determine the degree of hazard of chemical reactions

Major Learning Outcomes : I learned how to write a review paper, write code that takes input and shows output using a GUI, and use Excel sheets as databases for Python programs. I also learned about different aspects of safety engineering in the chemical industries, the different methods used to prevent and mitigate runaway reactions, and the potential of AI in preventing runaway reactions.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Being a BITSIAN increased the level of expectations dramatically. The mentor expected us to behave professionally and deliver anything asked of us on time. Since the mentor had only preliminary knowledge about the topic, he was heavily dependent on us and expected us to have done projects in college and have relevant research experience.

Academic courses relevant to the project : Kinetics and Reactor Design, Numerical Methods for Chemical Engineering

PS-II Station : NBC Bearings , Jaipur

Faculty

Name: Arun Maity

Student

Name: RAHUL BHASKAR(2022H1410144P)

Student Write-up

PS-II Project Title: Vibration Analysis of Taper Roller Bearing

Short Summary of work done during PS-II : Preparation of specimens followed by their testing, derivation of results in the form of relevant parameters, then testing of specimens with defect to find the defect frequencies. Ended with discussion on new/ alternate technologies that can be used for better FFT plots to detect defect frequencies.

Tool used (Development tools - H/w, S/w) : FFT Plots, Basics of Machining Processes

Objectives of the project : To useful defect data using condition monitoring in vibration analysis

Major Learning Outcomes : Learned about the processes of bearing manufacturing and about the detection of defects present on the bearing.

Details of Papers/patents : Nill

Brief Description of working environment, expectations from the company : The work environment is nice, though a little work is done in the field of development of new bearings.

Academic courses relevant to the project : Dynamics and Vibrations

PS-II Station : Netradyne , Bengaluru

Faculty

Name: Pradheep Kumar K

Student

Name: KARTHIK RODDOM(2020A7PS0105G)

Student Write-up

PS-II Project Title: Data Analytics through 3 Sub Projects

Short Summary of work done during PS-II : It involved 3 sub projects which gave me a very good understanding of Data Analytics. The first one dealt with choosing thresholds to understand whether or not the area on the map is a parking yard or not basis the % of vehicles in that area , for this we used confusion matrices . Next was to automate the manual labour of making a report on a monthly basis by writing a Python script that fetches the necessary data, filters it and populates the necessary databases to populate it on Tableau . 3rd project was to fetch the alerts generated by every device under particular clients over the last week through an Airflow script.

Tool used (Development tools - H/w, S/w) : Airflow , Tableau , Python , SQL

Objectives of the project : To determine thresholds through Confusion Matrix , To represent data on Tableau , To make a script on Airflow to fetch necessary data

Major Learning Outcomes : Airflow scripting, Using Confusion Matrices , Representing data on Tableau , Python scripting , SQL

Details of Papers/patents : NaN

Brief Description of working environment, expectations from the company : Good company and people are very knowledgeable, my mentor was very helpful and approachable as well. Apart from office work there are extra curriculums like sporting events, team outings, cultural events etc which keeps the enthusiasm up. Although one thing to highlight is that there is no such 'Story Points' system in my team in regards to task allocation, we work with 'Jira Tickets'. This means that the work is continuous and there is no breathing space as such between tasks because regardless how fast you finish a ticket/task you have to proceed with the next one right after and also at times find yourself juggling between multiple tickets at once.

Academic courses relevant to the project : SQL, DSA, DAA

PS-II Station : Netradyne, Bengaluru

Faculty

Name: Pradheep Kumar K

Student

Name: VEDANT RAVI ALIMCHANDANI(2020A7PS0965G)

Student Write-up

PS-II Project Title: Software Development

Short Summary of work done during PS-II : Mobile apps development internship: develop a cross platform Bluetooth Low Energy app that supports multiple languages. Design the UI in

React Native using JavaScript and use Redux to manage states. Develop the native functionalities in Kotlin for Android and in Swift for iOS. Use Jest for Unit testing of the apps. Develop a framework using Appium and Webdriverio to test multi language support of the app.

Tool used (Development tools - H/w, S/w) : React Native, JavaScript, BLE(Bluetooth Low Energy), Redux, Android, iOS, Kotlin, Swift, Appium, Webdriverio, Mocha, Jest

Objectives of the project : Mobile apps development, unit testing and E2E(End to End) testing

Major Learning Outcomes : React Native, JavaScript, BLE(Bluetooth Low Energy), Redux, Android, iOS, Kotlin, Swift, Appium, Webdriverio, Mocha, Jest, Agile Methodology, Documentation, Formal Communication

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The people are very knowledgeable in their fields and are really happy to help you understand something. Along with flexible working hours, you always have the freedom to be creative in your work.

Academic courses relevant to the project : Software Development for Portable Devices by Swaroop Joshi sir
(Android)

PS-II Station : Netradyne , Bengaluru

Faculty

Name: Pradheep Kumar K

Student

Name: PRANAV LEKSHMINARAYANAN(2020AAPS1021G)

Student Write-up

PS-II Project Title: PART-I (Pre-Midsemester) Advanced Encryption Standard and Verification of Decryption using File Signatures PART-II (Post-Midsemester) Write Amplification Factor in eMMCs

Short Summary of work done during PS-II : I have done many bug fixes and code enhancements. A few major ones are printing different parameters present within the registers of the emmc the will help in deciding the health of the emmc, providing a utility to recognize successful decryption of a file and script to calculate WAF over long periods of time.

Tool used (Development tools - H/w, S/w) : Hardware - Device with ARM/Nvidia chipsets which has the capability to record video and audio. Software - Programming of the device so that it functions properly and uses all its hardware to its best potential

Objectives of the project : Part - 1: The project is about the importance of encryption and the different types used in the modern industry. It also shows how to utilise Linux tools and concepts to recognise whether the data was decrypted successfully. This is done using the basic file concepts and C++ programming methods. Part 2: In this project, code was developed to read data from eMMC registers, specifically extracting the bad block count and host write count. These metrics were then utilized to calculate the Write Amplification Factor (WAF), providing insights into the efficiency and health of the eMMC storage device.

Major Learning Outcomes : Learned to solve and debug problems while working with C++ in Linux. Error handling and corner case handling skills were improved. Improved problem-solving ability and developed an object-oriented programming mindset.

Details of Papers/patents : No papers/patents were published by me.

Brief Description of working environment, expectations from the company : Great working environment, free food, no transport provided. Pay could be better (stipend given 35,000) as work hours could go much higher than expected. Any hardware-related roles do not have a work-from-home option.

Academic courses relevant to the project : Computer architecture, operating systems, object-oriented programming, computer programming

PS-II Station : Neuphony , Noida

Faculty

Name: Bharathi R

Student

Name: ADITYA AGARWAL(2020A3PS1758G)

Student Write-up

PS-II Project Title: Pre-Delivery Inspection system

Short Summary of work done during PS-II : Pre-Delivery Inspection System : Development of Machine Vision software using OpenCV and python for detecting defects in manufactured parts. The software is universal and can be used by any industry. It uses a template matching algorithm to detect the missing subparts. Also made a testbench using cameras and Raspberry Pi. Users can load the part in the testbench and then use the software to label the subparts. There is a start-stop button which makes the process faster. The test bench can also be used for implementing Poka-Yoke in the industries.

Tool used (Development tools - H/w, S/w) : Python, OpenCV, Raspberry Pi

Objectives of the project : Pre-Delivery Inspection System : Development of Machine Vision software using OpenCV and python for detecting defects in manufactured parts. The software is universal and can be used by any industry. It uses a template matching algorithm to detect the missing subparts. Also made a testbench using cameras and Raspberry Pi.

Major Learning Outcomes : Python and software development, hardware development using raspberry pi

Details of Papers/patents : Nil

Brief Description of working environment, expectations from the company : The working environment was good and comfortable. We had access to various labs to complete our project and the mentors were approachable and helpful. We were required to meet every week and report on our progress. The expectations were manageable and we completed our work before deadlines.

Academic courses relevant to the project : DIP

PS-II Station : Nomura - Digital Transformation - Fintech , Mumbai

Faculty

Name: Ambatipudi Vamsidhar

Student

Name: BISWAJIT BENGANI(2019B2A30975G)

Student Write-up

PS-II Project Title: Strategy and Research

Short Summary of work done during PS-II : I worked as a research and strategy analyst in the Innovation- Fintech team at Nomura. My role was researching and strategizing the application of next-generation technologies like artificial intelligence (Gen AI), the metaverse, and blockchain within the firm. My internship is a dynamic blend of research and practical implementation. I delve into understanding the potential of these emerging technologies within the financial services sector. This involves staying up-to-date on industry trends, analyzing market opportunities, and identifying areas where innovative solutions can enhance Nomura's operations. But my contribution goes beyond pure research. I act as a business analyst, working collaboratively with different departments across the bank. I help them understand how cutting-edge technologies like Gen AI can automate tasks, how the metaverse can revolutionize client interactions, and how blockchain can streamline processes. By translating complex concepts into actionable insights, I facilitate the integration of these technologies into Nomura's day-to-day business, fostering a culture of innovation within the company. From this role I gained valuable experience. I'm excited to be at the forefront of technological advancements, helping Nomura stay competitive and unlock new possibilities in the financial landscape.

Tool used (Development tools - H/w, S/w) : MS Excel, Powerpoint, Some database

Objectives of the project : Research & Strategy- New-gen Technologies

Major Learning Outcomes : Understanding of Emerging Technologies: Gained in-depth knowledge of next-generation technologies like Gen AI, Metaverse, and Blockchain.

Strategic Thinking: Developed critical thinking skills by analyzing how new technologies can improve efficiency, revenue generation, or risk management within the bank.

Communication & Collaboration: Practiced presenting research findings and collaborating with different teams across the organization.

Details of Papers/patents : No paper/ patents

Brief Description of working environment, expectations from the company : Working at Nomura's Fintech Innovation Team: A Dynamic Environment

As a research and strategy intern at Nomura's Fintech Innovation team, you'll find yourself at the forefront of the financial technology revolution. Here's what you can expect:

Environment:Fast-paced and dynamic: The team operates at a rapid clip, constantly exploring emerging technologies and their potential applications within Nomura. Be prepared to learn quickly and adapt to new ideas.

Collaborative: The team thrives on collaboration. You'll work alongside experienced professionals from diverse backgrounds, including research analysts, technologists, and business developers.

Client-focused: The ultimate goal is to identify and implement innovative solutions that benefit Nomura's clients. You'll need to understand their needs and translate them into actionable strategies.

Global mindset: Nomura has a strong international presence. You may have the opportunity to collaborate with colleagues from around the world.

Expectations:Research & Analysis: You'll be expected to conduct in-depth research on emerging technologies like Gen AI, the metaverse, and blockchain. This may involve analyzing industry trends, identifying potential use cases, and evaluating competitors' innovations.

Business Acumen: Your role as a business analyst requires an understanding of Nomura's existing business model and how new technologies could disrupt or improve various departments' operations.

Communication Skills: You'll need strong communication skills to present your research findings and recommendations to both technical and non-technical audiences.

Initiative & Problem-solving: Nomura values interns who take initiative and think outside the box. Be prepared to contribute fresh ideas and actively participate in brainstorming sessions to develop innovative solutions.

Overall, this internship offers an invaluable opportunity to gain firsthand experience in the exciting world of FinTech and contribute to the future of Nomura.

Academic courses relevant to the project : Basic Financial Concepts

PS-II Station : Nomura - Digital Transformation - Fintech , Mumbai

Faculty

Name: Ambatipudi Vamsidhar

Student

Name: MEDISHETTY ASHRITHA(2019B3A70472H)

Student Write-up

PS-II Project Title: Generative Ai

Short Summary of work done during PS-II : Created a chatbot similar to chatgpt internally. This chatbot using particular set of PDFs and the user can answer any question related to the data present in material

Tool used (Development tools - H/w, S/w) : Python, langchain,AWS bedrock

Objectives of the project : Create solutions for increasing efficiency using generative ai

Major Learning Outcomes : Communication skills, technical skills in python , collaboration, time management

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Very supportive and encouraging. My team pushed me to give my 100% and learn lot of things.

Academic courses relevant to the project : Artificial intelligence

PS-II Station : Nomura - Finance IPV , Mumbai

Faculty

Name: Ambatipudi Vamsidhar

Student

Name: ADITYA SHETH .(2020A7PS1511P)

Student Write-up

PS-II Project Title: IPV Automation

Short Summary of work done during PS-II : Responsible for creating financial automations

Tool used (Development tools - H/w, S/w) : Python, Excel

Objectives of the project : IPV Automation

Major Learning Outcomes : Python & Financial Products

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Great company and team

Academic courses relevant to the project : Financial minor courses and basic oops

PS-II Station : Nomura - Wholesale Strategy , Mumbai

Faculty

Name: Ambatipudi Vamsidhar

Student

Name: KSHITIJ TANDON .(2020A7PS0972P)

Student Write-up

PS-II Project Title: Competitor Benchmarking

Short Summary of work done during PS-II : My role was pivotal in supporting the regional and divisional strategy teams to shape Nomura's long-term strategic objectives. I actively contributed to market entry strategies, business performance evaluations, and analysis of Nomura's operating models. My responsibilities extended to conducting thorough market and competitor analyses, leveraging public data and industry reports to provide insights crucial for senior management decision-making. Additionally, I assisted in preparing presentations for senior management meetings and board discussions, ensuring clarity and effectiveness in communication

Tool used (Development tools - H/w, S/w) : Excel, Powerpoint, Dealogic, VBA, Bloomberg

Objectives of the project : See how Nomura's competitors are performing in the areas Nomura Investment Banking is lagging and how they have avoided the pains Nomura is facing currently

Major Learning Outcomes : Presentation skills, Excel skills, Directly interacting with the senior management of the firm, Deep about IB business

Details of Papers/patents : Confidential as internal

Brief Description of working environment, expectations from the company : The team was very chill and helpful. They never made me feel that I am an intern and treated me equally and were always there to help me when I got stuck somewhere. The working hours were a bit on the higher side with an average day involving almost 12 hours of work

Academic courses relevant to the project : Business Analysis and Valuation, Financial Management, Derivatives and Risk Management, Business Communication

PS-II Station : Nomura Global Markets , Mumbai

Faculty

Name: Ambatipudi Vamsidhar

Student

Name: DHRUV RAWAT .(2019B3A70537P)

Student Write-up

PS-II Project Title: Modelling and valuation of securitized products (ABS/MBS/CLO/etc)

Short Summary of work done during PS-II : Worked as a fully integrated member of the global front office quant team in New York. Quant work involves many different skills and abilities, all of which centre around being able to solve complex quantitative problems in an accurate and timely way. The core work involved developing MBS/ABS models which included a sequence of steps starting with the basic modelling of financial markets, through to designing a model and finally implementing that model in C++ code.

Tool used (Development tools - H/w, S/w) : C++, Git, Python, PyCharm, Visual Studio

Objectives of the project : Development of quantitative MBS/ABS models.

Major Learning Outcomes : Understanding and implementing the state-of-the-art pricing models in C++ code

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Great working environment. Everyone is accessible and easy to approach. Got immense input and continuous feedback for my project from very senior folks as well.

Academic courses relevant to the project : Numerical Analysis, Financial Engineering, M1, M2, M3, Probability and Statistics, Parallel Computing, Object Oriented Programming, Design and Analysis of Algorithms, DRM

PS-II Station : Nomura Global Markets , Mumbai

Faculty

Name: Ambatipudi Vamsidhar

Student

Name: LANKE SARVESH SUHAS(2019B3A71028H)

Student Write-up

PS-II Project Title: Developing quantitative trading strategies for Asian Equity Markets.

Short Summary of work done during PS-II : • Developed low-medium frequency trading strategies • Developed a high frequency intra-day database for factor extraction. • Designed and built data pipeline for feature generation and strategy simulation.

Tool used (Development tools - H/w, S/w) : Python, C++

Objectives of the project : • To develop various Event-driven, Price-Volume, or Fundamental-based strategies for the Chinese Equity Markets.

Major Learning Outcomes : 1.How quant firms exploit arbitrage and derive alpha from the markets.

2.How to identify patterns in equity markets, how to test hypotheses and derive strategies from them and how to back-test them.

3.How to write low-latency, high-performance code.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The work environment is pretty relaxed and very collaborative. Being a new team, you get to work on diverse projects and really get to understand things from the inside.

A lot of things, especially the nuances of the market are taught from scratch.

Academic courses relevant to the project : Applied Econometrics, FoDS, ML, FoFA

PS-II Station : Nutanix Technologies India Pvt. Ltd. , Bengaluru

Faculty

Name: Chandra Shekar R K

Student

Name: ABHISHEK JALAN(2019B1A71547H)

Student Write-up

PS-II Project Title: Optimizations in the Disaster Recovery service

Short Summary of work done during PS-II : Added a cli feature which improves debuggability within a current Disaster Recovery solution. Improvements to an RPC to reduce storage and compute. Improvements in the db lookups. Utils for APIs. Bug fixes, etc.

Tool used (Development tools - H/w, S/w) : C++, python, golang, jira, GitHub, Gerrit, protobufs, gRPC, Postman

Objectives of the project : Optimize the current RPCs to reduce resource consumption by APIs. Implementation of new features to improve debuggability of the service.

Major Learning Outcomes : Design and development of solutions from the ground up with unit testing.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Can be team specific but a relaxed working environment in general. The expectation is to learn while contributing meaningfully to the organisation.

Academic courses relevant to the project : DSA, OOP, OS, DBMS

PS-II Station : Nutanix Technologies India Pvt. Ltd. , Bengaluru

Faculty

Name: Chandra Shekar R K

Student

Name: S VINEETH KUMAR(2019B3A70220H)

Student Write-up

PS-II Project Title: Replicated Secrets

Short Summary of work done during PS-II : Enabled workflows to allow for replication of secrets written on one cluster to be available on another.

Tool used (Development tools - H/w, S/w) : Linux, C++

Objectives of the project : Cross Cluster Replication

Major Learning Outcomes : Distributed systems

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Expected to grasp design and complex distributed systems quickly.

Academic courses relevant to the project : DBMS, OOP, OS

PS-II Station : Nutanix Technologies India Pvt. Ltd. , Bengaluru

Faculty

Name: Chandra Shekar R K

Student

Name: KOLLI AKASH(2019B3A70426G)

Student Write-up

PS-II Project Title: Certificate Based Authentication Support

Short Summary of work done during PS-II : During my PS-II internship, I worked on a Certificate-Based Authentication support project. The primary goal was to enhance our system's security by implementing certificate-based authentication, which uses digital certificates to verify user identities. This approach ensures more secure and reliable access control compared to traditional password-based methods. My responsibilities included: Requirement Analysis: Collaborating with the team to understand the specific requirements and objectives of the project. This involved analyzing the current authentication system and identifying areas for improvement. Design and Planning: Creating a detailed design plan for integrating certificate-based authentication. This included selecting appropriate cryptographic protocols and defining the architecture for certificate issuance, management, and validation. Implementation: Writing and testing code to integrate certificate-based authentication into the existing system. This involved working with various programming languages and tools to ensure seamless integration and optimal performance. Testing and Debugging: Conducting thorough testing to identify and fix any issues or vulnerabilities in the implementation. This included unit testing, integration testing, and user acceptance testing to ensure the system met security and functionality standards. Documentation: Preparing comprehensive documentation of the project, including design specifications, implementation details, and user guides. This ensures that future developers can understand and maintain the system. Collaboration: Working closely with team members, stakeholders, and mentors to ensure alignment with project goals and timelines. Regular meetings and updates were crucial for successful project completion. Through this project, I

gained valuable experience in cybersecurity, software development, and project management, significantly enhancing my technical and professional skills.

Tool used (Development tools - H/w, S/w) : Python, Go, Pytest, React, Kubernetes, Docker

Objectives of the project : To add support for Certificate Based Authentication for service to service communication

Major Learning Outcomes : During my internship, I experienced significant personal and professional growth. Key learning outcomes include:

1. **Technical Skills Development:** I gained hands-on experience with industry-standard tools and technologies, enhancing my technical proficiency.
2. **Practical Application of Theory:** I applied academic knowledge to solve real-world problems, making my education more relevant and actionable.
3. **Project Management:** I developed essential project management skills, learning to plan, organize, and execute tasks within deadlines while coordinating with team members.
4. **Professional Communication:** My ability to convey ideas effectively, both in writing and verbally, improved significantly. I learned to craft professional emails, present reports, and participate in meetings.
5. **Teamwork and Collaboration:** Working in a team environment taught me the importance of collaboration, leveraging different perspectives, and managing conflicts.
6. **Problem-Solving and Critical Thinking:** I enhanced my problem-solving skills by analyzing complex issues, developing creative solutions, and making data-driven decisions.
7. **Time Management and Organization:** I improved my ability to manage time and stay organized, balancing multiple tasks and priorities efficiently.
8. **Networking and Professional Relationships:** I built valuable relationships with mentors, colleagues, and industry professionals, gaining insights into industry trends and career paths.
9. **Adaptability and Flexibility:** I learned to adapt to new environments and changing circumstances, a crucial skill in dynamic work settings.
10. **Self-Confidence and Independence:** The internship boosted my confidence and allowed me to work more independently, taking ownership of projects and responsibilities.

These outcomes equipped me with a comprehensive skill set and a deeper understanding of my field, preparing me for future career challenges and opportunities.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The working environment at our company is dynamic and collaborative, fostering innovation and growth. We have an open office layout that encourages communication and teamwork, along with dedicated spaces for focused work and brainstorming sessions. Our culture values diversity, inclusivity, and mutual respect, making everyone feel valued and heard.

We prioritize a healthy work-life balance with flexible work hours and remote work options. Employee well-being is a top priority, supported through wellness programs, regular team-building activities, and access to professional development resources. The company provides state-of-the-art technology and tools, enabling us to perform our best work efficiently.

Expectations from the company include a commitment to excellence, a proactive attitude, and a willingness to embrace new challenges. Initiative, creativity, and a strong sense of responsibility are highly valued. Effective communication and teamwork skills are essential, as collaboration is key. We are encouraged to continuously seek improvement, both personally and professionally, and to contribute positively to the inclusive culture.

In return, the company offers competitive compensation, comprehensive benefits, and opportunities for career advancement. Hard work and achievements are recognized and rewarded, creating a motivating environment where we can thrive and grow. The company is dedicated to building a community where talent is nurtured, and everyone is encouraged to reach their full potential.

Academic courses relevant to the project : OOPS, DSA

PS-II Station : Nutanix Technologies India Pvt. Ltd. , Bengaluru

Faculty

Name: Chandra Shekar R K

Student

Name: RHYTHM SETHI(2019B3A71306H)

Student Write-up

PS-II Project Title: NDL Telemetry

Short Summary of work done during PS-II : I worked on 2 projects. The first was Telemetry where I collected the required data points from different sources and collected them on prem and built reports around them. This involved usage of aws, snowflake, sfdc, postgres, python, docker containers. 2. The second one was around building a generic scanner which allows us to collect metadata of file servers which helps us onboarding the customers using file servers other than nutanix FS. Ex: Isilon, NetApp etc. I also worked on increasing unit test coverage for various components.

Tool used (Development tools - H/w, S/w) : Sql, Tableau, AWS, Snowflake. Languages used: Python, Golang

Objectives of the project : Track the Adoption of product and its features

Major Learning Outcomes : Snowflake, AWS, Unit Testing, Tableau, Golang, Python

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The mentors were really helpful, guiding me all along the project. Enough time was given to understand the project requirements and all the dependencies.

Academic courses relevant to the project : DBMS, OOPS, Computer Network, DSA

PS-II Station : Nutanix Technologies India Pvt. Ltd. , Bengaluru

Faculty

Name: Chandra Shekar R K

Student

Name: DHRUV SAXENA(2019B4A71369H)

Student Write-up

PS-II Project Title: gRPC Implementation of Bandwidth Throttling Policies

Short Summary of work done during PS-II : I got to work on new internal service that replicates the correct services contract but is more efficient and faster. I worked on Virtual Machine Images and their Bandwidth Throttling Policies. It involved writing CRUD API handler and controllers via gRPC invocation. The work involved multiple components from generating accurate protobufs to checking for authorization of users.

Tool used (Development tools - H/w, S/w) : GoLang, Python, Java, Git

Objectives of the project : The objective of the project was to develop a new analogous service to the current service, which was faster and more efficient. I worked on a specific part of the service to implement bandwidth throttling policies on virtual machine images. This involved restricting bandwidth each VM had, based of user preferences and cluster categorizations. I implemented the CRUD functionalities of these policies using gRPCs

Major Learning Outcomes : I got to understand API workflows besides REST APIs. This was the first time I worked with RPCs and gRPCs which taught me a lot. I also got to understand how multiple services in a company function together. Furthermore, I learnt about Virtual Machines, how they are deployed on clusters and replicated, and about nutanix's product PRISM. I finally

learnt how to build bandwidth policies on these virtual machine images and apply them to multiple cluster categories.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment was excellent. My team was very supportive and were there to help me by guiding me at every step along the way. They helped me onboard smoothly and explained everything from scratch. I couldn't have asked for a better team. The company from their end tried engaging with us regularly and held events such as hackathons to help us out.

Academic courses relevant to the project : Operating Systems, DBMS, DSA,

PS-II Station : Nutanix Technologies India Pvt. Ltd. , Bengaluru

Faculty

Name: Chandra Shekar R K

Student

Name: KULKARNI DARSHAN VINAYAK(2019B5A70317G)

Student Write-up

PS-II Project Title: Nutanix Cluster Deployment

Short Summary of work done during PS-II : My project was to use IAC based technology to deploy a Nutanix Product in Cloud environment

Tool used (Development tools - H/w, S/w) : Terraform, AWS Cloudformation

Objectives of the project : To Deploy Nutanix Cluster on Cloud

Major Learning Outcomes : IAC, Terraform, AWS

Details of Papers/patents : .

Brief Description of working environment, expectations from the company : The Company environment is very good. They would expect you to take complete ownership of the work that you do. However every one is happy to assist you at any point of time

Academic courses relevant to the project : Operating system, Computer networks

PS-II Station : Nutanix Technologies India Pvt. Ltd. , Bengaluru

Faculty

Name: Chandra Shekar R K

Student

Name: MADUGULA LIKITH SAI(2019B5A70980H)

Student Write-up

PS-II Project Title: Custom Metrics for NDK using Prometheus and Grafana

Short Summary of work done during PS-II : During my PS-II, I focused on implementing robust metrics monitoring solutions for applications using Kubernetes and Prometheus. This involved

configuring the Prometheus Operator within Kubernetes clusters to streamline the deployment and management of Prometheus instances. I successfully integrated Prometheus to collect and analyze performance metrics, leveraging its flexible query language, PromQL, for in-depth monitoring insights.

Tool used (Development tools - H/w, S/w) : Docker, Kubernetes, Prometheus, Grafana, Git, Golang

Objectives of the project : The objective of the project is to implement comprehensive metrics monitoring using Prometheus in a Kubernetes environment, specifically focusing on integrating custom metrics from both the controller-manager and infra-manager containers within the NDK application. This setup aims to ensure efficient performance analysis, proactive issue detection, and reliable monitoring of application components.

Major Learning Outcomes : Throughout this project, I've gained significant insights into configuring and managing metrics monitoring for applications using Prometheus and the Prometheus Operator within Kubernetes. I've learned to effectively utilize Prometheus's robust data model and PromQL query language for comprehensive performance monitoring. Additionally, I've mastered the setup of service configurations, such as adding ports for custom metric collection and ensuring seamless integration with different containers. This experience has not only enhanced my technical proficiency but also deepened my understanding of scalable and reliable application monitoring practices in cloud-native environments.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Our working environment fosters a collaborative and innovative atmosphere where team members are encouraged to contribute their expertise and creativity. We utilize cutting-edge technologies and tools to develop robust solutions that meet industry standards and exceed client expectations. Continuous learning and professional growth are integral parts of company's culture, supported by regular training sessions and opportunities for skill enhancement. Flexibility in work arrangements promotes a healthy work-life balance, ensuring productivity and well-being.

Academic courses relevant to the project : Computer Networking, OOPS.

PS-II Station : Nutanix Technologies India Pvt. Ltd. , Bengaluru

Faculty

Name: Chandra Shekar R K

Student

Name: RUDRAJIT PAL .(2020A3PS1018P)

Student Write-up

PS-II Project Title: LogInsight-Notifier

Short Summary of work done during PS-II : Key tasks included establishing secure backend connections to fetch data from Snowflake, developing an NLP model integrated with rule-based categorization to filter and classify field issues, and creating backend connections to store and retrieve categorization outputs. The NLP model, utilizing the ROBERTA_BASE_V2 transformer model, encodes task messages and measures their similarity to categorize logs accurately. Additionally, a notification system was implemented to send alerts to users based on their subscriptions to specific log categories. The implementation involved developing a hybrid categorization pipeline combining rule-based and NLP-based approaches, ensuring efficient data management, and integrating user subscription mechanisms for real-time notifications. The project utilized technologies such as Python, Flask, React, PostgreSQL, and Snowflake.

Tool used (Development tools - H/w, S/w) : The Log-Insight Notifier project employed a range of development tools, including software such as Python for backend development and NLP model implementation, Flask for creating the backend server and API endpoints, React for

building the user interface, PostgreSQL for database management, and Snowflake for cloud-based data warehousing. The combination of these tools facilitated the efficient handling, categorization, and notification of extensive error logs, enhancing system reliability and operational efficiency

Objectives of the project : The primary objective of the Log-Insight Notifier project is to develop a robust and efficient system for managing and analyzing extensive error logs to provide timely detection and resolution of critical issues

Major Learning Outcomes : The major learning outcomes of the Log-Insight Notifier project include gaining in-depth knowledge of advanced log management techniques and the application of natural language processing (NLP) for error detection. Students learned to design and implement a robust backend system using technologies such as Python, Flask, React, PostgreSQL, and Snowflake. They acquired practical experience in developing and integrating rule-based and NLP-based categorisation models, particularly utilising the ROBERTA_BASE_V2 transformer model for log analysis. Additionally, they developed skills in creating real-time notification mechanisms to enhance system reliability and operational efficiency. The project also provided insights into data engineering, database management, and the importance of proactive issue detection and resolution in maintaining large-scale IT infrastructures

Details of Papers/patents : N.A.

Brief Description of working environment, expectations from the company : The working environment for the Log-Insight Notifier project was exceptionally collaborative and technology-driven, fostering innovation and practical problem-solving. Operating within an agile framework, I benefited from continuous feedback, iterative development, and regular stand-up meetings, which ensured alignment and steady progress. The environment was well-equipped with advanced tools and resources, promoting a culture of learning and experimentation.

The company met and exceeded my expectations by providing a supportive and resource-rich setting that facilitated seamless development and integration of the project components. I had access to all necessary hardware and software, including powerful servers for processing large data volumes and essential tools like Snowflake. Additionally, the guidance and mentorship from experienced professionals were invaluable, fostering my skill development and providing deep insights into industry best practices.

The collaborative atmosphere was outstanding, enabling effective cross-functional teamwork and knowledge sharing. Clear communication channels, regular feedback sessions, and a strong focus on professional growth were integral parts of the working environment. This supportive structure not only ensured the project's success but also significantly contributed to my learning experience and professional development. Overall, the environment and support provided by the company aligned perfectly with the project's goals of enhancing system reliability and operational efficiency through advanced log management solutions

Academic courses relevant to the project : Object Oriented Programming, Data Structures and Algorithms, Database Management, Natural Language Processing

PS-II Station : Nutanix Technologies India Pvt. Ltd. , Bengaluru

Faculty

Name: Chandra Shekar R K

Student

Name: VEDANSH KAKKAR(2020A3PS1137H)

Student Write-up

PS-II Project Title: NCM Sizer

Short Summary of work done during PS-II : The Nutanix Cluster Management (NCM) Sizer Deployment Planning project involved developing an automated tool to streamline the deployment planning process for Nutanix clusters. We designed both frontend and backend components to enhance user experience and data visualization. The frontend provided a user-friendly interface for input and displayed detailed data, while the backend handled data retrieval and processing

from Nutanix and Kubernetes APIs. The project emphasized the importance of resource management, allowing users to analyze resource availability and make informed decisions regarding scaling and optimization. Additionally, the project involved implementing Continuous Integration and Continuous Deployment (CI/CD) pipelines to facilitate seamless integration and deployment of updates.

Tool used (Development tools - H/w, S/w) : Python, Git for version control, Kubernetes, Flask, Javascript, Nutanix Internal Frameworks

Objectives of the project : 1. Automate Deployment Planning 2. Enhance User Experience 3. Optimize Resource Utilization

Major Learning Outcomes : Through the NCM Sizer Deployment Planning project, I gained a deep understanding of Kubernetes architecture and resource management. I developed proficiency in integrating Kubernetes APIs and automating deployment processes. I learned robust error handling and logging practices, as well as frontend and backend development skills focused on user experience and data visualization. The project enhanced my ability to design scalable systems, implement security best practices, and create comprehensive documentation. Additionally, I improved my problem-solving, critical thinking, and collaboration skills, preparing me for modern DevOps environments and the implementation of Continuous Integration and Continuous Deployment (CI/CD) pipelines.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : At Nutanix, I experienced an exceptionally supportive and dynamic working environment that greatly contributed to my professional growth and job satisfaction. The collaborative culture encouraged open communication and teamwork, allowing me to share ideas and work closely with colleagues across different departments. The company's commitment to inclusivity ensured that diverse perspectives were valued, making me feel respected and heard. Nutanix provided numerous opportunities for continuous learning and career advancement, including access to training programs and mentorship. Flexible work arrangements and policies promoting work-life balance enabled me to manage my personal and professional responsibilities effectively. Additionally, the

focus on employee well-being, through comprehensive health benefits and wellness initiatives, created a safe and comfortable workplace.

Academic courses relevant to the project : OOPS,FDSA

PS-II Station : Nutanix Technologies India Pvt. Ltd. , Bengaluru

Faculty

Name: Chandra Shekar R K

Student

Name: TENDULKAR ANIKET MINESH(2020A7PS0001G)

Student Write-up

PS-II Project Title: OBSERVABILITY IN CLOUD NATIVE ENTERPRISE SOLUTIONS

Short Summary of work done during PS-II : My work was mainly on creating an observability stack for a cloud native product that was under development by the company. I had to research about many open source tools, go through documentation and develop the product end- to end. I first had to give a proof of concept (POC) about it and then develop it to production. I had to work on using Prometheus, Grafana and Loki to provide customers with observability on Kubernetes. Also I had to keep in mind about resource utilization and scaling the product which were interesting challenges. There was a lot of coding, development, design and experimentation involved. The best part was the ownership of the project which I had to take from Day 0 till the end.

Tool used (Development tools - H/w, S/w) : Python, Go, Kubernetes, AWS, Prometheus, Grafana, Loki, Terraform, Helm, Git

Objectives of the project : Create an Observability framework for a cloud native product that Nutanix was developing.

Major Learning Outcomes : Writing Clean, Industry Standard and Production-Ready Code

Project Ownership

Collaboration and Teamwork

Time Management and Ability to work in a fast-paced environment

Effective Communication of Ideas

Networking and Learning from the Best

Familiarity with latest tools used in the industry

Upskilling in areas like Cloud Computing, Networking and Operating Systems

Details of Papers/patents : Open source tools were used

Brief Description of working environment, expectations from the company : The work culture at Nutanix is fantastic. They allow you to explore and take ownership of the project. All the team members are helpful and open to discussions. At the same time, you are expected to research well and also adapt on the go. In a fast paced environment, you are expected to learn new things and implement them as well. But 6 months is a good enough time to get adjusted. And the team is really great and always ready to help.

Academic courses relevant to the project : Data Structures and Algorithms, Operating Systems, Computer Networks, Object Oriented Programming

PS-II Station : Nutanix Technologies India Pvt. Ltd. , Bengaluru

Faculty

Name: Chandra Shekar R K

Student

Name: SUKRITI(2020A7PS0071P)

Student Write-up

PS-II Project Title: Wkhtmltopdf Migration

Short Summary of work done during PS-II : I worked on replacing a library used in the backend, which had some security vulnerabilities. I conducted thorough research on multiple alternatives available based on functional requirements, feasibility and performance. Then added the new library to existing workflow behind a feature flag.

Tool used (Development tools - H/w, S/w) : Golang, Docker, Scripting

Objectives of the project : To replace a red flagged library by a suitable alternative

Major Learning Outcomes : Ownership, Presentation and Communication

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : There are a lot of people from BITS here :)

Academic courses relevant to the project : DSA, OOPS, OS

PS-II Station : Nvidia Graphics - Hardware , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: VENKATESWARAN S.(2019B1A30913P)

Student Write-up

PS-II Project Title: Regression stats bringup for UCF SOC IP

Short Summary of work done during PS-II : UCF stands for Unified Coherency Fabric. In essence, its job is to route different types of memory packets which are broadly classified as request, response and data packets. It is one of the key elements of the Memory Sub System (MSS). My team aims to verify the RTL Designs for this IP. As the name suggests, the UCF also aids in maintaining coherency. A typical testbench contains a series of tests to be run on the DUT or Design Under Test, which in this case, refers to the RTL. The initial tests that are developed usually have to do with sanity checking the design and then broadly testing its functionality without getting into the specific functionalities of each sub-IP. The method used to optimally test the DUT and quickly stabilize the design is outlined in the test plan. As time goes on, tests become more rigorous and more specific bugs can be identified. Now, coming specifically to my task, it falls under the blanket term coverage. Coverage is a method of keeping track of the various functionalities that need to be verified in the design. Using the simple example of a full adder. We should ensure that all possibilities of inputs are being tested in the testbench.

Tool used (Development tools - H/w, S/w) : Unix, systemverilog, perl, python

Objectives of the project : 1. To learn about the UCF RTL and bringup regression stats for it.

Major Learning Outcomes : System verilog testbench overview, perl and python scripting

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : High ownership of task is expected. Do whatever it takes to complete tasks assigned to you

Academic courses relevant to the project : NA

PS-II Station : Nvidia Graphics - Hardware , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: ADITYA SINGH(2019B1AA0962G)

Student Write-up

PS-II Project Title: SoC Fabric Development Automation

Short Summary of work done during PS-II : Lots of scripting for me. Work will vary team to team - mine involved mostly automation.

Tool used (Development tools - H/w, S/w) : Perl, Python, Perforce, Unix

Objectives of the project : Reduce steps required in SoC Fabric dev, automate various manual processes

Major Learning Outcomes : Scripting, team work

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Comfortable, people are very approachable and great at problem solving and helping you identify issues.

Academic courses relevant to the project : NA

PS-II Station : Nvidia Graphics - Hardware , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: ISHA RASTOGI(2019B2A80524G)

Student Write-up

PS-II Project Title: Scan Gate level insertion

Short Summary of work done during PS-II : Worked on creating script using Python & internal EDA tool to support connection of DFT instances that is i1500 buffer across different hierarchy. Developed multiple testcase scenarios using Verilog. Migrated the Low power capture tool written in TCL to python binded C++ and EDA tool. Resolved numerous bugs and helped in improving the code coverage by adding testcases.

Tool used (Development tools - H/w, S/w) : Languages- C++ Python Verilog, Scripting language- TCL, EDA tool- Tessent, Perforce

Objectives of the project : To develop tools based on the design specification provided by the implementation team

Major Learning Outcomes : Object Oriented Programming, EDA Tools, Scripting, Debugging and Testing

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Very supportive team members to help out in better understanding of tool and doubt resolution.

Academic courses relevant to the project : OOPs, Digital Design

PS-II Station : Nvidia Graphics - Hardware , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: NAMAN MEHTA(2019B2A80981P)

Student Write-up

PS-II Project Title: Perform Power Regression Flow for an IP

Short Summary of work done during PS-II : I started with modifying the Design Under Test to have various markers which are needed to run the power regression, followed by writing tests for different cases which are recommended. Following which I had to do the synthesis setup and

perform synthesis and only then run the power regression flow. After the reports are out, I had to analyze the results and recommend any changes that could be made to improve the design's power efficiency. This also involved writing tests for specific power features which might be opportunistic and had to be tested with different scenarios.

Tool used (Development tools - H/w, S/w) : Verdi, Perforce, System Verilog, Template toolkit, UVM, NVIDIA internal tools.

Objectives of the project : Perform power regression to improve unit power efficiency.

Major Learning Outcomes : I got to learn about important power metrics, how can we improve them, writing tests, UVM.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Working environment is awesome. Team members are helpful and will help you through any problem. Though my project was very much dependent on some other tools, which were managed by people across the world. Any problems I had with these tools, I had to contact these people at their convenience. Depending on the project, one has to take the initiative to contact others for help. They expect one to have clarity on the basics and enough time was given for that. Overall, the working environment is peaceful.

Academic courses relevant to the project : Digital Design, ADVD.

PS-II Station : Nvidia Graphics - Hardware , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: PODDAR DISHANT PRADEEP .(2019B2A81032P)

Student Write-up

PS-II Project Title: MBIST API updates

Short Summary of work done during PS-II : API updates for smooth functioning of MBIST tests which tests memories for manufacturing defect when they silicon comes in our labs

Tool used (Development tools - H/w, S/w) : Verdi, Linux

Objectives of the project : To provide support to my team for running of various verification tests

Major Learning Outcomes : Learnt a lot about the fundamental concepts of digital design, SRAMs, other memories

Details of Papers/patents : none

Brief Description of working environment, expectations from the company : One of the best working environments across major tech companies

Academic courses relevant to the project : Digital electronics, VLSI testing

PS-II Station : Nvidia Graphics - Hardware , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: ANIMESH GUPTA(2019B3AA0588H)

Student Write-up

PS-II Project Title: Perf Capillary Log Parser

Short Summary of work done during PS-II : The team runs a lot of tests on performance simulators to see if the chip being designed matches the required performance metrics or not. In case it fails to do so, the team then needs to debug the reason for the failure. The simulator generates log files containing millions of lines of text. Since this raw data cannot be used as is to extract transaction information or calculate statistics, this project aims to parse through the text, get all the useful data, create interactable plots to make transaction tracking and debugging easier.

Tool used (Development tools - H/w, S/w) : Python, Perl, Shell scripting

Objectives of the project : Parse testout of performance simulator, extract useful statistics from it and provide visualisations in the form of graphs

Major Learning Outcomes : Python programming, CHI architecture concepts

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Nvidia has an excellent working environment with top of line facilities that aid employees in their work. Aside from the office, the recreation areas are also great. The expectations from the company changes from team to team, but for me, I always felt supported and encouraged regarding my work.

Academic courses relevant to the project : Computer Architecture, Digital Design

PS-II Station : Nvidia Graphics - Hardware , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: ABHINAV CHHABRA(2019B4AA1005H)

Student Write-up

PS-II Project Title: IP Wrapper Verification

Short Summary of work done during PS-II : I was tasked with the verification of IP Wrappers which are nothing but a new IP clocking system used by my team(Clocks and Resets). I also created an internal Team Dashboard to analyse the reports generated by the team. Apart from that, I also helped in automation of various tasks.

Tool used (Development tools - H/w, S/w) : Python, C++, Perl, Verilog, Django, HTML/CSS

Objectives of the project : To complete IP Wrapper Verification apart from other small projects

Major Learning Outcomes : Verification and debugging techniques, practice of Python,C++, Perl and Verilog

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Great working environment and great company

Academic courses relevant to the project : N/A

PS-II Station : Nvidia Graphics - Hardware , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: NIKITHA KANNAN .(2019B5A80760P)

Student Write-up

PS-II Project Title: Feature Enhancement of a Transactor & Verification of an Interrupt Controller

Short Summary of work done during PS-II : The first project focuses on enhancing a transactor for an existing emulation platform for verifying chips in Nvidia hardware. The transactor is pivotal in ensuring chip functionality and reliability amidst rising demand for high-performance computing. Key enhancements include resolving bugs that have been previously identified, ensuring that it follows the specified protocol, adding new modes for existing functionalities as required. These improvements aim to accelerate verification processes and reduce time-to-market for new hardware releases. The second project focuses on verifying the functionality of an interrupt controller present in the processor

Tool used (Development tools - H/w, S/w) : verilog, verdi, vcs, system verilog

Objectives of the project : enhancing a transactor for an existing emulation platform, verifying the functionality of an interrupt controller

Major Learning Outcomes : designing synthesizable code, debugging

Details of Papers/patents : none

Brief Description of working environment, expectations from the company : approachable, open, challenging

Academic courses relevant to the project : computer architecture

PS-II Station : Nvidia Graphics - Hardware , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: LAKKARAJU SRIRAM CHARAN(2019B5A81116H)

Student Write-up

PS-II Project Title: Chiplet synthesis

Short Summary of work done during PS-II : Generating chiplet and partition wrappers for Nvidia's T264 chip and generating noscans for the same

Tool used (Development tools - H/w, S/w) : Nvidia proprietary

Objectives of the project : Understanding and implementing chiplet synthesis

Major Learning Outcomes : Physical design implementation

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The work environment was very flexible when it come to work from home policy, everyone in the company are very supportive and give detailed knowledge transfer.

Academic courses relevant to the project : ADVD

PS-II Station : Nvidia Graphics - Hardware , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: ANAS KHAN(2019B5AA0896H)

Student Write-up

PS-II Project Title: Unit Level Design Verification of NIC

Short Summary of work done during PS-II : My work dealt with Design Verification of Network Interface Controllers (NICs) at Unit Level. Majorly dealt with resolution of Bugs and adding support in DV to accommodate needs of changed RTL.

Tool used (Development tools - H/w, S/w) : Perforce, Verisium, Specman, some Cadence & Synopsis specific tools.

Objectives of the project : Perform Unit Level Verification of Nvidia's Proprietary designs

Major Learning Outcomes : Developed great debugging skills & problem solving ability
Learnt many industry standard coding practices and tools like Perforce, Specman etc.
Got much better organisational understanding and how to keep pace with senior engineers and deliver promptly on tasks.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Working environment was really great. Everyone was Intellectually honest, eager to learn from each other and always willing to help. Working hours are team-dependent, varying based on your specific deliverables and if one requires coordination with international team members.

Academic courses relevant to the project : Computer/Communication networks (team-specific), Digital Design (mostly Verilog), Computer architecture (knowing basics of pipelining, cache, etc. helps occasionally)

PS-II Station : Nvidia Graphics - Hardware , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: OMKAR R DURGADA(2020A3PS0460P)

Student Write-up

PS-II Project Title: Verilog Modelling of GPU Memory Subsystem

Short Summary of work done during PS-II : Created a large training module meant to tutor engineers who join the GPU ASIC Teams of Nvidia. To help them get exposure in RTL Design and UVM Verification.

Tool used (Development tools - H/w, S/w) : Verilog, Makepp, SystemVerilog

Objectives of the project : Creating a training module for newcomers

Major Learning Outcomes : RTL Coding, Verification

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Consistent Work expected and good ability to learn

Academic courses relevant to the project : Digital Design, Computer Architecture

PS-II Station : Nvidia Graphics - Hardware , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: ARIJEET SINHA(2020A3PS0574G)

Student Write-up

PS-II Project Title: MBIST API Updates

Short Summary of work done during PS-II : Provided updates to the MBIST API for adding the coverage on tags to prevent the tag of a non-faulty bit to be returned during failure analysis and toggle check on ram ports to check if the port is controllable as desired.

Tool used (Development tools - H/w, S/w) : UNIX, GVIM, Verdi

Objectives of the project : To provide updates to the MBIST API for adding coverage on tags and toggle coverage on ram ports

Major Learning Outcomes : Learned about the embedded SRAM memories in chips and the ways in which silicon defects are caught in test designs and how the hardware is validated for RTL prior to silicon and how it is designed to be used as a tool after silicon. Also learned various software and hardware tools and tcl and perl language.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Nvidia has a really great working environment where everyone was really helpful and supportive. This experience provided me with the opportunity to learn a lot of new things and apply the core concepts of electronics at each step.

The company expects us to be responsible towards our work and take ownership for our tasks and also to keep our concepts clear.

Academic courses relevant to the project : Digital Design, Computer Architecture, Analog & Digital VLSI Design

PS-II Station : Nvidia Graphics - Hardware , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: KANTIA ISHAN VIKAS(2020A8PS1131G)

Student Write-up

PS-II Project Title: PCIe Design Verification

Short Summary of work done during PS-II : Resolved various pcie testbench bugs from previous projects and made the testbench more robust by improving it. Worked on the low power feature of pcie protocol.

Tool used (Development tools - H/w, S/w) : Verdi, Unix

Objectives of the project : Improving the testbench by resolving bugs

Major Learning Outcomes : System verilog and UVM, understanding how pcie devices work and their testbench

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Great environment to work in, there are no fixed timings and work is in hybrid mode. All the people are really helpful in solving your doubts and in technical assistance. The learning process is well organised and there are various interaction events at the start of the internship.

Academic courses relevant to the project : Digital Design , digital VLSI design

PS-II Station : Nvidia Graphics - Hardware , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: SAGAR KULKARNI(2020A8PS1612G)

Student Write-up

PS-II Project Title: Perl scripting and C++ Test integration

Short Summary of work done during PS-II : Implementation of functionality in perl scripts and C++ test integration

Tool used (Development tools - H/w, S/w) : Perl scripting, Perforce VCS, Linux, C++

Objectives of the project : Implementation of functionality in perl scripts and C++ test integration from legacy to active code

Major Learning Outcomes : Perl scripting, Perforce VCS, Linux, C++

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Working environment is great, catering to all needs, Focus is on both technical as well as non technical skills

Academic courses relevant to the project : OS, Computer Architecture, C++ programming

PS-II Station : Nvidia Graphics - Hardware , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: SINDURA PATRIA .(2020A8PS1812P)

Student Write-up

PS-II Project Title: Code coverage and logfile bucketing

Short Summary of work done during PS-II : I did my internship in the SOC verification team. I performed code coverages and implemented it using two different approaches. The first one was an assembly level based coverage to avoid code Instrumentation and the second one employed

fuzzing as a solution. I then pivoted towards reducing logfiles' size and clutter. These files are dumped once a test is ran and helps a verification engineer in debugging.

Tool used (Development tools - H/w, S/w) : Python, fuzzers, ML based logparsers, system verilog, VCS

Objectives of the project : Perform code coverage and bucketize the logfile to reduce logfiles' size and clutter.

Major Learning Outcomes : I got to learn about the importance of code coverage and how it can be performed. I also learnt about testout logfiles.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Nvidia's working environment is great wherein an engineer is given complete flexibility on the kind of work he/she wants to work on. Moreover, every individual works at his/her own pace and exhibits his/her individuality in the kind of work they do.

Academic courses relevant to the project : Computer Architecture (basic knowledge)

Computer Programming

ISA from Microprocessors and Interfacing course

Basic verilog knowledge

PS-II Station : Nvidia Graphics - Hardware , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: POORNIMA K(2020AAPS0410G)

Student Write-up

PS-II Project Title: Low power verification

Short Summary of work done during PS-II : Work revolves around the extraction of coverage aspect of verification associated with various IPs. These IPs are designed to assist the low power features or make the low power feature implementation possible. There were tasks related to isolation cells like clamps and its implementation. Clock gating and its implementation was also explored.

Tool used (Development tools - H/w, S/w) : verdi

Objectives of the project : To verify IPs implemented as a part of the low power features and extract the coverage associated with the verification process

Major Learning Outcomes : verification, coverage and its importance, use of perl as a scripting language

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : NVIDIA's working environment is dynamic and innovative. There is a collaborative atmosphere that encourages creativity and problem-solving, with opportunities to work on groundbreaking projects in AI, machine learning, and graphics. The company gives importance to continuous learning and development, providing access to extensive resources and training. Work-life balance is supported through flexible work options.

Academic courses relevant to the project : microelectronics, microprocessors, digital design, computer architecture

PS-II Station : Nvidia Graphics - Hardware , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: MOHAMMED IMMRAN(2022H1230179H)

Student Write-up

PS-II Project Title: Clocks Distribution

Short Summary of work done during PS-II : Initially rampup on basic vlsi concepts and clocks done.later the concepts related to project and tools has been discussed ,now involved in clocks Distribution project.

Tool used (Development tools - H/w, S/w) : Inhouse tools

Objectives of the project : Distribute the clock from PLLs to ips

Major Learning Outcomes : Major concepts related to clocks

Details of Papers/patents : Patent not filed

Brief Description of working environment, expectations from the company : Environment is very good and the team is very helpful to meet deadlines

Academic courses relevant to the project : Cad for ic design

PS-II Station : Nvidia Graphics - Hardware , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: SIDHARTH NAYAK(2022H1230181H)

Student Write-up

PS-II Project Title: Analysis and Area Reduction of Existing Chiplet Partitions to converge PPA values.

Short Summary of work done during PS-II : The project assigned is a scaling trial which means there is an existing chip in the market and a new chip is to be put on trial. Since a lot of chiplets are being taken from existing chip, it is important to reduce the area of certain possible partitions and see if the PPA values converge to that of the existing one. Hierarchical order of understanding the structure – A chip is the one we physically see, which is divided into certain number of chiplets each handled by a chiplet owner. Each chiplet is then further divided into partitions.

Tool used (Development tools - H/w, S/w) : Innovus by Cadence, ICC2 by Synopsys

Objectives of the project : To cover the physical design flow and achieving min area/size of partitions of a chip existing in the market while maintaining the PPA.

Major Learning Outcomes : Innovus, ICC2 Tool and TCL/Linux Shell Scripting

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : This internship marks my inaugural venture into the corporate realm. Over the past 4.5 months at NVIDIA, I've undergone a significant transformation and found immense fulfillment, encountering abundant opportunities for personal and professional growth. The people across the office are highly helpful and the amount of resources provided have not been discriminated between interns and full time employees. The cutting edge tech is fun to work with. The PD team work is definitely hectic but for people having a knack of VLSI basics it gets easier to relate to things studied in a fundamental level.

Academic courses relevant to the project : VLSI Design, Advanced VLSI Design, IC Fabrication, CAD for IC Design

PS-II Station : Nvidia Graphics - Hardware , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: AKASH DAS(2022H1230248P)

Student Write-up

PS-II Project Title: Framebuffer Power Validation

Short Summary of work done during PS-II : This project involves an internship with NVIDIA's Memory Solutions Team, focusing on the development and optimization of memory technologies

for next-generation GPUs, contributing to the end-to-end productization of memory solutions, conducting system-level testing, performance analysis, and power modeling. Key aspects of the project include: 1. Collaborating on memory productization for future NVIDIA GPUs 2. Executing projects to measure and analyze power consumption and bandwidth utilization 3. Conducting system-level testing of memory solutions 4. Contributing to performance optimization and power efficiency improvements 5. Gaining hands-on experience in a cutting-edge, fast-paced environment The project aims to advance NVIDIA's GPU technologies by enhancing memory performance and efficiency, while providing the intern with valuable industry experience in high-performance computing and memory systems.

Tool used (Development tools - H/w, S/w) : Python, Mods ,excel, DAQ and other automation tools

Objectives of the project : •Collaborate with the Memory Solution Team to conduct end-to-end productization of memory solutions for NVIDIA's next-generation GPUs. • Execute projects involving the measurement and analysis of power consumption, bandwidth utilization, and other pertinent parameters.

Major Learning Outcomes : Gained hands-on experience in system-level testing methodologies for advanced GPU memory systems.

Developed skills in performance analysis, particularly in measuring and optimizing memory bandwidth utilization.

Acquired knowledge in power modeling and analysis for high-performance computing systems.

Learned about the productization process for cutting-edge memory technologies in the GPU industry.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment-->

Fast-paced and innovative: The intern will be working in a dynamic environment at the forefront of GPU technology development.

Collaborative: The project involves working closely with the Memory Solutions Team, suggesting a team-oriented atmosphere.

Company Expectations-->

Technical competence: The intern is expected to have a strong foundation in computer architecture, memory systems, and performance analysis.

Analytical skills: Ability to conduct detailed performance analysis and interpret complex data

Academic courses relevant to the project : Project is more related to embedded and firmware development .

PS-II Station : Nvidia Graphics - Hardware , Bengaluru

Faculty

Name: Madhuri Bayya

Student

Name: ARPIT SHRIVASTAVA(2022H1240045H)

Student Write-up

PS-II Project Title: To determine the junction temperature and reliability of GaN device

Short Summary of work done during PS-II : At Agnit Semiconductor, my role involves using Raman spectroscopy to determine temperature variations in semiconductor materials. This is complemented by employing a probe station for assessing DC characteristics, which provides critical insights into the electronic properties of our samples. My experience includes training on an electronic microscope to analyze material structures at a micro-level, enhancing our understanding of their behavior under different conditions. I utilize power sources and Source Measurement Units (SMUs) for precise electrical measurements, and Origin software to plot research-level graphs for data analysis and visualization. Additionally, I've worked with LabVIEW

to develop systems for real-time data acquisition from SMUs, enabling dynamic monitoring and analysis of our experiments. Expanding my skill set, I have begun exploring the use of climate chambers for simulating and controlling environmental conditions to test material reliability and performance. I've also delved into PCB design, learning the principles of layout and circuit design to create custom boards for our experiments. My soldering skills ensure secure connections between components, and I've gained foundational knowledge in wirebonding to establish connections within semiconductor devices. Furthermore, I am learning to select high-temperature components critical for applications involving extreme operating conditions, ensuring the reliability and longevity of our products. My work at Agnit Semiconductor is a blend of advanced material analysis, precise electrical measurements, and practical engineering skills, contributing to the development and optimization of cutting-edge semiconductor technologies.

Tool used (Development tools - H/w, S/w) : probe station climate chamber labview klayout power sources labramh100

Objectives of the project : To determine the junction temperature using raman and reliability testing

Major Learning Outcomes : How to determine the GaN peaks using Raman spectroscopy, biasing of GaN device, how to use probe station, how to use SMU, power sources, soldering, wire bonding, PCB designing

Details of Papers/patents : NONE

Brief Description of working environment, expectations from the company : Agnit Semiconductor offers a vibrant and collaborative working environment that fosters professional growth and innovation. The company culture encourages teamwork, continuous learning, and open communication, creating a supportive atmosphere where employees can thrive. State-of-the-art facilities and access to advanced tools and technologies allow for hands-on experience and skill development in cutting-edge semiconductor research and development.

Despite the positive working conditions and ample opportunities for professional development, Agnit Semiconductor does not currently offer a Pre-Placement Offer (PPO) to its interns or trainees. This has been a point of consideration for many, as a PPO would provide a seamless transition from training to a full-time role, recognizing the efforts and contributions of interns. The

absence of a PPO means that interns need to seek employment opportunities elsewhere after their tenure, despite the valuable experience gained during their time at Agnit. Overall, while the working environment at Agnit Semiconductor is highly conducive to growth and learning, the lack of a PPO is an area where potential improvements could enhance the overall intern experience.

Academic courses relevant to the project : VLSI design, RF microelectronics, RF microwave

PS-II Station : Nvidia Graphics -Software , Bengaluru

Faculty

Name: Kranthi Kumar Palavalasa

Student

Name: HARSH AGRAWAL .(2019B2A30996P)

Student Write-up

PS-II Project Title: Auto-Capturing of Display Bugs in GPU Driver

Short Summary of work done during PS-II : Developed a Python script to programmatically change display refresh rates to reproduce a specific bug Created a test case to validate display modes by disabling multiblock EDID reading, simulating a "faulty" driver scenario Explored tools and setups for creating automation with OS recovery using cascading Virtual Hard Disks (VHDs) and native partitions Proposed a software solution to automatically switch display output between multiple heterogeneous GPUs connected to a single monitor

Tool used (Development tools - H/w, S/w) : Perforce, VS Code, Pycharm, Visual Studio, Cmd

Objectives of the project : automating the process of reproducing and capturing display bugs through scripting, creating test cases compatible with Nvidia's testing environment, and deploying these automated tests for continuous monitoring across different driver versions and hardware configurations.

Major Learning Outcomes : understanding display hardware, automation using python/c++, GPU

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Overall experience was good. Working environment is respectful and calm. Can play TT, other games. Free office cabs and lunch/breakfast. Free Nvidia gear points for merchandise.

Academic courses relevant to the project : Computer Programming, OOPs, OS

PS-II Station : Nvidia Graphics -Software , Bengaluru

Faculty

Name: Kranthi Kumar Palavalasa

Student

Name: ADITYA KUMAR(2020A3PS0624H)

Student Write-up

PS-II Project Title: Memory Optimization and Lane Recommendation System Design in Autonomous Vehicle

Short Summary of work done during PS-II : The project aims to enhance the efficiency, safety, and real-time decision-making capabilities of autonomous navigation systems. The first objective focuses on optimising the HD-Maps Manager Module, reducing its runtime memory consumption. This is achieved by implementing modified data structures, dynamic buffer allocation, and various cache optimisations. The second objective involves the development of a probabilistic model for lane recommendation, utilising ML/DL techniques. This model aims to replace the existing heuristic methods, providing dynamic lane change suggestions based on real-time driving scenarios, thereby improving decision-making, safety, and efficiency. The final objective integrates lane-level navigation data generation using the OSRM API. This involves including lane recommendation data and enhanced attributes, ensuring compatibility with the latest updates in other modules. By addressing these objectives, the project seeks to streamline memory usage, enhance real-time lane recommendations, and eliminate the dependency on third-party providers for lane data, ultimately contributing to the advancement of autonomous vehicle technology.

Tool used (Development tools - H/w, S/w) : Bazel, Docker, GoogleTest Framework, C/C++ 14 (with modified modules), GDB debugger, Git/Gerrit, UNIX commands for GPU-accelerated builds, DGL library for python, OSRM web and C++ API

Objectives of the project : Optimize memory usage of modules, develop lane recommendation system designs

Major Learning Outcomes : C++ Data Structures, Object-Oriented Programming, Machine Learning and Deep Learning Models

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The team only expects you to complete your task suitably till the given deadline. They will allow you to take leaves or rest times as long as you have done your work. So you can plan to work on weekends and take a few days leave in the weekdays. The work they expect from you has to be very high quality and as good as all other experienced folks. There are many opportunities and resources to learn new tools.

Academic courses relevant to the project : Data Structures and Algorithms, Object Oriented Programming, Operating Systems, ML, AI, Microprocessors and Interfacing

PS-II Station : Nvidia Graphics -Software , Bengaluru

Faculty

Name: Kranthi Kumar Palavalasa

Student

Name: SAMRIDDHA SINHA .(2020A7PS0021P)

Student Write-up

PS-II Project Title: Windows AI: Developing AI Solutions for RTX GPUs on Windows

Short Summary of work done during PS-II : Learning about AI and NVIDIA technologies and implementing certain features into said technologies.

Tool used (Development tools - H/w, S/w) : TensorRT-LLM, TensorRT Model Optimizer, NIMs, PyTorch/HuggingFace, C++

Objectives of the project : Learn AI techniques, develop optimized solutions, explore novel techniques of model optimization

Major Learning Outcomes : Nature of work at Big Tech, New NVIDIA technologies, SOTA methods of model optimization

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Open culture with a flat hierarchy. Jensen is an inspirational CEO and a role model. Expect challenges at work but the team will always help you

Academic courses relevant to the project : AI, Parallel Computing

PS-II Station : Nvidia Graphics -Software , Bengaluru

Faculty

Name: Kranthi Kumar Palavalasa

Student

Name: OM KULKARNI(2020A7PS0977G)

Student Write-up

PS-II Project Title: Bringup Dashboard and Automation Tasks

Short Summary of work done during PS-II : My work was making a dashboard and automation tasks.

Tool used (Development tools - H/w, S/w) :
PythoPython,Jenkins,Ansible,ReactJS,FastAPI,Kubernetes

Objectives of the project : To simplify manual tedious tasks in DevOps field

Major Learning Outcomes : Technical proficiency, Communication skills

Details of Papers/patents : No papers or [patents published

Brief Description of working environment, expectations from the company : Good and motivating working environment with flexible working hours.

Academic courses relevant to the project : Browsing through net, Coursera and Udemy

PS-II Station : Nvidia Graphics -Software , Bengaluru

Faculty

Name: Kranthi Kumar Palavalasa

Student

Name: TENDULKAR ANURAG MINESH(2020A7PS1010G)

Student Write-up

PS-II Project Title: Enhancing Team Efficiency Through Workflow Automation and Visual Dashboards

Short Summary of work done during PS-II : Most of the interns are given side projects as they require time before they can actually contribute to the work done by the team. My side project was to develop a dashboard to visualise metric data of our tests. The aim was to capture any regression in the metrics by changes in our codebase. The work involved using python api's, understanding codebase, and experimenting with tools such as Elasticserach and Kibana. After I completed this side project I started assisting my team in improving the efficiency of their workflows by automating manual commands. I was given a lot of responsibility and flexibility on

how I designed my tool. My last project was to write a python script to combine unit test and integration test coverage data. This involved basic DSA concepts but the challenge was to find and cover all corner cases as coverage generated by my script was used in a release.

Tool used (Development tools - H/w, S/w) : S/w

Objectives of the project : Assist and Enhance Team Efficiency through Visualisation and Automation

Major Learning Outcomes : Python, Version Control, Visualisation Tools such as Elasticsearch/Kibana

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The work environment in Nvidia is the best in the industry. Interns are given a lot of responsibility, and most of them have great projects in various domains. The culture is again the best and is fully employee-centric. We had a cricket, pool, badminton, Valorant competitions along with many workshops on dance, AI, tech etc. There are also a lot of charity events where you can contribute back to the society. There is breakfast, lunch and snacks provided at the company.

Related to work, there is a lot of expectations from an Intern and they are given enough time to learn. They are trained and provided assistance when they are stuck. The only drawback is that since remote work is allowed, the entire team is not present in the same office so in person interaction is limited. This is compensated by regular virtual meetings. Since Nvidia has a proper intern program, the experience for an intern is a 9.9/10

Academic courses relevant to the project : CP, DSA, Operating Systems, OOP

PS-II Station : Nvidia Graphics -Software , Bengaluru

Faculty

Name: Kranthi Kumar Palavalasa

Student

Name: RAHUL BAJAJ(2020A8PS1248G)

Student Write-up

PS-II Project Title: Automation of requirements tracking, Verification and Unit Testing

Short Summary of work done during PS-II : In my role, I extensively used Python scripting to automate various tasks associated with managing trackers displaying Jama requirements data and metrics. This automation involved making API calls to interact with the Jama system, retrieving and updating requirements data, and performing necessary tasks such as data validation, reporting, and synchronization. By leveraging APIs, I ensured that the data was accurately maintained and up-to-date, reducing manual effort and minimizing errors. Additionally, I was responsible for unit testing several modules using VectorCAST. This required me to design and implement comprehensive unit tests in C, with a strong emphasis on achieving 100% statement and branch coverage. To ensure thorough testing, I used stubs to simulate function calls and probes to handle jump statements within the code. This approach allowed for isolated and effective testing of individual units. Furthermore, I standardized the naming conventions of unit tests across all files for better organization and clarity. My work in unit testing ensured that the code was robust and reliable, with all possible execution paths tested and verified. Overall, my efforts in automation and unit testing significantly contributed to the efficiency and quality of the project.

Tool used (Development tools - H/w, S/w) : S/w - Jama, VectorCAST

Objectives of the project : tracking Jama requirements data and their metrics, 100% statement coverage while unit testing

Major Learning Outcomes : Improved Efficiency, Enhanced Reliability, Streamlined Collaboration, Simplified Debugging

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at Nvidia is exemplary, offering a combination of professional satisfaction and personal well-being. Employees enjoy a balanced work-life dynamic, which is a priority within the company culture. This balance ensures that employees can maintain a healthy and fulfilling life outside of work, reducing stress and enhancing overall productivity. Additionally, the environment is free from toxicity, fostering a positive and collaborative atmosphere where individuals feel respected and valued. Mentors and managers at Nvidia are particularly helpful and supportive, always willing to guide and assist team members in their professional development. This supportive network encourages continuous learning and growth, making it an excellent place for both personal and career advancement. The company's commitment to providing a good learning experience is evident through various training programs, workshops, and opportunities for skill enhancement. Overall, Nvidia offers a nurturing and empowering environment that helps employees thrive professionally and personally.

Academic courses relevant to the project : OOPS, DSA, C programming

PS-II Station : Nvidia Graphics -Software , Bengaluru

Faculty

Name: Kranthi Kumar Palavalasa

Student

Name: VATSAL PAREKH(2020AAPS1434G)

Student Write-up

PS-II Project Title: Automating the requirement migration process

Short Summary of work done during PS-II : In my role with the DRIVE team at NVIDIA, I spearheaded the automation of requirement migration, a multifaceted project divided into three distinct parts, each addressing critical challenges encountered by the team. A pivotal aspect of this initiative was the establishment of an infrastructure designed to optimize the utilization of Large Language Models (LLMs) for both text generation and summarization tasks. This infrastructure incorporated Retrieval-Augmented Generation (RAG) techniques, as well as embedding and vector database technologies, which collectively enriched the context available to the LLMs. Central to the project was the comparative analysis of outputs from multiple LLMs, a methodology employed to evaluate and refine the quality and relevance of generated texts and summaries. By systematically assessing and comparing these outputs, we aimed to enhance the accuracy, coherence, and efficiency of the migration process for requirements within the DRIVE team's workflow. Through these efforts, the automation of requirement migration not only streamlined operations but also advanced the team's capabilities in leveraging cutting-edge natural language processing techniques, positioning NVIDIA at the forefront of innovation in this domain.

Tool used (Development tools - H/w, S/w) : Development tool - S/W

Objectives of the project : Reduce the manual effort of the team.

Major Learning Outcomes : The major learning outcomes are:

1. Expertise with Python libraries and modules.
2. A Deep understanding of API's
3. Prompt engineering
4. Implementation of RAG, embeddings and Vector DB.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The working environment is notably relaxed and non-toxic, fostering a collaborative atmosphere where employees assist one another without ego or pretense. The team demonstrates a strong enthusiasm for new technologies, reflecting a forward-thinking and innovative culture. Interns are expected to work diligently on their projects, striving to reach a substantial progress milestone before seeking assistance for any challenges they encounter. This approach encourages a proactive attitude and ensures that interns develop problem-solving skills and a deeper understanding of their tasks.

Academic courses relevant to the project : AI, FoDSA, OOPS

PS-II Station : Nvidia Graphics -Software , Bengaluru

Faculty

Name: Kranthi Kumar Palavalasa

Student

Name: MOHAMMAD AVESH HUSAIN(2022H1030090H)

Student Write-up

PS-II Project Title: Firmware Development, Modular testing

Short Summary of work done during PS-II : Initially assigned with crucial modular testing of the firmware functionalities being implemented, work on implementation of new modules in the firmware, debug caused by regressions

Tool used (Development tools - H/w, S/w) : VS-Code, Ada, Python, linux, shell, JIRA, internal tools

Objectives of the project : Test the Firmware Features, Firmware Development

Major Learning Outcomes : Ada programming, pytest environment, PCIe specs, internal Communication protocols, IPC/RPC

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Working Environment is great, everyone is willing to help, i join in crucial crunch time of a product life cycle still all the nurturing i could ask for, there is no office timing so working in balance with other priorities was great. Manager and Mentor was always supportive for work and non office works

Academic courses relevant to the project : Firmware development, driver development, low power device development,

PS-II Station : Nvidia Graphics -Software , Bengaluru

Faculty

Name: Kranthi Kumar Palavalasa

Student

Name: ARITRA KUMAR DUTTA(2022H1030096H)

Student Write-up

PS-II Project Title: In kernel stack enabling and testing of MCTP (Management Control Transfer Protocol)

Short Summary of work done during PS-II : Enabling the in kernel MCTP stack and testing it over existing protocols used by NVIDIA for I2C bus, and calculating the performance improvement over demux-daemon dbus implementation which was using the AF_UNIX Socket and UAPIs

Tool used (Development tools - H/w, S/w) : BMC, OpenBMC Linux, I2C bus, Linux

Objectives of the project : Performance metrics on existing protocol over MCTP but using the kernel MCTP Socket

Major Learning Outcomes : Linux Drivers, Kernel Modules, MCTP, Linux Device Tree, I2C bus protocol -SMBus.

Details of Papers/patents : NVIDIA BMC is a multipurpose CPU which in turn controls other CPUs and peripherals. BMCs are largely used in Data Centers to manage various hardware connected on the same machine/server.

Brief Description of working environment, expectations from the company : Amazing workplace, very helpful peers.

Academic courses relevant to the project : C++, Systemd, Dbus interface

PS-II Station : Nvidia Graphics -Software , Bengaluru

Faculty

Name: Kranthi Kumar Palavalasa

Student

Name: MANISHA K JOHNSON(2022H1120281P)

Student Write-up

PS-II Project Title: ENHANCEMENTS IN SPEECH AND TRANSLATION AI: NVIDIA RIVA

Short Summary of work done during PS-II : During my internship at Nvidia, I worked on enhancing the performance and usability of the Nvidia Riva ASR and TTS systems. The project involved three major tasks: improving ASR performance measurement to provide more accurate latency and throughput metrics, integrating a custom G2P dictionary to enhance the naturalness of speech synthesis, and exposing endpointing parameters in the ASR system to allow for fine-tuning based on specific environmental conditions. These tasks collectively aimed to improve the accuracy, efficiency, and user experience of Nvidia Riva's speech AI systems

Tool used (Development tools - H/w, S/w) : NVIDIA Riva SDK, NVIDIA TensorRT, NVIDIA Triton Inference Server, gRPC-based Microservices, Containerization tools

Objectives of the project : The main objectives of the project were to contribute to the development and optimization of AI models for real-time speech recognition and translation applications. My tasks focused to enhance the performance of the Automatic Speech Recognition (ASR) system, add new features as to integrate a custom Grapheme-to-Phoneme (G2P) dictionary in the Text-to-Speech (TTS) pipeline, and expose endpointing parameters in the ASR system.

Major Learning Outcomes : Enhanced understanding of GPU-accelerated AI models and their applications in real-time speech recognition and synthesis.

Gained practical experience in optimizing and contributing in Nvidia Speech AI framework for Automatic Speech Recognition and Text To Speech systems for improved performance and accuracy.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The working environment at Nvidia, was dynamic and supportive, fostering holistic development through inclusive meetings and collaborative projects. The company provided an enriching experience by allowing interaction with subject matter experts and cross-functional teams. The expectations from the company included contributing to the development and optimization of AI models, enhancing the performance of ASR and TTS systems, and integrating custom solutions to improve user experience

Academic courses relevant to the project : Machine Learning
Artificial Intelligence
Software Engineering
Software in Embedded system

PS-II Station : Nvidia Graphics -Software , Bengaluru

Faculty

Name: Kranthi Kumar Palavalasa

Student

Name: SOUMYA BISWAS(2022H1120288P)

Student Write-up

PS-II Project Title: Display Test Framework 2.0

Short Summary of work done during PS-II : -For any new development changes, a set of sanity test are run to determine the system's stability. The changes are merged to master only if these tests pass. -The sanity infrastructure for these tests had some drawbacks like manual efforts for

test retries/regression analysis, inefficient search system for sanity queries and outdated tools - My project was to fix these issues via below : 1. Retry Service - To automate test failure retries and derive regression analysis, I built a job that automated the retries and built regression reports 2. Sanity Chatbot - For faster information lookup from confluence, I developed a chatbot that would query user's answers 3. CI/CD and tool updates - Some efforts were spent to update the tools like CI/CD flow and poetry config

Tool used (Development tools - H/w, S/w) : LLMs, Embedding Models, Python Cron Jobs, Jenkins, Vault

Objectives of the project : -For any new development changes, a set of sanity test are run to determine the system's stability. The changes are merged to master only if these tests pass. -The sanity infrastructure for these tests had some drawbacks like manual efforts for test retries/regression analysis, inefficient search system for sanity queries and outdated tools - My project was to fix these issues via below : 1. Retry Service - To automate test failure retries and derive regression analysis, I built a job that automated the retries and built regression reports 2. Sanity Chatbot - For faster information lookup from confluence, I developed a chatbot that would query user's answers 3. CI/CD and tool updates - Some efforts were spent to update the tools like CI/CD flow and poetry config

Major Learning Outcomes : Leveraged AI and automation to improve the sanity tests infrastructure

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Supportive and collaborative work environment provided with constant encouragement and scope given to experiment with ideas

Academic courses relevant to the project : Natural Language Processing, Cloud Computing, Deep Learning

PS-II Station : NXP India Pvt Ltd. - Tech , Bengaluru

Faculty

Name: Rajesh Kumar Tiwary

Student

Name: DISHA D(2022H1230136G)

Student Write-up

PS-II Project Title: Design Verification using System Verilog and UVM

Short Summary of work done during PS-II : Learnt SV and UVM languages. Wrote testbench architecture on SV and UVM for some of the verilog design codes.

Tool used (Development tools - H/w, S/w) : Cadence XCelium, Visual Studio Code, IMC
Cadence

Objectives of the project : To master verification skills

Major Learning Outcomes : SV, UVM, Debugging skills

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : NXP has a great working environment. I got a good industry exposure. The expectation from the company was to handle the given work well.

Academic courses relevant to the project : Verilog, Digital design

PS-II Station : NXP India Pvt Ltd. - Tech , Bengaluru

Faculty

Name: Rajesh Kumar Tiwary

Student

Name: MUKUL PAREEK(2022H1230262P)

Student Write-up

PS-II Project Title: tb simulations of old project in inhouse tool of NXP.

Short Summary of work done during PS-II : My work was to simulate the testbenches of an old project. So that results of this project can be optimised to certain extent and we can use this project design in any upcoming project with the optimised specification.

Tool used (Development tools - H/w, S/w) : Discover (Inhouse tool)

Objectives of the project : To take use of results of an old project in upcoming project.

Major Learning Outcomes : Discover tool , cadence virtuoso

Details of Papers/patents : No

Brief Description of working environment, expectations from the company : Working environment was very good in my team. learn lot of new things.

Academic courses relevant to the project : Analog IC design

PS-II Station : OfBusiness , Gurugram

Faculty

Name: Ashish Narang

Student

Name: AMAN RAJ SINGH(2019B1A31483H)

Student Write-up

PS-II Project Title: Software Development - Oasys a SME Credit and Commerce Platform

Short Summary of work done during PS-II : The work done included the following - Oasys Structure and Functionality - Gain an in-depth understanding of Oasys's architecture and its various components. Automated Error Detection: Implement PMD (Programming Mistake Detector) and Git hooks in the backend directory of Oasys to automate error detection. API Extraction and Analysis: Develop a Python script to extract and analyse APIs within the Oasys backend directory Enhanced Data Retrieval: Leverage Elasticsearch's indexing and querying capabilities to improve data retrieval speed and facilitate efficient order tracking. Result: Reduced database size from 17 GB to 1.7 GB, improved search performance, and introduced aliases for seamless data management. Upgraded Java 8 to 11, Springboot 2.2 to 2.7 and Elasticsearch 6.8 to 7.17 on oasys

Tool used (Development tools - H/w, S/w) : Software Development, SpringBoot, Elasticsearch, MySQL, Redis, MongoDB

Objectives of the project : To closely work with team Oasys which maintains a complex software that handles the complete lifecycle of an order that takes place in the ecommerce domain. The software is used by multiple teams in the company for tracking and management of large number of orders. The goal was to help the team to my best capacity and complete the weekly/monthly tech tasks assigned to me by the mentor which lead to application improvement.

Major Learning Outcomes : Worked on tech stack like Springboot, MongoDB, Elasticsearch, MySQL, Redis etc.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at Ofbusiness has been collaborative, and supportive. The leadership is approachable and open to feedback, making it easy to navigate challenges and grow professionally.

Academic courses relevant to the project : Object oriented programming, Software Development

PS-II Station : OfBusiness , Gurugram

Faculty

Name: Ashish Narang

Student

Name: SUJAY PATNI .(2019B3A70575P)

Student Write-up

PS-II Project Title: Optimizing Performance and Enhancing Functionality: Java Backend Development for Buyer Website

Short Summary of work done during PS-II : OfBusiness is one of India's largest and most profitable startup. The company has recognized a need to transform their business online with the development of the buyer website and app. Maintaining and enhancing the app along with introducing new features requires the support of Java backend developers. My work majorly revolves in SpringBoot and Redis and include enhancement of features in the website and resolving existing bugs, majorly associated with the complete overhaul of the existing search navigation of the website and addition of new search segments along with introducing FAQ section on Product pages and creating flow for user deletion. These features have made the website more user friendly and resulted in easier navigation.

Tool used (Development tools - H/w, S/w) : Java, Spring Boot, Redis, Python, IntelliJ, MySQL, Postman, Google API

Objectives of the project : • Build new features for the primary website • Support on the overall backend development required on the website and the applications. • Enhance and Optimise search engine results for the website • Optimise Java Memory and API response time for the website

Major Learning Outcomes : Learned in depth backend development production cycle and contributed in production ready code from the ideation to release.

Learned Java along with spring boot for high level development with focus on optimisation

Learned how to write clean and concise code with aim to have low API response time and low memory utilisation. Also learned how to analyse and test APIs and resolve bugs in development and production

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The team members are friendly and supportive. They were very patient and helped me get accustomed to

the workplace and the practices followed here. The team planned out my tasks in a way that would help me learn new skills without being overwhelmed and still be able to contribute into the overall tasks.

Academic courses relevant to the project : Object Oriented Programming, Data Structures and Algorithms, Database Management System, Computer Networks

PS-II Station : OfBusiness , Gurugram

Faculty

Name: Ashish Narang

Student

Name: CHIRAG BANSAL(2019B4A80816H)

Student Write-up

PS-II Project Title: Integration of data in SAP

Short Summary of work done during PS-II : Created api to manipulate the data according to SAP

Tool used (Development tools - H/w, S/w) : IntelliJ, Git, VSCode

Objectives of the project : To store the data in SAP

Major Learning Outcomes : Learned team work, collaboration in team, new tech stack

Details of Papers/patents : Integrating and managing the data according to SAP

Brief Description of working environment, expectations from the company : It was an awesome environment to work on a developing stage project and contribute into it in every possible way.

Academic courses relevant to the project : OOPS

PS-II Station : OfBusiness , Gurugram

Faculty

Name: Ashish Narang

Student

Name: ANIRUDH SINGH(2019B5AA0768G)

Student Write-up

PS-II Project Title: Face anti spoofing and lead grading models

Short Summary of work done during PS-II : During my tenure at OfBusiness, I contributed to the development of two key machine learning models: the Liveness Detection Model and the Lead Grading Model. The Liveness Detection Model aims to enhance security in facial recognition systems by detecting and preventing spoofing attempts. This involved acquiring and curating datasets, including simulating spoofing scenarios. The model utilizes the VGG16 architecture, enhanced by transfer learning from pre-trained models, achieving approximately 97% accuracy. This robust anti-spoofing solution effectively flags unrecognizable, bright, and spoof images, reducing the need for manual intervention and ensuring high security. In parallel, I worked on the

Lead Grading Model, designed to improve the efficiency and accuracy of lead evaluation at Oxyzo. The model identifies essential parameters for grading leads, leveraging historical data to predict lead quality based on specified criteria. The XGBoost algorithm was chosen for its ability to handle imbalanced datasets and provide accurate predictions. This system automates the lead evaluation process, enhancing decision-making and ensuring consistent outcomes. Regular updates to the model ensure it remains relevant and effective over time. These projects reflect my ability to apply advanced machine learning techniques to solve complex problems, significantly contributing to OfBusiness's operational capabilities and decision-making processes.

Tool used (Development tools - H/w, S/w) : python, git, hugging face, tensor flow

Objectives of the project : add additional features to website to increase automation

Major Learning Outcomes : regression models, boosting models, and cnn

Details of Papers/patents : none

Brief Description of working environment, expectations from the company : good but still not ready for machine learning yet. Should be fine within a year

Academic courses relevant to the project : machine learning

PS-II Station : Ola Electric , Bengaluru

Faculty

Name: K Venkatasubramanian

Student

Name: PRANAV TANEJA(2019B3A70487P)

Student Write-up

PS-II Project Title: Enhancing India's first foundational Large Language Model (LLM)

Short Summary of work done during PS-II : During my internship at Ola Krutrim SI Designs Pvt Ltd, I significantly contributed to enhancing "Krutrim," India's first multi-lingual large language model. I extracted billions of tokens from diverse sources using Tesseract OCR, translated English chat samples into Indic languages, and generated red-teaming examples to ensure ethical model responses. I also developed metadata extraction strategies for scanned books and optimized OCR pipelines for better performance in Indic languages. My work included creating evaluation prompts, testing early model versions, and improving prompting strategies.

Tool used (Development tools - H/w, S/w) : Nvidia A100 and H100 GPUs, Visual Studio Code, Python, Tesseract OCR, Google Cloud Platform OCR, OpenAI API for data generation and experimentation, TensorRT, Triton, vLLM

Objectives of the project : The project revolved around completing various tasks to improve Krutrim's LLM under the same name. The main objective was to make the model more adapted to the Indian context and perform better in Indic languages and thus I worked on evaluating the model in Indian context, creating red-teaming prompts and examples to help align the model to be harmless, helpful and honest in the Indian context and stay relevant while not giving offensive outputs. I also worked on translation pipelines in order to augment data in Indic languages. Apart from this, I spent a lot of time working extensively on improving OCR output from scanned documents in Indic languages in order to extract more data not publicly available on the internet and help our model stand out from the rest as a result. The broader objective thus remains to improve the quality of the model output and optimize its inference latency.

Major Learning Outcomes : Through this project, I gained technical skills in OCR technologies, data processing, translation, and generative AI. I also developed professional and interpersonal skills by meeting deadlines, collaborating with a diverse team, and enhancing my communication abilities. Additionally, I deepened my understanding of AI and NLP, learning the importance of linguistic diversity and the complexities of developing large language models

Details of Papers/patents : No papers published or patents filed during the period of my PS-II at Ola Krutrim

Brief Description of working environment, expectations from the company : The working environment is highly fast paced and as a start-up, deadlines can be tight and requirements can change very dynamically at times. The pressure can rise at many occasions but one must stay resilient and focused on the learning. Given the fast-paced environment, the learning is also exponential as you get exposure to working on many different things in a short period of time and as you learn to manage your time and stress while delivering on time. You can wear T-shirt Jeans to the office. Work from office all 5 days. Some days you may have to work on the weekend or work for 10+ hours on a weekday. Office has coffee machines and a cafeteria with average food and is located in Koramangala. Work laptop was provided to me but not a monitor or keyboard despite requesting.

Academic courses relevant to the project : Natural Language Processing, Deep Learning, Image Processing, Machine Learning, Object Oriented Programming

PS-II Station : OnSolve Technologies Pvt. Ltd. , Bengaluru

Faculty

Name: Febin A Vahab

Student

Name: GANAPATHIRAJU NEERAJ VARMA(2019B4AA1032H)

Student Write-up

PS-II Project Title: Worked on Issues related with Acadia and Tahoe

Short Summary of work done during PS-II : At OnSolve Technologies, I was deeply involved in enhancing and maintaining the MIR3 system. My responsibilities included DevOps deployment, code improvements, and bug fixing. I worked on various aspects such as optimizing deployment processes, ensuring the integrity and synchronization of databases, and handling critical communication functionalities.

Tool used (Development tools - H/w, S/w) : ArgoCD, Java, Jira, .NET, Python, AWS

Objectives of the project : Worked on defects raised by customers related to tahoe acadia web application, automated various manual tasks and took care of deployment.

Major Learning Outcomes : Learned working in Agile Framework, Dev-Ops, Deployment, Java Fullstack Development

Details of Papers/patents : N.A.

Brief Description of working environment, expectations from the company : The work environment was tough and hours were long, we were not given good projects to sharpen our development skills. The Team was extremely demanding and request for extended hours

Academic courses relevant to the project : OOP, DSA and OS

PS-II Station : Opine Group , Pune

Faculty

Name: Bandi Venkata Prasad

Student

Name: LATIKA PRANAY NARVEKAR .(2019B1A10986P)

Student Write-up

PS-II Project Title: Client Acquisition in Data Analytics Consulting using Digital Marketing

Short Summary of work done during PS-II : Helped the organisation set up and optimize on various projects regarding client acquisition including setting up, scaling, and monitoring their Meta Business Account for Instagram and Facebook, scale up YouTube and LinkedIn metrics, devise and design client proposal decks and university proposal decks, script, enact, and direct video content for their social media account regularly, and optimize their organization website according to SEO Principles.

Tool used (Development tools - H/w, S/w) : MS Excel, Power BI, SQL, Meta Business Suite, MS PowerPoint

Objectives of the project : To establish and scale sustainable pipelines to grow the companies potential client base, student base, and social media outreach and campaigns

Major Learning Outcomes : Backend setting up and maintenance of social media business accounts, content creation, client outreach and presentation, creative writing

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Team members and seniors were very helpful, with high ownership in projects being given to me even though I was an intern. They were very happy with my work and were open to new suggestions given by me. Overall, a great learning experience with people who have spent decades in the data analytics space and have warm, approachable and welcoming personalities.

Academic courses relevant to the project : Introduction to Copywriting

PS-II Station : Opstronomy Health Solutions Private Limited , Hyderabad

Faculty

Name: SRINATH NAIDU

Student

Name: ALLU HARI KRISHNA(2019B2A40916G)

Student Write-up

PS-II Project Title: Care console (web development)

Short Summary of work done during PS-II : Developed a chat functionality both in mobile and web and contributed to the development of forms in the platform

Tool used (Development tools - H/w, S/w) : NextJs, Angular, ReactJs, GraphQL

Objectives of the project : Developing a platform for the healthcare providers

Major Learning Outcomes : Problem solving, Soft skills, Tech stack - HTML, CSS, React Native,

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Organisation provided everything to work under them

Academic courses relevant to the project : Computer programming

PS-II Station : Opstronomy Health Solutions Private Limited , Hyderabad

Faculty

Name: SRINATH NAIDU

Student

Name: SRI RAM BADALGAMA(2019B2A81119H)

Student Write-up

PS-II Project Title: Building a Care Console Application for Care Providers in Hospitals

Short Summary of work done during PS-II : I worked in a project aiming to built a mobile application as communication tool for care teams. I have developed and integrated a robust attachment feature, enabling users to upload and manage files within the mobile application, with secure storage in our proprietary blob service. Also engineered the audio messaging functionality for the mobile application, allowing users to record, send, and play audio messages seamlessly within both the mobile app and the web platform. I have migrated a portion of the website from Angular to NextJS, significantly improving performance, scalability, and maintainability

Tool used (Development tools - H/w, S/w) : Expo, react-native, NextJS, Hasura

Objectives of the project : Build a communication and collaboration tool for doctors, nurses in hospitals

Major Learning Outcomes : Learnt react-native, nextJS, graph QL

Details of Papers/patents : No

Brief Description of working environment, expectations from the company : Work timings were pretty flexible and all people were helpful

Academic courses relevant to the project : -

PS-II Station : Opstronomy Health Solutions Private Limited , Hyderabad

Faculty

Name: SRINATH NAIDU

Student

Name: JAMUNA THALLAPALLI(2020A3PS1343H)

Student Write-up

PS-II Project Title: Care Console

Short Summary of work done during PS-II : I worked on building care console in both mobile and web. We built a chat module to allow for professionals to communicate and collaborate about patient's care pathway. This is then integrated with the patient details and everything is online, making it convenient. We also created a form builder to build and fill forms within the application itself. This is available on the web application and is an easy to use, user friendly application. We also have integrated smart AI agents into the application for summarising and aiding to the healthcare providers. We have also worked on generating tasks and alerts, allowing for everything to be automated and handled by the application itself.

Tool used (Development tools - H/w, S/w) : React Native, Next.js, Nest.js, Express.js, Hasura, GraphQL, React, Angular

Objectives of the project : To create web and mobile applications to allow for better collaboration and communication amongst healthcare providers and caregivers in hospitals

Major Learning Outcomes : Full Stack Development, Mobile Development, Software Development, Care Pathway for a Patient in a hospital

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Hybrid, flexible working environment. Mentors are helpful if we are stuck on anything. They mainly want us to finish given work on time.

Academic courses relevant to the project : DBMS, DSA, OS, AI,

PS-II Station : Palo Alto , Bengaluru

Faculty

Name: Febin A Vahab

Student

Name: POORVI GARG(2019B2A31049G)

Student Write-up

PS-II Project Title: PCS Insights

Short Summary of work done during PS-II : During my internship at Palo Alto Networks, I was deeply involved in a pivotal project focused on developing a report generation tool for the Prisma Cloud product. This tool was designed to generate PDF summary reports, tailored to various operational needs, with the aim of enhancing data accessibility and aiding executive decision-making within the organization. My contributions spanned multiple dimensions of the project, utilizing a robust tech stack including Java, Python, Spring Framework, and libraries like JSoup and Flying Saucer. One of my primary responsibilities was to explore and select the most effective technologies for PDF rendering. I evaluated several libraries, eventually choosing a combination of HTML, JSoup, and Flying Saucer due to their flexibility and compatibility with our needs. Additionally, I developed a dynamic and adaptable JSON schema for report content, which allowed for the customization of reports according to varying business requirements. The design of the application was another area where I contributed significantly, employing Spring Boot and adhering to SOLID principles to ensure scalability and maintainability. I also tackled the challenge of licensing anomaly detection. By analyzing data and implementing new mathematical rules, I was able to enhance the precision of our anomaly detection systems, significantly reducing false alerts. On the visual front, I worked on refining the design of the reports to be engaging and consistent with our organizational branding. This project not only honed my technical skills but also made a substantial impact on the operational efficiency and strategic capabilities at Palo Alto Networks. The solutions I developed have become fundamental to our processes, providing detailed, actionable insights crucial for informed decision-making across the company.

Tool used (Development tools - H/w, S/w) : IntelliJ Idea, draw.io

Objectives of the project : Develop an internal tool to generate PDF summary reports for the Prisma Cloud product, targeting different operational aspects.

Major Learning Outcomes : HMTL, CSS, JSoup, Flying Saucer, Java, Git, GitLab, DataBricks

Details of Papers/patents : The architecture diagram was made for the service with a writeup explaining its functioning

Brief Description of working environment, expectations from the company : During my internship at Palo Alto Networks, the working environment was highly collaborative and dynamic,

fostering both personal and professional growth. Situated in a team-oriented setting, I was surrounded by professionals who were not only experts in their fields but also enthusiastic about mentorship and knowledge sharing. This culture of openness encouraged me to take initiative and actively contribute to projects, while also seeking advice and feedback.

The company expected interns to dive into real-world problems, apply theoretical knowledge, and deliver tangible results. Emphasis was placed on innovation, problem-solving, and the ability to adapt to rapidly changing technologies. Interns were encouraged to embrace Palo Alto Networks' core values of collaboration, innovation, and inclusivity, contributing to projects that impact the company's operations and product offerings directly.

Accountability and proactivity were highly valued; I was expected to manage my tasks efficiently, meet deadlines, and maintain high standards of quality and accuracy in my work. Regular reviews and feedback sessions were part of the process, ensuring alignment with the company's goals and continuous improvement in my work.

Overall, the expectations and environment at Palo Alto Networks greatly enhanced my skills and prepared me for future challenges in the tech industry, emphasizing the importance of agility and continuous learning in one's career.

Academic courses relevant to the project : OOP, DSA

PS-II Station : Palo Alto , Bengaluru

Faculty

Name: Febin A Vahab

Student

Name: AKSHAY NARESH PAINJANE(2020A7PS0115G)

Student Write-up

PS-II Project Title: Insights Report Generating Tool

Short Summary of work done during PS-II : During the internship at Palo Alto Networks, I developed an internal tool called the Insights Report Generating Tool. This tool was designed to generate PDF summary reports related to the company's cloud security offering. The reports compiled data on customers, monitored accounts, and billed resources, presented both quantitatively and analytically. The backend was developed in Python using Object-Oriented Programming principles and design patterns to ensure enterprise-level quality and maintainability. The backend generated JSON reports which were rendered into visually appealing PDFs using Java and the Spring Framework. I utilized JSoup for HTML and CSS parsing and the Flying Saucer library for PDF rendering. Additionally, I implemented a caching system using parquet files for efficient data processing and anomaly detection algorithms to monitor time series data. Furthermore, I packaged the Python application into Wheel file and the Java application into Jar files, ensuring modularity and ease of deployment. The tool was then deployed using Kubernetes and Docker, which streamlined the deployment process and ensured scalability and reliability. The deployment involved creating Docker images for both the backend and frontend components and orchestrating these containers using Kubernetes to manage load balancing, scaling, and resilience. These additional steps in packaging and deployment enhanced the tool's operational efficiency and robustness, making it ready for production use. The reports generated by this tool provide valuable insights for various teams and executives within the company, aiding in decision-making and strategic planning.

Tool used (Development tools - H/w, S/w) : Python, Java Spring Framework, JSoup, Flying Saucer Library, Pandas, Maven, HTML, CSS, JavaFX Charts, JFreeChart, Docker, Kubernetes

Objectives of the project : The project aimed to create an internal tool for generating PDF summary reports for the company's Cloud Security Product. The objective was to compile data on customers, monitored accounts, and billed resources, and present this data in a user-friendly format for both customers and executives.

Major Learning Outcomes : Application of Object-Oriented Programming principles and design patterns in Python.

Development of a robust backend system using Python and Pandas.

Implementation of a frontend rendering system using Java Spring Framework.
Integration of various libraries like JSoup and Flying Saucer for PDF generation.
Understanding of enterprise-level software development practices.
Packaging the Python application as a Wheel and Java application to Jar file.
Using Gitlab CI-CD to run pipeline that generates Docker Image of the codebase.
Deployment of the tool using Kubernetes and Docker.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The working environment at Palo Alto Networks was highly collaborative and supportive. My manager and mentor provided invaluable guidance and support throughout the project. The company expected a high level of professionalism and quality in the work delivered. The project required adhering to best practices in software development, including the use of design patterns and principles of Object-Oriented Programming. Regular feedback sessions and code reviews were conducted to ensure the code quality met enterprise standards. The tools and resources provided by the company facilitated efficient development and learning. The internship experience was marked by a steep learning curve, but the support from the team and the structured approach to project management helped in navigating the challenges effectively. Overall, the company expected interns to contribute meaningfully to ongoing projects while gaining practical experience and enhancing their technical skills.

Academic courses relevant to the project : Object-Oriented Programming

Software Engineering

Data Structures and Algorithms

Database Systems

Software Design Patterns

PS-II Station : ParallelDots - Back-end development , Gurugram

Faculty

Name: Rajesh Kumar Tiwary

Student

Name: AHMAD MUJTABA(2020A7PS0962G)

Student Write-up

PS-II Project Title: Backend developer

Short Summary of work done during PS-II : Learnt a lot through my internship

Tool used (Development tools - H/w, S/w) : S/w- Python,AWS

Objectives of the project : Predict Skus class name on the company's tool through image recognition.

Major Learning Outcomes : Great outcome

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Very good

Academic courses relevant to the project : OOPS,DBMS,DSA

PS-II Station : Parvathy Ortho Hospital Pvt Ltd - Management , Chennai

Faculty

Name: Bharathi R

Student

Name: SWAYAMBHU STHITAPRAGNA BHOI(2019B4A40748G)

Student Write-up

PS-II Project Title: Assetscan

Short Summary of work done during PS-II : I was responsible for the planning and development of the analytics tool. Data extraction and management was a major part of the task. Using statistics to fetch optimal decisions.

Tool used (Development tools - H/w, S/w) : Python, SQL, Excel

Objectives of the project : Create a real time analytics tool for a real estate platform

Major Learning Outcomes :

1. Development of analytical tools
2. Using SQL and python to make and implement APIs
3. Product development

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Very friendly and helpful environment. Patient with tasks.

Academic courses relevant to the project : Probability and Statistics, Stochastic Applications

PS-II Station : Pegasystems , Hyderabad

Faculty

Name: Y V K Ravi Kumar

Student

Name: SADANALA PAVAN SAI KRISHNA(2022H1030061H)

Student Write-up

PS-II Project Title: Adopting templates in Pega launchpad

Short Summary of work done during PS-II : In the first quarter done work on Pega Infinity tool. major work includes hiding subscriber portal link until there is one active deployment. later half of my internship worked in front end domain technologies used are react.js typescript and javascript also learnt how to write playwright automation tests for our code.

Tool used (Development tools - H/w, S/w) : Pega Infinity, VSCode, React.js, Typescript, Bitbucket, git

Objectives of the project : To adopt new templates on Pega launchpad UI.

Major Learning Outcomes : how code works in software industries.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Work environment is very constructive and teammates are very helpful. First 2 months company expects us to learn as much as possible by taking up small tasks such as fixing bugs. Later when you become confident on your skills you will be asked to do Userstories .

Academic courses relevant to the project : ADBMS, AOS

PS-II Station : Pegasystems , Hyderabad

Faculty

Name: Y V K Ravi Kumar

Student

Name: LAKSH SRIVASTAVA(2022H1030078H)

Student Write-up

PS-II Project Title: Launchpad Assistant

Short Summary of work done during PS-II : · Played a key role in integrating generative AI into the Pega Launchpad Platform, boosting user engagement and transforming its capabilities. · Contributed to fine-tuning open source AI model and data collection. · Performed Instruct Fine tuning on LLaMA-based models and Mistral with QLORA through PEFT . · Performed Internal System prompt tuning and added Guardrails to improve safety and security. · Conducted extensive evaluations using the ContextualRecallMetric and found that the Mistral model outperformed LLaMA-based models in terms of accuracy and response by 7 percent . · Experimented with GAN's to create synthetic data. · Developed a Retrieval Augmented Generation (RAG) system end to end, enhancing content generation and providing more relevant responses to users. · Collaborated with various teams and engaged with a wide range of stakeholders to understand requirements and gather inputs for the development process.

Tool used (Development tools - H/w, S/w) : GPU, Jupyter Notebook , PRPC , Bit Bucket , Ollama framework

Objectives of the project : Create a LLM powered assistant for the launchpad product

Major Learning Outcomes : How corporate environment works , How to present to Directors and How to talk to various stakeholders

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Very good working environment , Have had great support from the team and Manager . This team has been encouraging and appreciative of the work that I have done . I had expected a PPO based on my review but as the company has budget issues it has not been possible .I was lucky to find a manager who compliantly supported me and taught me what a good and supportive work environment feels like

Academic courses relevant to the project : Natural Language Processing

PS-II Station : Pegasystems , Hyderabad

Faculty

Name: Y V K Ravi Kumar

Student

Name: PRAKHAR YADAV(2022H1030081H)

Student Write-up

PS-II Project Title: Pega Launchpad

Short Summary of work done during PS-II : Contributed to pega launchpad new pega product, worked in UI development using reactjs, practised scaled agile. I started with cosmetic bug then gradually picking high priority bugs and user stories, and I also participated in SPIKE/analysing a new feature for the product. After mid internship our team started picking service tasks using kotlin, starting with contract test then actual business logic tasks.

Tool used (Development tools - H/w, S/w) : ReactJs, Kotlin, Microservices, Micronaut, Scaled Agile, Pega launchpad

Objectives of the project : To build new B2B SaaS application pega launchpad, making it mature and release in pega world iNspire 2024.

Major Learning Outcomes : ReactJs, Kotlin, Microservices, Micronaut

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Pega is flexible in time, the work assigned to me was great i had a great learning. But talking about my fellow members their luck was bad and did not got the work of their interest, which did not got changed even after requesting. Team is really cool and met the expectations and beyond.

Academic courses relevant to the project : Software development, programming, algorithms and Data structures

PS-II Station : Pegasystems , Hyderabad

Faculty

Name: Y V K Ravi Kumar

Student

Name: DANTU HAVISHTEJA(2022H1030083H)

Student Write-up

PS-II Project Title: Pega Launchpad

Short Summary of work done during PS-II : During my internship at Pegasystems, I explored the Pega Launchpad's architecture and functionalities, gaining practical insights and broadening my technical skills. I worked on backend development, testing, and observability, fixing bugs like expired libraries and error message refactoring. Understanding backend services and crafting unit tests ensured our systems' robustness. I learned contract testing using the PACT framework and API testing with Postman, enhancing our software infrastructure. Venturing into observability, I used Grafana to monitor metrics, logs, and traces, creating insightful dashboards and configuring alerts with PromQL. I completed a critical User Story that required code modifications and effective collaboration with cross-functional teams. Additionally, I worked on expression and prompt grammar, integrating support for new rule call expressions and indexed expressions, and implementing type-cast expressions for seamless type conversions. Finally, I tackled a calculated field validation story, defining rules for accuracy and consistency, and enjoyed learning the underlying code base. This internship has been a rich learning experience, enhancing my technical and collaborative skills.

Tool used (Development tools - H/w, S/w) : IntelliJ, Kotlin, Postman, ANTLR, Open Telemetry, Kafka, Coroutines, Grafana, Atlassian Bitbucket.

Objectives of the project : To develop features for Pega Launchpad Product

Major Learning Outcomes : Handling Backend Repositories of a major product, CI/CD Pipeline, Agile and Scrum Methodology, Kotlin, Coroutines, Open Telemetry, Building a compiler .

Details of Papers/patents : No Patents or Papers were published

Brief Description of working environment, expectations from the company : Very good environment to work with free lunch and cab service. The work culture is very good with very helpful teammates.

Academic courses relevant to the project : Data Structures and Algorithms, Compiler Design, Programming, Cloud Computing.

PS-II Station : Pegasystems , Hyderabad

Faculty

Name: Y V K Ravi Kumar

Student

Name: POTNURU DEEPAK(2022H1030094H)

Student Write-up

PS-II Project Title: Test GenAI Automation

Short Summary of work done during PS-II : I have worked on test GenAI automation use case and presented to the senior director. It includes GenAI response validation as well as showing the prompts. And then I also worked on various bugs related to genAI.

Tool used (Development tools - H/w, S/w) : Pega, Python, CSS, Jupyter notebook

Objectives of the project : The response given by genAI might be hallucinated. So, worked on it to evaluate genAI response quality

Major Learning Outcomes : GenAI

Details of Papers/patents : Na

Brief Description of working environment, expectations from the company : It was good. Helpful team members and good work life balance

Academic courses relevant to the project : Data Structures, Algorithm

PS-II Station : Pfizer Ltd. , Chennai

Faculty

Name: Bharathi R

Student

Name: KAMALESH G R(2022H1290002P)

Student Write-up

PS-II Project Title: CMC regulatory requirements for biologics based on ICH guidelines

Short Summary of work done during PS-II : Biological products, including biologics, represent a rapidly growing segment of the pharmaceutical industry, offering innovative treatments for a wide range of diseases. However, the complex nature of biologics necessitates stringent regulatory oversight to ensure their safety, efficacy, and quality. This abstract explores the

Chemistry, Manufacturing, and Controls (CMC) regulatory requirements for biologics, focusing on guidelines established by the International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use (ICH). The ICH guidelines provide a harmonized framework for the development and approval of biologics, covering various aspects such as manufacturing processes, characterization of active substances, control strategies, stability testing, and comparability assessments. Understanding and adhering to these regulatory requirements are crucial for biopharmaceutical companies to navigate the regulatory landscape effectively, achieve regulatory approval, and ultimately bring safe and effective biologic products to market. This abstract aims to provide insights into the key CMC regulatory considerations for biologics based on the ICH guidelines, facilitating compliance and fostering innovation in the development and manufacturing of biopharmaceuticals.

Tool used (Development tools - H/w, S/w) : Pfizer tools, MS office

Objectives of the project : To identify the requirements for analytical validation of biologics in US and EU markets

Major Learning Outcomes : Got to know about the regulatory side of pharma industries and the guidelines for various countries.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Fantastic workplace. Excellent backing from the administration. I haven't had any problems at work. There is a fantastic work atmosphere and all of the executives are friendly and approachable. It genuinely aids in job advancement. Learning and culture are beneficial. The work-life balance is excellent as well. The organization provides time to involve in extra-curricular activities.

Academic courses relevant to the project : None

PS-II Station : Pfizer Ltd. , Chennai

Faculty

Name: Bharathi R

Student

Name: ABHISEK GHOSH(2022H1290003G)

Student Write-up

PS-II Project Title: Regulatory Landscape of Nutraceuticals: A Comparative analysis for Europe, India and South Africa

Short Summary of work done during PS-II : Confidential

Tool used (Development tools - H/w, S/w) : Pfizer Tools

Objectives of the project : This research provides a comparative analysis of nutraceutical regulatory frameworks in Europe, India, and South Africa. By examining regulatory policies and standards, the study aims to uncover differences and similarities in safety assessments, quality control measures, and health claims evaluation. Through literature review and regulatory documentation analysis, it elucidates scientific principles guiding regulation. Additionally, the study explores product registration and licensing nuances, delineating market access requirements. Insights gleaned offer implications on industry dynamics, innovation, and consumer perception. This research serves stakeholders, policymakers, and academia by fostering an understanding of regulatory intricacies in the nutraceutical landscape.

Major Learning Outcomes : Regulation on Health Claims, Public perspectives, Market Implications.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : NA

Academic courses relevant to the project : Pharmacy

PS-II Station : Pfizer Ltd. , Chennai

Faculty

Name: Bharathi R

Student

Name: VAIDYA SHRUTI MAHESH(2022H1460208H)

Student Write-up

PS-II Project Title: Regulatory Requirements for Initial Registration of Sterile Injectables for LatAm Region

Short Summary of work done during PS-II : Initial registration plays a crucial role for bringing a new drug product in the market. Major LatAm markets include Brazil, Mexico, Argentina, Chile, Colombia, to name a few. Lack of harmonization, and operation of local regulations, implementation of regional language, these complexities cause longer approval times for the drug products. The study glances through important initial registration regulatory requirements for sterile injectables keeping LatAm as major scope of study. The study presents the comparative analysis of CMC sections, as ICH CTD submission is not mandatory for LatAm but can be accepted in most of LatAm countries. Entire LatAm follows stringent regulations. PAHO initiative for PANDRH guidelines for LatAm has yet not become a must follow or good to follow requirement

to bring harmonization. The project work proposes consolidated overview for LatAm regulatory framework to provide efficient registration of new drugs in LatAm. Stringent regulatory requirements are found in LatAm. Brazil, Mexico, and Chile require more documentation requirements, while Argentina, Bolivia, Haiti, Costa Rica, Paraguay have been found to have less documentation requirements. For sterile injectables, the dossier content requirements for LatAm and major markets like US and Europe are found similar.

Tool used (Development tools - H/w, S/w) : S/w: official regulatory websites and MS Excel, MS Word, MS Powerpoint

Objectives of the project : To understand the initial registration regulatory framework for LatAm region with limelight on sterile injectables

Major Learning Outcomes : Understanding LatAm market: opportunities, challenges, initial drug product registration regulatory framework

Details of Papers/patents : Consolidated overview of LatAm initial drug registration framework

Brief Description of working environment, expectations from the company : The company provides good work culture with great opportunity to learn and explore the work experience. The live project work and interaction with colleagues boost the overall growth and development of skilled mindset. It is always encouraged to update the skills and knowledge with constant reading and constant updation of knowledge.

Academic courses relevant to the project : Pharmaceutical Quality Assurance and Regulatory Affairs

PS-II Station : Pfizer Ltd. , Chennai

Faculty

Name: Bharathi R

Student

Name: ISHIKA RAJ(2022H1460225H)

Student Write-up

PS-II Project Title: Post Approval Regulatory Landscape of Australia and New Zealand.

Short Summary of work done during PS-II : As part of the current project, I have covered the post approval regulatory landscape of Australia and New Zealand Market, which is governed by Therapeutic Goods & Administration (TGA) and Medicine and Medical Device Safety Authority (MEDSAFE) respectively. A detailed discussion on the prescription drug registration process along with various categories to submit changes to the approved product has been discussed. A thorough understanding of the regulatory requirements shall enable the organization to make an informed strategy for submission of post approval changes depending upon the timeframes, fee and complexity of the change. Thereby, aiding an efficient lifecycle management of the therapeutic goods marketed and supplied to Australia and New Zealand. Further aspect of the project also extends to various initiatives like Project ORBIS and ACCESS consortium taken up various agencies like Australia, Canada, Singapore, UK and US to aid the regulatory review process.

Tool used (Development tools - H/w, S/w) : Pfizer Internal tools.

Objectives of the project : To understand the streamlined submission process for registration of prescription medicines in Australia and New Zealand and further gain understanding on the life cycle management of approved products through appropriate filing categories.

Major Learning Outcomes : CMC Strategy.

Details of Papers/patents : ICH guidelines, Guidelines from respective agencies of TGA and MEDSAFE.

Brief Description of working environment, expectations from the company : It was lively workspace with flexibility in terms of working hours. All colleagues are cooperative in trainings and extending their support throughout the PS II.

Academic courses relevant to the project : QARA, DFD, APP, IPR, PPD

PS-II Station : Pfizer Ltd. , Chennai

Faculty

Name: Bharathi R

Student

Name: TEJUS GUPTA(2022H1460314P)

Student Write-up

PS-II Project Title: Challenges for Vaccine development

Short Summary of work done during PS-II : Helped the assigned team with tracking past dues and authored various packages for various markets

Tool used (Development tools - H/w, S/w) : Excel, powepoint, internal confidential tools

Objectives of the project : Identify challenges and solutions

Major Learning Outcomes : Understood the workflow

Details of Papers/patents : No

Brief Description of working environment, expectations from the company : Very good environment

Academic courses relevant to the project : No

PS-II Station : PharmaACE , Pune

Faculty

Name: Bharathi R

Student

Name: RISHABH JAIN(2022H1290021P)

Student Write-up

PS-II Project Title: Ensuring Data Quality: Master Data Management and Stewardship Essentials

Short Summary of work done during PS-II : This assignment has greatly improved my ability to use data to gain predicted insights as a trainee analyst with a forecasting focus. My ability to compile and combine many data sources—which are essential for precise forecasting models—has improved. I've carried out thorough data analysis, purification, and visualisation using programmes like SQL and Excel to derive useful insights for strategic forecasting choices. This research has emphasised the important relationship between data integrity and successful forecasting outcomes, underscoring the significance of strong data management in generating accurate forecasts and well-informed business strategies.

Tool used (Development tools - H/w, S/w) : SQL, MS office, Python

Objectives of the project : Collecting, processing, validating, and storing data, Integrating different types of data from disparate sources, including structured and unstructured data and Ensuring high data availability

Major Learning Outcomes : Honed my basic soft skills and helped me in getting better hold of Specialised softwares for effective analysis

Details of Papers/patents : N.A.

Brief Description of working environment, expectations from the company : PharmaACE has a collaborative work culture, It as a good training plan in place for anyone who starts fresh and In general everyone is quite easily approachable and open to communication.

Academic courses relevant to the project : Cancer and Immunology subjects

PS-II Station : PharmaACE , Pune

Faculty

Name: Bharathi R

Student

Name: AYUSHI SANTOSH MOKATI(2022H1460309P)

Student Write-up

PS-II Project Title: Data Analysis

Short Summary of work done during PS-II : Focused on analyzing various data sets. I received training on Data analysis tools such as SQL, Tableau, Python. Additionally, collaborated with different teams on projects.

Tool used (Development tools - H/w, S/w) : SQL, Tableau, Python

Objectives of the project : To utilize analytics technique to extract, interpret and analyze complex data sets, enabling identification of key trends, patterns and insights.

Major Learning Outcomes : Proficiency in Data Analysis Tools, Data Interpretation Skills, Data Visualization

Details of Papers/patents : Confidential

Brief Description of working environment, expectations from the company : Team was collaborative, dynamic and supportive. It encouraged continuous learning and development.

Academic courses relevant to the project : Statistics

PS-II Station : PharmaACE , Pune

Faculty

Name: Bharathi R

Student

Name: DESHPANDE AMEYA PRASHANT(2022H1460316P)

Student Write-up

PS-II Project Title: To perform Market Assessment of Opdivo and yervoy.lag.

Short Summary of work done during PS-II : It involved analyzing various aspects such as market size, trends, competition, and patient demographics. Key components would include evaluating their efficacy compared to existing treatments, assessing regulatory landscapes, understanding pricing strategies, and forecasting future market potential based on clinical data and economic factors. The goal would be to provide insights into market positioning, potential growth areas, and strategic recommendations for maximizing their market impact in oncology treatment.

Tool used (Development tools - H/w, S/w) : Softwares- MS Word, MS Power point, MS Excel.

Objectives of the project : To drive personal, team level and organizational growth in Healthcare Sector.

Major Learning Outcomes : Skill Set Development in primary market research, competitive intelligence and Pharmaceutical Forecasting

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Working environment is friendly, progressive with good human beings in the surroundings. Expectations from company- skill based appraisal of the employees with frequent trainings with mind relaxations and behavioral aspects growth.

Academic courses relevant to the project : None

PS-II Station : PharmaACE , Pune

Faculty

Name: Bharathi R

Student

Name: KHARCHE RIDDHESH ANANT(2022H1460318P)

Student Write-up

PS-II Project Title: Biopharmaceutical company profiling and competitive Analysis in US, EU, JP Markets

Short Summary of work done during PS-II : Complete detailed research about CSL Behring which include Secondary Research data from Company Websites, Analyst reports, News reports, Company Financial and Earning reports/Annual reports etc. Profiling is based on details like Company Overview, Therapeutics areas, History, Product Portfolio, Subsidiary Info. Company profile helps you understand the company's presence In the market, it's current status, Contribution and Impact on the current Market. Project also included competitive research on products used in DOAC Reversal therapy in US, EU, JP markets. Competitive Research involved secondary research about the products inline or in pipeline for that indication. Comparing them based on their Approval details/ Regulatory status/ and Clinical Merits. This provides insights that help in development of our product in that indication line and help you improve business globally.

Tool used (Development tools - H/w, S/w) : Google scholar, Excel, search engines

Objectives of the project : Competitive Intelligence

Major Learning Outcomes : Secondary research and way of preparing and presenting researched data

Details of Papers/patents : Na

Brief Description of working environment, expectations from the company : Positive environment, very supportive and encouraging

Academic courses relevant to the project : No

PS-II Station : PharmaACE , Pune

Faculty

Name: Bharathi R

Student

Name: MAYUR CHANDNANI(2022H1530326P)

Student Write-up

PS-II Project Title: An Overview on Immunoglobulin A nephropathy Market

Short Summary of work done during PS-II : I developed my knowledge regarding the forecasting tools, model building, multiple simulation tools and secondary research to consolidate the thorough analysis of a particular disease area and the market scenarios that will help the stakeholders to develop strategies in terms of launch and product marketing, also helps to grasp the evaluation of how the product will perform in the market with the given risks and opportunities and the financial benefits that can be generated from that product

Tool used (Development tools - H/w, S/w) : Excel, PowerPoint, Think-cell, Crystal-Ball, PACE

Objectives of the project : To Obtain the exhaustive market research on IgAN and its epidemiology across US to develop the forecast model for the client brands and derive insights for better launch and market positioning also calculating the risks and opportunities for the brands.

Major Learning Outcomes : enhanced my critical thinking and developed exhaustive knowledge about the forecasting domain, alongside enhancing my knowledge in the renal disease area. In terms of analytics, how to create the presentation decks for the clients and deliver the entire development on the project.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : PharmaACE provides exhaustive learning schedules that help to develop a very strong foundation in terms of all the domains, alongside brilliant instructors who help by taking sessions and providing a helping hand throughout. The work culture here represents the divine definition of teamwork and bonding to create a healthy and supportive environment. The company expects proactive mindset from the employees and problem solving in tough situations, along side teamwork capabilities. It also gives opportunities to pitch in our ideas and help us grow through the process.

Academic courses relevant to the project : Clinical Research, Intellectual property rights, Pharmacology

PS-II Station : PharmaACE Analytics , Hyderabad

Faculty

Name: Bharathi R

Student

Name: VISPUTE SRUSHTI KISHOR(2022H1460204H)

Student Write-up

PS-II Project Title: Market assessment

Short Summary of work done during PS-II : Did market assessment, worked on excel, learned forecasting

Tool used (Development tools - H/w, S/w) : Excel, PPT, Tableau

Objectives of the project : Market assessment

Major Learning Outcomes : Knowledge of therapeutic area and pharma company

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Very nice and supportive environment

Academic courses relevant to the project : Pharma

PS-II Station : PharmaACE Analytics , Hyderabad

Faculty

Name: Bharathi R

Student

Name: JASANI VRUTI SANJAYBHAI(2022H1460312P)

Student Write-up

PS-II Project Title: Data analytics for US commercial sales

Short Summary of work done during PS-II : It was very useful for me as i learnt basics of all the tools used in analytics as well as basic concept around commercial analytics and deep knowledge of therapy area in oncology market

Tool used (Development tools - H/w, S/w) : SQL Excel tableau Powerpoint

Objectives of the project : To monitor sales data of company product and increase business

Major Learning Outcomes : I learnt tools such as tableau sql and data analysis concepts

Details of Papers/patents : No

Brief Description of working environment, expectations from the company : Working environment is very nice, team leads are very helping and made us learn all the new things

Academic courses relevant to the project : None

PS-II Station : PhonePe Private Limited , Bengaluru

Faculty

Name: Arindam Roy

Student

Name: JINAN AHMED SARMADI(2019B2A31070G)

Student Write-up

PS-II Project Title: Create Data Models for PhonePe's Indus App and Data Analysis

Short Summary of work done during PS-II : When I joined PhonePe as an intern, I was assigned to the Indus Analytics team where my role was a Business Analyst. At the time of joining, the Indus app was still not launched and was supposed to be launched within a month's time. I was allotted tasks by my mentor like adding views into QlikSense, creating reports, automating the reports, etc. Once the app was launched, I had to do analysis on different topics. After 3 months, I was shifted to the Business Intelligence Team (team that automates, maintains the analytics data and DAG that runs daily at night) and was going to support the Indus BI related work. During that time, I had to migrate all the data processing from Indus Analytics to PhonePe's central analytics platform. This included creating data models, setting up daily incremental load, optimizing, etc. It was a good experience overall as I got to learn about how data is processed and interpreted within a company.

Tool used (Development tools - H/w, S/w) : S/w - Airflow, QlikSense, Zeppelin, Acceldata, Hadoop, NPrinting, Hive

Objectives of the project : Deliver tasks assigned in the duration of the PS2

Major Learning Outcomes : In depth knowledge of creating data models, analysis, SQL etc.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Work life balance in the company is good. In the Analytics team, tasks are allotted on a weekly basis and

we are expected to complete them by the end of the week and then send respective mails to the stakeholders conveying them the status/completion of the weekly tasks.

Academic courses relevant to the project : NA

PS-II Station : PhonePe Private Limited , Bengaluru

Faculty

Name: Arindam Roy

Student

Name: NAMAN AGGARWAL(2020A7PS0103G)

Student Write-up

PS-II Project Title: Unified Ingestion Layer

Short Summary of work done during PS-II : I am part of the Team App Platforms - Performance Track, where my primary focus lies on optimising various performance metrics within iOS applications. One of the frameworks that I worked on 'Performance Dash' is PhonePe's internal performance tracking tool. My main project, Unified Ingestion Layer, a new SDK focused on applying intelligence in Events ingestion from the client side to the backend. The SDK is being build from scratch and will continue as my primary project as I join Phonepe as full-time employee. Throughout the internship, I have delved into the intricacies of iOS development frameworks, particularly focusing on the integration and support of the Dash framework within the Sandbox helper framework. Additionally, I have actively participated in the analysis and enrichment of session-level metrics, both in foreground and background modes.

Tool used (Development tools - H/w, S/w) : Swift

Objectives of the project : Intelligent ingestion of data from client to backend

Major Learning Outcomes : Industry level SDK development

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Excellent working environment, 5 day work from office expected

Academic courses relevant to the project : Core Computer Science Courses

PS-II Station : PhonePe Private Limited , Bengaluru

Faculty

Name: Arindam Roy

Student

Name: NIRMAY KISHOR NAIK(2020AAPS1425G)

Student Write-up

PS-II Project Title: Business Analytics Intern

Short Summary of work done during PS-II : I worked in Central Business Intelligence team which aims to aid the entire organization in optimization and debugging of their queries, onboarding nodes and DAG structuring. I worked closely with Share.Market team in initial months

to optimize their queries and migrate their dashboards to more optimized query syntax, and came up with dashboards for reporting user demographics. Once that was done, I focused more on central BI with DAG structure optimizations, query optimizations, adhoc activities such as backfilling and data cleanup. I had mentioned to my manager I was inclined towards development so he gave projects where some application of development could be applied such as making report by coding python script for reading Airflow metadata API and monitoring DAGs. I also worked on writing React application for converting code from one SQL language to another and hosted the site on the phonepe server. I was also aiding the team in python scripts and other adhoc tasks.

Tool used (Development tools - H/w, S/w) : Qlik sense, Airflow, SQL, Python

Objectives of the project : Business Intelligence intern, contribute to entire organisation analytics team

Major Learning Outcomes : SQL, Data Analytics, Big data, Python, Business Intelligence engineering

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The team was very open and welcoming to me. All teammates along with manager were very friendly and guided me whenever I needed help. They recognized the fact that data analytics was a completely new field to me and helped me to get up to speed so that I contributed as much as I could to the team. My manager recognized that I had an expertise in development so he gave projects more oriented towards applying that knowledge in the projects that the organization had a requirement of. The team also helped me to adapt to corporate world and in organizing my work and in effective time management.

Academic courses relevant to the project : Database management (SQL), Data analytics

PS-II Station : PhonePe Private Limited , Bengaluru

Faculty

Name: Arindam Roy

Student

Name: PRAVEEN KUMAR P(2022H1540826P)

Student Write-up

PS-II Project Title: Adhoc Business Analytics in PhonePe's Payment Gateway team

Short Summary of work done during PS-II : 1. I worked as a Business Analytics Intern for PhonePe's Payment Gateway product. 2. As a Business Analytics Intern, I did tasks that were Adhoc in nature. 3. That is, I took up different analytics work as and when the stakeholders had a request. 4. I was given different tasks related to either data population, data analysis, code optimization, or dashboard building. 5. I completed over 60 adhoc tasks given by my mentor, manager and all other stakeholders.

Tool used (Development tools - H/w, S/w) : Jupyter notebook, Apache Zeppelin, QlikSense, Hadoop Yarn, Microsoft Excel, Google Spreadsheets, Appscripts, Airflow

Objectives of the project : To do adhoc tasks and support the analytics team with all data, analysis and dashboarding requests.

Major Learning Outcomes : Learnt about Fintech industry, the payment gateway product, Advanced SQL, QlikSense, Technical problem solving and practiced logical thinking.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment is good. Though the company has grown multi folds now, the environment still feels like a startup with so many hardworking enthusiastic people around. Everyone here is thirsty to learn, solve business/product problems in their unit and make PhonePe grow!

Academic courses relevant to the project : Big data analytics, Database Management, Data visualization, Advanced Microsoft Excel and Spreadsheets.

PS-II Station : Pine Labs Pvt. Ltd. , Bengaluru

Faculty

Name: SRINATH NAIDU

Student

Name: NAMAN PANDEY(2022H1030016G)

Student Write-up

PS-II Project Title: Functional Test Suit for Next-payment-service

Short Summary of work done during PS-II : Created a full end to end test suit

Tool used (Development tools - H/w, S/w) : Pytest

Objectives of the project : Create a full functional test suit for the services

Major Learning Outcomes : Pytest

Details of Papers/patents : na

Brief Description of working environment, expectations from the company : awesome

Academic courses relevant to the project : Software Development, OOPS

PS-II Station : Pine Labs Pvt. Ltd. , Bengaluru

Faculty

Name: SRINATH NAIDU

Student

Name: RAJDEEP DAS(2022H1030017G)

Student Write-up

PS-II Project Title: Measure Uptime, Nginx+Prometheus, Kong API Gateway for Infra

Short Summary of work done during PS-II : Set up and revamped Infra & Platform using Kong API Gateway and HA Proxy, set up observability and reliability of services and infrastructure by fetching logs and exposing metrics using several tools like Prometheus, Loki, Fluentd, Grafana.

Tool used (Development tools - H/w, S/w) : Docker, Kubernetes, Helm, Ansible, Nginx, Prometheus, Loki, Grafana, Kong API Gateway, HA Proxy, Ruby

Objectives of the project : Establish standardisation of APIs for consistency throughout the organisation, monitor traffic and achieve increased availability, reliability and observability using health-check based dashboards.

Major Learning Outcomes : Infra & Platform setup and maintenance ,CI/CD, containerisation of services, various monitoring/observability tools

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The working environment of the organization is very helpful and motivating. The team manager and other members are very welcoming and are always present for guidance and support in given projects. They also encourage newcomers and interns to keep learning new technologies and tools which will eventually help in projects. Expectations of proper training and guidance, exposure to industry work and gaining practical experience were met by the company.

Academic courses relevant to the project : Computer Networks, Operating System, DBMS

PS-II Station : Piramal Group - BIU , Mumbai

Faculty

Name: Ankur Pachauri

Student

Name: NIPUN GUPTA(2019B1A81000G)

Student Write-up

PS-II Project Title: Advanced Software Enhancements for Credit Platform

Short Summary of work done during PS-II : 1. Engineering Excellence 1.1. SonarQube Issues Fixed - Reduced blockers by 93%, critical issues by 57%, and major issues by 68% across critical services. All fixes are safely deployed to production. 1.2. Code Coverage Increased - Increased unit test coverage of critical microservices to more than 90%. 1.3. Cloud Defense Issues Fixed - Achieved zero medium-level cloud defense issues 2. Features Development 2.1. Audit Trail in credit central - Implemented audit capability by creating a custom annotation in Spring Boot integrated with Kafka connectors to log the request and response payloads of each call to a credit central API into the database. 2.2. Geotagging Document Integration into credit central - Integrated geotagging document into the credit central platform, improving TAT and enabling cost-saving opportunities. 2.3. FI Service Handling for New Deviation - Integrated a new deviation into field-verification-service for UCL using a feature flag, ensuring no disruption to existing workflows. 3. Hackathon Work - Brainstormed the user journey, designed mocks, and developed the "Referral" feature during the Hackathon. This feature increases app engagement and brings new business by allowing existing customers to refer friends seeking loans to Piramal Finance.

Tool used (Development tools - H/w, S/w) : Spring Boot MongoDB Jenkins Cloud defence Sonarqube

Objectives of the project : The primary objective of the "Advanced Software Enhancements for the Credit Platform" project is to enhance the existing credit platform's functionality, performance, and scalability. This involves implementing new features, optimizing existing processes, and ensuring robust data integration and real-time analytics capabilities.

Major Learning Outcomes : Learnt the process of feature development starting from requirement collection to definition of done. Learnt cross team collaboration and how frontend can be intelligently configured from the backend, a technique used in Piramal which makes everything very scalable.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : You are expected to work from 10 to 7. At the beginning you will be asked to develop a demo project with basic CRUD functionality. A buddy and a mentor will be assigned to make learning better and

smoother. For the initial phase you will have to understand the working of various services and architecture before getting actual stories and features. I was given enough ownership once my manager started trusting my work. The culture is pretty good with everyone constantly helping you and making the transition from college to corporate world easier. My team was based in Bengaluru. Office is also pretty good with all basic amenities.

Academic courses relevant to the project : DSA, OOP, DBMS, OS

PS-II Station : Piramal Group - BIU , Mumbai

Faculty

Name: Ankur Pachauri

Student

Name: AKSHAT KUMAR(2019B2A31069G)

Student Write-up

PS-II Project Title: Bank Statement Solution

Short Summary of work done during PS-II : Bank Statement Solutioning: This project offers a comprehensive solution for handling bank statements. Initially, it employs a Residual Network model for document classification. For bank statements, it extracts details such as name, address, and date range. Then, it utilizes an in-house developed tabulating logic to parse statements of varied formats into a dataframe of a standard format, which is later fed into the bank statement analyzer. Document Classification and Validation: This project utilized NLP techniques for document classification. For target documents, this model ensures that all text, signature, and

thumbprint fields are present in a document, based on which it classifies a document as valid or invalid. This project is implemented using BERT, YOLOv8m, and OpenCV.

Tool used (Development tools - H/w, S/w) : Python, Natural Language Processing, Large Language Models, Deep Learning, OCR, Amazon Web Services.

Objectives of the project : To extract information from a bank statement, such as name, address, IFSC code, and transactions. Later, feed these transactions into a bank statement analyzer to analyze the statement and help with the decision in granting a loan.

Major Learning Outcomes : The PS program helped me gain real-world knowledge in the field of data science. I worked on real-world applications of artificial intelligence in finance. I learned how data is the new fuel and how to work with data.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment is quite good. We get to work on our own projects from scratch. There is a lot that we can explore here. The work-life balance is exceptional. BIU deals with data science, and Tech focuses on software engineering.

Academic courses relevant to the project : Data Science Minor , Machine Learning

PS-II Station : Piramal Group - BIU , Mumbai

Faculty

Name: Ankur Pachauri

Student

Name: ANAMAYA KARORIA(2019B3AA0445G)

Student Write-up

PS-II Project Title: Cross sell stack: Xpress

Short Summary of work done during PS-II : During my involvement in the Cross-Sell Stack project, I focused on optimizing the Waterfall Engine to enhance performance and efficiency across various loan types. I spearheaded efforts in platform customization, improving user experience through intuitive design enhancements like dynamic filters and real-time data updates. Collaborating closely with stakeholders, I learned the importance of agile development and effective communication in driving project success. This experience deepened my technical proficiency and highlighted the significance of continuous learning to adapt to evolving market demands and technological advancements.

Tool used (Development tools - H/w, S/w) : Jupyter, AWS, Spyder, Streamlit, Snowflake, MongoDB

Objectives of the project : To streamline and automate the creation of cross sell waterfalls.

Major Learning Outcomes : Python, SQL, machine learning

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Good working environment and helpful people. Flat hierarchy and start up like culture.

Academic courses relevant to the project : Dbms, cpp, data science, Machine learning

PS-II Station : Piramal Group - BIU , Mumbai

Faculty

Name: Ankur Pachauri

Student

Name: ADHYAN AHUJA .(2019B4A30548P)

Student Write-up

PS-II Project Title: Fraud Detection Model for Unsecured Business Loans

Short Summary of work done during PS-II : I was a member of the Fraud Risk Analytics team. Throughout my internship, I worked on a single long-term project: developing a Fraud Detection model for Unsecured Business Loans (UBL). The first phase of the project involved collecting data from their Snowflake database using SQL queries. All of the model code was developed in Python. The next step was to preprocess the data to remove discrepancies and modify specific variables. I began Exploratory Data Analysis (EDA) to determine how each of my variables was distributed and how they interacted with the target variable. As a result of the lack of data, several variables were removed, and each variable's outliers were capped. The next step was feature engineering, which involved creating features from various data sources. Once this dataset was complete, I began data processing, which primarily involved missing value imputation using either the mean, median, mode or a constant value. I also decided to keep several features as is because I was utilizing the XGBoost approach, which can handle missing numbers on its own. After processing the data, it was fed into the XGBoost model for training, and then validated on the Test and OOT (Out of Time) sets. After that, I performed Hyperparameter Tuning using RandomizedSearchCV to tune the model and find the correct parameters. Model evaluation criteria included AUC-ROC, Gini, KS, and Lift scores. Results were presented using Bad Rate and Gain Charts across each decile which shows the Capture Rates in each decile.

Tool used (Development tools - H/w, S/w) : Python programming language was used to write the code for the model. SQL was used to fetch data from Snowflake Database. Microsoft Excel was used to analyze data and make graphs etc.

Objectives of the project : The main objective of this project was to build a Machine Learning model which could detect potentially fraudulent customers at an early loan application stage applying for an Unsecured Business Loan (UBL) and stop them from getting a loan.

Major Learning Outcomes : I am well equipped with Risk Modelling knowledge after this project. I also got a lot of exposure to various Machine Learning techniques like boosting algorithms (XGBoost, Light-GBM, CatBoost etc.) and what is the working behind them. As I was the sole stakeholder of this project, I got a clear idea about the entire life cycle of a data science project right from data collection to final Model prediction.

Details of Papers/patents : "Hands-on Machine learning with Sci-Kit Learn, Keras and Tensorflow" by Aurelion Geron was used to understand the Modelling workflow.

Brief Description of working environment, expectations from the company : Piramal Finance, which is part of the Piramal Group, is known for having a fast-paced and results-oriented work environment. The company puts a lot of value in meritocracy, which means that hard work and ability are rewarded. People who work for the company are supposed to be very professional, honest, and dedicated to their jobs. Piramal Finance is a fast-paced place to work where getting great results is the main goal. Employees often work together in cross-functional teams to reach shared goals, so they value teamwork and collaboration a lot. The company values the different ideas and experiences of its workers and encourages them to talk to each other freely. Piramal Finance puts a lot of value on learning and growing all the time. There are many chances for employees to grow professionally through training programs, classes, and getting to know different parts of the business. People who work for the company are expected to be creative and always look for ways to improve their skills and help the business succeed. Piramal Finance wants to hire people who are motivated, flexible, and able to do well in a business setting that changes quickly. Employees must have a strong focus on the customer, strong problem-solving skills, and the ability to work under pressure while still upholding high standards of quality and ethics. Overall, Piramal Finance creates a culture that values excellence, new ideas, and a dedication to giving its customers and other partners the best value possible.

Academic courses relevant to the project : CS F320: Foundations of Data Science; BITS F464: Machine Learning

PS-II Station : Piramal Group - BIU , Mumbai

Faculty

Name: Ankur Pachauri

Student

Name: ADARSH AGNIHOTRI(2019B4A30723P)

Student Write-up

PS-II Project Title: Loan Level Attrition Prediction Model

Short Summary of work done during PS-II : In the very competitive lending market of today, banks and NBFCs must focus on customer retention if they hope to expand and stay relevant over time. Maintaining clients enhances the institution's standing in the market and guarantees consistent income. This report presents the development of an attrition prediction model for Piramal Finance, focusing on Home Loans (HL) and Secured Business loans. The model aims to identify potential customers likely to attrite from Piramal's ecosystem, facilitating proactive retention efforts such as rate reduction and top-ups. Leveraging advanced analytics, the model enhances Piramal's ability to sustain customer relationships and competitiveness in the financial market.

Tool used (Development tools - H/w, S/w) : Python, SQL, EXCEL

Objectives of the project : Rank order Home Loans (HL) and MSME Secured Loans customers based on their foreclosure tendency. Facilitate targeted retention strategies by identifying high-risk customers and offering tailored rate reductions.

Major Learning Outcomes : Financial and Lending industry Working, ML Modelling

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Great working environment, very good set of people to work with and learn.

Academic courses relevant to the project : Applied Statistical Methods

PS-II Station : Piramal Group - BIU , Mumbai

Faculty

Name: Ankur Pachauri

Student

Name: YASH GUPTA(2019B5A80283G)

Student Write-up

PS-II Project Title: Classification Models And Udyam Registration Certificate Digitizer

Short Summary of work done during PS-II : Throughout the project, significant progress has been made in developing a robust multiclass document classification model using ResNet architecture, PyTorch, and custom datasets. The work involved overcoming challenges related to

class imbalance, optimizing model convergence, and implementing effective training strategies like weighted loss functions and SGD optimizer. Learning from this project includes gaining proficiency in deep learning techniques, understanding the importance of model interpretability, and honing skills in data preprocessing, model evaluation, and monitoring using tools like TensorBoard. Additionally, the project provided valuable insights into real-world application scenarios, enhancing understanding of document processing workflows and the impact of machine learning models on business processes.

Tool used (Development tools - H/w, S/w) : Python , ML Clusters

Objectives of the project : Classify and Digitize documents

Major Learning Outcomes : Machine Learning , Artificial Intelligence

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Good Work Culture , Perfect Environment to foster innovation and growth.

Academic courses relevant to the project : Digital Image Processing

PS-II Station : Piramal Group - BIU , Mumbai

Faculty

Name: Ankur Pachauri

Student

Name: YELAKANTI AKHIL DEV .(2020A7PS0032P)

Student Write-up

PS-II Project Title: BackendDeveloper_Internship_PiramalFinance

Short Summary of work done during PS-II : Grafana Dashboard task for analyzing latencies, success percentage of API's Name Match Algorithm Enhancement Debugging and Solving a critical queryability on Mongo Encrypted fields Writing Cron for the data migration of older aadhaar records OKYC Inhouse Implementation Pan Auth concurrency implementation and overall latency reduction Pan Profile fallback implementation and improvement Improvements in Admin Kyc flow. Writing COE's for improving deployments and production failures Misc Tasks

Tool used (Development tools - H/w, S/w) : Spring, Java, Grafana, Kubernetes, Mongo

Objectives of the project : Learn many tools and best practices of LLD,HLD.

Major Learning Outcomes : Developing API's from scratch based on different use cases and designing the backend

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Good Working Environment in general but no much help in on boarding etc. from HR

Academic courses relevant to the project : OOPS, DBMS, DSA

PS-II Station : Piramal Group - BIU , Mumbai

Faculty

Name: Ankur Pachauri

Student

Name: AMIT GUPTA .(2020A7PS0105P)

Student Write-up

PS-II Project Title: POCI settlement model

Short Summary of work done during PS-II : Built the model required and also completed the adhoc tasks given for company perspective

Tool used (Development tools - H/w, S/w) : XGBoost, CatBoost Logistic Regression

Objectives of the project : To build a model to maximise the settlements in POCI accounts to maximise the profit of the company

Major Learning Outcomes : model building

Details of Papers/patents : none

Brief Description of working environment, expectations from the company : A good experience and a good to work with team

Academic courses relevant to the project : none

PS-II Station : Piramal Group - CPD & Critical Care , Mumbai

Faculty

Name: Ankur Pachauri

Student

Name: HITESH KUMAR(2019B2A31548H)

Student Write-up

PS-II Project Title: Market Mix Model + Many Smaller Projects

Short Summary of work done during PS-II : During my internship at Piramal, I undertook a diverse range of projects focused on process automation and data analysis. Among these, I successfully automated the generation of sales and return order data for the finance team, streamlined the production planning process for the supply chain team through automated stock production plans, and conducted automated analysis of store promoter data and stock fill rate data. In addition to these initiatives, I contributed to the development of market mix models aimed at optimizing media spends for a prominent brand, with a focus on enhancing return on investment (ROI). My role involved not only technical execution but also collaboration with cross-functional teams to ensure alignment with strategic objectives and deliver impactful outcomes.

Tool used (Development tools - H/w, S/w) : Python and Excel

Objectives of the project : The objective of this project was to create a bayesian regression model to optimize media ad spends for a major brand to improve ROI. There were also multiple other smaller projects with supply chain team, finance team and sales development team which were mostly adhoc requests.

Major Learning Outcomes : Gained a thorough comprehension of Market Mix Modeling, including the selection of activity variables and the rationale behind parameters like adstocks and lag. Cultivated insights into Business Knowledge, Sales Proficiency, and Supply Chain Understanding, alongside honing coding abilities. Strengthened competencies in Project

Management, Code Documentation, Excel Dashboard Creation, Data Ingestion Techniques, and Market Mix Modelling. Deepened understanding of ML concepts, performance metrics, and implementing Marginal ROI in Python.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The company has an atmosphere where everyone works together as a team. Interns are expected to come to the office and work for 9 hours a day, 5 days a week. At first, interns will get easier projects to help them learn about how things work. As they get more experienced, they'll start working on bigger projects that really help the company. Sometimes there might be unexpected projects that come up, so interns need to be flexible. Throughout their time here, interns should ask questions, join team meetings, and try to learn as much as they can. The company values initiative, innovation, and a commitment to excellence, expecting interns to demonstrate these qualities in their work and interactions within the team.

Academic courses relevant to the project : DBMS

PS-II Station : Piramal Group - CPD & Critical Care , Mumbai

Faculty

Name: Ankur Pachauri

Student

Name: SAYAN SAMANTA(2019B2A81088G)

Student Write-up

PS-II Project Title: EDP, automation of SumTotal user creation and update, automation of PAN and AADHAR details verification, Resume and Job Description similarity algorithm, Job Description Inclusivity and bias detection algorithm.

Short Summary of work done during PS-II : During my internship at Piramal Pharma Limited, I worked on several key projects aimed at improving data management, operational efficiency, and automation. I started with the Enterprise Data Platform (EDP), where I centralized employee data from Oracle HCM Cloud and SumTotal into Snowflake. This project involved developing Python scripts to extract and migrate data, enhancing data accessibility and reliability across the organization. Next, I automated the process of adding new users to the SumTotal Learning Management System (LMS) through the SumTotal User Creation Automation project. By creating scripts that leveraged REST APIs, I reduced manual workload and errors, significantly improving efficiency. I further automated updates to user details in SumTotal LMS with the SumTotal User Details Update Automation project. This ensured that employee information remained current and accurate without manual intervention, using parallel processing to handle multiple updates simultaneously. The PAN and AADHAR Details Validation project involved developing a system to automate the verification of these critical identification documents. Using OCR from Azure Cognitive Services and integrating with Oracle HCM Cloud APIs, I ensured accurate and efficient document validation. Additionally, I developed a Resume and Job Description Similarity Algorithm to automate resume shortlisting. This algorithm used NLP techniques to measure the similarity between resumes and job descriptions, streamlining the recruitment process. Lastly, I worked on a Job Description Inclusivity Algorithm to promote diversity and inclusion in recruitment by analyzing job descriptions for biased language and suggesting more inclusive alternatives.

Tool used (Development tools - H/w, S/w) : Python, Oracle HCM Cloud REST API, SumTotal REST API, Azure Cognitive Services, Snowflake, pandas, scikit-learn, Gensim, NLTK (Natural Language Toolkit), Transformers, PIL (Python Imaging Library), PyPDF2, OpenPyXL, smtplib, dotenv, requests, GitHub

Objectives of the project : 1) Enterprise Data Platform (EDP) Development: Centralize employee data from multiple sources into a unified, secure repository. 2) SumTotal User Creation Automation: Automate the process of adding new users to the SumTotal LMS, reducing manual labor and errors. 3) SumTotal User Details Update Automation: Automatically update user details in the SumTotal LMS, ensuring data accuracy and consistency. 4) PAN and AADHAR Details

Validation: Automate the validation of PAN and AADHAR details provided by employees, ensuring accuracy and compliance. 5) Resume and Job Description Similarity Algorithm: Automate the resume shortlisting process by measuring similarity between resumes and job descriptions using NLP techniques. 6) Job Description Inclusivity Algorithm: Promote diversity and inclusion in recruitment by analyzing job descriptions for biased language and suggesting more inclusive alternatives.

Major Learning Outcomes : 1) Advanced Data Handling: Gained expertise in managing and processing large datasets using Python, including data extraction, transformation, and loading (ETL) processes.

2) API Integration: Developed skills in integrating various APIs, such as Oracle HCM Cloud REST APIs and SumTotal REST APIs, to automate data retrieval and updates.

3) Cloud Platforms: Acquired knowledge of cloud data warehousing solutions like Snowflake, and learned best practices for data migration and storage in cloud environments.

4) Automation: Learned to automate repetitive tasks, significantly reducing manual effort and increasing operational efficiency, particularly in user management and document verification.

5) Optical Character Recognition (OCR): Gained practical experience with Azure Cognitive Services for OCR, converting image data into searchable text for validation purposes.

6) Natural Language Processing (NLP): Applied NLP techniques to measure resume and job description similarity, and to detect and suggest improvements for biased language in job descriptions.

7) Data Validation and Compliance: Developed skills in validating critical identification documents (PAN and AADHAR) using OCR, regular expressions, and fuzzy logic to ensure data integrity and compliance.

8) Parallel Processing: Implemented parallel processing techniques to handle multiple data updates simultaneously, enhancing processing speed and efficiency.

9) Problem-Solving: Improved problem-solving abilities by tackling real-world challenges in data management, automation, and compliance.

10) Project Management: Enhanced project management skills, including planning, execution, and reporting on various stages of multiple concurrent projects.

11) Communication and Collaboration: Strengthened communication and collaboration skills by working closely with different teams and presenting project outcomes to stakeholders.

Details of Papers/patents :

There were no papers or patents generated from my work during this internship.

Brief Description of working environment, expectations from the company : The working environment at Piramal Pharma Limited was highly collaborative and supportive, fostering both professional growth and personal development. I had the opportunity to work with a diverse team of professionals who were always willing to share their knowledge and provide guidance. The company maintained a culture of openness and continuous learning, which encouraged me to take initiative and explore innovative solutions for the tasks at hand.

The infrastructure provided was state-of-the-art, with access to the latest software and tools necessary for my projects. Regular team meetings and brainstorming sessions were held to discuss project progress, address challenges, and brainstorm new ideas. This collaborative approach not only enhanced the quality of work but also ensured that I was aligned with the company's goals and objectives.

Expectations from the company were clearly communicated and aligned with industry standards. I was expected to meet project deadlines, produce high-quality work, and actively participate in team discussions. The company valued efficiency, accuracy, and the ability to work independently as well as part of a team. Regular feedback sessions with my supervisors helped in identifying areas of improvement and setting realistic goals for the future.

Academic courses relevant to the project : Data Structures and Algorithms, Object Oriented Programming (OOP), Database Systems, Operating Systems

PS-II Station : Piramal Group - CPD & Critical Care , Mumbai

Faculty

Name: Ankur Pachauri

Student

Name: GAURAV ANAND KUMAR .(2020A7PS0145P)

Student Write-up

PS-II Project Title: Multiple projects related to data analytics

Short Summary of work done during PS-II : Worked on multiple projects related to automation and data analytics

Tool used (Development tools - H/w, S/w) : Python, Excel

Objectives of the project : Automate and analyse sales, hr and marketing reports

Major Learning Outcomes : Learned about data analytics using python

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Good work environment

Academic courses relevant to the project : Database Systems, Data Structures and Algorithms

PS-II Station : Piramal Group - Tech , Mumbai

Faculty

Name: Ankur Pachauri

Student

Name: DIVYAM AGARWAL(2019B2A81072G)

Student Write-up

PS-II Project Title: Slot Platform

Short Summary of work done during PS-II : During my PS-II internship, I focused on developing and enhancing the Slot Platform, a sophisticated system designed to optimize the delivery of personalized cross-sell offers across various digital touchpoints. My primary responsibilities included designing and implementing APIs that facilitate the registration and configuration of slots, which are essential for managing how offers are displayed to users. I integrated these APIs with a centralized Redis caching mechanism to improve the system's performance and responsiveness by reducing load times significantly. Furthermore, I played a crucial role in ensuring the system's security by implementing robust measures such as Authorization Bearer tokens and rate limiting to safeguard API access. This was complemented by a strict policy of not persisting Personally Identifiable Information (PII) to comply with privacy regulations. I also contributed to the resilience of the platform by developing a retry mechanism for handling API failures effectively, ensuring the system maintained high availability and reliability. Another significant aspect of my work involved the implementation of UTM tracking to capture detailed user interaction data, which provided valuable insights into user behavior and offer effectiveness. This internship not only enhanced my technical skills in software development and system design but also provided me with invaluable experience in working within a dynamic team environment, where I learned to navigate and resolve complex challenges through innovative solutions. The project's success has laid a strong foundation for its future expansion and has contributed to its goal of driving higher user engagement and conversion rates.

Tool used (Development tools - H/w, S/w) : Java, SpringBoot, MongoDB, Postman, Grafana, Jenkins

Objectives of the project : The objectives of the Slot Platform project were to enhance user engagement and increase conversion rates by delivering personalized and timely cross-sell offers across various digital touchpoints. Additionally, the project aimed to improve the system's security, scalability, and performance to support these enhanced marketing capabilities.

Major Learning Outcomes : The major learning outcomes from the Slot Platform project included mastering the integration of complex system architectures and gaining proficiency in developing secure, scalable APIs. I also learned to effectively implement real-time data analytics to drive user engagement and optimize marketing strategies.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The working environment during my PS-II internship at Piramal Finance was dynamic and fast-paced, fostering a culture of innovation and continuous learning. The company provided a collaborative workspace where ideas were openly shared and discussed, allowing for a rich exchange of knowledge and expertise among team members. This environment was crucial in enabling me to thrive and contribute effectively to the Slot Platform project.

Academic courses relevant to the project : Object Oriented Programming, Computer Programming

PS-II Station : Piramal Group - Tech , Mumbai

Faculty

Name: Ankur Pachauri

Student

Name: ARYAN PUWAR .(2019B3A70470P)

Student Write-up

PS-II Project Title: Sakes Central Engineering

Short Summary of work done during PS-II : Creation of Alerts on Grafana, Creation of new API, Production Bugs

Tool used (Development tools - H/w, S/w) : Java, Springboot

Objectives of the project : Creation of new code and maintaining and improvement of current

Major Learning Outcomes : Backend Development

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Good helpful teammates

Academic courses relevant to the project : DSA, OOP, DBMS

PS-II Station : Piramal Group - Tech , Mumbai

Faculty

Name: Ankur Pachauri

Student

Name: HARSH PANDEY .(2019B3A70489P)

Student Write-up

PS-II Project Title: Service Discoverability and Policy Migration

Short Summary of work done during PS-II : For my first project, I created a developer's portal using backstage which had the functionality to fetch metadata from organization's gitlab and showcase all the services that are being used at Piramal along with their description and links to other management tools like SonarQube, Grafana dashboards, Jaegar tracing, CI/CD pipelines, recent MRs etc. For my second project, I had to migrate the policies used at Piramal for the sanctioning of loans from Policy Engine V1 to V2. V1 required developer intervention for updation of policies while V2 provides an interactive UI which can be used to update the rules from the business side itself.

Tool used (Development tools - H/w, S/w) : Backstage, JavaScript, React, Spring Boot, appsmith, Jenkins, Docker, K8s, reagraph, d3.js

Objectives of the project : 1. To improve the service discoverability within the organisation using a developer's portal which will have information about all microservices being used at Piramal along with all the tools used to manage those at a single place. 2. Migration of policies of Piramal which have the rules for whom to sanction a rule from V1 to V2 which provides a UI interface for business users to make the changes in policies themselves with no developer intervention

Major Learning Outcomes : JAVA, React, Policy making, Team work, Soft Skills, Ownership

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The work environment was chill and everyone was very approachable. The learning outcomes are huge since you get the ownership to your project and everyone appreciate and accepts the ideas you bring to table.

Academic courses relevant to the project : Object oriented programming, data structures and algorithms, system design

PS-II Station : Piramal Group - Tech , Mumbai

Faculty

Name: Ankur Pachauri

Student

Name: ROHAN KUNWAR(2019B3A70666P)

Student Write-up

PS-II Project Title: Advanced Software Enhancements for the Credit Platform

Short Summary of work done during PS-II : 1. Introduction and Objectives Piramal Capital Housing Finance Limited (PCHFL) is committed to high standards of transparency, accountability, and compliance monitoring. Lacking a robust mechanism for auditing API interactions poses challenges in tracking user activities, ensuring compliance, and deriving insights. This project aims to log key information, store it in an audit database, and provide tools for analyzing and reporting on the data. 2. Implementation Details We developed a custom annotation to log API interactions, ensuring standardized information capture across all endpoints. This annotation was integrated with existing Credit Central APIs and thoroughly tested for functionality and performance. A dedicated audit database with a secure schema was established to store logs. Middleware was created to intercept API calls, extract information, and log it, with error handling to maintain functionality. Reporting and analysis tools, including real-time monitoring dashboards and detailed reporting tools, were developed to enhance monitoring and insights. 3. Outcomes, Benefits, and Conclusion The project has significantly enhanced transparency and accountability by providing full visibility into all API interactions, improving user accountability, and simplifying compliance and risk management through detailed logging. Early detection of anomalies has reduced security breach risks, while operational efficiency has improved by identifying performance bottlenecks and enabling data-driven decision-making. The implementation of the audit capability for Credit Central APIs has strengthened PCHFL's security and compliance

posture, driving operational efficiency and informed decision-making, and significantly enhancing transparency, accountability, and compliance monitoring.

Tool used (Development tools - H/w, S/w) : Java, Spring Boot, MongoDB, Redis, Docker, Kafka

Objectives of the project : The objective was to make the existing credit platform of Piramal Finance better by developing new features as well as boosting its performance by increasing code reliability through coverage, decreasing bugs by solving sonarqube and cloud defense issues and at the same build capabilities for the credit team that helps in faster debugging and issue resolution.

Major Learning Outcomes : Backend Engineering using Java, Spring Boot, MongoDB, Redis, Kafka

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The work culture at Piramal Finance is startup-like. There is more focus on shipping features faster which provides a good learning curve to anybody who is new to development. My expectation when I joined was to learn a lot about backend development as I was completely new to it. And at the end of the internship, I am quite happy with my decision because I did get to learn a lot. There is not much training that they provide, rather you will be given tasks and expected to learn on the go. The peer group is fantastic as almost everybody is from IITs, BITS or top NITs. So, even that helps to learn a lot. While Piramal is still growing, the great people make sure that you have a fun time in office. It is expected that as an intern, you will show up in office regularly. However, you can still take work from home sometimes, but in-principle, Piramal believes in work from office. Sometimes, there is less work so you can usually go back home by 6. To sum up, the culture is chill yet there is still a lot to learn and offer if you're willing to.

Academic courses relevant to the project : Data Structures & Algorithms, Database Management Systems, Operating Systems, Computer Networks

PS-II Station : Piramal Group - Tech , Mumbai

Faculty

Name: Ankur Pachauri

Student

Name: YATHARTH TANEJA .(2019B4A30618P)

Student Write-up

PS-II Project Title: Backend Development Internship

Short Summary of work done during PS-II : Learnt Spring Boot in the initial few weeks. Created REST APIs for Platform Central team of Piramal. Wrote unit tests to increase test coverage for 3 major service of Platform team. Fixed multiple bugs and enhanced multiple features in employment-service which is responsible for ITR verification and form26AS procurement.

Tool used (Development tools - H/w, S/w) : Java, Spring Boot, gitLab, Jenkins, Kafka, Redis, AWS, MongoDB, Postman, IntelliJIDEA, SonarQube, Grafana, Rancher

Objectives of the project : To gain hands on experience of working in a large corporate

Major Learning Outcomes : Backend Development, API creation, Feature Enhancement, Unit testing

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Learning is very slow, and the interns were not given interesting projects. Overall, the working environment and the management are very chill, and there are no hard deadlines.

Academic courses relevant to the project : OOP and CP

PS-II Station : Piramal Group - Tech , Mumbai

Faculty

Name: Ankur Pachauri

Student

Name: SARANSH PRUTHI(2019B4A70718G)

Student Write-up

PS-II Project Title: GRAFANA DASHBOARDS FOR PAN APIs, KYC FEATURE IMPLEMENTATION VIDEO KYC TESTING, POLICY ENGINE DASHBOARD & KYC SERVICE AND DATA MANAGEMENT

Short Summary of work done during PS-II : As part of the KYC tech team at Piramal Finance, I was working on APIs for PAN authentication and verification. My focus was on integrating third-party APIs for PAN authentication within the KYC framework. I created multiple Grafana dashboards to visualize the performance metrics, error code distributions, success rates, and latency of these APIs, benefiting both my team and sister teams. Additionally, I authored API documentation to facilitate usage of these APIs. Subsequently, I undertook a substantial task to enhance the unit test coverage of the video KYC service, elevating it from 0% to over 90. Leveraging a comprehensive approach, I crafted approximately 100-unit tests spanning all layers—controller, service, and repository—culminating in a commendable & comprehensive 95% coverage for the service before the stipulated deadline. I also worked on improvement of controller unit tests in the KYC and video KYC service. Tech teams at Piramal planned on

introducing contract testing in their services for better debugging and request-response exchange for their various services. Our team was the first to introduce provider-driven Pacts (contract testing framework) in our KYC service and I took the independent ownership of implementing contract testing in KYC service for OKYC and Admin Verification flows using Pacts. This would act as a reference point for other teams to implement contract testing in their services and is applauded as a technical innovation. I also worked on POCs for feature introductions in the Policy Engine frontend dashboard.

Tool used (Development tools - H/w, S/w) : (S/w) -> Grafana, React, Node, npm, Spring, Spring Boot, Java, IntelliJ, Visual Studio Code, Postman, MongoDB, Confluence docs, Jira, Maven, JaCoCo, GitHub, GitLab ; H/w -> Laptop

Objectives of the project : As part of the KYC tech team at Piramal Capital & Housing Finance Limited, I worked on several APIs for PAN verification & PAN authentication and also implemented testing frameworks in the video KYC and KYC service like introducing contract testing in the video KYC service using provider-driven Pacts. The overall objective for implementing these frameworks was to enhance the debugging capabilities of the service along with improving the code efficacy & efficiency. The objective was to enhance the KYC customer service experience of consumers availing financial services for Piramal Finance by improving our overall service code and testing frameworks

Major Learning Outcomes : During my tenure at Piramal Capital and Housing Finance Limited, I worked on a variety of projects involving both frontend and backend framework like Spring Boot for backend and React for frontend. By doing hands-on projects and working around complex problem statements, I was able to learn in depth about these frameworks and software development lifecycle in general. As part of the KYC team at Piramal Capital and Housing Finance Limited's Tech division, I've worked on several small and 4 big projects involving third-party APIs for PAN authentication, fixing CI/CD cloud defense pipeline issues, code coverage from unit tests in video KYC, implementation of contract testing in KYC codebase, Policy Engine dashboard POC and implementation of Mock MVC in controller tests.

By working on these projects, I learnt in detail about Spring MVC, React and MongoDB.

Details of Papers/patents : [No Patent] Introduced contract testing framework in KYC service of Piramal Capital & Housing Finance Limited. This was applauded as a technical innovations and will be used as a reference point for other teams to implement contract testing.

Brief Description of working environment, expectations from the company : The working environment is very good, collaborative and supportive with work from office being encouraged for better team collaborations. The company expects bar raising performance with each new project but the team provides the right collaborative environment for such bar raising.

Academic courses relevant to the project : Data Structures and Algorithms, Operating Systems, Database Systems, Object Oriented Programming, Computer Networks, Technical Report Writing & Professional Ethics

PS-II Station : Piramal Group - Tech , Mumbai

Faculty

Name: Ankur Pachauri

Student

Name: HARISH KRISHNA A(2020A3PS1603G)

Student Write-up

PS-II Project Title: CSV reader to deactivate inactive loans

Short Summary of work done during PS-II : During my internship, I focused on enhancing the robustness and security of our software systems. I authored numerous code snippets and test cases, testing over 3000 lines of code, which were all successfully deployed. I identified and fixed

critical security vulnerabilities, such as DoS attacks and LDAP injection vulnerabilities, improving the overall security of our applications. By analyzing the codebase, I identified and coordinated the removal of unused feature flags, optimizing our services and reducing unnecessary API calls. Additionally, I also debugged production issues by examining logs and resolving errors, which significantly improved the API success rate. I also developed a CSV reader API to automate the deactivation of inactive offers, streamlining the offer management process. I improved my design skills by creating High-Level Designs (HLDs) and sequence diagrams, which helped in identifying inefficiencies early and provided a clear roadmap for development. This planning process was crucial for successfully implementing new features and building APIs. Throughout these tasks, I enhanced my communication skills by participating in daily meetings and presenting technical solutions. I gained a comprehensive understanding of the software development lifecycle, learning the importance of setting realistic goals and adhering to timelines to ensure timely delivery of projects. My contributions resulted in significant business impacts, such as facilitating the creation of loans worth over 14 lakhs and preventing disbursements totaling 34 lakhs, demonstrating the tangible value of my work.

Tool used (Development tools - H/w, S/w) : Spring boot, Kafka, Postman, Jenkins, JUnit 5, Mockito, Grafana, MongoDB, Github

Objectives of the project : Build an API that takes a CSV file as the body, and productId and activity state as the query parameters. This API should then send this to a Kafka topic, from where we must deactivate loans in the offer database and make another request to Moengage, a third party customer engagement platform to update these offers there too

Major Learning Outcomes : Learnt how to prepare high level and low-level designs before development. Learnt how to use Kafka and create new topics with them. Learnt how to write clean code that separates utility classes from business logic. Learnt how to perform integration testing with different scenarios to ensure that my product worked as expected.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment during my internship was dynamic and collaborative, fostering continuous learning and professional growth. I worked within a highly supportive team where open communication

and knowledge sharing were encouraged. Daily stand-up meetings and regular team discussions ensured everyone was aligned and facilitated the smooth execution of projects.

The company had high expectations for quality, emphasizing thorough testing and robust coding practices. I was expected to adhere to best practices in software development, including writing comprehensive test cases, conducting detailed code reviews, and following established protocols for design and deployment.

Additionally, the company valued proactive problem-solving and innovation, encouraging interns to take initiative and contribute to ongoing improvements. My contributions were not only appreciated but also critical in real-world applications, providing a sense of responsibility and purpose in my work. This environment of high standards and collaborative effort helped me develop both technically and professionally, meeting the expectations set by the company.

Academic courses relevant to the project : Object Oriented Programming

PS-II Station : Piramal Group - Tech , Mumbai

Faculty

Name: Ankur Pachauri

Student

Name: SAMYAK BAKLIWAL .(2020A7PS0104P)

Student Write-up

PS-II Project Title: Embedded Finance - loan-by-piramal service

Short Summary of work done during PS-II : As a member of the Loan-by-Piramal (LBP) team, my contributions spanned across several critical areas, significantly enhancing the platform's

security, performance, and operational efficiency. Key accomplishments included the implementation of a new authentication client service for LBP and the Loan Origination System (LOS), addressing CloudDefense vulnerabilities, and optimizing KYC-related APIs to improve latency. I developed a Grafana dashboard using Prometheus to visualize API metrics such as hit counts, RPM, and latency, providing real-time performance insights. In addition to performance optimization, I focused on enhancing the platform's operational processes. I created a dashboard for the sales and operations team to facilitate the manual loan disbursement process, ensuring detailed tracking of rejected leads for follow-up and disbursement. I expanded the file upload functionality to support multiple formats (PDF, JPEG, PNG), addressing urgent compliance needs. My efforts also included writing unit tests for eight services in the Embedded Finance repositories, achieving over 90% code coverage, and fixing code smells and vulnerabilities identified by SonarQube. These initiatives ensured high code quality and maintainability. Throughout the project, I gained valuable technical skills in Java, Spring Boot, React, TypeScript, and various DevOps tools, while also enhancing my problem-solving and collaboration abilities. Regular mentorship and guidance from my manager, mentors, and professors played a crucial role in my development. Overall, my contributions have led to a more secure, efficient, and user-friendly Loan-by-Piramal platform.

Tool used (Development tools - H/w, S/w) : Git, Jenkins, Jira, Clouddefense, SonarQube

Objectives of the project : Tech enhancements in loan-by-piramal service

Major Learning Outcomes : Major Learning Outcomes

Technical Proficiency:

I developed expertise in various technologies and tools, including Java, Spring Boot, React, TypeScript, Tailwind, GitLab CI/CD, CloudDefense, and Jenkins pipelines.

I gained in-depth knowledge of creating and managing authentication services, enhancing security measures, and optimizing API performance.

Code Quality and Testing:

Mastered writing high-quality code that adheres to industry standards and best practices.

Increased code coverage to over 90% through rigorous unit testing, ensuring reliable and maintainable code.

I learned to identify and fix code smells and vulnerabilities using SonarQube.

Performance Optimization:

Acquired skills in performance tuning by optimizing KYC-related APIs, reducing latency, and handling error spikes.

Improved system stability by addressing incorrect error responses and implementing effective error-handling mechanisms.

Data Visualization and Monitoring:

I gained experience in setting up and utilizing monitoring tools like Grafana and Prometheus to visualize key metrics such as API hits, RPM, and latency.

Developed dashboards to provide real-time insights into system performance and operational efficiency.

Operational Efficiency:

Designed and developed dashboards for the sales and operations team to streamline the manual loan disbursement process, improving accuracy and reducing processing time.

Collaboration and Teamwork:

Enhanced collaboration skills by working closely with team members, participating in code reviews, and handling feedback constructively.

I learned to coordinate with different teams to resolve issues and blockers, gaining exposure to various problem-solving scenarios.

Project Management:

Understood the iterative nature of software development and the importance of continuous improvement.

Managed and tracked progress through regular updates and documentation, ensuring alignment with project goals and timelines.

Business Understanding:

I gained insights into the business requirements of retail finance and risk decisioning procedures.

Understood the integration of partner journeys with database configurations and parameter stores.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at Loan-by-Piramal (LBP) was dynamic, collaborative, and highly supportive. The team comprised skilled professionals dedicated to improving the platform's security, performance, and functionality. Regular interactions and open communication channels fostered a culture of

knowledge sharing and continuous learning. My manager, Mr. Parag Shah, provided consistent guidance, encouraging a strong foundation in technical skills and problem-solving.

Expectations from the company were clear and well-communicated. As a part of the team, I was expected to contribute to core technical services, enhance security measures, and optimize platform performance. Regular unit testing to maintain high code coverage and fixing vulnerabilities identified by tools like CloudDefense and SonarQube were essential tasks. The company emphasized the importance of delivering reliable, maintainable, and high-quality code that adheres to industry standards.

Additionally, I was encouraged to proactively identify and address issues, collaborate effectively with team members, and participate in regular code reviews. Developing tools and dashboards to improve operational efficiency and user experience were also key expectations. The company valued innovation, attention to detail, and a commitment to continuous improvement.

Mentorship and guidance were integral to the working environment. Regular meetings with mentors and professors, such as Dr. Ankur Pachauri, provided opportunities for feedback, skill development, and progress tracking. Overall, the supportive and collaborative environment, combined with clear expectations, enabled me to contribute effectively and grow professionally.

Academic courses relevant to the project : Database Systems

PS-II Station : Piramal Group - Tech , Mumbai

Faculty

Name: Ankur Pachauri

Student

Name: HARSH PRIYADARSHI .(2020A7PS0110P)

Student Write-up

PS-II Project Title: Service Discoverability and Policy Migration

Short Summary of work done during PS-II : The project involved developing a Developer Portal using Spotify's Backstage for centralized service management, integrating tools like Grafana, Kafka, GitLab and Jenkins. It was deployed using docker and kubernetes and used AWS RDS for storage. Additionally, a Lead-fields Discovery tool was created using Spring Boot and Appsmith to organize and standardize lead data. A Service-Dependency/Kafka-Relationship Graph was implemented using Reagraph and Jaeger-UI to visualize service dependencies and Kafka topic relationships. The migration of the Policy Engine from V1 to V2 introduced a user-friendly interface, automated workflows, and improved security features. Overall, the project aimed to streamline service management, enhance collaboration, and improve productivity and efficiency across Piramal's microservices ecosystem.

Tool used (Development tools - H/w, S/w) : Postman, IntelliJ, VS Code, MongoDB compass, Jenkins, AWS

Objectives of the project : Currently, managing services necessitates navigating through disparate platforms such as Confluence, GitLab, Jenkins, Grafana, Sonarqube, and others, impeding efficiency and productivity. This approach not only incurs time overheads but also introduces the risk of overlooking existing services, leading to the creation of services that already exist, leading to a waste of time for Developers. Recognizing these challenges, Our internship goal aims to address the critical need for improved service discoverability within our company's microservices ecosystem. Furthermore, the Policy Engine, a critical component for evaluating and selecting credit risk, was limited by its dependency on the development team for policy changes, lack of transparency, and no version control. To address these issues, we planned a migration from Policy Engine V1 to V2, introducing a user-friendly interface, automated workflows, and improved security features.

Major Learning Outcomes : Backstage involves learning React and Typescript as all plugins are made in these. It also involves YAML,postgres,docker and Rancher. Policy Engine requires Java, Springboot, MongoDB Compass. Apart from this, basic tools that help in management and development like Postman, Gitlab, Github, Jenkins, JIRA, confluence, Grafana, Jaeger, Kafka and Sonarqube.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Working environment depends on the team, but its mostly relaxed. The team I was part of sometimes would get emergency tickets, which would need to be sent into prod within a day. These tickets were rare and would mostly happen once or twice a month and will extend work timings beyond 6, but in those cases you can assign it to someone else who is free if you are busy. The organizational structure is flat and everyone's opinions are respected. I had many meeting with senior director, directors and Managers despite being an intern for the work I was doing. The company expects you to finish your assigned work on time, which is doable, even if its not and you intimate them beforehand, its alright.

Academic courses relevant to the project : Compiler Construction (Policy Engine is a large scale compiler), DSA (Pre-placement Interview at the end of PS2), DBMS, OOPS and OOAD (most of the code is in Java)

PS-II Station : Piramal Group - Tech , Mumbai

Faculty

Name: Ankur Pachauri

Student

Name: SHIVANSH SHUKLA(2020AAPS0378H)

Student Write-up

PS-II Project Title: Telesales

Short Summary of work done during PS-II : Added features to the platform, fixed bugs and collaborated with other teams to integrate new features.

Tool used (Development tools - H/w, S/w) : Java, spring boot

Objectives of the project : Maintain and enhance the telesales platform

Major Learning Outcomes : Backend web development

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Startup like company, small team, high paced work environment.

Academic courses relevant to the project : OOPS

PS-II Station : Playment Inc - Software Engineering -Solution Development , Bengaluru

Faculty

Name: Vimal S P

Student

Name: JAVIN BACHANI(2019B1A81068G)

Student Write-up

PS-II Project Title: Creating automated CI/CD pipelines

Short Summary of work done during PS-II : Create continuous integration & deployment pipelines for cloud computing platforms like AWS using Infrastructure as Code

Tool used (Development tools - H/w, S/w) : AWS, Terraform, Kubernetes, CircleCI

Objectives of the project : Create CI/CD pipelines to automate & monitor service deployments.

Major Learning Outcomes : Kubernetes, Algorithmic optimization, Computer Architecture, System Design

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Good mentoring, No micromanagement, great WLB, remote work/minimal work from office.

Academic courses relevant to the project : Computer Architecture

PS-II Station : Pocket FM Private Limited , Bengaluru

Faculty

Name: Gaurav Nagpal

Student

Name: HRISHIT TAMBI.(2019B5A30807P)

Student Write-up

PS-II Project Title: Enhancing User Experience using Data Analytics and RecSys

Short Summary of work done during PS-II : Worked with the analytics team to help improve product metrics through experiments launched on the app. Carried out independent data analysis to improve payment funnel experience and social experience based engagement metrics. Worked with the data science team to build a watch-time prediction model using deep learning.

Tool used (Development tools - H/w, S/w) : SQL, Databricks, Quicksight, Sagemaker, PySpark

Objectives of the project : Provide data analytics for various experiments launched on the app. Carry out independent analysis for improving user experience. Build a playtime prediction model using deep learning to project user watch-time on various shows.

Major Learning Outcomes : Acquired extensive knowledge on how to improve product through the use of analytics.

Learnt about building and improving large-scale recommendation systems

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Work culture is good. The internship was remote. Everyone in the team is easily approachable. Your inputs are valued.

Academic courses relevant to the project : Probability & Statistics, Linear Algebra

PS-II Station : Pocket FM Private Limited , Bengaluru

Faculty

Name: Gaurav Nagpal

Student

Name: RANGA YASH GOPAL(2020A1PS2077G)

Student Write-up

PS-II Project Title: BUSINESS ANALYST

Short Summary of work done during PS-II : WORK DONE WAS IN THE CONTENT ANALYTICAL FIELD TO HELP THE STARTUP GROW AND SCALE

Tool used (Development tools - H/w, S/w) : SQL QUICKSIGHT

Objectives of the project : GROWTH

Major Learning Outcomes : SQL

Details of Papers/patents : NONE

Brief Description of working environment, expectations from the company : GOOD AND SUPPORTIVE TEAM AND MADE LEARNING GOOD

Academic courses relevant to the project : -

PS-II Station : Pocket FM Private Limited , Bengaluru

Faculty

Name: Gaurav Nagpal

Student

Name: NAMAN NANDAN(2020A4PS2320H)

Student Write-up

PS-II Project Title: User Engagement and Retention Analysis

Short Summary of work done during PS-II : The project required analysis of data of the platform. The data was mainly targeted to experiments that the organisation performs to improve itself, as well as other metrics. The major platforms used were Databricks and AWS.

Tool used (Development tools - H/w, S/w) : Databricks, AWS

Objectives of the project : Analyze user data to understand how listeners engage with different types of content. - Identify patterns in user behavior, such as peak usage times, preferred genres, and popular series. - Utilize analytics to enhance user experience and recommend personalized content. - Identify early signs of churn and offer interventions to said users to prevent them from churning
Skill sets: SQL, Python

Major Learning Outcomes : Product Understanding, Problem Solving, Analytical Skills

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The role had an option to work from home full time. The working hours were 11 AM - 7 PM, sometimes extending slightly beyond 7 PM depending on urgency of tasks. All the full time employees are very approachable and helpful.

Academic courses relevant to the project : -

PS-II Station : Porter - Product Management , Bengaluru

Faculty

Name: Sandeep Kayastha

Student

Name: GARIMA SINGH(2019B5A41076H)

Student Write-up

PS-II Project Title: Reducing Support Cost in Courier

Short Summary of work done during PS-II : I develop and analyze dashboards to enhance customer service performance and operational efficiency. My work involves tracking orders for discrepancies, outstanding payments, and revenue, and providing insights into customer payment preferences. I evaluate call performance metrics to identify trends and areas for improvement, segmenting data by issue and ageing buckets. I also assess new features, such as a courier tracking tool, focusing on functionality and issue identification. Additionally, I analyze customer service tickets to compare current statuses with ideal First Contact Resolution (FCR) or Non-First Contact Resolution (NFCR) outcomes. This helps pinpoint areas for process improvements, aiming to streamline operations, reduce response times, and boost customer satisfaction, ensuring data-driven decisions that enhance overall efficiency and the customer experience.

Tool used (Development tools - H/w, S/w) : Snowflake

Objectives of the project : To reduce Support Cost in courier

Major Learning Outcomes : Writing optimised query and it's quality check. Creating sandbox tables. Deeper understanding of business

Details of Papers/patents : Not applicable

Brief Description of working environment, expectations from the company : My work environment in Porter was very good, my colleagues, mentor and manager were extremely helpful. I was provided with opportunities to learn. They were helpful in helping with their expertise and guidance. I had a great learnings in writing queries, sanity check and creating flat tables. My stakeholders were also very patient and helped me with business understanding.

Academic courses relevant to the project : SQL

PS-II Station : Porter - Tech , Bengaluru

Faculty

Name: Preethi N. G

Student

Name: RUCHIR PARMANAND KUMBHARE .(2019B5A70650P)

Student Write-up

PS-II Project Title: Software Development

Short Summary of work done during PS-II : Interned in the Locations team, as Backend developer, at Porter which ensure the availability of Driver locations to all other teams using it.

Made significant code contributions for developing new features. Worked on bug fixes and developing a POC for significant changes in infrastructure.

Tool used (Development tools - H/w, S/w) : S/W tools -> Kotlin, Ruby on Rails, AWS, PostgreSQL, Redis

Objectives of the project : Get to work as a SDE at Porter, getting to know the tech stack running the operations, adding new features, solving bugs, etc.

Major Learning Outcomes : Learning to work in an Agile based methodology, following the Software Development Lifecycle.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The team was very supportive by easing me into the tech stack used by starting off with smaller tasks, which gradually turned into important deliverables. The first month was provided to learn how code is written at Porter, along with the tech used to monitor and host the whole operation.

Academic courses relevant to the project : Object Oriented Programming, Database Systems, Data Structures and Algorithms

PS-II Station : Porter - Tech , Bengaluru

Faculty

Name: Preethi N. G

Student

Name: KRISHANU SHAH(2020A7PS1728G)

Student Write-up

PS-II Project Title: New Initiatives - Backend Dev

Short Summary of work done during PS-II : During my PS-II internship, I worked at a company specializing in backend development using Kotlin and AWS, focusing on a microservice based architecture. My primary responsibilities included designing, implementing, and maintaining backend services that were integral to the company's overall system. My main project involved developing new APIs and enhancing existing ones. I utilized Kotlin for writing clean, maintainable code and employed various AWS services, such as Lambda, DynamoDB, and S3, to ensure the scalability and reliability of our applications. Additionally, I integrated RESTful APIs to facilitate communication between microservices, ensuring smooth data flow and operational efficiency. I also focused on optimizing performance and implementing best practices for security and data protection. This included using AWS IAM for access control, setting up monitoring and logging with AWS CloudWatch, and employing AWS RDS for database management. Through rigorous testing and debugging, I ensured the robustness and stability of the services I developed. Throughout the internship, I gained hands-on experience in cloud computing, microservices architecture, and backend development with Kotlin. This opportunity not only enhanced my technical skills but also improved my ability to work effectively in a team, manage time efficiently, and solve complex problems systematically.

Tool used (Development tools - H/w, S/w) : Development IDE - IntelliJ (Kotlin), AWS console, GCP Console

Objectives of the project : Develop and manage the backend for Porter's Packer and movers micro service based initiative

Major Learning Outcomes : New programming language (kotlin), backend architecture, microservices based architecture, amazon web services

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at the company was dynamic and collaborative, fostering a culture of continuous learning and innovation. The open office layout and regular team meetings facilitated easy communication and idea-sharing among team members. We used agile methodologies, which included daily stand-ups, sprint planning, and retrospectives, ensuring that everyone was aligned with the project's goals and progress.

The company expected high standards of professionalism and a strong commitment to delivering quality work. From the outset, I was encouraged to take ownership of my tasks and contribute actively to the team's objectives. The senior developers and mentors provided valuable guidance, but there was also an emphasis on independent problem-solving and initiative. This balance helped me grow both as a team player and as an individual contributor.

Technical excellence was a key expectation. I was required to write clean, efficient, and maintainable code, following best practices and industry standards. The company placed a strong emphasis on code reviews, ensuring that every piece of code met their stringent quality criteria. Additionally, I was expected to stay updated with the latest technologies and tools relevant to our work, which often involved attending workshops and participating in knowledge-sharing sessions.

Academic courses relevant to the project : OOP - Object oriented programming

DBMS - Database management systems

DSA - Data structures and algorithms

DAA - Design and analysis of algorithms

CN - Computer networks

PS-II Station : Porter - Tech , Bengaluru

Faculty

Name: Preethi N. G

Student

Name: AMBOLE SUSHANT SADASHIV(2020A7PS1733G)

Student Write-up

PS-II Project Title: Backend Development - All India Parcel at Porter

Short Summary of work done during PS-II : During the course of PS-II at Porter I worked on various tasks to enhance the product flow of All India Parcel. Some examples of the work done are implementing a new chatbot, implementing an option for insurance of the parcel to the user, showing price-breakup for the user, enhancing testing productivity by implementing a new AWS SQS queue, etc.

Tool used (Development tools - H/w, S/w) : Kotlin with Ktor, Redis, PostgreSQL, AWS Services

Objectives of the project : The objective involved working on various tasks involving backend development for the All India Parcel (courier) team at Porter. Part of this project was to work on developing various features and enhancements to the existing flow of the app, based on the business requirement.

Major Learning Outcomes : Learning Outcomes: Backend Software Development, Working in a fast-paced environment

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at the company was very supporting and friendly, overall it was a great experience.

Academic courses relevant to the project : Object-Oriented Programming, Operating Systems, Data-Structure and Algorithms, Database Management System.

PS-II Station : Porter - Tech , Bengaluru

Faculty

Name: Preethi N. G

Student

Name: SHREYASH BHARDWAJ(2020A7PS2066H)

Student Write-up

PS-II Project Title: Data Engineering Projects

Short Summary of work done during PS-II : During my PS-II, I developed automation scripts to generate configurations for pipeline creation, significantly enhancing efficiency. I also created a metabase cleanup cron job that runs monthly on a Lambda function to remove old, unused cards, ensuring streamlined data management. Another key project was the development of a freshness alert monitor to maintain data freshness across OLTP and OLAP databases. I advanced my skills in AWS tools and services, focusing on low-level design and system architecture to build robust, scalable pipelines. The new automation framework for pipeline creation achieved a landmark reduction in team SLA by 95%, demonstrating a significant improvement in productivity and efficiency. Under the guidance of mentors and managers, I participated in the design and testing phases, ensuring high-quality outcomes. The freshness alert monitor I created not only tracks pipeline uptimes but also ensures data freshness, greatly enhancing the monitoring and stability of our systems. This experience has equipped me with valuable technical and problem-solving skills in a real-world setting.

Tool used (Development tools - H/w, S/w) : AWS Glue, Cloudwatch, Lambda, Eventbridge, Secrets Manager, S3, IAM, Apache Airflow, Python, Snowflake, Metabase, Monte Carlo, Slack

Objectives of the project : To create automation software to enable pipeline creation at a click, Create software which acts as a regular cron checking freshness of source and sink of data pipelines, Create a software which runs monthly to cleanup old cards in Metabase to clean up database load and space

Major Learning Outcomes : Learnt architectural designing of ETL pipeline, in-depth knowledge gain of ETL workflow, large database migration techniques. Data Lake functionalities and usage. Python scripting and automation scripting. Usage of AWS services at a vast extent and their usability. Learnt teamwork and collaboration through agile software development process.

Details of Papers/patents : No papers or patents as such

Brief Description of working environment, expectations from the company : The work culture here is very progressive, active and collaborative. Everybody shares. mutual drive to collaborate and strive towards better tech, better performance for the collective company. I am very much impressed by the continuous dedication with which the people work here even at odd times, just to fix errors as soon as they come up. People work here with a passion which should be the key factor in any company.

Academic courses relevant to the project : C programming, Machine Learning, OOPS, DBMS

PS-II Station : Probe Information Services Pvt. Ltd. , Bengaluru

Faculty

Name: Anita Ramachandran

Student

Name: **OMKAR SACHIN GOTHANKAR .(2020A7PS0991P)**

Student Write-up

PS-II Project Title: Project mercury

Short Summary of work done during PS-II : I worked on the backend of project mercury at Probe42. My work was mostly related to the LLM layer of our system, a few functionalities I worked on were - integrating new LLMs, implementing smart llm-switching

Tool used (Development tools - H/w, S/w) : Django, MySQL, ChatGpt APIs

Objectives of the project : Building an easy ChatGPT like interface that allows users to access the vast data that Probe42 has collected.

Major Learning Outcomes : I learnt a lot about the software development life cycle in a company.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The work culture is very good at Probe42, I was given the freedom to work in whatever areas that I wanted and my lead as well as team members were supportive and helped me at every step

Academic courses relevant to the project : NA

PS-II Station : Project44 Software Services Pvt. Ltd. , Bengaluru

Faculty

Name: **Chetana Anoop Gavankar g**

Student

Name: VIKRAM ADITYA MUNNALAL(2019B1A71119G)

Student Write-up

PS-II Project Title: Improving Ocean Real Time Tracking

Short Summary of work done during PS-II : Enhancing the terminal visibility of ocean shipments. This included data acquisition and converting them into internal p44 format. Also worked on a new project which aims to calculate costs associated with containers entering/leaving the terminal.

Tool used (Development tools - H/w, S/w) : django, python, api integrations

Objectives of the project : Enhancing terminal visibility for real time ocean shipment tracking.

Major Learning Outcomes : I learned about bottlenecks in large distributed systems, identified challenges in monitoring and observability, and gained experience in acquiring data from API integrations. I improved my technical skills in Django and Python. Overall, I learned how to effectively contribute to a team project using agile methodologies for efficient product delivery.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Everyone was very friendly and welcoming, always willing to answer any question. I learned a lot from my peers, and everyone was ready to help whenever they could. Overall, it was an amazing experience.

Academic courses relevant to the project : DBMS, OS, DSA

PS-II Station : Project44 Software Services Pvt. Ltd. , Bengaluru

Faculty

Name: Chetana Anoop Gavankar g

Student

Name: SHLOK MONGIA(2019B2A71527H)

Student Write-up

PS-II Project Title: Migration of service

Short Summary of work done during PS-II : Migrating old legacy service to a new tech stack that helped in major cost reduction and ease of monitoring.

Tool used (Development tools - H/w, S/w) : Springboot, mongoDb

Objectives of the project : Migrate a legacy service to a new tech stack

Major Learning Outcomes : Java, Springboot, Micro services, monitoring

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Relaxed and open work environment.

Everyone is approachable.

Expectation is to show interest in work

Academic courses relevant to the project : Software Engineering

PS-II Station : Project44 Software Services Pvt. Ltd. , Bengaluru

Faculty

Name: Chetana Anoop Gavankar g

Student

Name: SHIVAM SAWLANI(2019B4A70806G)

Student Write-up

PS-II Project Title: Externalization of Looker Dashboards and Integration Testing

Short Summary of work done during PS-II : As a member of the frontend team, I played a crucial role in three key projects that boosted my technical skills and significantly advanced the organization's goals. Implementing Playwright test cases was essential in strengthening the application's stability by automating testing processes, which allowed us to identify and resolve potential issues early in the development cycle. Externalizing Looker dashboards aimed to enhance data accessibility and support data-driven decision-making, in line with the industry's focus on business intelligence tools. Moreover, the redesign of the Connection Manager UI demonstrated my adaptability, emphasizing improvements in usability and visual appeal to enrich the overall user experience. Throughout these projects, I gained practical experience in frontend development using React.js and TypeScript, while also exploring backend technologies, testing automation with Jest and Playwright, and integrating Agile methodologies through Jira. This internship provided me with valuable insights into industry trends, highlighting the importance of automated testing, business intelligence, user-centric design, and cross-functional collaboration.

Tool used (Development tools - H/w, S/w) : React.js, Nest.js, Typescript, Playwright, Jest

Objectives of the project : Externalize looker dashboards and enhance overall code stability

Major Learning Outcomes : Diversify Technical Skills and Improve Communication skills

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at project44 was marked by a positive and collaborative atmosphere that enabled a dynamic and effective workflow. The team, composed of talented professionals, fostered a supportive culture where collaboration and knowledge-sharing were key. Open communication was encouraged, making team members approachable and readily available for assistance, significantly enhancing the work experience.

Company expectations were aligned with industry best practices, emphasizing a commitment to excellence and innovation in logistics technology. The organization embraced Agile methodologies, using tools like Jira for project management, which reflected a focus on adaptability and iterative development. The emphasis on automated testing, illustrated by the implementation of Playwright test cases, underscored a dedication to ensuring the reliability and stability of software applications.

The company promoted versatility, as demonstrated by involvement in diverse projects ranging from UI redesign to backend integration. Expectations included a proactive approach to problem-solving, effective collaboration across teams, and a commitment to continuous learning. Overall, the combination of a supportive working environment and clear expectations created a conducive atmosphere for both personal and professional growth during the internship at project44.

Academic courses relevant to the project : DSA, OOP, DBMS

PS-II Station : ProteanTecs , Bengaluru

Faculty

Name: Swapna S Kulkarni

Student

Name: ATMESH MAHAPATRA .(2019B4A30560P)

Student Write-up

PS-II Project Title: Ramp up on Physical Design Skills (RTL2GDS Flow)

Short Summary of work done during PS-II : As Physical Design Interns, we ramped up on RTL2GDS Flow, Our hands-on experiences involve synthesizing high-level RTL descriptions, optimizing logical functions, and navigating the physical implementation phase. Key aspects include placement, clock tree synthesis, routing, and optimization to achieve optimal performance, power efficiency, and area utilization. This immersive learning experience emphasizes the collaborative use of Genus and Innovus in successful chip fabrication, equipping us with a deep understanding of the critical processes involved in transforming abstract design into a manufacturable chip.

Tool used (Development tools - H/w, S/w) : Tcl, Cadence Innovus and Genus, Synopsys FC, DCNXT and ICC2.

Objectives of the project : To Understand the Physical Design Process to help the firms' operations.

Major Learning Outcomes : Physical Design Process and workings of VLSI Industry

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment is conducive for learning. The team is extremely cooperative and helpful and take extra measures to ensure that our queries and doubts are resolved.

The company expects interns to be inquisitive and to do tasks correctly and methodically.

Academic courses relevant to the project : DD, ADVD

PS-II Station : ProteanTecs , Bengaluru

Faculty

Name: Swapna S Kulkarni

Student

Name: SIVARAM PADMASOLA(2020AAPS0387H)

Student Write-up

PS-II Project Title: RTL-to-GDS flow

Short Summary of work done during PS-II : First, a dummy task was given to get an idea of the various flows. Then, the main task was given, which was to take the RTL of an IP and turn that into a hard block which customers can use in their design. This process involved many steps and checks to make sure the results are clean. Completed the synthesis, LEC, PnR, Physical Verification, Parasitic Extraction, Signoff timing and EM/IR analysis for the design.

Tool used (Development tools - H/w, S/w) : Cadence, Synopsys tools and Redhawk for IR

Objectives of the project : Take a block through the RTL-to-GDS flow for customer deliver

Major Learning Outcomes : Learnt about various industry grade tools used in the RTL-to-GDS flow and the flows used to automate various steps. Gained insight on various nuances in physical design. Learnt how to debug issues in the tools and the flow.

Details of Papers/patents : none

Brief Description of working environment, expectations from the company : The working environment is a bit fast-paced, but everyone in the company is helpful and approachable. You are encouraged to deep-dive on your own and ask questions to the full-time employees.

Academic courses relevant to the project : Microelectronic Circuits, Digital Design, maybe ADVD

PS-II Station : PwC DIAC US Advisory , Bengaluru

Faculty

Name: Saikishor Jangiti

Student

Name: JADHAV PRADNYA RAJENDRA(2019B1A31135G)

Student Write-up

PS-II Project Title: Integration of feedback loop in SIMPL application.

Short Summary of work done during PS-II : I worked on 3 different projects. 1. ESG - Environmental, Social, and Governance: Created user stories for supplier and client portals, documented the application's functionality, fixed defects, and contributed to developing an AI chatbot for these portals. 2. Apollo K1/K3 Deployment: Addressed defects and enhanced the overall UI of the application to improve user experience. 3. SIMPL Application Feedback Loop:

Developed an end-to-end pipeline to incorporate user feedback, using it to refine and improve subsequent responses in the application.

Tool used (Development tools - H/w, S/w) : VSCode, GPT 3.5, Azure DevOps, Azure Databricks, Dataverse, Azure cognitive search, Power platforms

Objectives of the project : 1. Integrate feedback loop in the SIMPL application to improve the GPT response in conversational chat. 2. Try different prompts to improve the accuracy of the response.

Major Learning Outcomes : 1. Acquired in-depth knowledge of LLM architecture, training processes. 2. Enhanced python proficiency. 3. Use of prompt engineering

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Working environment was great at PwC. Learning opportunities provided were excellent.

Academic courses relevant to the project : Computer programming, Optimization.

PS-II Station : PwC DIAC US Advisory , Bengaluru

Faculty

Name: Saikishor Jangiti

Student

Name: TEJAS PAGE(2020A3PS1446G)

Student Write-up

PS-II Project Title: Full Stack Development and integration of Generative AI into Full Stack Projects

Short Summary of work done during PS-II : Worked on 2 projects, one was a taxation tool for corporate taxing, and another was a tool used for gap assessment of environmental disclosures.

Tool used (Development tools - H/w, S/w) : VS Code, C#, .NET Core, Angular, Python, Microsoft Power Automate, LangChain

Objectives of the project : Understanding the full flow of information in a full stack project, from frontend to middleware to backend and databases, and how the use of Gen AI could simplify some tasks.

Major Learning Outcomes : Full stack development, Generative AI, LLMs

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Work environment was very chill, tasks were distributed in scrum calls, and if we were facing any blockers, we were expected to reach out to seniors for help. Interns were primarily expected to learn new technologies.

Academic courses relevant to the project : Object oriented programming, Foundations of data structures and algorithms

PS-II Station : PwC DIAC US Advisory , Bengaluru

Faculty

Name: Saikishor Jangiti

Student

Name: RAHUL BOURI .(2020A4PS0468P)

Student Write-up

PS-II Project Title: Knowledge Graph Retrieval

Short Summary of work done during PS-II : Pre-processing large amounts of proprietary data. Extracting relevant data chunks and creating Knowledge Graph using graph theory and prompt engineering to link highly interrelated data. Using Knowledge Graph to improve quality of RAG answers.

Tool used (Development tools - H/w, S/w) : Python, Neo4j (Cypher Query), Langchain, LlamaIndex

Objectives of the project : Generating Knowledge Graph to enhance retrieval accuracy. Improve quality of RAG answers using Knowledge Graph as compared to Vector database for highly interrelated data.

Major Learning Outcomes : Data pre-processing, Machine Learning Pipelines and Graph Theory.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Extremely easy to communicate with higher management and opportunities to form connections at team dinners and office offline events. High visibility with presentations showcasing work to managing director and partners.

Academic courses relevant to the project : Data Science Minor

PS-II Station : PwC DIAC US Advisory , Bengaluru

Faculty

Name: Saikishor Jangiti

Student

Name: SRIRAM KASHYAP KURILLA(2020AAPS0359H)

Student Write-up

PS-II Project Title: Spend Categorization

Short Summary of work done during PS-II : Research and Implementation of multiple Multilabel Classification Methods, Prompt Engineering, RAG Implementation, Devops

Tool used (Development tools - H/w, S/w) : Langchain, CrewAI, Selenium, FAISSDB

Objectives of the project : Multilabel classification of Organisational Spend Transactions

Major Learning Outcomes : Gen AI, Devops

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Hectic but manageable towards the end

Academic courses relevant to the project : None

PS-II Station : PwC DIAC US Advisory , Bengaluru

Faculty

Name: Saikishor Jangiti

Student

Name: MEGHANA BELLAMKONDA(2020AAPS0395H)

Student Write-up

PS-II Project Title: Simpl

Short Summary of work done during PS-II : Worked on a project that brings solutions from. Technic incidents logged using genai.

Tool used (Development tools - H/w, S/w) : Python, gen ai

Objectives of the project : Worked on genAI chatbot, image retrieval

Major Learning Outcomes : Teamwork

Professional growth

Technologies learnt

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Great work culturw with very supportive people around to help.

Academic courses relevant to the project : Generatove AI Machine learning

PS-II Station : Pyrotech Electronics Pvt. Ltd. , Udaipur

Faculty

Name: Rakesha Chandra Dash

Student

Name: NAMAN NANDWANA .(2019B5A10832P)

Student Write-up

PS-II Project Title: Productivity Increase in Pyrotech

Short Summary of work done during PS-II : During my PS-II at Pyrotech Electronics, I undertook a comprehensive analysis and optimization of the CNC production processes. The primary focus was on identifying bottlenecks and inefficiencies across the punching, cutting, and bending operations. Through meticulous data analysis and root cause identification, I pinpointed factors contributing to production delays, which were categorized into supply chain management issues, process inefficiencies, operational challenges, and planning discrepancies. To address these challenges, I proposed and implemented a multi-faceted approach. This included applying lean manufacturing principles such as Just-in-Time (JIT) production and value stream mapping to streamline workflows and reduce waste. I also developed a web-based application utilizing technologies like Node.js and MongoDB to automate raw material calculations, significantly improving accuracy and efficiency in resource allocation. Throughout the project, I collaborated closely with cross-functional teams and received guidance from industry experts, enhancing my skills in project management, teamwork, and problem-solving. The experience not only deepened

my understanding of manufacturing operations but also provided practical insights into supply chain dynamics and the integration of technology in industrial settings. Overall, my PS-II at Pyrotech Electronics was a transformative experience that equipped me with valuable skills and knowledge crucial for a career in industrial engineering and manufacturing.

Tool used (Development tools - H/w, S/w) : Microsoft Excel, VS Code, SAP

Objectives of the project : The objective of my project was to increase overall productivity at the organization and automate complex processes.

Major Learning Outcomes :

Through this project, I have gained invaluable insights and skills that have significantly enriched my professional capabilities. My understanding of CNC production processes has been deepened, allowing me to appreciate the intricacies involved in manufacturing operations. Implementing lean manufacturing principles has not only enhanced my proficiency in optimizing workflows but has also instilled a mindset focused on minimizing waste and maximizing efficiency. Developing and deploying a web-based application for automated raw material calculations has equipped me with practical experience in leveraging technology to streamline complex tasks. Furthermore, my knowledge of supply chain management practices has been broadened, enabling me to grasp the importance of efficient procurement and inventory control in achieving operational excellence. The project has honed my ability to conduct thorough data analysis and root cause identification, essential skills for diagnosing and resolving production challenges. Overall, this experience has been instrumental in fostering my growth as a professional, equipping me with the skills and insights necessary to thrive in the manufacturing industry

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The working environment at Pyrotech Electronics during my PS-II was dynamic and collaborative, fostering a culture of innovation and continuous improvement. As an intern, I was expected to contribute actively to projects aimed at optimizing CNC production processes. This involved conducting thorough analyses, proposing innovative solutions, and implementing improvements under the guidance of experienced professionals.

Expectations from the company centered around developing practical skills in industrial engineering and manufacturing through hands-on experience and mentorship. I was encouraged to apply theoretical knowledge to real-world challenges, with a focus on enhancing productivity, reducing inefficiencies, and ensuring high-quality outputs. Collaboration across departments was emphasized, promoting teamwork and effective communication to achieve collective goals.

Furthermore, the company expected interns to demonstrate initiative, problem-solving abilities, and a willingness to learn. I was encouraged to adapt quickly to the fast-paced environment, take ownership of tasks, and contribute ideas for process enhancements. Professionalism, attention to detail, and adherence to safety protocols were paramount, reflecting the company's commitment to excellence in manufacturing and customer satisfaction.

Overall, the working environment at Pyrotech Electronics provided a valuable learning experience, combining practical application with theoretical knowledge to prepare interns for successful careers in the manufacturing industry.

Academic courses relevant to the project : None

PS-II Station : Pyrotech Electronics Pvt. Ltd. , Udaipur

Faculty

Name: Rakesha Chandra Dash

Student

Name: ANAY AGRAWAL(2020A3PS0538H)

Student Write-up

PS-II Project Title: Simplifi Software for Estimation, Engineering and Manufacture, Analysis of impact software on company

Short Summary of work done during PS-II : Learning about different types of practical use of switchgears and places where different combination works in MCC & LT panel. How feeder configuration affect the pricing and use of a panel. Different uses of switchgears. In the coming weeks, I will start second part of software and start making its template for its use. After completing them I will start the analysis on time saved with software vs number of mistakes made. Thus, in this way, we have learnt the fundamentals of switchgears. The fundamentals helped us discover more use of MCC panel around.

Tool used (Development tools - H/w, S/w) : S/W: Iconic SIMPLIFIED Estimation, Iconic SIMPLIFIED ED- Engineering ,, Iconic SIMPLIFIED Manufacturing

Objectives of the project : Create a library for different types of Electric Panel along with their schemes in newly bought software and find how much time the software reduces

Major Learning Outcomes : Learning about upcoming software in Electrical Panel Making Software and how to work with switchgears.

Details of Papers/patents : There were no research or Patent worked on during PS2

Brief Description of working environment, expectations from the company : Working environment is well lighted as well as air conditioned , the employees of the company are easy to talk to and helpful regarding any doubts

Academic courses relevant to the project : EEE course related to switchgears helped a bit in learning the working of switchboard

PS-II Station : QDIT Labs Private Limited , Bengaluru

Faculty

Name: Manoj Subhash Kakade

Student

Name: ESHAAN JAIN(2019B4AA0735G)

Student Write-up

PS-II Project Title: Multiple minor projects

Short Summary of work done during PS-II : Did multiple minor projects such as Arduino syncing, QRNG on a Chip, Gaussian shaping circuits among others

Tool used (Development tools - H/w, S/w) : MATLAB, KeySight ADS, LTSpice, Arduino IDE

Objectives of the project : Create a gaussian shaping circuit, make a PoC experiment for QRNG on a chip, sync Arduino boards

Major Learning Outcomes : Arduino coding, SNS protocol

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Not very good.
Would not recomend

Academic courses relevant to the project : N/A

PS-II Station : QDIT Labs Private Limited , Bengaluru

Faculty

Name: Manoj Subhash Kakade

Student

Name: G SHRAVAN GOKUL(2019B5AB0729P)

Student Write-up

PS-II Project Title: Thermal Management of QKD Systems

Short Summary of work done during PS-II : 1. Had to make a 3D CAD model of the QKD based product that our company was planning to design, 2. Once the 3D model was made, had to perform thermal simulations using Ansys Icepak, 3. Had to review/brainstorm cooling techniques for thermal management of the QKD setup, 4. Make a documentation discussing the possibilities of implementing the finalized cooling strategy

Tool used (Development tools - H/w, S/w) : Ansys Icepak, Ansys Spaceclaim

Objectives of the project : To brainstorm and implement an effective cooling system for a our company's QKD based product

Major Learning Outcomes : I was able to get an expertise on performing thermal simulations on Ansys Icepak, which I haven't worked on earlier.

Details of Papers/patents : NIL

Brief Description of working environment, expectations from the company : Until mid-April, I was not assigned any dedicated projects to work on. For instance, I assisted a scientist in our office with Quantum Sensing applications and was later given the task of preparing a CAD 3D model of a client's lab setup. I am unsure of the company's expectations, as I sometimes felt the company lacked significant planning when I needed assistance while tackling this project (I was

the only person performing the simulations). I received support at times, but there was so much delay that the progress wasn't continuous.

Academic courses relevant to the project : Heat Transfer, CFD, Thermodynamics

PS-II Station : Qualcomm India Pvt Ltd , Bengaluru

Faculty

Name: Gopala Krishna Koneru

Student

Name: PRAKHAR GARG(2020A3PS0468G)

Student Write-up

PS-II Project Title: Design verification

Short Summary of work done during PS-II : My major role in ps 2 was to debug the failing test cases and to find the bug in the rtl because of which the test case failed. For the second half of the ps2 i was mostly doing automation work

Tool used (Development tools - H/w, S/w) : Verdi

Objectives of the project : To test for the edge cases of updating memory locations on verdi. I was also assigned to do some python scripting

Major Learning Outcomes : I learned about debugging test case on verdi and scripting using python.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The work environment is very good. People are supportive and help when you are stuck.

Academic courses relevant to the project : Digital design

PS-II Station : Qualcomm India Pvt Ltd , Bengaluru

Faculty

Name: Gopala Krishna Koneru

Student

Name: SAKUNDE ATHARVA UMESH(2020A8PS0357G)

Student Write-up

PS-II Project Title: Comparative study and applications of Low Power Design Techniques and to understand the related clocking and reset requirements.

Short Summary of work done during PS-II : I've majorly tried to develop the design understanding of clock controller and reset controller blocks. This design understanding was required in order to understand the changes that come up in various projects related to any specific functionality. Thus, I've gone through various hardware documentations describing the functionalities, timing details and have had in-depth discussions with my mentor and manager to clarify my understanding of the design modules. Furthermore, I've worked in a project, wherein I made changes to the RTL modules and subsequently tested the design using various flows

related to Clock Domain Crossing and Power flows. Post this, I've understood the project flows and releases that are made in every project and will be contributing to the upcoming projects in the full-time period.

Tool used (Development tools - H/w, S/w) : Synopsis Verdi, Linux

Objectives of the project : The primary objective is to study and understand the design of clocking and reset sub-blocks. The design understanding was key to understand the clocking requirements of other sub-blocks within this power controller block located on the SoC, and provide the required HW support accordingly by making changes in the Verilog RTL code. Apart from this, the reset sub-block project work included generating and providing the right resets that are timed properly to all the blocks on the SoC.

Major Learning Outcomes :

1. How various blocks sit at the SoC level and about their internal interaction to function properly.
2. How the low power modes are implemented in HW and how various blocks switch their operating modes.
3. Data transfer protocols like AHB, AXI.
4. Various design strategies and interesting use of FIFOs in system design.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment in Qualcomm is very positive and productive. Each person takes good responsibility of their project work and strives to deliver their respective work very much before time. The company expects the same from all of the new joiners as well, and tried to build all of the basics for us during the internship period with great detail of focus being towards a good understanding of our work.

Academic courses relevant to the project : Digital Design, Computer Architecture, Embedded System Design

PS-II Station : Qualcomm India Pvt Ltd , Bengaluru

Faculty

Name: Gopala Krishna Koneru

Student

Name: ANSH GUPTA(2020A8PS1506G)

Student Write-up

PS-II Project Title: Python Scripting and Bus Protocols

Short Summary of work done during PS-II : I did automation of various system verilog files that were earlier manually created. In the second part of my internship I learnt about bus protocols and how they are used in debugging various testcases.

Tool used (Development tools - H/w, S/w) : Qualcomm's server.

Objectives of the project : Automation of System Verilog files and Understanding of Bus Protocols.

Major Learning Outcomes : Python Scripting to a great extent as well as the working of bus protocols.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment was great to grow and develop. Seniors used to help a lot and they don't expect you to be knowing a lot of stuff. They guide you and also provide you the material from where you should study and learn.

Academic courses relevant to the project : Embedded System Design, Microprocessors.

PS-II Station : Qualcomm India Pvt Ltd , Bengaluru

Faculty

Name: Gopala Krishna Koneru

Student

Name: SUMIT AGARWAL(2020AAPS2109H)

Student Write-up

PS-II Project Title: Design & Development of a Silence Detection Algorithm for digital mics on Qualcomm Snapdragon™ Platform.

Short Summary of work done during PS-II : During my project on designing and developing a Silence Detection Algorithm for digital microphones on the Qualcomm Snapdragon™ platform, I embarked on a comprehensive journey of understanding and implementing advanced audio processing techniques. I began by thoroughly learning the audio framework interfaces and modules, supported by extensive internal training. My primary task was to integrate the Silence Detection algorithm into the existing signal processing framework, where I enhanced its robustness and resolved issues efficiently. I developed and modified test cases and used advanced debugging techniques to identify and resolve failures. Testing the integrated code on hardware was crucial to ensuring its correct functionality in real-world scenarios.

Tool used (Development tools - H/w, S/w) : Eclipse, Perforce, Audacity

Objectives of the project : Implement Silence Detection feature in the ADSP for efficient debugging.

Major Learning Outcomes : Through this project, I gained proficiency in Qualcomm Audio Reach™ architecture and Hexagon™ DSP for audio algorithm integration. I also became adept with tools like Eclipse IDE, Perforce, and Audacity. My skills in profiling algorithms and advanced debugging improved significantly. Collaborating with the testing team enhanced my problem-solving abilities, especially in developing and modifying test cases. Additionally, I learned to manage tasks effectively, meet deadlines, and ensure high-quality deliverables. This experience has prepared me well for future challenges in software and digital audio processing.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at Qualcomm was highly conducive to learning and professional growth. Qualcomm's state-of-the-art facilities and access to advanced tools provided an excellent platform for technical development. The collaborative culture within the team and the supportive guidance from mentors fostered a productive and innovative atmosphere.

Academic courses relevant to the project : DSP, C , OOPS, OS

PS-II Station : Qualcomm India Pvt Ltd , Bengaluru

Faculty

Name: Gopala Krishna Koneru

Student

Name: J BHAVANA(2022H1230118G)

Student Write-up

PS-II Project Title: Scalable QoS module for different use cases

Short Summary of work done during PS-II : Working on rtl changes, regularly discussing with mentor and manager, performing checks for the modified code, debugging errors from the checks

Tool used (Development tools - H/w, S/w) : Gvim, Linux, spyglass

Objectives of the project : To make a present IP scalable

Major Learning Outcomes : Knowledge about particular IP
Company specific tools and flow

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Professional and encouraging environment

Expected to complete given task without any specific deadline mentioned, was given time for self study and exploration.

Academic courses relevant to the project : Advanced vlsi design
Digital ic design

PS-II Station : Qualcomm India Pvt Ltd , Bengaluru

Faculty

Name: Gopala Krishna Koneru

Student

Name: JYOTHSNA KOLLA(2022H1230140G)

Student Write-up

PS-II Project Title: PPA optimization of next -gen interconnect for automobile products

Short Summary of work done during PS-II : Redesign the architecture of the noc to improve its performance metrics

Tool used (Development tools - H/w, S/w) : Confidential

Objectives of the project : Optimization of the noc interms of power, performance and area

Major Learning Outcomes : Noc architecture

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Disciplined working environment

Academic courses relevant to the project : Vlsi design and advance vlsi design, vlsi architecture

PS-II Station : Qualcomm India Pvt Ltd , Bengaluru

Faculty

Name: Gopala Krishna Koneru

Student

Name: KUCHIPUDI VENKATA SAI MADHAV(2022H1230167H)

Student Write-up

PS-II Project Title: DFT - RTL Scan Insertion

Short Summary of work done during PS-II : I joined in RTL scan insertion team in DFT domain. I work on RTL Scan insertion , DFT stitching , ATPG validation for various cores in a chip .It was a great learning experience.As a part of DFT team i got to know about different teams like RTL team, DFT Team ,Synthesis team and Physical Design team. I got to know the whole DFT flow .

Tool used (Development tools - H/w, S/w) : Unix, Tessent, Tetramax, synopsys design compiler

Objectives of the project : To Find the defects in the chip by using DFT techniques like RTL scan insertion.

Major Learning Outcomes : Learnt about DFT flow, RTL Scan insertion, DFT stitching, ATPG Validation.

Details of Papers/patents : No papers

Brief Description of working environment, expectations from the company : The Work environment is very good and supportive. My team mates are very supportive and taught lot of things while working. In such an environment, individuals feel valued, supported, and motivated to contribute their best efforts. This positive atmosphere not only enhances productivity but also promotes a sense of belonging and satisfaction, leading to greater overall job satisfaction and success for the team and the organization as a whole.

Academic courses relevant to the project : Test and Testability , VLSI design

PS-II Station : Qualcomm India Pvt Ltd , Bengaluru

Faculty

Name: Gopala Krishna Koneru

Student

Name: ROOPINI SANKAR K(2022H1230190H)

Student Write-up

PS-II Project Title: Memory Built in self test

Short Summary of work done during PS-II : I dealt with insertion of MBist circuit along with memory of processor chip where integration of processors, wrappers, memories are done. RTL level simulations and debugging ensured successful insertion as well as logic equivalence check. Gate level simulations involved simulating for correctness at netlist level.

Tool used (Development tools - H/w, S/w) : Etx, unix, verdi, synopsis tools

Objectives of the project : Undergo insertion, RTL level and Gate level simulations

Major Learning Outcomes : Flow of Mbist, processes involved till tapeout

Details of Papers/patents : Nil

Brief Description of working environment, expectations from the company : Good working culture with constant support from peers and upper management

Academic courses relevant to the project : VLSI Design, Test and testability

PS-II Station : Qualcomm India Pvt Ltd , Bengaluru

Faculty

Name: Gopala Krishna Koneru

Student

Name: PAVAN SHARAD DHAKE(2022H1230232P)

Student Write-up

PS-II Project Title: Design of Pipelined Valid Ready Handshake

Short Summary of work done during PS-II : During my PS-II internship, I gained practical experience in digital design, focusing on techniques to ensure robust and error-free systems. I mastered Clock Domain Crossing (CDC) and Lint Checks, essential for handling timing issues and maintaining integrity across different clock domains. One of my key projects was designing and implementing a pipeline for the valid-ready handshake protocol. This deepened my understanding of digital workflows and the critical role of efficient data transfer in high-speed circuits. To verify and simulate my designs, I extensively used industry-standard tools such as Questa and JasperGold. These tools were crucial in ensuring that the designs met performance and reliability requirements. I also applied SystemVerilog assertions to effectively verify and validate design functionalities. This allowed me to create robust verification environments and detect potential issues early in the design phase.

Tool used (Development tools - H/w, S/w) : Spyglass, Questa, JasperGold

Objectives of the project : To learn different RTL design checks and design pipelined valid ready handshake

Major Learning Outcomes : Gained proficiency in essential techniques like Clock Domain Crossing and Lint Checks for ensuring robust and error-free digital designs.

Designed and implemented a pipeline for the valid-ready handshake protocol, enhancing my understanding of digital design workflows.

Utilized industry-standard tools like Questa and JasperGold for design simulations, improving my skills in verifying complex digital systems.

Applied SystemVerilog assertions to verify and validate design functionalities effectively.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The team at Qualcomm created a welcoming and inclusive environment, making it easy to integrate and collaborate effectively. Colleagues and mentors were approachable and always ready to assist with any questions or challenges. Regular team meetings and brainstorming sessions encouraged open communication and collective problem-solving. There was a significant focus on continuous learning, with opportunities to acquire new skills and deepen technical expertise.

Academic courses relevant to the project : VLSI Design, Advanced VLSI Design, Test and Testability

PS-II Station : Qualcomm India Pvt Ltd , Bengaluru

Faculty

Name: Gopala Krishna Koneru

Student

Name: DARSHITH JAIN B S(2022H1230249P)

Student Write-up

PS-II Project Title: System-On-Chip Design Verification of Global Clock Control (GCC)

Short Summary of work done during PS-II : Initially I developed a couple of APIs as part of SoC compiler Automation using Python, IP Specification API and Frequency Plan API. Then I moved onto generate architecturally scalable testbenches for design blocks and performed regression analysis to verify their impact on design specifications. Additionally, I gained proficiency in advanced verification methodologies like Stimulus Automation Methodology and Multi-Platform Verification Methodology using the Portable Stimulus Standard (PSS), enhancing the robustness and efficiency of the verification process.

Tool used (Development tools - H/w, S/w) : System Verilog, Python, Cadence Perspec, Linux

Objectives of the project : To generate architecturally scalable testbenches for a design block and perform Regression analysis using the generated testbenchs and verify its impact on the design specification

Major Learning Outcomes : Qualcomm series of processors and architecture, System Verilog, Perspec (Tool form Cadence), Portable Stimulus Standard (PSS), debugging techniques.

Details of Papers/patents : Nil

Brief Description of working environment, expectations from the company : Qualcomm fosters a collaborative working environment, encouraging employees to work together in teams to drive innovation and solve complex challenges. My expectations be it mentoring, teamwork, work-like balance, professional growth, innovation, diversity and inclusion were met.

Academic courses relevant to the project : VLSI Design, VLSI Architecture and Basic programming courses.

PS-II Station : Qualcomm India Pvt Ltd , Bengaluru

Faculty

Name: Gopala Krishna Koneru

Student

Name: ADITYA PRAPHULL PARANDEKAR(2022H1230264P)

Student Write-up

PS-II Project Title: SoC Verification- Clock Controller

Short Summary of work done during PS-II : Was part of a SoC verification team and worked on clock controllers. Basically work was to develop a test bench using SV and UVM.

Tool used (Development tools - H/w, S/w) : Verdi, VIM, Unix

Objectives of the project : To learn fundamentals of system verilog and UVM testbench

Major Learning Outcomes : Learnt how to verify a digital design efficiently.

Details of Papers/patents : I did not publish any paper or patent.

Brief Description of working environment, expectations from the company : The environment in the company is quite dynamic. There will always be some critical tasks going on and it's our responsibility to take active participation in contributing for team.

Academic courses relevant to the project : System Verilog, UVM

PS-II Station : Qualcomm India Pvt Ltd , Hyderabad

Faculty

Name: Gopala Krishna Koneru

Student

Name: RIJUL RADHU(2020A7PS1430G)

Student Write-up

PS-II Project Title: Modem Stability Issue Duplicate Detection

Short Summary of work done during PS-II : I worked on an internal tool which is used by many teams of NR 5G Modem to detect duplicates for the stability issues reported. I used Python and MongoDB for the tool's development. It is deployed using Jenkins.

Tool used (Development tools - H/w, S/w) : Python, Jenkins, MongoDB

Objectives of the project : Develop an issue duplicate detection tool to save teams' time

Major Learning Outcomes : Automation, Software Development, Learnings about 5G, and Team Work.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The team was very supportive and helpful. They helped me at all stages of the tool's development.

Academic courses relevant to the project : Data Structures & Algorithms, Computer Networks, Machine Learning

PS-II Station : Qualcomm India Pvt Ltd , Hyderabad

Faculty

Name: Gopala Krishna Koneru

Student

Name: RITVIK(2020A7PS1723H)

Student Write-up

PS-II Project Title: NR 5G MAC Uplink (Modem)

Short Summary of work done during PS-II : I was part of the MAC UL team and my work was to contribute to general tasks of the team including but not limited to analyzing issues, providing fixes for the bugs reported, implementing features and optimizing memory by various different techniques. I was involved in implementation of a power saving functionality.

Tool used (Development tools - H/w, S/w) : Development tools include Perforce, Araxis Merge, Source Insight, Jenkins, T32, etc

Objectives of the project : The objective of the project was to contribute to the tasks performed by the team including issue analysis, providing fixes, feature implementation, scoping possibility of memory optimizations, etc.

Major Learning Outcomes : During my PS2 at Qualcomm, I learnt a lot about networks and 5G technology. Since my team worked specifically related to Uplink channels, I got to understand and have in-depth knowledge of working of various different features (basic and optimizations) related to the UL channels that are part of the NR 5G technology. I also learnt to work on industry-level scalable and maintainable code that improved my programming ability.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment in Qualcomm is good in general. But the working environment for each individual might vary depending on the team. The company provides flexible working hours (this too is a little dependent on the team). In general the senior level employees are generally busy and hence one has to proactively try to learn and interact with the manager, mentor and other members of the team as per the requirement of the project.

Academic courses relevant to the project : Computer Networks

PS-II Station : Qualcomm India Pvt Ltd , Hyderabad

Faculty

Name: Gopala Krishna Koneru

Student

Name: GEETIKA BANSAL(2020AAPS0303H)

Student Write-up

PS-II Project Title: Verification and Validation of RF Hardware

Short Summary of work done during PS-II : I initially completed all required training modules and gained an understanding of the hardware block diagram, 3GPP specifications, validation procedures, and internal tools for data collection and analysis. I contributed to multiple validation stages before hardware release to customers. I was involved in data collection, mining, and analysis, focusing on Tx, Rx, and specialty test cases, while also reporting and debugging issues related to 3GPP specifications, software regression, and hardware limitations. I worked on closing and mainlining all open issues.

Tool used (Development tools - H/w, S/w) : Microsoft Visio, ANSYS HFSS

Objectives of the project : Qualcomm develops products that work with a range of wireless peripherals and technologies, including displays, microphones, cameras, and other human interface gadgets. Hardware needs to be thoroughly tested and validated in order to support peripherals and give customers a large selection of options. For the testing, specialized tools, software, and hardware are needed. The development and ongoing maintenance of software as well as the design and support of hardware are all part of the testing process. Calibration, data logging, data analysis, and irregularity correction for a variety of test cases are the main components of the test process. The first step in the testing process is calibrating the test apparatus, such as the radio communication analyzer. It is among the most important pieces of apparatus for determining the signal's power and radio frequency spectrum. The apparatus functions as a base station. Signals are guided to and from the unit being tested via coaxial wires.

Major Learning Outcomes : 3GPP specifications, power amplifiers, calibration

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The workplace was supportive and collaborative, with a helpful and approachable team. I was assigned a mentor

who provided personal attention, ensuring I received guidance and feedback. Responsibilities were clearly assigned, and my work was consistently acknowledged.

Academic courses relevant to the project : Electromagnetic Fields and Microwave Engineering
Communication System
Analog Electronics
Antenna Theory and Design

PS-II Station : Qualcomm India Pvt Ltd , Hyderabad

Faculty

Name: Gopala Krishna Koneru

Student

Name: RAHUL KARNA L K(2020AAPS0437H)

Student Write-up

PS-II Project Title: Implementation of EGL Sub-driver for a Linux based platform

Short Summary of work done during PS-II : Learnt OpenGL ES, EGL, Android Stack Architecture and about Qualcomm GPU HW blocks. Familiarized myself with the work my team was doing. Apart from my main project I was given few debugging and benchmark running tasks to get accustomed with the codebase and handling of devices. Since the driver development was for a Linux based target, got access to a virtual Ubuntu machine and had to set up the work environment there. My main objective was to understand the libraries and utilities of the customer OS and write code implementing the EGL APIs in the sub driver, making it compatible with the Qualcomm SoC.

Tool used (Development tools - H/w, S/w) : VS Code, Git version control, MobaXTerm, C, C++, Shell

Objectives of the project : To develop and validate an EGL sub driver to interface with the graphics hardware (Qualcomm's GPU) for efficient graphics rendering using OpenGL ES on the Linux based OS target platform

Major Learning Outcomes : Driver Development Cycle, Graphics architecture and its internal implementation, Android SW Stack, Git Version Control, Linux.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The work environment was really good. I was given enough time to ramp up and understand the team's work. All the team members were encouraging and helping. There were weekly meetings to update progress of each project/task with the manager and for discussion.

Academic courses relevant to the project : Computer Graphics and Object Oriented Programming

PS-II Station : Qualcomm India Pvt Ltd , Hyderabad

Faculty

Name: Gopala Krishna Koneru

Student

Name: ADITYA VINOD(2020AAPS0438H)

Student Write-up

PS-II Project Title: Development and Creation Of A Tool Which Automates RF Phase Matching

Short Summary of work done during PS-II : My work was related to impedance matching in RF cards. And then working on a tool that automates a part of this process. Matching required the use of simulation softwares like ADS and HFSS. Also the use of VNA was required to take an on-board response.

Tool used (Development tools - H/w, S/w) : Software - ADS, HFSS Hardware - VNA

Objectives of the project : To automate phase-matching

Major Learning Outcomes : Learnt impedance matching in RF cards.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The working environment in our company is dynamic, collaborative, and innovative, designed to foster creativity and efficiency. Our office spaces are open-plan to encourage interaction and teamwork, equipped with modern amenities and technology to support a flexible work style. We prioritize a healthy work-life balance, offering remote work options, flexible hours, and various wellness programs.

Academic courses relevant to the project : EMFME

PS-II Station : Qualcomm India Pvt Ltd , Hyderabad

Faculty

Name: Gopala Krishna Koneru

Student

Name: DAGWALE RASHMI(2020AAPS1407H)

Student Write-up

PS-II Project Title: Testing & Verification of RF cards at Qualcomm

Short Summary of work done during PS-II : At Qualcomm, the process of testing and verifying RF (Radio Frequency) cards includes thorough design validation, functional and performance testing, and ensuring compliance with regulatory standards. Initially, the RF card design is verified to meet all specifications, followed by extensive testing for signal integrity, power levels, and modulation accuracy. Performance parameters such as sensitivity and noise figure are evaluated under various conditions, alongside environmental tests to ensure reliability. The use of automated test scripts and equipment boosts efficiency and consistency, while comprehensive debugging resolves any identified issues. Detailed documentation and reporting facilitate traceability and guide design enhancements. Collaboration with cross-functional teams ensures all aspects are covered, and field testing confirms performance in real-world conditions. These combined efforts ensure RF cards are reliable, compliant, and high-performing.

Tool used (Development tools - H/w, S/w) : VNA, signal analyzer, call box, temp chamber, Qualcomm internal software

Objectives of the project : Testing the cards designed at qualcomm

Major Learning Outcomes : Learnt about the testing process followed, about the setups used, learnt about using VNA, signal analyzer, signal generators, Qualcomm internal tools.

Details of Papers/patents : none

Brief Description of working environment, expectations from the company : Qualcomm fosters a dynamic and supportive working environment that encourages innovation, collaboration, and professional growth. The company promotes a culture of inclusivity and diversity, ensuring that employees from various backgrounds feel valued and respected. State-of-the-art facilities and access to cutting-edge technology enable employees to perform at their best, while comprehensive training programs and career development opportunities support continuous learning and advancement. Open communication and a flat organizational structure facilitate the exchange of ideas and feedback, fostering a sense of community and teamwork. Additionally, Qualcomm prioritizes work-life balance, offering flexible work schedules, wellness programs, and various employee benefits. This holistic approach creates a motivating and fulfilling workplace, driving both individual and company success.

Academic courses relevant to the project : Communication systems, Analog electronics, EMFME, Microwave & RF

PS-II Station : Qualcomm India Pvt Ltd , Hyderabad

Faculty

Name: Gopala Krishna Koneru

Student

Name: HARSHIT GOYAL(2020AAPS1773H)

Student Write-up

PS-II Project Title: End to end development of display capabilities website.

Short Summary of work done during PS-II : I developed my teams internal website, which will host all the necessary tools at one place.

Tool used (Development tools - H/w, S/w) : Htnl, css, JS, ajax, fetch api

Objectives of the project : The project aims to provide a central platform where all important tools can be developed and hosted.

Major Learning Outcomes : I learnt how production level and modular code is written. Along with web technologies like javascript and fetch apis.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The work environment is good, I have learnt a lot.

Academic courses relevant to the project : Web developement based courses.

PS-II Station : Qualcomm India Pvt Ltd , Hyderabad

Faculty

Name: Gopala Krishna Koneru

Student

Name: SANDHYA SINGH(2022H1030054G)

Student Write-up

PS-II Project Title: Archsim: DSP Simulator

Short Summary of work done during PS-II : I fixed the most important issue with the simulator because of which it is now giving best possible correlation stats compared to the silicon chip. I started by writing some scripts to modify the traces that are fed into the tool, collected traces for 4G and 5G steady state scenarios, ran the simulations on Archsim (simulator) and analyzed per ms stats of the simulator and on-target to find the case which is producing the best correlation.

Tool used (Development tools - H/w, S/w) : Hardware: Modem chipset; Software: Archsim, pyETM (debugging software) and various other tools that are used to collect and process the traces obtained from the modem chip (can not name them for confidentiality reasons)

Objectives of the project : To fix certain issues with the simulator in order to bring it closer to being an ideal simulator for DSP.

Major Learning Outcomes : Learnt:

- (1) The system architecture of DSP processor,
- (2) The methodology to collect traces from a modem device,
- (3) To implement instruction on the hardware level,
- (4) To build a simulation app using the simulator tool and modifying the tool to meet the objective.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The work environment is collaborative, fostering open communication and teamwork. My colleagues are very supportive. The atmosphere is encouraging, with ample opportunities for learning and professional growth. Everyone is approachable, and feedback is regularly shared to help improve our work and skills.

Academic courses relevant to the project : Computer Architecture, Computer Networks.

PS-II Station : Qualcomm India Pvt Ltd , Hyderabad

Faculty

Name: Gopala Krishna Koneru

Student

Name: GOURAV(2022H1030071H)

Student Write-up

PS-II Project Title: Grid Optimization in Image processing engine

Short Summary of work done during PS-II : This project is about the correction of an image which is obtained from a sensor and optimization of the grid in the image processing engine. Project helps in reducing code flow in the pipeline and is used for optimization in the process. Results in reducing dependent api's and more easy to understand the code flow for development.

Tool used (Development tools - H/w, S/w) : Git/Gerrit, Linux workspace, source insight/ vscode, qualcomm proprietary tools etc

Objectives of the project : Feature Optimization

Major Learning Outcomes : Coding as per industry standards, Feature development, Gerrit/Github, Linux Workflow, Concepts of image processing etc.

Details of Papers/patents : Nill

Brief Description of working environment, expectations from the company : Working Environment is good, team is really supporting.

Academic courses relevant to the project : Yes, Data structures and Algorithms and object Oriented Programming language

PS-II Station : Qualcomm India Pvt Ltd , Hyderabad

Faculty

Name: Gopala Krishna Koneru

Student

Name: OISHIK GOSWAMI(2022H1030079H)

Student Write-up

PS-II Project Title: Terraform Drift Detection

Short Summary of work done during PS-II : I was actively involved in the day to day tasks which an SRE does. Things like Continuous Deployment, monitoring logs, presentation of Key performance insights were part of my work at Qualcomm.

Tool used (Development tools - H/w, S/w) : Python, Shell script, Aws, Json, Jenkins.

Objectives of the project : Detection of manual changes made to an Aws environment

Major Learning Outcomes : Learnt about setting an Aws environment, provisioning of resources using Terraform.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Company expects us to complete the assigned work on time, complete trust is given from the manager's end to do so.

Academic courses relevant to the project : Cloud Computing

PS-II Station : Qualcomm India Pvt Ltd , Hyderabad

Faculty

Name: Gopala Krishna Koneru

Student

Name: MAHAPATRA IPSHITA KAVIKANT VIMLA(2022H1030128P)

Student Write-up

PS-II Project Title: QA Automation Framework for QAIS

Short Summary of work done during PS-II : The task allotted to me for PS-II was to set up an automation framework for a rather new application. This included starting from the very basic step of exploring through various testing tools to see which tool works well with the application. Moving on to designing the automation framework, the codebase structure, getting initial plans reviewed, to implementing and using the framework. Further enhancements are expected as and how the application progresses further.

Tool used (Development tools - H/w, S/w) : VSCode, Playwright, Jenkins

Objectives of the project : Setting up a QA automation framework and a CI pipeline for an upcoming application QAIS, in Qualcomm

Major Learning Outcomes : 1. How to Design and implement an automation framework from scratch

2. Setting up of Continuous Integration Builds and Jobs

3. Efficient coding practices

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment was extremely welcoming for new joiners, and the team was quite encouraging. Everyone was approachable and eager to help out, thus ensuring I had no blockers to get my work done. There are team building activities that also happen aside from work that keeps our morales high at work.

Academic courses relevant to the project : Software Testing and Management

Object oriented Analysis and Design(to some Extent)

Good Coding practices

PS-II Station : Qualcomm India Pvt Ltd , Hyderabad

Faculty

Name: Gopala Krishna Koneru

Student

Name: MAHAJAN MANISH SOPAN(2022H1120275P)

Student Write-up

PS-II Project Title: Aware IOT cloud platform

Short Summary of work done during PS-II : I did my intership in Qualcomm Hyderabad. Qualcomm has multiple domains. The domain in which I was working was IOT. Within IOT domain, they have multiple teams like device, development, testing and devop team, etc. The team that I was part of was devops team. As a devops team, we maintain cloud infrastructure for the software built by developers. we help developers to deploy their services/application to the cloud. I was helping our team in doing these tasks. Along with this, I have worked on one POC called "Network Validation Framework" which I also completed as part of this intership program.

Tool used (Development tools - H/w, S/w) : Git, jenkins, docker, kubernetes, helm, terraform, AWS cloud

Objectives of the project : 1) Help team to reduce manual efforts 2) Reduce debugging time 3) Help team in their day-to-day tasks 4) Help developers to deploy their services/application to the cloud

Major Learning Outcomes : Learnt various devops tools like git, jenkins, docker, kubernetes, helm, terraform, AWS cloud, etc. Also learnt automation scripting langauges such as shell script and python.

Details of Papers/patents : Confidential as per Qualcomm's CCI policies

Brief Description of working environment, expectations from the company : The overall work culture in Qualcomm is good. It also depends on the team in which you are working. I have had a great experience in Qualcomm. Qualcomm expects you to deliver your assigned work instead of asking you to work for fixed no. of hours. They do provide lot of learning opportunities for interns/freshers. They provide all the employee benefits like hotel accomodation, cab service, free food, gym, games area, etc. The manager and mentors are also considerate. They are always ready to help when we try to learn something new.

Academic courses relevant to the project : Cloud computing, Software Engineering and Management

PS-II Station : Qualcomm India Pvt Ltd , Hyderabad

Faculty

Name: Gopala Krishna Koneru

Student

Name: CHAHAT KALRA(2022H1120278P)

Student Write-up

PS-II Project Title: Enhancing System Stability: Leveraging Automation Testing and Memory Analysis

Short Summary of work done during PS-II : During the internship, I utilized the company's proprietary in-house automation tool to create and manage test cases and scripts using Python. This involved orchestrating test processes, automating repetitive tasks, and integrating test operations to enhance efficiency and consistency. Additionally, I developed a Python script for memory leak detection.

Tool used (Development tools - H/w, S/w) : Python, C, C#, GitHub, Perforce, PyCharm, WinDbg, In-house Automation testing tool

Objectives of the project : Use the company's in-house automation tool to streamline and automate repetitive testing tasks, improving efficiency and reducing manual effort. Conduct in-

depth memory management analysis to identify and resolve memory leaks, ensuring optimal system performance.

Major Learning Outcomes : Understood the company's vision, culture, and the existing codebase. Additionally, I gained in-depth knowledge of the company's proprietary automation tool and the comprehensive testing process, encompassing test case planning, execution, and reporting phases.

Working closely with my team, I honed my collaborative skills and developed effective communication strategies.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : During my internship, I focused on automating test cases and conducting memory analysis. I utilized the company's proprietary in-house automation tool to create and manage test cases and scripts using Python. Additionally, I developed a Python script for memory leak detection.

Academic courses relevant to the project : Advanced Operating Systems, Software Architecture, Software Engineering and Management, Software Testing & Methodologies

PS-II Station : Qualcomm India Pvt Ltd , Hyderabad

Faculty

Name: **Gopala Krishna Koneru**

Student

Name: **GEDELA PAVAN KALYAN(2022H1230101G)**

Student Write-up

PS-II Project Title: Noc design

Short Summary of work done during PS-II : design a NOC and analyse the performance and latency.

Tool used (Development tools - H/w, S/w) : Use industry-standard tools and software for hardware design, simulation, and verification (e.g., Verilog, VHDL, SystemVerilog).

Objectives of the project : 1) design a noc to connect the subsystems in SOC.make area reduction and latency reduction.

Major Learning Outcomes : As an intern in Qualcomm's Hardware Network-on-Chip (NoC) Design team,Gain a comprehensive understanding of Network-on-Chip (NoC) architectures, including various topologies, routing algorithms, and flow control mechanisms.Learn how to evaluate the performance of NoC designs through metrics such as latency, throughput, and power consumption.

Details of Papers/patents : no papaers published as a part of my internship

Brief Description of working environment, expectations from the company : Qualcomm values high-quality work and precision, so attention to detail and a rigorous approach to design and testing are essential. You should be prepared to meet project deadlines and manage your time effectively. Being proactive in seeking feedback and continuously improving your work will be highly appreciated.

Academic courses relevant to the project : verilog, Advance VLSI architecture, Advance VLSI design,

PS-II Station : Qualcomm India Pvt Ltd , Hyderabad

Faculty

Name: Gopala Krishna Koneru

Student

Name: HIMANSHU DAS(2022H1230177H)

Student Write-up

PS-II Project Title: Optimization of Clock Generation Logic for Ethernet Controller for different speed modes and Verifying the modified RTL

Short Summary of work done during PS-II : As a part of Reading Assignment, I have got basic understanding of Ethernet protocol, it's subsystems and upgradations. I have gone through internal hardware design document of Qualcomm, like – Clock/Reset generation, DMA operation, FIFO/Buffering, PHY layer interfaces, SERDES, Medium Independent Interface (MIIs) etc. I also modified the existing RTL of the clock logic block (Design Assignment) used to generate/forward clock signals for different modules/sub-systems in order to support different speed modes/MIIs. The objective was to reduce the number of clock paths and MUX in the clock path. The logic is used to generate internal clock signals for different modules inside the ethernet controller according to different speed modes/data rates.

Tool used (Development tools - H/w, S/w) : Synopsys Verdi, Clearcase, Linux, GVIM, Perl, TCL

Objectives of the project : To optimize the clock logic block to reduce the number of dividers used and no of clock paths. Also, to reduce the number of MUX in the clock path.

Major Learning Outcomes : How to make modifications in an existing RTL and Verifying the design, also how to observe and analyze the RTL and waveforms in Synopsys Verdi.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : In my case the team was very small, there was only me and my manager. There was one more staff but she was on long leave. Due to huge gap between my manager and my experience (almost 20 yrs), it was somewhat difficult for me discuss quite often with him, can't always ask silly doubts/questions to him. Also, he used to be really busy with his work, so interaction was very less. So initially it was difficult to get a hang of the work. Learning was slow.

Academic courses relevant to the project : VLSI Design, CAD for IC Design

PS-II Station : Qualcomm India Pvt Ltd , Hyderabad

Faculty

Name: Gopala Krishna Koneru

Student

Name: VISWANADHA LALITHA(2022H1230196H)

Student Write-up

PS-II Project Title: Automation of Flat Connectivity

Short Summary of work done during PS-II : It was a good experience. I could learn real time work learning and got to see the opportunity of corporate world

Tool used (Development tools - H/w, S/w) : Anaconda

Objectives of the project : Automation

Major Learning Outcomes : Python

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : It was good. Managers and mentors are supporting in learning and understanding the project.

Academic courses relevant to the project : VLSI Design VLSI Architecture Reconfigurable Computing

PS-II Station : Qualcomm India Pvt Ltd , Hyderabad

Faculty

Name: Gopala Krishna Koneru

Student

Name: SANDESH SUDHAKAR GONDALE(2022H1240042H)

Student Write-up

PS-II Project Title: RF Firmware

Short Summary of work done during PS-II : Automation works using Python, a few developments in love project, Jenkins development

Tool used (Development tools - H/w, S/w) : Perforce, Pycharm, visual studio code, Araxis merge

Objectives of the project : Software development of modem

Major Learning Outcomes : Embedded programming, RF basic concepts, Power Amplifiers, LNA

Details of Papers/patents : Nil

Brief Description of working environment, expectations from the company : A great working environment, team members are very helpful. Expect to learn a lot from the developments and products

Academic courses relevant to the project : Communication Engineering subjects: MPC, ADC, RF and microwave engineering

PS-II Station : Qualcomm India Pvt Ltd , Hyderabad

Faculty

Name: Gopala Krishna Koneru

Student

Name: KUCHI YASHWANTH(2022H1240043H)

Student Write-up

PS-II Project Title: Modem RF 5G NR

Short Summary of work done during PS-II : I have learnt the 4G and 5G protocol stack, architecture, layer to layer call flow. I have also been trained in the codebase to help the developers with the dev activity required. I have fixed static analysis errors in the codebase, debugged several crashes reported by internal testing teams. Also participated in feature implementation for a few Product Lines.

Tool used (Development tools - H/w, S/w) : Source Insight, Araxis Merge

Objectives of the project : To understand how RFSW team operates, the codebase features, functionalities and dev activities that go into the codebase.

Major Learning Outcomes : Learnt about various technologies that go into Qualcomm Modem software, how RFSW developers work for a feature implementation, the algorithms used to tackle bug activity, etc.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Qualcomm Hyderabad is on the best workplaces in terms of the projects being done. The teams are very friendly towards interns and new hires. They are ready to help us with any doubts or questions.

Academic courses relevant to the project : Mobile Personal Communication, Advanced Digital Communication, RF Microelectronics, Advanced Wireless Communication

PS-II Station : Qualcomm India Pvt. Ltd.-Noida , Noida

Faculty

Name: Gopala Krishna Koneru

Student

Name: HARIOM SINGH GURJAR(2022H1230199H)

Student Write-up

PS-II Project Title: Building a Model for Performance Estimation of IPs Using Python.

Short Summary of work done during PS-II : My project is related to hardware in which i worked on developing a model using python programming language. this modelling is used to analyse and estimate some performance parameters of IPs (related to hardware).

Tool used (Development tools - H/w, S/w) : VS-Code and Python programming language.

Objectives of the project : To measure some performance parameters of IPs.

Major Learning Outcomes : Python programming language,VS-Code editor.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : working environment was good. mentors were very supportive. and working on industry project offers lot of learnings in less time. overall it was a good learning experiance.

Academic courses relevant to the project : VLSI Design,Programming

PS-II Station : Qualcomm India Pvt. Ltd.-Noida , Noida

Faculty

Name: Gopala Krishna Koneru

Student

Name: SHIVAM SHRIVASTAV(2022H1230261P)

Student Write-up

PS-II Project Title: Low power design and RTLQA checks

Short Summary of work done during PS-II : I have been assigned to work with NoC design team wherein I started with learning the various AMBA protocols and few of the inhouse protocols. This is followed by the documentation reading and designing a NoC from scratch using an inhouse tool. Later I have been put in a new project wherein I did design changes and performed RTL checks. This is followed by resolving the bugs raised by DV team and releasing the design to the top level subsystem.

Tool used (Development tools - H/w, S/w) : Spyglass, Cadance pldrc, verdi

Objectives of the project : Familiarity with project flow, design changes, bug fix, design rule checks, Power aware design

Major Learning Outcomes : design flow, design rule checks, low power design, clock domain crossing

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment so far is very good. Not much working late, everyone know their jobs and won't be bothering you much after working hours. People here are cheerful and supportive, full of knowledge and master at their domains.

The expectations from the company are quite high, so much to learn and develop new skills be it communication skill or work related skill. The managers are quite experienced know their work around and know how to put forth my knowledge and make it to use.

Academic courses relevant to the project : Vlsi design, Vlsi architecture, CAD for IC design, Vlsi Test and Testab

PS-II Station : Qualcomm India Pvt. Ltd.-Noida , Noida

Faculty

Name: Gopala Krishna Koneru

Student

Name: GAURAV SINGH(2022H1400067G)

Student Write-up

PS-II Project Title: Static timing analysis

Short Summary of work done during PS-II : STA is an indispensable tool in the IC design process, providing a robust and efficient method to ensure timing correctness. By thoroughly analyzing all potential timing paths and constraints, STA helps in identifying and resolving timing issues, leading to reliable and high-performance digital circuits.

Tool used (Development tools - H/w, S/w) : PRIMETIME

Objectives of the project : Timing analysis

Major Learning Outcomes : How to solve the path that are violating in STA timing reports

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : • Work-Life Balance: Flexible working hours and remote work options to support a healthy work-life balance.

- Inclusive Culture: A commitment to diversity and inclusion, fostering a welcoming and supportive environment for all employees.

Academic courses relevant to the project : Digital Logic Design

- Key Topics: Boolean algebra, combinational and sequential logic, flip-flops, multiplexers, and memory elements.

- Relevance: Provides the foundational understanding of digital circuits necessary for timing analysis.

2. Computer

PS-II Station : Qualcomm India Pvt. Ltd.-Noida , Noida

Faculty

Name: Gopala Krishna Koneru

Student

Name: VIBHOR PRABHAKAR(2022H1400088G)

Student Write-up

PS-II Project Title: Role of STA in VLSI design flow

Short Summary of work done during PS-II : Performed various STA runs on multiple blocks, power and area leakage recovery to satisfy the power, area and timing requirements and cross checked against the constraints.

Tool used (Development tools - H/w, S/w) : PrimeTime ,TCl scripts, GVIM editor, python, Perl ,

Objectives of the project : To learn about STA and its importance in timing closure in VLSI design cycle

Major Learning Outcomes :

1. Able to understand the importance of STA in VLSI design flow for timing closure.
2. Importance of Tool automation using TCl scripting
3. Leakage power recovery cycle

Details of Papers/patents : confidential

Brief Description of working environment, expectations from the company : Performance Expectations: Meeting goals, deadlines, and achieving high-quality work.
Behavior Expectations: Professionalism, punctuality, ethical behavior, and teamwork.
Communication Expectations: Active listening, clear communication, and timely responses.
Personal Development Expectations: Skill enhancement, professional growth, and adaptability to change.

Academic courses relevant to the project : Static timing analysis ,VLSI design , VLSI architecture ,HW-Sw codesign



PS-II Station : Qualcomm India Pvt. Ltd.-Noida , Noida

Faculty

Name: Gopala Krishna Koneru

Student

Name: DHEERAJ PANDEY(2022H1400179P)

Student Write-up

PS-II Project Title: Static Timing Analysis in VLSI Design

Short Summary of work done during PS-II : In my PS-2, I worked as a Static Timing Analysis (STA) engineer. STA plays a pivotal role in ensuring the reliable operation of modern digital designs by verifying that all timing requirements are met under various operating conditions. My project delved into both fundamental and advanced concepts of STA, providing a comprehensive understanding of the entire process. Understanding STA terminology was one of the main areas of concentration. This covered ideas like timing windows, critical routes, slack, setup and hold times, and so forth. An integral part of my work involved using the Synopsys PrimeTime tool, an industry-standard STA tool. PrimeTime is used for analyzing and optimizing the timing of digital designs. I learned how to set up the environment for timing analysis, load the required files, and execute various commands to perform the analysis. Additionally, I focused on generating and interpreting detailed timing reports. These reports help identify timing violations and potential issues in the design, providing insights into areas that require optimization. Through this experience, I gained hands-on expertise in the end-to-end STA process, from initial setup to final reporting and optimization. This knowledge is crucial for ensuring that digital designs meet their performance and reliability requirements, making STA an indispensable part of the digital design verification process.

Tool used (Development tools - H/w, S/w) : LINUX,PRIMETIME,TWEAKER,INFINISIM

Objectives of the project : To learn about STA and its importance in timing closure

Major Learning Outcomes : STA methodology in VLSI design and various tools like PRIMETIME and TWEAKER by Synopsys that are used for fixing violations.

Details of Papers/patents : Not Applicable

Brief Description of working environment, expectations from the company : The workplace has all the tools and technology required for the employees to excel. As an intern, I found that there is proper documentation and videos available to learn the flows. Leadership is approachable and values employee contributions, driving a sense of belonging and motivation. Everyone is encouraged to share their thoughts. Overall, the company environment is vibrant, supportive, and geared towards professional excellence and personal fulfilment.

Academic courses relevant to the project : VLSI DESIGN, RECONFIGURABLE COMPUTING, VLSI TEST AND TESTABILITY, VLSI ARCHITECTURE

PS-II Station : Quality Council of India (QCI) (IT - CS) , Delhi

Faculty

Name: Gopalakrishnan Venkiteswaran

Student

Name: GUPTA DEVESH PRAVEENKUMAR(2019B5A70641G)

Student Write-up

PS-II Project Title: Mobile and Web Application Development

Short Summary of work done during PS-II : My work started from optimising the search screen of the mobile app. After that, I worked on building camera features like flash and zoom. Due to these minor projects, I got familiar with the MERN stack which later helped me: 1. Create REST APIs 2. Change mongoose schema 3. Implement Redux and many other important tasks. Finally, I worked on application testing and deployment. My mentor was very supportive and helped me when needed. It was a good learning experience.

Tool used (Development tools - H/w, S/w) : Git, XCode, Android Studio, VSCode, MERN stack, AWS S3 and EC2, Android and Apple test devices

Objectives of the project : To build a mobile application supporting camera feature and store images remotely and also build a web application to access the photos and download them.

Major Learning Outcomes : Mobile and Web application development using MERN stack and deployment using EC2.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The workplace was pretty good. All our team members were approachable and helped a lot. The company expects a good understanding of DevOps, it is a good to have skill. We had a small team of developers, 3 interns from BITS and a senior mentor/developer. We did not have a Agile/Scrum framework.

Academic courses relevant to the project : OOP, DSA, DBMS

PS-II Station : Quality Council of India (QCI) (IT - CS) , Delhi

Faculty

Name: Gopalakrishnan Venkiteswaran

Student

Name: MUKKA NISHITH KUMAR(2020A7PS0157H)

Student Write-up

PS-II Project Title: Sarpanch Samvaad

Short Summary of work done during PS-II : During my Practice School II (PS-II) internship at the Quality Council of India (QCI), I worked on the Sarpanch Samvaad project, a digital platform connecting village leaders across India. The project involved several key tasks: Data Transliteration: Converted sarpanch data from various Indian languages into English using Python's indic-transliteration library. OCR on Scanned Data: Extracted text from scanned PDFs and images using OCR engines like pytesseract and easyocr, and detected tables with the img2table library. Automating Data Fetching: Developed a Google Apps Script to automate fetching updated data from a static IP address hosted at QCI, and appending it to a Google Sheets dashboard. Sentiment Analysis: Analyzed posts by verified sarpanches using sentiment analysis models from Hugging Face to extract sentiment scores and analyze trends. Web Scraping: Scraped sarpanch data from state election commission websites using BeautifulSoup, requests, and Selenium to handle dynamic and static URLs. Dashboard Design: Created interactive dashboards using Power BI and DAX queries to visualize key performance metrics, user trends, and other insights. These tasks contributed significantly to improving data accuracy and retrieval efficiency while providing valuable insights through sentiment analysis and visualization

Tool used (Development tools - H/w, S/w) : Hardware: Standard development computers for coding and testing. Servers for hosting databases and dashboards. Software: Python: Main programming language for data processing and automation tasks. Libraries for OCR: easyocr, pytesseract, PaddleOCR, camelot, img2table. Libraries for Transliteration: Numpy, Pandas, Opencv, indic_transliteration. Libraries for Sentiment Analysis: nltk, torch, transformers (including

AutoTokenizer and AutoModelForSequenceClassification), distilbert-base-multilingual-cased-sentiments-student, MarieAngeA13/Sentiment-Analysis-BERT, distilbert-base-uncased-finetuned-sst-2-english. Libraries for Web Scraping: BeautifulSoup, requests, urllib.parse, xlswriter, Selenium. Google Apps Script: For automating data fetching and updating Google Sheets. Power BI: For designing interactive dashboards using DAX queries

Objectives of the project : Fetching data from multiple sources . Automating the process of fetching verified sarpanch data from the backend. Performing sentiment analysis on post text data from verified sarpanches. Designing dashboards using Power Bi and DAX queries

Major Learning Outcomes : Enhanced skills in data validation, web scraping, automating data fetching, data transformation, and sentiment analysis.

Practical experience with state-of-the-art Python libraries for various tasks.

Improved soft skills such as communication and teamwork.

Ability to identify and resolve potential issues proactively through workflow assessment.

Contribution to quality assurance and standardization in India by collecting, verifying, and validating sarpanch data

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : friendly environment, company just expected me to deliver things on time and even if I missed it by some time I would get some extension. However, the technical support is very little, you cant expect to get help anytime your code doesnt work.

Academic courses relevant to the project : Machine Learning, NLP, Data visualisation

PS-II Station : Quality Coucil of India (QCI) (IT - CS) , Delhi

Faculty

Name: Gopalakrishnan Venkiteswaran

Student

Name: TUSHAR CHATTOPADHYAY(2020A7PS0158H)

Student Write-up

PS-II Project Title: Gunvatta Gurukul and Image Repo

Short Summary of work done during PS-II : Gunvatta-Gurukul Website Improvements: Implemented a functional forgot password modal, resolved navigation issues, and ensured proper back button functionality. These enhancements aimed to improve user experience and navigation on the website. Website Performance Optimization with Redux: Introduced Redux state management to optimize application state and data flow. This initiative led to a remarkable 40% reduction in load times and a 25% increase in overall user engagement metrics. By efficiently managing state, the website became more responsive and user-friendly. API Optimization for Gunvatta-Gurukul Admin Dashboard: Optimized API calls to the admin dashboard by retrieving specific data segments instead of fetching the entire dataset. This optimization significantly reduced server load and response time by an impressive 90%, enhancing the dashboard's performance and responsiveness. Image-Repo Mobile Application Development: Designed and developed the Image-Repo mobile application catering to 20-25 users. Leveraged AWS services such as S3 bucket and EC2 for managing over 20,000 pictures monthly. This involved ensuring seamless image storage, retrieval, and management capabilities. Team Collaboration and User-Specific Functionalities: Collaborated in a team of three to implement user-specific functionalities within the Image-Repo mobile app. This teamwork enabled us to enhance user interaction and satisfaction by tailoring features to meet diverse user needs.

Tool used (Development tools - H/w, S/w) : reactjs, tailwind-css, nodejs, expressjs, mongodb, mysql, aws, postman

Objectives of the project : Gunvatta Gurukul - Website for a Government programme to train graduated and unemployed people. Image Repo - Cross platform mobile application for a project of NHAI(National Highway Authority of India) for clicking photos of highways across India.

Major Learning Outcomes : MERN Stack

Details of Papers/patents : N.A.

Brief Description of working environment, expectations from the company : Our working environment is a blend of innovation, collaboration, and flexibility designed to foster both personal and professional growth. We believe in creating a space where employees feel valued, inspired, and empowered to reach their full potential. Our open-plan offices encourage communication and teamwork, while our flexible work policies, including remote work options and adjustable hours, ensure a healthy work-life balance.

Our company culture is built on the principles of respect, diversity, and continuous learning. We celebrate different perspectives and encourage the free exchange of ideas. Regular team-building activities, professional development workshops, and mentorship programs are integral to our environment, helping employees to develop new skills and advance their careers.

We expect our employees to embody our core values of integrity, accountability, and excellence. Commitment to quality and a proactive approach to problem-solving are highly valued. We encourage employees to take initiative, be creative, and continuously seek improvement in their work. Collaboration is key, and we expect team members to support each other, share knowledge, and work towards common goals.

In return, we offer a comprehensive benefits package, competitive salaries, and opportunities for advancement. We are committed to supporting our employees' health and well-being, offering resources and programs that promote physical and mental health. Our goal is to create a thriving, inclusive workplace where every team member can contribute meaningfully and feel proud of their work.

Joining our company means becoming part of a dynamic and supportive community dedicated to innovation and excellence.

Academic courses relevant to the project : OOPS, DBMS

PS-II Station : Quality Council of India (QCI) (IT - Non CS) , Delhi

Faculty

Name: Rajiv Ranjan Gupta

Student

Name: GUTALA AKHIL(2019B1A41115H)

Student Write-up

PS-II Project Title: Project 1: Development of Agricultural Procurement Center Self Assessment Portal; Project 2: Third Party Assessment of Bharat Brand Products

Short Summary of work done during PS-II : Project 1: Created Python Program to simulate the working of grading framework. Created Excel Sheet capable of analysing the results of each simulation. Performed Quality Check for PC responses data.; Project 2: Quality Assessment Reports on NAFED, KB Portals to check if the data on the portals are in accordance with the evidences provided, check the validity of the evidences. Created Python Program that verifies the vehicle number provided in the portal with the number and location w.r.t specific date in the data provided by the organization. Used python to scan 40,000 Documents (GST Invoice, TAX Invoice, Sales Register Etc) with rate 16,000 Documents/Minute, helped in avoiding the task of manual entry.

Tool used (Development tools - H/w, S/w) : Python Programming Language, Jupyter Notebooks, Excel

Objectives of the project : Project 1: Develop a robust grading framework that can grade Procurement Centers nationwide into maturity levels from 0 to 5 based on their facilities,

infrastructure etc; Project 2: Conduct Quality Assessment of Bharat Brand Products Supply Chain and ensure that the details of the products across various checkpoints are accounted for and provided with appropriate evidences

Major Learning Outcomes : Studied about Quality Council of India and its activities, interaction with various stakeholders such as DFPD, DoCA, FCI, NAFED, NCCF, KB Etc, Applied Programming skills to enhance the team efficiency.

Details of Papers/patents : Not applicable

Brief Description of working environment, expectations from the company : The working environment is good and encouraging towards the employees to present their skills and apply them to raise team efficiency. The higher ups provide helpful constructive criticism that helps the employees to further improve their work and presentation skills. Employees are allowed to learn new skills and apply them in their work.

Academic courses relevant to the project : Not applicable

PS-II Station : Quality Council of India (QCI) (IT - Non CS) , Delhi

Faculty

Name: Rajiv Ranjan Gupta

Student

Name: YOEVANSI SINGH .(2019B2A11016P)

Student Write-up

PS-II Project Title: Bharat Brand Products

Short Summary of work done during PS-II : Worked on Bharat brand subsidized food products and tried to analyse the supply chain for the process.

Tool used (Development tools - H/w, S/w) : Clappia, Excel

Objectives of the project : Supply chain analysis of Bharat Brand Products

Major Learning Outcomes : Data analysis

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : A great working environment with supporting people who help you ease into the role and the company is filled with new ideas for new projects.

Academic courses relevant to the project : Supply chain management

PS-II Station : Quality Council of India (QCI) (IT - Non CS) , Delhi

Faculty

Name: Rajiv Ranjan Gupta

Student

Name: KUSHAGRA SINGH(2019B2A11487H)

Student Write-up

PS-II Project Title: QCI-IT Cell

Short Summary of work done during PS-II : Gather the logs of AMC Contracts for the Various Portals under NABET for AMC, namely AEA, APA_MPPA, EIA, GWCO and FCCO. Analyse the types of complaints and categorize them on the basis of workflow functionality, Admin utility fixed from the backend and single time fix bugs. Analyzing JIRA data provided valuable insights beyond the initial feature requests. Examining the volume of issues raised by user roles or related to specific functionalities helped prioritize development efforts. Additionally, analyzing trends in issue resolution times offered insights into areas requiring additional resources or streamlining within the development process.

Tool used (Development tools - H/w, S/w) : JIRA, Google Sheets, AnyDesk

Objectives of the project : Project Coordination for Project Planning and Implementation Division (PPID) of QCI.

Major Learning Outcomes : Data visualization, data analysis, project coordination, vendor/stakeholder management

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Highly collaborative teamwork based environment where teammates and mentors were readily available and accessible. Approachability was always there and communication was transparent throughout.

Academic courses relevant to the project : N/A

PS-II Station : QualityKiosk Technologies India Pvt Ltd , Navi mumbai

Faculty

Name: Pravin Yashwant Pawar

Student

Name: HRITHIK RAJ GUPTA(2019B2A70995P)

Student Write-up

PS-II Project Title: Explainable AI (XAI) Framework

Short Summary of work done during PS-II : I researched various tools that can be used to explain AI, such as SHAP, LIME, and Captum. I trained different types of AI models to test these XAI tools and validated the explanations generated by them. Additionally, I created a Streamlit-based application with features for model API connection, dataset uploading, explanation plotting, and textual explanations to demonstrate how these XAI tools can be effectively used to test and validate AI models.

Tool used (Development tools - H/w, S/w) : Python, SHAP, LIME, and Captum

Objectives of the project : Research different methods that can be used to explain simple AI models like regression and classification-based models and create a web-based framework for the relevant Explainable AI (XAI) frameworks.

Major Learning Outcomes : Various principles and tools that are used to explain AI models like SHAP, LIME and Captum.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The work environment is quite good. Our mentors were very helpful; they were quick to address our doubts and resolve our queries, and they firmly supported us throughout the internship. There were a

few problems at the beginning of the internship, such as not having open internet access, which impeded our progress as our projects were research-intensive and many research websites were blocked. However, these problems were quickly resolved.

Academic courses relevant to the project : Machine Learning, Deep Learning, and Artificial Intelligence.

PS-II Station : QualityKiosk Technologies India Pvt Ltd , Navi mumbai

Faculty

Name: Pravin Yashwant Pawar

Student

Name: PARAB CHINMAY ABAJI(2019B4A70708G)

Student Write-up

PS-II Project Title: Smart Alert Detection

Short Summary of work done during PS-II : Created a neural network using PyTorch to solve a classification problem of identifying outliers. Used LLMs to generate explanations for outliers using available data. Created a web app to host the results of the model. Created an API for the data pipeline

Tool used (Development tools - H/w, S/w) : Python

Objectives of the project : Create a model to detect anomalies

Major Learning Outcomes : Created neural networks and used LLMs for text generation

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Great working environment, lots of opportunities to learn. Got the chance to interact with senior management

Academic courses relevant to the project : ML

PS-II Station : QualityKiosk Technologies India Pvt Ltd , Navi mumbai

Faculty

Name: Pravin Yashwant Pawar

Student

Name: VANSH GUPTA .(2020A7PS0315P)

Student Write-up

PS-II Project Title: Advance Model Evaluation

Short Summary of work done during PS-II : Created a framework to evaluate already existing Large language models on various parameters.

Tool used (Development tools - H/w, S/w) : Gitlab, VS code, Jupyter Notebooks.

Objectives of the project : To create a framework to evaluate already existing Large language models on various parameters.

Major Learning Outcomes : Soft skills and AI fundamentals.

Details of Papers/patents : N.A.

Brief Description of working environment, expectations from the company : It was a good working environment with everyone being very supportive and helpful. The company wanted to start an AI culture inside them with a shift from Software Testing to AI Software testing and thus wanted us to create product for them which would help achieve this.

Academic courses relevant to the project : Artificial Intelligence, Machine Learning

PS-II Station : QualityKiosk Technologies India Pvt Ltd , Navi mumbai

Faculty

Name: Pravin Yashwant Pawar

Student

Name: VISHESH AGRAWAL(2020A7PS0967G)

Student Write-up

PS-II Project Title: Stock AI - An AI-Based Daily Stock Trend Predictor & Advanced Model Evaluation

Short Summary of work done during PS-II : During my internship with the Stock AI project, I engaged in a challenging endeavor focused on predicting stock movements. Despite the complexity, the project yielded diverse learning opportunities across machine learning, finance,

Python, and data science. Notably, our news-sentiment model achieved an impressive short-term accuracy of 84%, integrating sentiment and technical data for trend prediction. Although the overall accuracy stabilized at 55%, we identified clear avenues for enhancing our predictive algorithms in future iterations. A significant aspect of my contribution involved developing a FastAPI endpoint. This included integrating custom pre-trained language models (LLMs) for text evaluation, ensuring robust API performance, and implementing thorough error handling to ensure service reliability. Moreover, I took on the challenge of building the front-end interface for the Advanced Model Evaluation project. This full-stack development effort involved linking functionalities seamlessly with the backend, employing proprietary code and original logic. Throughout this process, I gained valuable experience in version control, utilized AWS servers effectively, and mastered endpoint generation. Overall, the internship provided an immersive learning environment where I tackled real-world challenges in machine learning deployment, software engineering, and frontend development. The iterative nature of the work fostered a deep understanding of building and refining complex systems, preparing me for future endeavors in technology and finance.

Tool used (Development tools - H/w, S/w) : S/W: Visual Studio Code, Python, AWS server, Git, Jira, Teams, PowerPoint, Word, Excel.

Objectives of the project : Stock AI: Stock AI is an attempt to explore a project that is at the confluence of three fields: AI, Computer Science, and Economics / Finance. While many tools exist leveraging various factors affecting a security/stock in question, Stock AI aims to cover parameters across multiple domains and combine them to gain a comprehensive picture of how the security will behave in the short and long term. Advanced Model Evaluation: In the domain of natural language processing, the ability to evaluate and compare the performance of Large Language Models (LLMs) is crucial for ensuring their effectiveness in various applications. With the proliferation of LLMs and their diverse applications, there is a growing need for a standardized framework for evaluating and benchmarking these models. To address this need, we propose a framework that generates questions based on a given document in the domain. These questions serve as a benchmark for evaluating LLMs, with the original document providing the context for generating the questions.

Major Learning Outcomes : Whilst the Stock AI project's goal (predicting stocks accurately) is an extremely challenging,

complex and obscure field, attempts to tackle it in the way it has been done in this project have been rewarding in a myriad of manners. Such exploration has enabled the education of machine learning, finance, python and data science. The news-sentiment model achieved a short-term accuracy of 84% which is excellent considering general attempts to predict recent trends using sentiment and technical data and whilst the overall accuracy hovered to 55% finally, points of improvement to the overall predictive logic have already been identified which can be taken up later in the future.

Developing a FastAPI endpoint involved integrating pre-trained custom LLMs, creating a robust API endpoint for text evaluation, and ensuring the system's performance. Additionally, I implemented comprehensive error handling to maintain the reliability of the service.

In addition to this, building the front-end interface for the Advanced Model Evaluation project and linking functionalities through the back end provided software engineering and full-stack development learning experience as well. Since everything was written from scratch and implemented natively, multiple sessions of trial and error have ultimately led to the creation of a tool that is cohesively built on proprietary code and original logic. Version control, AWS server usage and endpoint generation were additional points of learning, amongst many others.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The company cultivates a supportive and cohesive working environment, which significantly enhances collaboration and productivity. Each team member was provided with dedicated co-working spaces, fostering a conducive atmosphere for joint efforts and creative synergy. Projects were intricately interconnected, promoting a holistic approach to problem-solving and skill development across disciplines.

Expectations from the company were consistently met as they prioritized timely resolution of queries and backlogs. This proactive approach not only ensured smooth project execution but also underscored their commitment to employee success and satisfaction. Regular feedback loops were established, facilitating continuous improvement and alignment with project objectives.

Academic courses relevant to the project : Artificial Intelligence, Machine Learning, Web Development, Data Preprocessing

PS-II Station : Quidich Innovation Labs Pvt. Ltd. , Mumbai

Faculty

Name: Sugata Ghosal

Student

Name: RAHUL KIRORIWAL .(2020B4PS1258P)

Student Write-up

PS-II Project Title: Engagement Module Revamp

Short Summary of work done during PS-II : I focused on enhancing the Survey and Engagement module at Darwinbox, overseeing primary tasks within this area while also supporting secondary teams like Analytics and Recruitment. My primary responsibility involved leading the module's revamp, conducting extensive market and competitor analyses across tools such as form builders, survey analyzers, and engagement dashboards. This comprehensive analysis identified our strengths, weaknesses, and areas for improvement compared to competitors like Peakon and Culture Amp. Additionally, I performed gap analyses to pinpoint product deficiencies, drafting detailed design documents to guide development teams in addressing these gaps effectively. I also contributed to ad hoc tasks, including feature testing such as notifications, ensuring seamless functionality. A pivotal project was the statistical validation of our engagement survey, which I meticulously prepared following thorough market research. I designed questions and subthemes, validating them using respondent data through techniques like factor analysis. The resulting report provided insights into survey effectiveness and informed future enhancements. Furthermore, I collaborated with the Analytics team on dashboard alignment and testing, and with the Recruitment team on integration strategies and roadmaps, ensuring alignment across modules and enhancing overall platform functionality.

Tool used (Development tools - H/w, S/w) : Jira, Confluence, SPSS, Python, Overleaf, Pendo, Powerpoint

Objectives of the project : 1. Revamp of the Survey and Engagement Module: o Competitor Analysis: Evaluate key competitors such as Leena AI, Infeedo Amber, Qualtrics, Peakon, Culture Amp, and Lattice to understand their strengths, weaknesses, opportunities, and threats. o Design Enhancement: Develop a design document to enhance the Manager Dashboard, incorporating detailed team-level engagement insights. UI/UX Improvements: Identify and implement user interface and user experience enhancements to make the module more intuitive and user-friendly. o Feature Expansion: Introduce new functionalities and improve existing ones to provide deeper, more actionable engagement insights. Statistical Validation of the Survey and Engagement Module: • Survey Design: Develop a comprehensive and validated employee engagement survey that effectively captures the necessary data. • Validation Process: Perform rigorous statistical analysis to validate the effectiveness and reliability of the engagement survey. • Improvement of Survey Library: Enhance the current library of surveys and action plans within the Engagement Dashboard based on statistical findings and user feedback. • Actionable Insights: Integrate validated survey data into the Engagement Dashboard to provide actionable insights for managers and HR professionals.

Major Learning Outcomes : Research Foundations: I learned that conducting thorough research, drawing from sources such as Kahn's Employee Engagement Theory and Gallup's insights, is fundamental to crafting impactful employee engagement surveys.

Product Differentiation: Developing a robust validation approach using techniques like Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) proved crucial. It not only ensured the reliability of our surveys but also positioned us competitively in the market.

Continuous Improvement in this field: Actively engaging with product manuals, design documents, and user feedback taught me the importance of continuous learning and iterative improvement. This approach is essential for adapting to evolving user needs and maintaining product relevance.

Collaboration Effectiveness: Collaboration across departments, particularly with Marketing and Product Management teams, was vital for aligning product development with market demands and enhancing cross-functional efficiency.

Data-Driven Decision Making: Leveraging data from competitor analyses and user feedback underscored the significance of making informed, data-driven decisions. This data guided strategic development initiatives and ensured our efforts were aligned with user expectations and market trends.

Details of Papers/patents : Not dealt with any Papers.

Brief Description of working environment, expectations from the company : In the dynamic working environment of our company, collaboration and innovation are at the forefront of our expectations. We emphasize a culture of teamwork where every team member's contribution is valued, fostering an inclusive and supportive atmosphere. Our company values transparency, integrity, and dedication to excellence in all aspects of our work.

Employees are encouraged to bring creative solutions to the table and take ownership of their projects, contributing to the overall success of our initiatives. We value continuous learning and growth, providing ample opportunities for professional development through training programs, mentorship, and access to cutting-edge technologies.

The company places a strong emphasis on achieving high-quality results while maintaining a healthy work-life balance. Flexibility and adaptability are key as we navigate through challenges and seize opportunities in the rapidly evolving industry landscape.

We strive to create an environment where innovation thrives, driven by a shared commitment to delivering exceptional products and services to our clients. By fostering a culture of respect, collaboration, and continuous improvement, we aim to exceed expectations and make a positive impact in our industry.

We are Aiming for IPO in late 2025!!

Academic courses relevant to the project : No such Courses.

PS-II Station : Qure.ai Technologies Pvt. Ltd. - IT , Bengaluru

Faculty

Name: Swarna Chaudhary

Student

Name: A SUDARSHAN .(2019B4A70744P)

Student Write-up

PS-II Project Title: Lung Cancer Mitigation Suite

Short Summary of work done during PS-II : Worked on multiple short projects - involving building AI models for lung nodule detection and risk evaluation; worked on projects related to evaluating current product performance and finetuning it; worked on a few benchmarking tasks and data handling

Tool used (Development tools - H/w, S/w) : DICOM, Pytorch, Monai, Pytorch Lightning, CUDA, Tensorflow, SITK

Objectives of the project : Detecting lung nodules in CT scan with help of Computer Vision, classifying them by nodule morphology (texture), quantify malignancy risk of detected nodules and compare performance with radiologist annotations

Major Learning Outcomes : Medical data handling protocols, malignancy risk evaluation models, product pipeline, AI model training from scratch and finetuning

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Work environment is friendly and encourages learning. All the employees in the company are supportive. The problem statements I worked on really helped me learn the domain of Healthcare AI at great depth. In addition to working on AI models, learning the domain knowledge and protocols of handling and sharing medical data interested me.

Academic courses relevant to the project : NNFL, Artificial Intelligence, Mathematics-II (Linear Algebra)

PS-II Station : Qure.ai Technologies Pvt. Ltd. - IT , Bengaluru

Faculty

Name: Swarna Chaudhary

Student

Name: SAUMYA SHRIVASTAVA(2020A3PS1767G)

Student Write-up

PS-II Project Title: FULL-STACK DEVELOPMENT AT QURE.AI

Short Summary of work done during PS-II : I created new frontend designs and APIs for a key product, enhancing user experience and functionality. Additionally, I refactored the code for another product, significantly improving its efficiency and performance. These efforts collectively boosted the overall quality and effectiveness of the company's offerings.

Tool used (Development tools - H/w, S/w) : S/w

Objectives of the project : To create and manage website pages and api for some of the company's important projects

Major Learning Outcomes : Full stack development

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The working environment is great, people help here if I get stuck at any place.

Academic courses relevant to the project : FoDSA

PS-II Station : Qure.ai Technologies Pvt. Ltd. - Product Management , Bengaluru

Faculty

Name: Bharathi R

Student

Name: E HRUSHITH(2019B3A30529H)

Student Write-up

PS-II Project Title: Increasing Product Adoption of qER

Short Summary of work done during PS-II : During my product management internship at Qure.ai, I led several pivotal projects aimed at enhancing stroke care coordination through advanced imaging technologies and AI. A key initiative was Project MAGNETIC, which involved A/B testing to compare the effectiveness of Brain MRIs versus CT scans in detecting ischemic strokes. This project, conducted over five months with over 1,400 patients, revealed that MRI was 70% more effective in identifying infarcts than NCCT. These findings underscored the value of MRI in the Indian healthcare context, where MRI usage was 50% higher than NCCT. To leverage these insights, we conducted a cost-benefit analysis to decide between developing an in-house AI solution for MRI interpretation or partnering with an existing provider. Given the high costs and

long development time associated with building in-house, we opted to partner with an established MRI interpretation software company. I played a key role in testing this partner's product to ensure it met our standards, facilitating a strategic partnership that expedited market entry. Simultaneously, I tracked user engagement metrics within the Qure App, particularly focusing on qER's utilization by healthcare professionals. Using Mixpanel, I analyzed parameters such as session counts, session durations, emergency activations, and form completions. These metrics helped identify use cases and areas for improvement, leading to the implementation of targeted features to enhance user experience. Overall, this internship highlighted the critical role of data and AI in improving healthcare outcomes, demonstrating the importance of strategic partnerships and user-centric product management in the health tech industry.

Tool used (Development tools - H/w, S/w) : S/w - VS code, GitHub; Jira, Miro

Objectives of the project : Increasing Product Adoption of qER

Major Learning Outcomes : During my product management internship at Qure.ai, I led key projects that enhanced my skills in strategic decision-making, user experience analysis, and project leadership. By managing Project MAGNETIC, I conducted critical A/B testing comparing MRI and CT imaging for stroke detection, which informed strategic partnerships over in-house development due to cost and time factors. Additionally, I utilized Mixpanel to track user engagement metrics, gaining insights that improved app functionality and user satisfaction. Overall, this internship underscored the importance of leveraging data and AI to enhance healthcare outcomes and streamline care coordination.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at Qure.ai was dynamic and closely resembled a startup, characterized by a high level of responsibility from the very first day. I was granted the freedom to prioritize projects that sparked my interest, provided that my primary tasks were completed satisfactorily. The role required me to interact with clients and product partners at various stages, fostering a collaborative and communicative approach to problem-solving. Additionally, I handled tasks related to both the adoption and execution of the product, ensuring that it was effectively integrated and utilized in clinical settings. The company expected a proactive and engaged

attitude, encouraging me to take ownership of projects and drive them to successful completion. This environment not only enhanced my project management skills but also provided a comprehensive understanding of product lifecycle management in a health tech startup.

Academic courses relevant to the project : New Venture Creation

PS-II Station : Qure.ai Technologies Pvt. Ltd. - Product Management , Mumbai

Faculty

Name: Bharathi R

Student

Name: NITYA TUSHAR SHAH(2020A3PS1443H)

Student Write-up

PS-II Project Title: Log Summarization using RAG

Short Summary of work done during PS-II : Created custom jenkins plugin, multiple python services for communication, core summarization service, RAG for additional context

Tool used (Development tools - H/w, S/w) : Jenkins, IDEs, Vault, Kubernetes

Objectives of the project : Summarization of console logs and providing potential solutions in one place for easy debugging

Major Learning Outcomes : RAG

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Really great working experience, no restrictions on WFH

Academic courses relevant to the project : None

**PS-II Station : Qure.ai Technologies Pvt. Ltd. - Product Management ,
Mumbai**

Faculty

Name: Bharathi R

Student

Name: PRATHAM JAIN(2020A3PS2121H)

Student Write-up

PS-II Project Title: Application development and deployment on BTP in SAP S/4HANA

Short Summary of work done during PS-II : Learnt how to make a script using nodejs to make different calls and used OAuth 2.0 for authentication and authorisation. Learnt how to deploy the script and also how to schedule the script. I also learnt about git commands and working with the github and about various SAP services.

Tool used (Development tools - H/w, S/w) : Nodejs, Cloud Foundry, SAP development tools.

Objectives of the project : This project aims to familiarize myself with the SAP Business Technology Platform (BTP) and learn how to create an application on node.js and deploy it on BTP.

Major Learning Outcomes : Script making in Nodejs.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : At SAP, the work environment was notably relaxed and supportive. The company fostered a culture of collaboration and innovation, encouraging employees to balance their professional and personal lives. Flexible working hours, a strong emphasis on teamwork, and numerous opportunities for professional development made SAP a pleasant and productive place to work. The overall atmosphere was one of mutual respect and inclusivity, contributing to a positive and chill work environment.

Academic courses relevant to the project : OOPs, OS

PS-II Station : Rakuten India Enterprise Pvt Ltd , Bengaluru

Faculty

Name: RAMESH VENKATRAMAN

Student

Name: ROHIT NIGAM(2022H1540846P)

Student Write-up

PS-II Project Title: Competitive Intelligence Analysis

Short Summary of work done during PS-II : In today's dynamic business landscape, staying ahead of the competition is crucial for sustained growth and success. As part of our ongoing strategic initiatives, our company has undertaken a comprehensive market research project focused on analyzing our competitors within the industry. The primary objective of this research endeavor is to gain valuable insights into the strategies, strengths, weaknesses, and market positioning of our competitors. By understanding the competitive landscape more deeply, we aim to identify opportunities for differentiation, refine our own marketing strategies, and enhance our overall competitiveness. In the pursuit of sustaining a competitive edge within our industry, a strategic imperative has been established to comprehensively examine and understand the marketing strategies deployed by our competitors. This initiative seeks to glean actionable insights from an in-depth analysis of competitor marketing methodologies, thereby informing our own strategic endeavors. This report represents the culmination of a meticulous examination conducted on each competitor within our industry landscape. It underscores a focused effort to discern the intricacies of their marketing approaches, elucidating pertinent channels and tactics utilized in promoting their respective products or services. The essence of this endeavor lies in aligning our organizational aspirations with a nuanced comprehension of competitor marketing paradigms. By delving into the diverse array of marketing channels employed by competitors, a comprehensive understanding has been cultivated, facilitating the extraction of valuable lessons and strategic considerations. Through a concerted effort to immerse ourselves in the marketing milieu of competitors, a holistic understanding has been achieved, affording insights into the efficacy of diverse marketing channels and strategies. This endeavor has been guided by an overarching objective to glean actionable intelligence that can inform and enhance our own marketing endeavors. In essence, this report serves as a testament to our commitment to strategic excellence, as we endeavor to glean insights from competitor marketing strategies to bolster our own market positioning and competitiveness.

Tool used (Development tools - H/w, S/w) : Lusha, SEMrush, Microsoft office

Objectives of the project : The primary objective of this research endeavor is to gain valuable insights into the strategies, strengths, weaknesses, and market positioning of our competitors. By understanding the competitive landscape more deeply, we aim to identify opportunities for differentiation, refine our own marketing strategies, and enhance our overall competitiveness.

Major Learning Outcomes : This research represents the culmination of a meticulous examination conducted on each competitor within our industry landscape. It underscores a focused effort to discern the intricacies of their marketing approaches, elucidating pertinent channels and tactics utilized in promoting their respective products or services.

Details of Papers/patents : No papers and patents

Brief Description of working environment, expectations from the company : The working environment at our company is designed to foster creativity, collaboration, and professional growth. We maintain an open office layout to encourage communication and teamwork, while also providing private spaces for focused work. Our culture emphasizes inclusivity, respect, and support, ensuring every team member feels valued and heard. Flexible work hours and remote work options are available to promote a healthy work-life balance.

Expectations from the company include a strong commitment to delivering high-quality work and upholding our core values of integrity, innovation, and excellence. Employees are encouraged to take initiative, think critically, and contribute their unique perspectives to drive the company forward. Professional development is a priority, with regular training sessions, workshops, and opportunities for career advancement. We expect our team to engage actively in their roles, collaborate effectively with colleagues, and continuously strive to improve both their skills and our processes.

In return, the company offers competitive compensation, comprehensive benefits, and a supportive environment that recognizes and rewards hard work and achievements. Our goal is to create a workplace where employees feel motivated, empowered, and excited to contribute to our shared success.

Academic courses relevant to the project : Marketing

PS-II Station : Ramboll India Pvt. Ltd. , Gurugram

Faculty

Name: Mahesh K Hamirwasia

Student

Name: KEERTHANA SUDHIR(2022H1300039H)

Student Write-up

PS-II Project Title: Internship in Highway Engineering

Short Summary of work done during PS-II : During the course of internship, thorough understanding of design methodologies and use of country codes for road design was given. Understanding of design codes included IRC 73-2023 ,IRC SP 84, Manual N100 , Manual V120. Use of design software such as AutoCAD, Civil 3D, Novopoint to achieve computer aided design was also learnt.

Tool used (Development tools - H/w, S/w) : Civil 3D

Objectives of the project : nill

Major Learning Outcomes : I have learned Alignment , Vertical Profile , Assembly and corridor in Civil 3D. Also about Grading in Civil 3D.

Details of Papers/patents : nill

Brief Description of working environment, expectations from the company : Work culture is good over here

Academic courses relevant to the project : Geometric design

PS-II Station : Ramboll India Pvt. Ltd. , Gurugram

Faculty

Name: Mahesh K Hamirwasia

Student

Name: TANMAY SINGH(2022H1300070P)

Student Write-up

PS-II Project Title: Highway Design

Short Summary of work done during PS-II : The work done in my internship period was to learn IRC codes and design a highway based on the geometric design standards as per IRC codes. I have also made a presentation on the topic " Research work on Sustainability On Road Design " referring IRC codes and research papers. In my internship I have used AutoCAD to create Typical Cross Section of Road and draw an alignment of a highway for practice. In Civil3D I made alignment, profile and corridor of a highway and later I practiced vehicle tracking on that highway section. I have also made simple priority junction as per DMRB code specifications in Civil3D and have also done Vehicle Tracking on them. I have also done Visibility check at the junction as per DMRB code. Currently, I was doing grading of a surface on a practice project in Civil3D software.

Tool used (Development tools - H/w, S/w) : AutoCAD and Civil3D

Objectives of the project : To design Sustainable design of highway

Major Learning Outcomes : The major learnings from Ramboll are implementing my academic knowledge about the highway design were implementing the geometric design of highways from the codes into the design in software.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The working environment in the company is very interactive and positive towards learning. The people are more focused on quality of work rather than the just quantity. There is diversity in the ideas and cultures that makes it easier to work. Overall, the environment is challenging but rewarding, with plenty of opportunities for growth and learning. My expectations from the company are that the company involves me in the projects so that I can make more safe and sustainable design of highways for the benefit of our society. Also I expect that the company will enhance my personal and technical skills.

Academic courses relevant to the project : Highway Design, Pavement Analysis and Design, Pavement Material and Characterization, Highway Construction Techniques

PS-II Station : Ramboll India Pvt. Ltd. , Gurugram

Faculty

Name: Mahesh K Hamirwasia

Student

Name: TEERTHA PRAKASH(2022H1300073P)

Student Write-up

PS-II Project Title: Rail Design in Power Rail Track

Short Summary of work done during PS-II : During my internship, I gained comprehensive knowledge of railway engineering concepts, focusing on alignment creation, profiling, cross-section analysis, and corridor modeling. I actively applied this knowledge using Power Rail Track software, a specialized tool for railway design. My responsibilities included generating precise railway alignments, which involved designing the optimal path for tracks considering various geographic and engineering constraints. I also developed detailed profiles, which represent the vertical aspect of the railway alignment, ensuring the gradients were suitable for efficient train operation. Cross-section analysis was another critical aspect of my work, where I created and examined transverse cuts of the railway at various points to ensure stability and safety. In addition to these technical tasks, I performed corridor modeling to integrate all elements of the railway design into a cohesive model, facilitating better planning and visualization. This holistic approach ensured that all components of the railway system worked harmoniously together. Moreover, I honed my drafting skills in AutoCAD, translating complex engineering designs into clear and precise technical drawings. This included creating detailed plans, sections, and elevations that are crucial for the construction and maintenance of railway infrastructure

Tool used (Development tools - H/w, S/w) : AutoCAD, Power rail track, MicroStation

Objectives of the project : On how to design railway track

Major Learning Outcomes : Learned railway concepts related to alignment creation, profile, cross section and corridor modelling

Details of Papers/patents : Nil

Brief Description of working environment, expectations from the company : During my internship at Ramboll India Pvt Ltd, I experienced a dynamic and collaborative working environment that fostered both professional and personal growth. The company provided a supportive atmosphere, encouraging continuous learning and innovation. Colleagues and mentors were approachable and always willing to share their expertise, creating an inclusive and knowledge-rich setting.

Ramboll India Pvt Ltd maintained high expectations for quality, precision, and efficiency in all tasks. The emphasis was on delivering projects that met stringent engineering standards while adhering to deadlines. Interns were expected to quickly adapt to the company's workflow, demonstrating both technical proficiency and effective communication skills.

The company encouraged proactive problem-solving and critical thinking, expecting interns to contribute meaningfully to ongoing projects. There was a strong focus on professional development, with opportunities to participate in workshops and training sessions, further enhancing our skills and industry knowledge.

Academic courses relevant to the project : -

PS-II Station : Ramboll India Pvt. Ltd. , Gurugram

Faculty

Name: Mahesh K Hamirwasia

Student

Name: THEIVANAI K(2022H1440039P)

Student Write-up

PS-II Project Title: Railway Track Design

Short Summary of work done during PS-II : During my internship in railway track design, I gained an overview of the entire track design process. This included horizontal and vertical alignment, turnout and yard design, template design, and corridor modeling in PRT software and regression analysis for the realignment of existing tracks. I also performed manual calculations

for superelevation, grade compensation, and Finished Road Levels (FRL) used for the design process.

Tool used (Development tools - H/w, S/w) : Drafting - AutoCAD, MicroStation Design - Power Rail Track, Open Rail Designer

Objectives of the project : The primary objectives of the project were to gain a comprehensive understanding of railway track design processes and to apply theoretical knowledge in a practical environment.

Major Learning Outcomes :

1. Acquired a comprehensive overview of railway track design.
2. Achieved an understanding of both Indian and Norwegian railway codes.
3. Gained insights into the transport industry, including current trends and best practices.
4. Developed hands-on experience with AutoCAD and Power Rail Track.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Ramboll provided a professional and collaborative environment with guidance from experienced engineers. My expectations included hands-on experience in railway track design, exposure to real-world projects, mentorship, and learning about industry trends and best practices.

Academic courses relevant to the project : Infrastructure Planning and Management

PS-II Station : Rembrand Inc. , California

Faculty

Name: Vineet Kumar Garg

Student

Name: BHAVYA SHARMA .(2019B2A31051P)

Student Write-up

PS-II Project Title: Advanced Data Analytics, Machine Learning Enhancement, and Multimedia Project Development

Short Summary of work done during PS-II : During my PS-II internship at Rembrand, I engaged in multiple projects that enhanced my technical skills and practical experience. The primary focus areas included SQL Data Analysis, Machine Learning Model Refinement, Video Editing with Adobe Premiere Pro, and the development of a TikTok Video Downloader. In the SQL Data Analysis and Machine Learning Model Refinement project, I wrote and optimized SQL queries to extract and analyze brand-related data. I also contributed to refining a YouTube video views prediction model, improving its accuracy and performance. For the Adobe Premiere Pro and AI-Rendered Video Testing project, I worked on video editing tasks and participated as a tester for AI-rendered videos. This involved ensuring the quality and functionality of videos integrated into Adobe Premiere Pro projects. In developing the TikTok Video Downloader, I created a tool from scratch that allows users to download multiple TikTok videos simultaneously from a URL. This project included designing the backend logic, implementing multi-threading for efficient downloads, and developing a user-friendly interface. Overall, the internship at Rembrand offered a robust platform for applying academic knowledge to real-world challenges, leading to significant professional growth and learning.

Tool used (Development tools - H/w, S/w) : Software Tools: SQL: For data extraction and analysis. Python Libraries: Pandas, scikit-learn, TensorFlow for data analysis and machine learning. Adobe Premiere Pro: For video editing and quality assurance. Requests Library: For handling HTTP requests in the TikTok video downloader. Threading Library: For implementing multi-threading in the TikTok video downloader. FastAPI: For developing the backend API. React and Next.js: For frontend development. NextAuth.js: For authentication and authorization. Zod: For data validation. TypeScript: For backend programming. tRPC and Prisma: For backend-to-frontend communication. PostgreSQL: For database management. Hardware Tools: Windows VM: For running Adobe Premiere Pro and other development tasks.

Objectives of the project : SQL Data Analysis and ML Models Refinement,Adobe Premiere Pro and AI-Rendered Video Testing,TikTok Video Downloader Development

Major Learning Outcomes : Enhanced Data Analysis Skills,Improved Machine Learning Capabilities,Software Development Proficiency

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : At Rembrand, the working environment is dynamic, collaborative, and innovation-driven. The company is located in California and focuses on leveraging photorealistic AI to seamlessly integrate popular brands into post-production video content, providing unique monetization opportunities for content creators and scalable sponsorship solutions for brands.Expectations from the company included a high level of technical proficiency, creativity, and problem-solving skills. I was expected to contribute meaningfully to ongoing projects, such as refining machine learning models, analyzing data using SQL, ensuring the quality of AI-rendered videos in Adobe Premiere Pro, and developing a TikTok video downloader. The company valued initiative and innovation, encouraging me to propose and implement solutions that enhanced project outcomes.

Academic courses relevant to the project : Programming in C, OOP

PS-II Station : RIGI - IT , Bengaluru

Faculty

Name: Shreyas Suresh Rao

Student

Name: AVIRAL HARSH(2019B1A31559H)

Student Write-up

PS-II Project Title: Frontend Development using React, Anomaly Detection using ML and ETL Automation

Short Summary of work done during PS-II : Specialized in responsive design for optimal user experiences across devices. * Implemented RESTful APIs for dynamic data handling in frontend applications. Engineered user-centric React-based landing pages for Android, IOS, and Web platforms. * Optimized web performance for fast loading and smooth interactions. * Automated data ingestion into a columnar database, significantly saving time and manpower, by deploying dynamic ETL solutions using Airbyte, Clickhouse, Docker, and Kubernetes. * Responsible for Data Analysis, Feature engineering, Model selection, Model evaluation, Exploratory Data Analysis, Hyperparameter Tuning on creator metrics dataset. * Developed an ML Model for anomaly detection using Supervised and Unsupervised Learning using NumPy, Matplotlib, Pandas, Scikit-Learn, TensorFlow, PyTorch, and Keras

Tool used (Development tools - H/w, S/w) : React,React Native, Javascript, Machine Learning, ETL, VS Code, Jupyter

Objectives of the project : Releasing Android and Ios Apps, Anomaly Detection Model, ETL data ingestion automation

Major Learning Outcomes : React, React Native, Proficient in frontend design. Machine learning, ETL Automation

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Typical Startup environment. They expect you to be proactive in taking work. Work hours are from 11am -7pm. Colleagues are helpful.

Academic courses relevant to the project : DSA,OOPS,OS

PS-II Station : RIGI - IT , Bengaluru

Faculty

Name: Shreyas Suresh Rao

Student

Name: RITIK THAKUR .(2019B2A70878P)

Student Write-up

PS-II Project Title: Backend Development at Rigi

Short Summary of work done during PS-II : The primary focus of this internship was to work on various components of the backend related code of Rigi. The tasks were majorly focused on API (Application Programming Interface) development, code optimization, unit testing and bug fixes. The report covers essential aspects, including the company background, API development, the technology stack employed, and the work done during the internship. To realize the vision of the Rigi project, a cutting-edge tech stack has been employed, centered around JavaScript and TypeScript technologies like NodeJS and NestJS. Other important technologies used are ExpressJS, AWS services, Redis and MongoDB.

Tool used (Development tools - H/w, S/w) : NodeJS, ExpressJS, NestJS, JavaScript, TypeScript, Git, Github, Amazon Web Services (AWS)

Objectives of the project : API Development in NodeJS & NestJS

Major Learning Outcomes : API Development, Code Optimization, Unit Testing, Debugging, Team work & collaboration, Time Management

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : 5 days WFO, and since it's a startup the work is plenty. FTEs usually work on weekends too. Although there won't be so much of workload on interns but as compared to MNCs, there will be more work. People are friendly and approachable. Appropriate guidance will be provided throughout the internship.

Academic courses relevant to the project : Data Structures & Algorithms, Computer Networks

PS-II Station : RIGI - IT , Bengaluru

Faculty

Name: Shreyas Suresh Rao

Student

Name: DEV GOYAL(2020A7PS1373G)

Student Write-up

PS-II Project Title: Frontend Development Across Rigi Community Application

Short Summary of work done during PS-II : Made 20 new UIs regarding apps for different categories.

Tool used (Development tools - H/w, S/w) : React Native , Android Studio , JavaScript, VS Code, GitHub

Objectives of the project : To enhance and add new functionalities and implement new UIs for organisation tasks

Major Learning Outcomes : I got to learn the new aspect in terms of Mobile Application Development and got exposure in contributing to a production codebase and optimising the usage of version control systems such as git

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The company work culture is good. There will be a good amount of exposure to live projects with initial few days will be given to get used to the pace and tech stack of the company. Thereafter , mentor will be available for guidance regarding daily tasks.

Academic courses relevant to the project : Software Development for Portable Devices

PS-II Station : RIGI - Management , Bengaluru

Faculty

Name: Arindam Roy

Student

Name: VIDUSHI BANSAL(2019B2A11052G)

Student Write-up

PS-II Project Title: Founders' Office at Rigi

Short Summary of work done during PS-II : A great learning experience that gave me an opportunity to juggle multiple hats.

Tool used (Development tools - H/w, S/w) : Re-tool, Metabase, TablePlus, VSCode, Pitch, Meta Ads, Excel, GPT-4

Objectives of the project : Bird eye view of all the departments and processes

Major Learning Outcomes : Data analysis, product management, business, marketing

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Great working environment and really supportive people.

Academic courses relevant to the project : None

PS-II Station : RIGI - Management , Bengaluru

Faculty

Name: Arindam Roy

Student

Name: BANTUPALLI LAKSHMAN KARTHEEK .(2019B4A20631P)

Student Write-up

PS-II Project Title: Coach Booster

Short Summary of work done during PS-II : Content creation for a product called Coachbooster, expanded from two categories of coaching to a total of 9 by doing market analysis and meetings with clients. Reviewing landing pages of these coachings and improving them.

Tool used (Development tools - H/w, S/w) : Notion

Objectives of the project : Overall development of the product

Major Learning Outcomes : Market analysis, Prompting, content development, documentation

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Work timings are flexible, as it's a startup you will be working irrespective of timings. One day you are completely free and one day you are busy the whole day. They use the intern candidates to all kinds of work like HR, marketing all other things which they are short handed.

Academic courses relevant to the project : Supply chain

PS-II Station : Rivigo Non Tech , Gurugram

Faculty

Name: Gaurav Nagpal

Student

Name: MRIGANKA CHATURVEDI(2022H1540819P)

Student Write-up

PS-II Project Title: Analyzing and strategizing to optimize supply chain and logistics

Short Summary of work done during PS-II : Worked under CEO to analyze reports of all departments and find insights to reduce cost. Along with this work with sales team to increase our potential clients in which directly contacted stakeholders and pitch clients to opt the services provided by the organization.

Tool used (Development tools - H/w, S/w) : Microsoft excel

Objectives of the project : Increase number of clients and analyze reports to reduce cost

Major Learning Outcomes : Usage of microsoft excel and managing data to have weekly updates from clients

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment is nice and managers are approachable. My expectations from company was that I learnt how to maintain professionalism in meeting with managers and CEO along with this maintaining relations with clients and their data.

Academic courses relevant to the project : MS Excel

PS-II Station : Rivigo Non Tech , Gurugram

Faculty

Name: Gaurav Nagpal

Student

Name: SAMIKSHYA RAY(2022H1540830P)

Student Write-up

PS-II Project Title: LOGISTICS SUPPLY CHAIN OPTIMITIZATION

Short Summary of work done during PS-II : Conducted cost-benefit analyses of various logistics strategies to identify the most cost-effective approaches. Recommended process improvements to reduce waste and enhance efficiency in logistics operations. Developed and implemented algorithms to optimize delivery routes, reducing transportation time and costs.

Tool used (Development tools - H/w, S/w) : NA

Objectives of the project : Optimize the supply chain

Major Learning Outcomes : Comprehensive understanding of the entire supply chain process, including procurement, production, logistics, and distribution.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The average experience during PS-II involved a balanced mix of collaborative teamwork, hands-on projects, and professional mentorship.

Academic courses relevant to the project : Supply chain analytics, operations management

PS-II Station : Rivigo Non Tech , Gurugram

Faculty

Name: Gaurav Nagpal

Student

Name: JAYANT JAIN(2022H1540836P)

Student Write-up

PS-II Project Title: Optimizing Sales Performance Through Data Analytics

Short Summary of work done during PS-II : I managed regional sales reports, updated them daily and optimised the reports.

Tool used (Development tools - H/w, S/w) : Excel, Python, SQL

Objectives of the project : Optimising regional sales using analytics

Major Learning Outcomes : Gained experience in Data management and sales analytics

Details of Papers/patents : Na

Brief Description of working environment, expectations from the company : We had 5 days work from office policy and attendance was marked based on gps app. Work can be expected in weekends as well. Interns were not treated nicely.

Academic courses relevant to the project : Advance Excel, Predictive Analytics

PS-II Station : Rivos Systems India Pvt Ltd , Bengaluru

Faculty

Name: Rekha A

Student

Name: SASWAT PATTNAYAK(2020A3PS0459P)

Student Write-up

PS-II Project Title: Enhancing the RTL Stitcher Tool and NoC Transactor

Short Summary of work done during PS-II : I worked with the AI Accelerator IP DV team I was tasked with working on coverage analysis for a part of the network on chip (NoC) for the SoC. I worked on making improvements to an internal tool for SoC integration for the Rivos' next-generation chip. This tool enables us to reduce the number of people required to work SoC integration significantly. I also worked on adding data checks for memory write transactions for the Transactor which is responsible for verifying the Network on Chip (NoC) of the SoC.

Tool used (Development tools - H/w, S/w) : Cadence Xcelium, Python, SystemVerilog, C++, Git, Linux

Objectives of the project : Working on coverage analysis for data network on chip (NoC) for the AI Accelerator DV team . I also worked on adding data checks to the transactor which verifies the NoC. Adding multiple enhancements to the inhouse RTL stitcher tool which reduced the man-hours required for multiple tasks significantly.

Major Learning Outcomes : Working in a fast paced start-up environment, Writing emulation friendly RTL code

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : As its a startup, no proper documentation is available

Academic courses relevant to the project : Digital Design, Computer Architecture, Embedded System Design

PS-II Station : Rivos Systems India Pvt Ltd , Bengaluru

Faculty

Name: Rekha A

Student

Name: JAY KHANDKAR .(2020B5PS1998P)

Student Write-up

PS-II Project Title: Firmware Development

Short Summary of work done during PS-II : RAS (Reliability, Availability, Serviceability) is an important feature that is part of server systems. Server chips with RAS can detect uncorrectable hardware errors (such as memory corruption) and signal the running programs so that they do not generate incorrect results. When such an error occurs, the running OS/application must be interrupted, the error must be serviced by either triggering a reset or simply noting its occurrence,

the OS must be informed of the error and then the OS/application must resume execution. This requires the firmware to have proper context saving and restoring infrastructure to stop/resume the OS, which was one of the things I worked on here. This context management infrastructure needs to take into account complex scenarios such as RAS error occurring when firmware is already executing on behalf of the OS. I worked on coming up with the design of the context manager that deals with all these scenarios.

Tool used (Development tools - H/w, S/w) : QEMU, GDB

Objectives of the project : To add support for RAS features to the company's firmware stack.

Major Learning Outcomes : 1.Learnt how to build and integrate UEFI components (edk2 UefiPayload, StandaloneMm) and drivers.

2.Learnt how QEMU is used to emulate hardware.

3.Learnt how to use GDB to debug issues by stepping through assembly.

4.Learnt how to write simple code to implement complex features such that it is easy to understand and debug.

5.Learnt how to write Rust for bare metal software.

6.Learnt about interactions between Linux and firmware.

7.On the non technical side:

Learnt how to collaborate with team members on projects - code reviews and other discussions.

Learnt how to present topics in a concise manner and answer questions.

Details of Papers/patents : No patents/papers.

Brief Description of working environment, expectations from the company : The working environment is focused, demanding but also fairly relaxed. You will be given plenty of time by your manager/seniors to learn.

Academic courses relevant to the project : Digital Design, Microprocessors and Interfacing, Computer Architecture

PS-II Station : Rodic Consultants Pvt Ltd , New delhi

Faculty

Name: Mahesh K Hamirwasia

Student

Name: PRAJJWAL TIWARI(2022H1440040P)

Student Write-up

PS-II Project Title: International Business Development In consulting Industry

Short Summary of work done during PS-II : Formulation of International Business Development Strategy, Preparation of International Bids following standards, Client relationship management

Tool used (Development tools - H/w, S/w) : MS Excel, MS Powerpoint, Development AID

Objectives of the project : International operations of the Consultancy Industry

Major Learning Outcomes : Bid preparation, International Networking, Project Identification, Business Development

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The work culture is not very balanced but the people in the organization are very helpful and always ready to support you.

There's a lot to learn due to the lean team size

Academic courses relevant to the project : Infrastructure engineering and management

PS-II Station : Rubrik , Bengaluru

Faculty

Name: Akanksha Bharadwaj

Student

Name: ARYAN JAIN(2019B3A70603G)

Student Write-up

PS-II Project Title: Kosmos

Short Summary of work done during PS-II : During my PS-II at Rubrik, my project revolved around building a secure data path for backup that can be used at a framework level and integrated seamlessly with any database by developers, providing the same performance as native solutions. The core objective was to ensure that this data path could offer the same level of excellence and integrity expected from a native solution while minimizing investment costs. I designed and implemented a versatile framework that could be easily integrated with various database systems, focusing initially on PostgreSQL. Specifically, I worked on integrating this new data path with PostgreSQL to back up its transaction logs efficiently.

Tool used (Development tools - H/w, S/w) : Database Systems: PostgreSQL
Automation/Scripting: Python, Bash Version Control: Git, GitHub CI/CD Tools: Jenkins, Docker

Objectives of the project : Develop a framework providing capability to build database backup solutions with less investment cost but same excellence and integrity of a native solution.

Major Learning Outcomes : Database Backup Fundamentals: Gained a thorough understanding of database backup and recovery processes, including full, differential, and incremental backups. Automation and Scripting: Developed skills in automating backup processes using scripting languages such as Python and shell scripting, enhancing efficiency and reducing manual intervention.

Data Integrity and Security: Emphasized the importance of data integrity and security in backup solutions, learning best practices for encryption and secure data transfer.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : At Rubrik, the working environment was collaborative and innovative, promoting a culture of continuous learning and improvement and encouraged experimenting with new technologies to solve real-world problems. As an intern, I was given complete ownership of my projects, that had direct impact on customers.

Academic courses relevant to the project : OOP, DBMS, CN, DAA

PS-II Station : Rubrik , Bengaluru

Faculty

Name: Akanksha Bharadwaj

Student

Name: MILIND JAIN(2020A7PS0153H)

Student Write-up

PS-II Project Title: Azure SQL database backup

Short Summary of work done during PS-II : Currently the azure sql database that we had was not very reliable as it was very costly, so I introduced a new way to take these backups which is much simpler to use and manage

Tool used (Development tools - H/w, S/w) : Azure, GoLand for programming in Go, IntelliJ for programming in Scala, Docker, etc

Objectives of the project : Replace old azure SQL backups as it had a lot of issue due to being complex

Major Learning Outcomes : Learnt how to design, implement and test a project from start to finish.

Also learnt how to present ideas in front of team and product managers and other teams.

Learnt many technical skills and soft skills along the way.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Rubrik is a great company to work at, since they are a small company with not a lot of engineers, you get to work on impactful projects from start to end and also collaborate with many smart people along the way.

Academic courses relevant to the project : Database, Computer Networks, OOPS, Operating Systems, Software Engineering

PS-II Station : Rural Mandi Fintech Pvt. Ltd. (BharatMandi) - Product Management , Bengaluru

Faculty

Name: Vaishali Pagaria

Student

Name: SHREYA NEHRA(2020A7PS0146G)

Student Write-up

PS-II Project Title: Chatbot+ ML Model Development

Short Summary of work done during PS-II : My internship at BharatMandi has been a transformative journey, immersing me in a dynamic environment dedicated to revolutionizing the agricultural sector. Over the course of several weeks, I engaged in diverse projects including Chatbot Development, Market Analysis, Crop Price Prediction, Plant Disease Prediction and Content Creation. I enhanced our WhatsApp bot's functionality with generative AI and multilingual support, conducted comprehensive market research, and contributed to branding initiatives. This experience has equipped me with practical skills, strategic insights, and a deep appreciation for growing agricultural innovation.

Tool used (Development tools - H/w, S/w) : Botpress, Spyder, Google Collab, Postgresql, Python, Metabase, Whatsapp Business Suite

Objectives of the project : Build a fully functional and reliable whatsapp chatbot + Complete time-series ML Models to predict market prices and crop diseases

Major Learning Outcomes : Whatsapp Business Suite, Botpress, ML Algorithms

Details of Papers/patents : ---

Brief Description of working environment, expectations from the company : Working Environment is somewhat dull, no significant facilities present. Expectation from the company would be to assign projects connected with each other to the intern that can help them grow. Loading different unrelated projects led to slow progress and bottlenecks in the important ones.

Academic courses relevant to the project : DBMS, AI, CP

PS-II Station : Sagacious Research Pvt. Ltd. , Gurugram

Faculty

Name: Bharathi R

Student

Name: SOUMARYYA BHATTACHARYYA(2022H1290008P)

Student Write-up

PS-II Project Title: PATENT LITERATURE SEARCH TO IDENTIFY NOVELTY OF A VACCINE BASED ON UNILAMELLAR VESICLES

Short Summary of work done during PS-II : Different types of patents, like utility patents, design patents, plant patents were explored. The IPR industry is booming and hence has a lot of potential. We, as patent analysts tried to find out the novelty of a patent, if a patent has "freedom to operate" in a particular region or country. We also tried to see and find out the landscape of a patent. The landscape means that, if these particular areas have been worked upon in the last 50-75 years. Also, the research gap that is there and can be worked upon in the future. We also

did Competitive Intelligence for a while. That means, we gathered the data of particular products of the competitors of a particular company.

Tool used (Development tools - H/w, S/w) : ORBIT (Software)

Objectives of the project : To find the novelty of an Unilamellar Vesicle based Vaccine

Major Learning Outcomes : Liposomes have been well used for a long time in vaccination. While trying to find the novelty of a new Unilamellar based Vaccine, we found that it is not a novel idea and has been done before.

Details of Papers/patents : Patent No: US2013149376A1

TITLE: Vaccine composition based on sticholysin encapsulated in liposomes

Brief Description of working environment, expectations from the company : The working environment was really professional. We did not have much face to face talk only on Microsoft teams. My mentor (Miss Shaina Sood) was really helpful.

Academic courses relevant to the project : Bioethics (Chapter: IPR) Taught by R. Mahesh (Pilani Campus)

PS-II Station : Sagacious Research Pvt. Ltd. , Gurugram

Faculty

Name: Bharathi R

Student

Name: DEVASHISH VERMA(2022H1290019P)

Student Write-up

PS-II Project Title: Assessing novelty of a vaccine: A literature Review

Short Summary of work done during PS-II : The work done typically involves patent and non-patent literature searching and their analysis. It involves evaluating research articles and patent documents to inform strategic decisions. It's a crucial tool for businesses and inventors to navigate intellectual property landscape effectively.

Tool used (Development tools - H/w, S/w) : Patent databases. Analysis softwares such as Patseer, Orbit. Ms-office suits for visualization and presentation.

Objectives of the project : To identify non-patent references that is published before and containing the given invention matter.

Major Learning Outcomes : Mastered patent and non-patent literature search strategies, understanding technical documents, legal aspects of intellectual property and developing analytical skills to assess patentability and infringement risks.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The company has good work culture with vast division of intellectual property rights. The company has a positive atmosphere with a focus on skill development and career growth. Expectations include commitment to these values along with dedication to continuous learning and professional development in the field of intellectual property.

Academic courses relevant to the project : Intellectual Property Rights

PS-II Station : Sagacious Research Pvt. Ltd. , Gurugram

Faculty

Name: Bharathi R

Student

Name: SHRAVANI P VAIDYA(2022H1530323P)

Student Write-up

PS-II Project Title: Patentability Search to Identify Novelty and Invalidity of a Patent

Short Summary of work done during PS-II : As an intern at the company, I have been part of 4 projects, both internal and live. However, I have been involved majorly in patent searching. A patent search is a process of identifying existing patents related to an invention or idea. A patent search is not legally required, but it can be a crucial part of figuring out whether any prior patent will interfere with your ability to acquire a patent. I was part of two types of projects undertaken by the company: live projects and internal projects. Live projects are client-oriented projects that involve either answering specific IPR related questions by the client or conducting a general patent analysis. These projects are protected by the confidentiality policies of the company. Internal projects are undertaken by the company to add value to their offerings.

Tool used (Development tools - H/w, S/w) : Databases such as Espacenet, Google patents, Patent scope, USPTO and Orbit

Objectives of the project : As A Patent Analyst To Identify Any Patent Or Non-patent Reference That Is Published Before And Containing The Invention Subject Matter

Major Learning Outcomes : As a patent analyst to identify any patent or non-patent reference that is published before and containing the invention subject matter through data visualization by

using different tools can help client get insights about scope of invention in market and other fields. Taking

informed decisions related to prioritization and investments in R&D, IP portfolio management, commercialization of technology, and research collaborations and others.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Amazing work experience, getting to be part of organization helped me grow as an individual, and build my personality. Seniors are very helpful. Company expects you to be on time and complete day to day task assigned to you efficiently.

Academic courses relevant to the project : IPR and pharmaceuticals

PS-II Station : Sagility , Hyderabad

Faculty

Name: Mohammad Saleem J Bagewadi

Student

Name: ABHINAV GOYAL(2019B4A80815G)

Student Write-up

PS-II Project Title: Payment Integrity

Short Summary of work done during PS-II : During my recent tenure, I have demonstrated significant expertise and leadership in the development and maintenance of various applications.

I crafted SQL queries based on CMS guidelines, ensuring compliance and optimization for database operations within the application. My role in enhancing the concept tracking application involved the development of over 200 concepts, showcasing my ability to handle large-scale tasks and deliver comprehensive solutions. Additionally, I addressed and resolved three critical bugs related to the export Excel button in the concept tracking application. This improvement enhanced the application's functionality and user experience, highlighting my problem-solving skills and attention to detail. Recently, I have been appointed as the Team Lead for the Pareo Recovery App. In this role, I am responsible for overseeing the development process, coordinating with team members, and ensuring the successful delivery of the project. My leadership focuses on fostering collaboration, maintaining high standards of quality, and driving the team towards achieving our goals efficiently. These accomplishments reflect my technical proficiency, dedication to quality, and leadership capabilities. I am committed to continuous improvement and innovation, ensuring that our applications meet the highest standards and effectively serve our users' needs.

Tool used (Development tools - H/w, S/w) : VS Code, SQL Server Management Studio, Eclipse

Objectives of the project : Process of Identifying the overpaid claims for clients (Payers aka Insurance Companies)

Major Learning Outcomes : SQL, Java, HTML, CSS, Angular, .NET, C#

Details of Papers/patents : none

Brief Description of working environment, expectations from the company : Sagility provided an enriching work environment that greatly contributed to my professional growth and understanding of corporate discipline. The company fosters a culture of collaboration and continuous learning, encouraging employees to take initiative and develop their skills. At Sagility, I was surrounded by supportive colleagues and experienced mentors who were always willing to share their knowledge and expertise. This collaborative atmosphere not only facilitated my learning but also allowed me to contribute effectively to various projects.

The company's emphasis on corporate discipline taught me the importance of adhering to high standards of professionalism and accountability. Sagility's structured processes and clear communication channels ensured that projects were completed efficiently and with precision.

Regular feedback and performance reviews helped me identify areas for improvement and set achievable goals. This experience instilled in me a strong sense of responsibility and commitment to delivering quality work.

Overall, the work environment at Sagility was instrumental in shaping my professional ethos, providing me with the tools and guidance needed to excel in a corporate setting. The combination of a supportive team, opportunities for skill development, and a disciplined approach to work has equipped me with valuable experiences that will benefit me throughout my career.

Academic courses relevant to the project : Object Oriented Programming

PS-II Station : Sagility , Hyderabad

Faculty

Name: Mohammad Saleem J Bagewadi

Student

Name: ISHITA VERMA(2019B4AA0194G)

Student Write-up

PS-II Project Title: Full Stack Development of CMS Application

Short Summary of work done during PS-II : Contributed to the development of high-performance application and presentation layers for healthcare technology platforms. Built and tested new features and functionalities, ensuring application quality and responsiveness. Fixed bugs and optimized the codebase for improved performance. Utilized Spring Boot, Angular, and Oracle DB for backend and frontend development. Collaborated with cross-functional teams using agile methodologies. Managed version control and project tracking with Git, AWS, and Jira.

Tool used (Development tools - H/w, S/w) : Spring Boot, Angular, Oracle DB, Cloud9 IDE, Git, AWS

Objectives of the project : Enhancement and Maintenance of the CMS Application

Major Learning Outcomes : Full Stack Development, Version Control, CI/CD, Agile Development

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Mentors are helpful and provided guidance throughout the journey. However, they expect us to work outside work hours as well as during the weekends without any compensation for the same. They might hold mandatory training sessions outside the work hours as well.

Academic courses relevant to the project : Object Oriented Programming

PS-II Station : Sagility , Hyderabad

Faculty

Name: Mohammad Saleem J Bagewadi

Student

Name: Metukuru Yogesh(2020A7PS0098G)

Student Write-up

PS-II Project Title: CMS(Client Management System) Test Automation

Short Summary of work done during PS-II : 1. Written end-to-end test cases for testing functionalities that are not yet automated in the UAT environment using the Playwright framework in Typescript. I looked into Frontend (written in Angular) and Backend(Spring Boot) code to get to know the expected behaviour and location of uploaded file in the server. 2. Implemented workflow to parse and extract details in a given pdf document to output a message based on certain conditions using the pdf-parse library. 3. Written Linux shell script to compare and extract missing transactions between two tables in the database and generate a report.

Tool used (Development tools - H/w, S/w) : Playwright, Oracle DBMS, Linux, Angular, Spring Boot, Git

Objectives of the project : The goal is to automate tests for the entire website that are performed manually, thus reducing time to test and improving accuracy. This is done using the Playwright framework in Typescript.

Major Learning Outcomes : Through this internship, I learned Typescript, writing tests using Playwright, Oracle SQL, Angular, Spring Boot, Git commands, Linux commands and Shell scripting. I got to know how Software development is done in an agile environment.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Good working environment. The team members are always ready to help and share knowledge. The internship is work from office and 9 hours per day.

Academic courses relevant to the project : OOP, DBMS

PS-II Station : Sainapse , Hyderabad

Faculty

Name: Vijayalakshmi Anand

Student

Name: SHYAM N V(2020A7PS2081H)

Student Write-up

PS-II Project Title: Multi Modal Data Semantic Search

Short Summary of work done during PS-II : The first major project that I have been working on at Sainapse is creating a fast and efficient IR system that works on the basis of KNN-search methodology. This is essentially a semester-long project, and I am being guided by Partha Sir on the same. The application is essentially supposed to take voice, text, image, and video inputs and store them in an indexed format to make the retrieval process simple and efficient. The process involves several steps, such as Vectorization, Indexing and retrieval using search methodologies.

Tool used (Development tools - H/w, S/w) : Cuda, Python, Bert, KNN retrieval, AWS, Java

Objectives of the project : Create a multimodal search platform that can take the user queries and perform semantic search on a dataset of images, text and other file types like ppt,pdf etc

Major Learning Outcomes : Python, GitLab Version Control, Sentence Bert, Running models on GPU, PyTorch, F1 score and efficiency testing

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Very laid back working environment, calls twice a week to check progress. The communication between us and our mentors wasn't effective enough, and could've used more progress checks.

Academic courses relevant to the project : Information Retrieval, NLP

PS-II Station : SalarySe (Critical Path Technologies) - Product , Gurugram

Faculty

Name: Uma Nagarajan

Student

Name: CHIRAG MATAI .(2019B1A80969P)

Student Write-up

PS-II Project Title: Product Management of a credit-on-UPI fintech platform

Short Summary of work done during PS-II : During my tenure at SalarySe, I played a key role in product development, analytics, growth strategies, and customer support. In product development, I optimized the user onboarding flow and scoped out new functionalities for the UPI product, including growth features that differentiate our UPI from existing UPI players. I also designed a rewards program for the same. I prepared comprehensive growth plans for our investment and credit card products, enhancing our offerings through exclusive partnerships and streamlined onboarding processes. In product analytics, I leveraged data to drive insights and optimize user engagement using tools like CleverTap and Retool. This data-driven approach was crucial in aligning our product offerings with user preferences and market trends. For product growth, I managed initiatives related to new user acquisition, engagement, and retention through channels like WhatsApp and push notifications. I crafted targeted messaging campaigns and created product flows to manage customer experiences, ensuring continuous product improvement based on user feedback and insights.

Tool used (Development tools - H/w, S/w) : Retool, Clevertap, Gupshup, Grafana, Miro, Amplitude, Mobbin, Figma

Objectives of the project : The primary objective of the project was to enhance SalarySe's financial services platform by optimizing product features, improving user engagement, and driving business growth. The scope involved working on various aspects of product management, including product development, analytics, growth strategies, and customer support, with a focus on delivering value to users and aligning the product with the company's strategic goals.

Major Learning Outcomes : Through my internship at SalarySe, I gained a deep understanding of agile product management by working on various aspects such as analytics, product development and user engagement strategies. I learned the importance of user-centric design by optimizing the onboarding process and developing user-friendly interfaces using Miro. The experience taught me to make data-driven decisions through the use of analytics tools like CleverTap and Retool to track user behavior and engagement metrics. Collaborating closely with engineering, design, and marketing teams highlighted the importance of effective cross-functional communication. Overall, the internship enhanced my ability to balance technical feasibility with business goals, ensuring that products meet user needs and drive business growth.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at SalarySe is dynamic and collaborative, characterized by a blend of seasoned professionals with extensive backgrounds in consulting and fintech. This enriches the workplace with diverse perspectives and deep industry knowledge, fostering a culture of continuous learning and innovation.

Expectations from the company center around diligence, ownership, and collaboration. As an intern or employee, the company encourages taking complete ownership of your work, driving initiatives forward with a sense of responsibility and accountability. This includes not only executing tasks effectively but also proactively seeking opportunities to contribute and improve processes. Collaboration is a cornerstone of the work environment, requiring engagement with multiple teams such as sales, tech, and design. This collaborative approach ensures that projects are approached holistically, drawing on the expertise of different disciplines to achieve comprehensive solutions and deliver value to clients and users.

Academic courses relevant to the project : Project Management

PS-II Station : SalarySe (Critical Path Technologies) - Product , Gurugram

Faculty

Name: Uma Nagarajan

Student

Name: AVNEESH ROHIT PAI(2020A1PS1931G)

Student Write-up

PS-II Project Title: Product Manager

Short Summary of work done during PS-II : Ownership and launch of products like investments, help and support module for our app, testing of features before release. Maintaining various analytics dashboard of products, and business metrics for company's tracking. Various growth and marketing campaigns to drive user engagement with the app.

Tool used (Development tools - H/w, S/w) : Gupshup portal,Google sheets, clevertap,miro board

Objectives of the project : Product manager of fintech products

Major Learning Outcomes : Knowledge about fintech,third party integrations,various analytics platforms

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Very fast paced and hectic, flexible work timings based on pending work, can also be called on weekends. But the colleagues are very helpful.

Academic courses relevant to the project : Principles of management

PS-II Station : SalarySe (Critical Path Technologies) - Tech , Gurugram

Faculty

Name: Ashish Narang

Student

Name: AAYUSH(2020AAPS1744G)

Student Write-up

PS-II Project Title: Software Development at SalarySe

Short Summary of work done during PS-II : During my internship, I was a member of the backend team. I began by creating basic dashboards for data analytics using a platform called Retool. To get familiar with the organization's codebase, I was tasked with adding metrics to the existing system to trigger alerts in case of failures. This was an excellent exercise that introduced me to Prometheus and Grafana. After completing several smaller projects, I joined the UPI team to integrate UPI into the current app. My responsibilities included writing code to handle webhooks and storing the appropriate data. This project was particularly valuable as I learned how to write clean code and apply AGILE methodologies for introducing new features. Following the UPI

integration, I started developing a help and support system. This involved designing databases, using external APIs, and building our own APIs. Overall, my internship provided an incredible learning experience and couldn't have been more rewarding.

Tool used (Development tools - H/w, S/w) : Java, Spring Boot, Retool, Grafana, Prometheus, Sentry, IntelliJ

Objectives of the project : Improve backend infra, build UPI

Major Learning Outcomes : Product Engineering, AGILE methodology

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment was just fine.

Academic courses relevant to the project : The working environment at the company was structured yet collaborative, featuring daily standups and weekly progress meetings. These regular check-ins facilitated effective communication, ensured alignment on goals, and kept everyone on track with their

PS-II Station : SalarySe (Critical Path Technologies) - Tech , Gurugram

Faculty

Name: Ashish Narang

Student

Name: CHITRESH GOEL(2022H1030032G)

Student Write-up

PS-II Project Title: Contributing towards Credit Card Integration at SalarySe

Short Summary of work done during PS-II : The work done at SalarySe was involved engaging with CIBIL TransUnion to understand their API workflow for fetching credit reports. After determining the necessary APIs, we planned their integration using a sequence diagram for clear visualization of the process. We bypassed redundant OTP verification to streamline user onboarding. Implementation steps included: Implementing the FulfillOffer API to initialize user sessions, Using GetAuthenticationQuestions for user authentication without OTP, Retrieving detailed credit reports via GetCustomerAssets, Generating a user web token with GetProductWebToken to access PDF credit reports. For local API testing, we whitelisted specific IP addresses and used webhook.site to simulate API responses. We integrated these APIs using a Feign client, ensuring proper sequence and functionality as outlined in our sequence diagram. Lastly, we stored the fetched credit report data and managed user addresses for streamlined onboarding.

Tool used (Development tools - H/w, S/w) : S/W: Git, SpringBoot, Java, PostGres, AWS, Retool, Grafana

Objectives of the project : To integrate credit cards into their app, developers need to access credit reports via Transunion CIBIL's APIs, provided by RBL Bank. These reports help determine user eligibility and collect addresses for storage and use during the credit card onboarding process. Only addresses serviceable by the bank are displayed, sorted by relevance to optimize user experience and improve process efficiency.

Major Learning Outcomes : Able to understand, how API writing procedure undergoes. How a code should be written such that it must be flexible to change in order to meet future requirements. Testing before pushing your codebase with a lot of scenarios is very essential. The later we find out the problem, the more tedious it get to debug the issue.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment is very amazing. Every person likes to work as a team and no sense of individual credit is taken. As a beginner, I do not know about the coding practice

Academic courses relevant to the project : Object Oriented Programming, Data Structures and Algorithm, Database Management System, Cloud Computing

PS-II Station : Samsung R & D Institute - , Bengaluru

Faculty

Name: Lucy J. Gudino

Student

Name: SATVIK OMAR(2019B4A70933H)

Student Write-up

PS-II Project Title: PCR Automation

Short Summary of work done during PS-II : Automated the creation of Post Campaign Report by using Python, Pandas and other frameworks. Added the functionality of generation of report insights using LLMs.

Tool used (Development tools - H/w, S/w) : H/W - Laptop. S/W- Python, Pandas, Python-pptx, VBA, LLM, Openpyxl

Objectives of the project : Automate the creation of PCR Reports

Major Learning Outcomes : Learnt about Large Language Models and various fine tuning methods. Learnt data manipulation through pandas. Learnt VBA.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The office is very nice and provides all sorts of facilities to the employees. This results in a really nice environment to work in. The company follows many strict procedures which often results in a lot of wasted time for the employees to get even minor things done. But this seems to be necessary considering the need to maintain secrecy about the new tech being researched.

Academic courses relevant to the project : Deep Learning

PS-II Station : Samsung R & D Institute - , Bengaluru

Faculty

Name: Lucy J. Gudino

Student

Name: YASH NAVIN KORINGA(2020A3PS2141H)

Student Write-up

PS-II Project Title: Implementation of Gen AI for automation of post campaign reports, Creative Review and Creative Studio.

Short Summary of work done during PS-II : Completely automated the creation of ppts for PCR from excel sheets. Made a python pipeline to edit a video by adding a short summary kind of video of that same ad made using LLM and python and customised it as per the location the ad is getting displayed. Created a python pipeline to review an ad creative and find if it has any unethical (like gambling) and illegal activities in it.

Tool used (Development tools - H/w, S/w) : Vs code, hugging face models, an internal platform for gpu.

Objectives of the project : First project:- Automate the process of creating post ad campaign analysis reports to reduce the time, cost and workforce. Second project:- Use Gen AI to edit an ad creative using different llms. Third project:- Use llm like LLaVA to know the content of an ad creative and review it so that no illegal activities are shown.

Major Learning Outcomes : Got to learn about how to use llms, ML.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment is good, the company gives food and transport facilities as well, not much work pressure.

Academic courses relevant to the project : ML

PS-II Station : Samsung R & D Institute - , Bengaluru

Faculty

Name: Lucy J. Gudino

Student

Name: SAGAR KAPKOTI(2022H1030025G)

Student Write-up

PS-II Project Title: Enhancing DCS Accessibility: Leveraging LLMs for Natural Language Requests

Short Summary of work done during PS-II : Document Control Systems (DCS) are critical in managing and maintaining the integrity of documents within organizations. Traditionally, these systems require users to navigate through complex interfaces and perform intricate searches to retrieve documents. With the advent of artificial intelligence, specifically Large Language Models (LLMs) like GPT-4, there is an opportunity to enhance these systems by enabling natural language interactions. The project leverages advanced natural language processing techniques to interpret and execute user requests accurately. By integrating an LLM, the system can understand and respond to a wide range of queries, significantly reducing the complexity and time associated with traditional document searches. This approach not only enhances user experience but also improves the efficiency of document retrieval processes. Through comprehensive testing and validation, this project aims to demonstrate the effectiveness of using LLMs in practical applications within document control systems. The anticipated outcome is a robust, user-friendly interface that facilitates seamless interaction with the DCS, setting a precedent for future advancements in document management technology.

Tool used (Development tools - H/w, S/w) : python,streamlit,jupyter notebook, vscode,google collab,hugging-face

Objectives of the project : To develop a DCS with a natural language query interface powered by an LLM.To improve user experience by simplifying document retrieval through English prompts.To validate the effectiveness of the LLM in understanding and processing diverse queries.

Major Learning Outcomes : Learn how to effectively integrate LLMs, into existing systems to enhance functionality. Understand the capabilities and limitations of LLMs in processing and responding to natural language queries.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Samsung R&D Institute India offers a dynamic and stimulating working environment that is innovation-centric, collaborative, and supportive. With advanced facilities, continuous learning opportunities, and a strong emphasis on work-life balance, SRI-B provides a conducive atmosphere for employees to thrive and contribute to groundbreaking technological advancements.

Academic courses relevant to the project : Data Science and Analytics

PS-II Station : Samsung R & D Institute - , Bengaluru

Faculty

Name: Lucy J. Gudino

Student

Name: DISHANT SURYAWANSHI(2022H1030053H)

Student Write-up

PS-II Project Title: Search optimization in Samsung shop Search

Short Summary of work done during PS-II : The project focuses on enhancing the search functionality in the Samsung Shop by leveraging Natural Language Processing (NLP) techniques

to deliver more relevant and accurate search results to users. The main objectives were to understand user search intent, improve query processing, and enhance the ranking of search results. Key Steps Undertaken: Requirement Analysis: Gathered requirements to understand the current limitations of the search system. Defined key performance indicators (KPIs) to measure the effectiveness of the search optimization. Data Collection and Preprocessing: Collected a diverse set of user search queries and corresponding click-through data. Performed data cleaning, normalization, and tokenization to prepare the data for model training. NLP Model Development: Implemented advanced NLP techniques such as word embeddings (e.g., Word2Vec, GloVe) and contextual embeddings (e.g., BERT) to capture semantic meanings of search queries.

Tool used (Development tools - H/w, S/w) : Vscod, jupyter notebook, ML NLP Libraries

Objectives of the project : To optimise the search results and provide with relevant search results using NLP techniques.

Major Learning Outcomes : Deep dive into Python, ML, Gen AI, github workflow

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : At Samsung, the working environment is highly collaborative and innovative, fostering a culture of continuous learning and improvement. The team is composed of diverse professionals, including data scientists, software engineers, and product managers, working in a dynamic and fast-paced setting. The emphasis is on leveraging cutting-edge technologies and best practices in data science and software development to solve complex problems.

The workspace supports flexible working hours and promotes a healthy work-life balance. And when I talk about Food so its the best thing at Samsung , all kinds of food u can have ,that to with no additional cost. Equipped with state-of-the-art tools and resources, employees are encouraged to experiment with new ideas and approaches. Regular team meetings, brainstorming sessions, and workshops are held to facilitate knowledge sharing and to stay updated with the latest industry trends.

Academic courses relevant to the project : ML, NLP, PYTHON

PS-II Station : Samsung R & D Institute - , Bengaluru

Faculty

Name: Lucy J. Gudino

Student

Name: PRANSHU UPADHYAY(2022H1120280P)

Student Write-up

PS-II Project Title: Implementation of Gen AI for Smart Audience Targeting AI Agent

Short Summary of work done during PS-II : Smart Audience Targeting revolutionizes digital advertising by integrating cutting-edge technologies and methodologies to achieve unparalleled precision in audience targeting. Utilizing NLP methods, Hugging Face models, FAISS for similarity search, and Streamlit for an intuitive UI, the platform refines target markets with exceptional accuracy. Key functionalities include generating Boolean expressions to create precise targeting criteria and leveraging advanced libraries like LangChain, RAG, LLM, NLTK, and CrewAI. These tools enhance understanding of consumer behavior, optimize keyword creation, and facilitate dynamic, real-time campaign management. The platform's emphasis on scalability and adaptability ensures it can navigate the evolving digital advertising landscape. Real-time optimization and the inclusion of human-in-the-loop features through CrewAI enable advertisers to maintain control and collaboration, optimizing campaigns continuously. Smart Audience Targeting sets new standards in audience targeting and campaign optimization, offering a transformative tool that enhances the effectiveness and precision of digital advertising efforts.

Tool used (Development tools - H/w, S/w) : VSCode, docker, MLP(Machine Learning Platform), Linux GPU Server, Streamlit, Gradio, LangChain, Flask

Objectives of the project : Creation of boolean expression using GenAI

Major Learning Outcomes : Advanced Technologies: Understand the integration of NLP, Hugging Face models, FAISS, and Streamlit in audience targeting.

NLP Applications: Learn how NLP improves consumer behavior analysis and keyword creation.

Similarity Search: Recognize FAISS's role in efficient audience segment identification.

User Interface: Appreciate Streamlit's user-friendly UI for complex systems.

Libraries and Tools: Familiarize with LangChain, RAG, LLM, and CrewAI for targeting and optimization.

Real-time Optimization: Learn about the benefits of real-time campaign optimization.

Control and Collaboration: Value workflow orchestration and collaboration through CrewAI.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The company places a strong emphasis on continuous learning and innovation, expecting team members to stay updated with the latest advancements in technologies like NLP, machine learning, and AI. This focus not only enhances domain knowledge but also ensures that everyone is well-equipped to contribute to the cutting-edge projects, such as refining the audience targeting system.

Moreover, the workload is well-balanced, providing a healthy environment where one neither feels overworked nor underworked. This balance is crucial in maintaining high productivity and job satisfaction. The integration of advanced tools and methodologies allows for efficient project management and workflow orchestration, making the day-to-day operations smooth and effective.

Academic courses relevant to the project : Machine Learning, Research Practice(Deep Learning)

PS-II Station : Samsung Semiconductor India R&D Center , Bengaluru

Faculty

Name: Rekha A

Student

Name: TANMAY SINGH ASWAL(2022H1030118P)

Student Write-up

PS-II Project Title: Image Sensor

Short Summary of work done during PS-II : Was tasked to write some algo related to Image sensor.

Tool used (Development tools - H/w, S/w) : C++, visual studio etc

Objectives of the project : To write algorithm for image sensor

Major Learning Outcomes : Learnt about different things in image sensor

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : A good working environment. Team was friendly, was able to approach them for any doubts regarding the project.

Academic courses relevant to the project : Signal processing, Image processing

PS-II Station : Samsung Semiconductor India R&D Center , Bengaluru

Faculty

Name: Rekha A

Student

Name: SRIJON MALLICK(2022H1120279P)

Student Write-up

PS-II Project Title: Qemu Virtual Platform

Short Summary of work done during PS-II : 1. Enabling QTEST framework for QVP 2. Developed security component for SSD

Tool used (Development tools - H/w, S/w) : Software

Objectives of the project : Emulation of hardware devices

Major Learning Outcomes : Virtualization

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment is very good. All the team members are very helpful

Academic courses relevant to the project : Software Arcitechture.

PS-II Station : Samsung Semiconductor India R&D Center , Bengaluru

Faculty

Name: Rekha A

Student

Name: ASHUTOSH CHANDRA CHAUBEY(2022H1230127G)

Student Write-up

PS-II Project Title: Static timing analysis

Short Summary of work done during PS-II : I have automated a script for the check_timing command which find the reason behind a register not getting clock signal.

Tool used (Development tools - H/w, S/w) : Primitime

Objectives of the project : Automate the script for the check_timing command

Major Learning Outcomes : I have learned majority of important Primitime tool commands and how to accomodate it in the script.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment is phenomenal in the Samsung. The best thing is my teammates are very helpful and explain in a proper way if I ask something to them.

Academic courses relevant to the project : VLSI design

PS-II Station : Samsung Semiconductor India R&D Center , Bengaluru

Faculty

Name: Rekha A

Student

Name: MEESALA SAI VAMSIDHAR(2022H1230168H)

Student Write-up

PS-II Project Title: STA, Synthesis and LEC at Block level of an SoC

Short Summary of work done during PS-II : As an individual contributor i have learnt several things related to the project as well as gained some practical experience on the tools such as primetime, formality, IC Compiler and also had some great insights about the VLSI industry

Tool used (Development tools - H/w, S/w) : Primetime, Formality and IC Compiler

Objectives of the project : To perform the STA, Synthesis and LEC on a given block of a complex SoC

Major Learning Outcomes : Learnt how the tools related to physical design are used at the industry level

Details of Papers/patents : NA - Confidential so not allowed

Brief Description of working environment, expectations from the company : Working environment was decent and the work culture here varies from team to team. And the company expects you to give your best to complete the tasks assigned.

Academic courses relevant to the project : CAD for IC Design, PMMD, VLSI Design

PS-II Station : Saras Analytics - Nontech , Hyderabad

Faculty

Name: Gaurav Nagpal

Student

Name: UPPALA KEERTHANA(2019B4A20835H)

Student Write-up

PS-II Project Title: Junior Business Analyst

Short Summary of work done during PS-II : Based on the client's requests we create dashboards

Tool used (Development tools - H/w, S/w) : Holistics, Power BI, Tableau, Excel, Sql

Objectives of the project : Consulting, Creating dashboards for the client

Major Learning Outcomes : Hands on experience of generating insights using real time data, communication skills, BI tools

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : People are friendly, Good place to learn BI tools and E-Commerce

Academic courses relevant to the project : Statistics

PS-II Station : SBI Pension Funds (Pvt) LTD. , Mumbai

Faculty

Name: Niranjan Swain

Student

Name: OAMKAAR AADITYA MISHRA(2019B5A11504H)

Student Write-up

PS-II Project Title: Risk Management in Barra One

Short Summary of work done during PS-II : For the 1st half, I did data analytics and learned work under my supervisor. For the later half I was given access to Barra One and taught to do a variety of risk management things like VaR calculation, Scenario Testing, Peer Portfolio Analysis and more. I did this with various portfolios and helped in making reports.

Tool used (Development tools - H/w, S/w) : Barra One , Python , MS Excel

Objectives of the project : to calculate and mitigate risk for various portfolios

Major Learning Outcomes : Barra One, Python, Risk Management

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Pleasant Working environment with ample guidance from my mentor. I was given opportunities to learn in the first half and do some data analytics and skill development in Excel and Python, In the 2nd half I was given opportunity to work with a risk management software called Barra One and work on some portfolios.

Academic courses relevant to the project : -

PS-II Station : Schlumberger , Pune

Faculty

Name: Sudeep Kumar Pradhan

Student

Name: PATEL VINAYAK KETAN .(2020A4PS0510P)

Student Write-up

PS-II Project Title: DESIGN, SIMULATION, AND ANALYSIS OF MECHANICAL SUB-SYSTEMS

Short Summary of work done during PS-II : Designed a Vehicle Suspension System. Designed parts of the Nose and Main Landing Gear of an aircraft. Optimized the design. Designed retraction mechanisms for both the Landing Gears and optimized their Link Lengths.

Tool used (Development tools - H/w, S/w) : Altair HyperWorks, Altair MotionView, Altair HyperView, Altair HyperMesh, Altair HyperStudy, Altair HyperGraph, Altair Compute Console, Microsoft Excel, Microsoft Word, Microsoft Powerpoint, OBS Studio.

Objectives of the project : 1. To design a bespoke vehicle suspension system for a client in the US. 2. To design an aircraft Landing Gear (with tailor made retraction mechanism) for an official Indian Defense Agency

Major Learning Outcomes : Product Design process and principles followed in the industry.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment was quite good, the employees are very chill and considerate with anything. Their method of planning all tasks is also very good.

Academic courses relevant to the project : ME F318 - Computer Aided Design, ME F315 - Design of Machine Elements, ME F221 - Mechanisms & Machines, ME F320 - Engineering Optimization, ME F319 - Vibration & Control.

PS-II Station : Schlumberger , Pune

Faculty

Name: Sudeep Kumar Pradhan

Student

Name: VIMAL KIRTY .(2020A4PS1879P)

Student Write-up

PS-II Project Title: Driver behavior detection

Short Summary of work done during PS-II : Using accident data of India, I had to predict driver driving behavior

Tool used (Development tools - H/w, S/w) : Ps crash, python

Objectives of the project : To detect driver behavior using accident data

Major Learning Outcomes : Coding

Details of Papers/patents : Na

Brief Description of working environment, expectations from the company : Good work culture

Academic courses relevant to the project : Data science, MI

**PS-II Station : Searce Cosourcing Services Private Limited, (Searce) ,
Pune**

Faculty

Name: -

Student

Name: ADITYA HRIDAY SAHU(2020A7PS0144G)

Student Write-up

PS-II Project Title: CMS Automation Tools

Short Summary of work done during PS-II : During the first 3 months, all the interns went through a common training where I developed a local marketplace website and a hiring management tool. Afterwards, the next 3 months, I started working with the CMS (Cloud Managed Services) team where my responsibilities included refactoring existing internal automation tools such as fixes, feature additions as well as working on new automation tools from scratch

Tool used (Development tools - H/w, S/w) : Boto3 AWS SDK for Python, GCP, Flask, AWS

Objectives of the project : To automate various tasks performed by teams at Searce for providing insights to the clients about their cloud infrastructure

Major Learning Outcomes : Learnt a lot about the best practices followed at organisational level for production level solutions as well as the importance of internal automation tools for eliminating repetitive tasks

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment of the company promotes fast-paced learning and definitely does not fail to give you a sense of ownership of the projects on which one is working. My expectations from the company would definitely be to get the opportunities of working on projects which can add immense value and utility to the company

Academic courses relevant to the project : Cloud Computing, Software Engineering, Parallel Computing

PS-II Station : Seven Steps Business Transformation Systems , Bengaluru

Faculty

Name: Vijayalakshmi Anand

Student

Name: RAUNAK KUMAR(2020A7PS1699G)

Student Write-up

PS-II Project Title: Full Stack Intern

Short Summary of work done during PS-II : I developed the WisdomKart website with a focus on creating a seamless and intuitive platform where users can easily make appointments with mentors. The "Find Mentor" page provides a comprehensive list of available mentors, each with detailed profiles to help users make informed decisions. To assist users in finding the right mentor, a Google Form is available, ensuring personalized guidance based on individual needs. For those interested in becoming mentors, the "Apply Mentor" section streamlines the application process. Prospective mentors can submit their applications, which are then reviewed by the admin. Only after admin approval, the mentor profiles become visible on the site, ensuring a vetted and high-quality mentor pool. The website also features a "Courses" section where admins can upload and manage educational content. To maintain the integrity and security of the course offerings, they are protected by the Razorpay gateway, providing a secure payment method for users. This ensures that all transactions are safe, and access to courses is well-regulated. By focusing on user experience, security, and comprehensive support, I aimed to create a robust platform with WisdomKart that caters to both mentors and learners, facilitating meaningful educational interactions and growth.

Tool used (Development tools - H/w, S/w) : S/w - React , Node js, MongoDB, Vercel, hostinger,

Objectives of the project : To make website -- wisdomkart.com for handling mentor appointment booking and to upload courses

Major Learning Outcomes : Full Web Development

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : There are meetings twice a week other than that work from home can be done. Nothing will be provided by company , you have to use your own laptop to work.

Academic courses relevant to the project : SDPD,

PS-II Station : SG Analytics , Pune

Faculty

Name: Bharathi R

Student

Name: VARADA R(2019B4A80795G)

Student Write-up

PS-II Project Title: Data Analytics - sentiment analysis and LLMS

Short Summary of work done during PS-II : Sentiment Analysis of stock data using NLP & study of LLMs and their application.

Tool used (Development tools - H/w, S/w) : Python selenium

Objectives of the project : Sentiment Analysis of stock data using NLP & study of LLMs and their application.

Major Learning Outcomes : Learnt few data analyzing techniques

Details of Papers/patents : no

Brief Description of working environment, expectations from the company : The company environment is helpful and

Academic courses relevant to the project : Data Science, Machine Learning

PS-II Station : Shell India Markets Pvt. Ltd. , Bengaluru

Faculty

Name: Santosh Sopanrao Khandgave

Student

Name: CYRIL BENNY .(2019B4A10584P)

Student Write-up

PS-II Project Title: Benchmarking pathways for Biomass to sustainable Liquid Hydrocarbon Fuels

Short Summary of work done during PS-II : I was tasked with exploratory research on several established pathways and new pathways for Shell to work on Biomass to Fuel. Main focus given to Sustainable Aviation Fuel, Sustainable Marine Fuel etc. I did an LCA to determine the Carbon and Energy Balances for the pathways and determined the feasible ones by comparing the carbon efficiencies. I proposed on improvements on the current processes and suggested new processes to be made in place.

Tool used (Development tools - H/w, S/w) : Power BI, MS Office

Objectives of the project : To find and analyze the different pathways for biomass to biofuel conversion.

Major Learning Outcomes : Extensive Exploratory Research Knowledge, PTW, HSSE awareness, Connectivity with different senior managers. Laboratory Induction, Power BI, Data Visualization.

Details of Papers/patents : In Process

Brief Description of working environment, expectations from the company : Extremely high emphasis on safety. Lunch and Learn sessions, Team lunch, Team meetings and bonding sessions, guest lectures. Proper work life balance. Amenities centre for indoor games and refreshments

Academic courses relevant to the project : LCA, Thermodynamics, CPC

PS-II Station : Siemens Energy , Gurugram

Faculty

Name: Nithin Tom Mathew

Student

Name: RAJYAGURU DEEP TARUNBHAI(2022H1060206P)

Student Write-up

PS-II Project Title: Overview of MBS and CWC System Design in Grid Technology/FACTS Projects @Siemens Energy India (Siemens AG)

Short Summary of work done during PS-II : NA

Tool used (Development tools - H/w, S/w) : Fluid Flow, Revit, Navisworks, BIM 360

Objectives of the project : To understand the design of various mechanical systems used in Grid Technology and implement in the project according to the respective standards

Major Learning Outcomes : Design of HVAC systems, Simulation of the piping system for converter hall and Firefighting design

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Great work environment with cooperative colleagues

Academic courses relevant to the project : Heating and Cooling of the Building, Thermal Equipment Design, Research Practice

PS-II Station : Siemens Energy , Gurugram

Faculty

Name: Nithin Tom Mathew

Student

Name: LOKESH SHARMA(2022H1060211P)

Student Write-up

PS-II Project Title: Digitalization

Short Summary of work done during PS-II : It was really good station for me to work the work culture is really good. Also i learnt many new things here at this station. So my overall experience was quite good .

Tool used (Development tools - H/w, S/w) : Python, cisco packet tracer, wire shark

Objectives of the project : To Automate or digititalize the various task

Major Learning Outcomes : Python, wire shark, cisco packet tracer

Details of Papers/patents : I haven't published any paper

Brief Description of working environment, expectations from the company : Really good environment for a fresher to work and the environment is good for a fresher to learn new things.

Academic courses relevant to the project : I did a python project during my RP(research project) in supply chain lab which help me a lot.

PS-II Station : Siemens Energy , Gurugram

Faculty

Name: Nithin Tom Mathew

Student

Name: YATHARTH ANAND(2022H1230139G)

Student Write-up

PS-II Project Title: SIEMENS EENERGY INTERNSHIP REPORT

Short Summary of work done during PS-II : THROUGH THIS PROJECT I HAVE LEARNED POWER PLANT INDUSTRY STANDARDS, I ALSO DESIGNED THE TECHNICAL SPECIFICATION OF THE EARTHING TRANSFORMER WHICH IS USED TO PROTECT THE MV SWITCH GEAR FROM THE EARTHING FAULT, I ALSO LEARN HOW TO SIZE THE LV AND MV CABLES THAT IS USED IN THE POWER PLANT ACCORDING TO DIFFERENT IEC STANDARDS.

Tool used (Development tools - H/w, S/w) : Navisworks, E3D, Revit, AutoCad

Objectives of the project : DESIGNING THE EARTHING TRANSFORMER FOR THE 10KV MV SYSTEM AND SELECTING/SIZING THE APPROPRIATE CABLES FOR MV AND LV SYSTEM OF A POWER PLANT

Major Learning Outcomes : learned about grounding of transformers, designing/selecting appropriate cable that is going to be used in the power plant

Details of Papers/patents : THROUGH THIS PROJECT I HAVE LEARNED POWER PLANT INDUSTRY STANDARDS, I ALSO DESIGNED THE TECHNICAL SPECIFICATION OF THE EARTHING TRANSFORMER WHICH IS USED TO PROTECT THE MV SWITCH GEAR FROM THE EARTHING FAULT, I ALSO LEARN HOW TO SIZE THE LV AND MV CABLES THAT IS USED IN THE POWER PLANT ACCORDING TO DIFFERENT IEC STANDARDS.

Brief Description of working environment, expectations from the company : The environment and the people in this company are beyond my expectations, our mentors and seniors helped us in every situation whether it is related to the company or any personal problem. Training were also top notch, they explained every topic in detail and always open to solve any query of ours.

My mentor is also helped me a lot in technical guidance and encouraged constant questions. His friendly approach made learning comfortable and effective.

Academic courses relevant to the project : None

PS-II Station : Siemens Energy , Gurugram

Faculty

Name: Nithin Tom Mathew

Student

Name: ARUN SINGH KAINTE(2022H1410136P)

Student Write-up

PS-II Project Title: Process Engineering

Short Summary of work done during PS-II : There was no project allotted to me. My training was completed during this time. I am in Process Engineering team whose job was designing all the systems in the Water Steam Cycle of a Combined Cycle Power Plant, that means we have to develop all the cases for Heat Balance Diagram, Water Balance Diagram, develop flow diagram of water & steam, cooling system and fuel, develop P&ID for the entire water - steam cycle, sizing and calculation of major pumps and control valves, preparation of RFQ, offer evaluation and ordering. Then I was given specific tasks on some ongoing projects. The tasks were simple but very informative. I had to develop a KKS (naming method for everything in CCPP in Siemens so that teams in different countries can work together) unit list of HRSG, Water - Steam cycle, Cooling Water System, Plant Layout etc. The second task was to calculate the vapour pressure of pure substances like oxygen, nitrogen and solutions such as of 25% ammonia. The company did this so that when we join Full Time, we can be productive from Day 1.

Tool used (Development tools - H/w, S/w) : Software tools like COMOS, EDIT and SPPA - T3000

Objectives of the project : Training for the job

Major Learning Outcomes : Difference between institutional teaching and industrial training

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The work environment is good. People are helpful here and easily approachable. My trainers help me to clarify each and every doubt even when they are busy. I sit with my team. There are no cabins here even for HOD's. They all work together in an open space with desks and computers. Office timings are very flexible and you can come here between 8 to 11 am and have to complete 9 hours which includes an hour of lunch. Work culture is hybrid which means 3 days in office 2 days work from home and Saturday and Sunday is off. Nobody will disturb you in weekends or when you've taken a holiday or after your working hours. Professionalism is maintained and transition was very smooth.

Academic courses relevant to the project : Thermal Subjects Thermodynamics, HMT, Fluid Mechanics and Turbomachinery.

PS-II Station : Siemens Ltd , Aurangabad

Faculty

Name: Samata Satish Mujumdar

Student

Name: CHAUDHARY MAULIK JETHABHAI(2022H1060203P)

Student Write-up

PS-II Project Title: Supplier Quality Management

Short Summary of work done during PS-II : Made FlinkISO software live with by coordinating with stakeholder.

Tool used (Development tools - H/w, S/w) : FlinkISO

Objectives of the project : To make the FlinkISO software live.

Major Learning Outcomes : Project Management

Details of Papers/patents : No

Brief Description of working environment, expectations from the company : People friendly place

Academic courses relevant to the project : Quality Management

PS-II Station : Siemens Ltd , Aurangabad

Faculty

Name: Samata Satish Mujumdar

Student

Name: BIBHU PRASAD MOHANTY(2022H1060225P)

Student Write-up

PS-II Project Title: Shopfloor Imbalance area Inventory reduction

Short Summary of work done during PS-II : Value Stream Mapping (VSM): VSM is a visual tool used in lean manufacturing to analyze and design the flow of materials and information required to bring a product or service to a consumer. By mapping out each step of the process, from raw material to final delivery, organizations can identify waste, streamline operations, and improve overall efficiency. VSM helps in pinpointing non-value-added activities, facilitating continuous improvement efforts. Lean Tools: Lean tools are techniques and methodologies derived from lean manufacturing principles aimed at reducing waste and increasing efficiency. Some common lean tools include 5S (Sort, Set in order, Shine, Standardize, Sustain), Kaizen (continuous improvement), Kanban (visual scheduling system), and Just-In-Time (JIT) production. These tools focus on eliminating waste, improving quality, and delivering faster and more cost-effective production processes. SAP Material Management (MM) Module: The SAP MM module is an integral part of the SAP ERP system, designed to manage procurement and inventory functions. It helps organizations manage the end-to-end supply chain process, including purchasing, goods receiving, material storage, inventory management, and invoice verification. By integrating with other SAP modules, such as Finance (FI) and Sales and Distribution (SD),

SAP MM ensures seamless operations across various business functions, enhancing efficiency, reducing costs, and improving decision-making. In summary, VSM, lean tools, and the SAP MM module collectively enable organizations to streamline processes, eliminate waste, and achieve operational excellence through improved efficiency and resource management.

Tool used (Development tools - H/w, S/w) : Excel, Power BI, SAP MM Module

Objectives of the project : Reduce the shopfloor inventory & optimize it to become an industry standards

Major Learning Outcomes : SAP MM Module Experience and VSM as a Tool

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The Siemens Aurangabad Factory is a state-of-the-art manufacturing facility located in Aurangabad, Maharashtra, India. It is part of Siemens AG, a Germany-based global giant known for its engineering and technology solutions. The factory serves as a vital production hub for Siemens India, contributing to the company's overall manufacturing capabilities. Siemens Aurangabad specializes in manufacturing a diverse range of products, including both low voltage as well as high voltage circuit breakers, drives, motors, and other industrial components divided among 4 individual factories – the Air-insulated Switchgear (AIS) factory, the Low-voltage Products (LP) factory, the Gas-Insulated Switchgear (GIS) factory and the Bushings, Instrument Transformers and Coils (BIC) factory. The AIS factory is further divided into circuit breaker 1 (CB1), circuit breaker 2 (CB2), and drive factory. The factory as a whole actively engages in research and development activities to continually improve its products and introduce more viable solutions. This focus on innovation enables Siemens to stay at the forefront of technological advancements and deliver high-quality products that meet the evolving needs of its customers.

Academic courses relevant to the project : Somewhat true but its more like implementing the things in a strategical way.

PS-II Station : Siemens Ltd , Aurangabad

Faculty

Name: Samata Satish Mujumdar

Student

Name: KANDIMALLA SAI KRISHNA(2022H1420149H)

Student Write-up

PS-II Project Title: ANALYSIS OF OPERATIONAL DATA TO OPTIMIZE PROCESS TIME FOR MCB USING LEAN MANUFACTURING TOOLS

Short Summary of work done during PS-II : My primary task is of Value Stream Mapping where I had to collect data from the shopfloor and prepare a Current State Value Stream that focuses on the problems and bottlenecks present on the shopfloor, I completed the current state mapping but the implementation was not done because in a company like Siemens, decisions aren't that fast and require 100 pages of documents for proper implementation. I also received many secondary tasks such as verifying the suggestions made by the factory workers as a part of factory activity, this was my first task as soon as I entered the factory and also helped me in knowing the problems faced on the shop floor. Another task was on the RCCB Panel Cycle Time Calculation where I had to calculate the cycle time of the RCCBs that were tested using the Panel. For this I shot videos and went through the videos frame by frame and for this we developed a counter that reduced the calculating time to 40 minutes from a day. Also, helped in SAP data entry and helped in preparing Method Instruction Sheets that shows how a manufacturing process is executed.

Tool used (Development tools - H/w, S/w) : Visio, Mendix, Python, Excel

Objectives of the project : To reduce Work in Process and Lead Time

Major Learning Outcomes : Communication was always a letdown for me where I could not express myself, but as soon as I entered Siemens the first work I received was of a project where I had to meet the workers and verify the suggestions they provided as a part of the factory activity. This not only helped my communication but also helped me break the ice in the factory. I always wanted to see how a corporate company works and how the decisions are made, I was in the process planning department where if a decision is made 100 sheets are to be made for the work to move forward and even a small error isn't tolerated. I prepared some documents regarding the workflow and the process flow and understood the importance of paper work and management.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment was good, my manager and his sub-ordinates helped me lot and we also used to have fun with each other and also the fellow interns were also helpful and friendly.

Academic courses relevant to the project : Toyota Production System(Lean Manufacturing)

PS-II Station : Siemens Technology - AI/ML , Bengaluru

Faculty

Name: Prakruthi Hareesh

Student

Name: HIMANSHU SHUKLA(2022H1030107P)

Student Write-up

PS-II Project Title: Generative AI

Short Summary of work done during PS-II : I learned about LLM finetuning, learned to do model inferencing, creating our own dataset, optimizing machine learning code for multi-GPU training, worked on Graph Neural Networks for unstructured data and did profiling of models to know about the energy consumption.

Tool used (Development tools - H/w, S/w) : H/W: 64 GB V100 GPU, S/W: used Pytorch

Objectives of the project : To fine-tune the LLMs for the business specific task.

Major Learning Outcomes : Learned the trending machine learning topics, fruitful for most of the companies

Details of Papers/patents : No patent filed.

Brief Description of working environment, expectations from the company : Environment is very competitive, we get chance to learn alot.

Academic courses relevant to the project : Yes, Drone based disaster detection system in Deep Learning.

PS-II Station : Signalchip Innovations Pvt. Ltd. , Bengaluru

Faculty

Name: Suparna Chakraborty

Student

Name: TANISH GUPTA(2020A3PS0420G)

Student Write-up

PS-II Project Title: Design & Development of 8-channel 5G chip- ADC and Bias Generation

Short Summary of work done during PS-II : The project involved a series of design and simulation cycles for the optimization of two particular components for a 5G RF chip: an ADC and a Biasing circuit. The biasing circuit is developed using P-MOS and N-MOS mirrors to efficiently bias the components of the chip placed at varying locations. The design is then tested for potential errors via statistical analysis for multiple process types at different temperatures. The ADC design is obtained by improving upon an existing lower frequency design. Each component of the ADC is separately simulated, modified and tuned to be able to match new requirements for effective sampling of the input signals. The ADC and ADC driver components are then matched to their layout and simulated for parasitic effects. These are cleared out by modification of metal routings and contacts. The obtained components are integrated into the larger design.

Tool used (Development tools - H/w, S/w) : S/w - Cadence Virtuoso (Schematic View, Layout View)

Objectives of the project : 1. To design and optimize an effective bias generation system for control signals in an RF chip. 2. Design and optimization of an ADC for 250MHz.

Major Learning Outcomes : Analog Design, Cadence Virtuoso, Layout (Physical Design), Current mirroring, Sampling Techniques, Signal Generation, DC converters.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The company working philosophy is result and learning oriented, with a consistent focus on improvement and application. The working schedule is flexible on a day-to-day basis but strict over a period of time.

Adequate freedom is allowed to pursue a solution and explore new methods in completion of the project. Care is imparted to the upskilling and learning of employees.

The company seeks to innovate and propose semiconductor design solutions in a novel fashion from scratch. As such, it is well positioned to emerge as a unique contributor to the industry with greater caution in product release combined with a tendency to experiment.

Academic courses relevant to the project : Analog Devices, Signals and systems, control systems, Analog and Digital very large-scale integrated circuit design (ADVD), Microelectronics

PS-II Station : Signalchip Innovations Pvt. Ltd. , Bengaluru

Faculty

Name: Suparna Chakraborty

Student

Name: ARYAMAN MEHROTRA(2020A8PS1793G)

Student Write-up

PS-II Project Title: Design and Development of GNSS Module, Design and Development of 5G Drone Board

Short Summary of work done during PS-II : My time at signaltron entailed various different projects. The first one being the development of a small daughter module made for the evaluation board of a new chip and firmware writing for the arduino present on the same. It was a small board for io expansion supporting the arduino. The second project i took up was for the design of a module board for a GNSS chip at the company, this module board is required for the chip to be

used as fully functional gnss application dongle. The last project i did was making a 5G drone board incorporating 5G on a drone so that it can receive low ping instructions from anywhere in the world.

Tool used (Development tools - H/w, S/w) : Kicad, LTspice, CST, Arduino IDE

Objectives of the project : To ensure a work board module for a GNSS chip made by signalchip, with a robust PDN and RF simulations to verify specifications

Major Learning Outcomes : KiCAD, SPICE simulations, CST software, Matching networks, Power integrity and signal integrity

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The work environment of the company was ideal for learning and growth. All the seniors and my mentor were available for discussion and guidance. They encouraged critical thinking and ensured I got sufficient goals to work on. The company expected me to be diligent and maintain a record of everything I did through reports.

Academic courses relevant to the project : Analog Electronics, electrical sciences, power electronics

PS-II Station : Signalchip Innovations Pvt. Ltd. , Bengaluru

Faculty

Name: Suparna Chakraborty

Student

Name: GAGAN KOMPALA(2020AAPS2200H)

Student Write-up

PS-II Project Title: Chip bring up of GNSS Rx chipset

Short Summary of work done during PS-II : Developed debug modules which verified code before deployment onto chip.

Tool used (Development tools - H/w, S/w) : Xilinx Vivado, Xilinx ultrascale ZCU 102 FPGA, Tera term, Cadence Xcilieum, shell and perl script.

Objectives of the project : Bring up of GNSS Rx chipset.

Major Learning Outcomes : C code interfacing with hardware.
GNSS algorithm for finding location and providing with precise PPS signal.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Good, managers and FTEs were very supportive and were always reassuring us. That completely took away the pressure and allowing us to work freely.

Academic courses relevant to the project : Signals and Systems
Computer Architecture

PS-II Station : Signalchip Innovations Pvt. Ltd. , Bengaluru

Faculty

Name: Suparna Chakraborty

Student

Name: CHINTHALA ADI REDDY(2022H1230188H)

Student Write-up

PS-II Project Title: Evaluation Board Design for a GNSS Module

Short Summary of work done during PS-II : Initially we got to familiarize ourselves with the tools kiCad, Octave along with Spice tools. Then we prepared a pcb design for tpss7a8801 Low dropout voltage regulator with the help of kicad tool. Then we had to undergo through an evaluation board for a chip related to GNSS. We tried to understand how various ics are interacting with each other to accomplish the task of identifying the coordinates of a location, and how all the peripheral circuitry related to communication protocols namely i2c, spi and UART and power connectors and decaps are connected in the system. and then based on this understanding, now i am designing an evaluation board for a gnss module which used the earlier mentioned GNSS IC.

Tool used (Development tools - H/w, S/w) : KiCad, Octave, gvim, LtSpice

Objectives of the project : To design the evaluation board for the gnss module including both schematic and layout

Major Learning Outcomes : system level understanding of to make pcb design and how different ICs and components work as a whole and the subtleties in choosing different components and criteria based on which we choose them.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : My mentor has really good understanding nature. Here, one needs to be proactive, so whatever the doubts one may have about the work that intern is doing at that time, first of all he should try to understand or search for the concept and then understand , even then if he can not understand then he should go to mentor and tell how he has tried and what happened as a result. Then our mentors tell us where did we do mistake and the ways to solve the issue.

Academic courses relevant to the project : PCB Design with kicad tool, Analog circuit basics, Micro controller(eg: Arduino, Raspberry pi module) basic understanding

PS-II Station : Silver Touch Technologies Ltd. , Gandhinagar

Faculty

Name: Anita Ramachandran

Student

Name: ARUNAVA ROY(2022H1030129P)

Student Write-up

PS-II Project Title: LLM-Chatbot

Short Summary of work done during PS-II : I tackled a significant challenge where the chatbot generated nonsensical responses for queries involving Gujarati content. Initially, I investigated whether the <noscript> tag affected our web crawling, but the real issue was improper handling of non-English text in JSON processing. By adjusting the json.dump function to use ensure_ascii=False, I resolved the encoding problem for Gujarati characters. However, our FAISS-based system struggled with incomplete sentence generation in Gujarati. To mitigate this,

I implemented a temporary solution to translate content to English before processing, improving response accuracy despite increasing computational overhead. I worked on several key enhancements to improve our AI-powered FAQ system. Initially, we aimed to boost the accuracy of our language model in providing correct answers. To achieve this, we applied NLP techniques like stemming and lemmatization, which simplify words to their base forms. This preprocessing step clarified user queries, leading to a notable improvement in the system's accuracy from 60% to 80%. Collaborating with an expert from IIT Gandhinagar, we learned that further accuracy improvements are challenging due to inherent model limitations, like hallucination—when the AI generates irrelevant information. We also addressed the handling of greeting messages. Instead of embedding these queries as we do for general questions, we used a dual approach. Known greetings matched to predefined responses, while unknown greetings were processed using prompt engineering to generate appropriate replies. This improved the system's ability to handle social interactions effectively. Another feature I implemented was advanced logging. I transitioned from basic Python logging to Loguru, which offers better error tracking and log rotation. This change enhanced our system's reliability and debugging efficiency. Lastly, I worked on integrating a custom FAQ feature. This allowed users to input specific questions and answers. Using cosine similarity, the system could suggest the top four most relevant predefined questions. This feature, combined with our NLP enhancements, provided a more tailored and responsive user experience. Through these projects, I gained practical insights into applying AI and NLP to real-world problems, significantly contributing to the company's customer support capabilities.

write the text in 100 words in such a way that highlights what i have done in my job. Initially, the chatbot encountered a significant challenge when processing specific websites. Instead of generating meaningful responses, it produced gibberish text or nonsensical addresses. This prompted a thorough investigation to identify the root cause of the issue.

Troubleshooting Process: The investigation initially focused on the possibility of the `<noscript>` tag interfering with the web crawling process. However, this line of inquiry proved to be a dead end, as deeper analysis revealed that the tag did not discard crucial information. Further investigation pinpointed the issue to specific websites containing Gujarati content. Whenever a query containing Gujarati text was posed, the chatbot malfunctioned, resulting in nonsensical responses.

Solution and Implementation: The root cause of the problem was traced back to an improper handling of non-English text within the `json.dump` statement. This statement typically converts Python dictionary values into JSON strings, a format more readily processed by various software applications. However, the default configuration of `json.dump` assumes ASCII encoding, which is not suitable for handling characters outside the basic Latin alphabet, causing issues with Gujarati content. To

address this challenge, the following solution was implemented: -The `ensure_ascii=False` argument was specified within the `json.dump` statement. This modification ensures that the data is dumped using a character encoding that supports a wider range of characters, including those found in the Gujarati language. While this solution successfully resolved the initial issue, another challenge emerged: -FAISS and Incomplete Sentences: FAISS, optimized for English language tokenization, struggled to effectively process Gujarati content. This resulted in FAISS returning incomplete sentences, typically fewer than two sentences, when responding to queries involving Gujarati text. This significantly limited the comprehensiveness and informativeness of the chatbot's responses. Current Approach: To address the challenge of incomplete sentences for non-English content, the current approach involves translating the entire crawled content from Gujarati to English before feeding it into the LLM. While this approach offers a temporary solution, it introduces a new concern: -Increased Overhead Cost: Translation adds an additional processing step, increasing the overall time required to generate a response. This translates to a higher computational cost and potentially impacts the responsiveness of the chatbot. ChatGPT During my internship at [Company Name], I tackled a significant challenge where the chatbot generated nonsensical responses for queries involving Gujarati content. Initially, I investigated whether the `<noscript>` tag affected our web crawling, but the real issue was improper handling of non-English text in JSON processing. By adjusting the `json.dump` function to use `ensure_ascii=False`, I resolved the encoding problem for Gujarati characters. However, our FAISS-based system struggled with incomplete sentence generation in Gujarati. To mitigate this, I implemented a temporary solution to translate content to English before processing, improving response accuracy despite increasing computational overhead..

Tool used (Development tools - H/w, S/w) : python,llama3,visual studio code

Objectives of the project : objectives of the project was to enable llm to give more accurate results,handle several use-cases so that customers get a smooth experience

Major Learning Outcomes : Leaned a lot about nlp ,deep learning,llms and generative ai.I feel the next boom in the world of computer science will be in llm and ai/ml.I find myself fortunate to learn about the llm strategies like chunking, embedding ,tokenisation etc from scratch which are very interesting and sometimes difficult but very fun to learn

Details of Papers/patents : We published no papers

Brief Description of working environment, expectations from the company : Working environment was good with strict 9 hour worktime expectation. My gandhinagar branch had only 3-4 talented people who helped in my work and we had good time. My experience was upto my expectation with challenging but interesting work and helpful seniors

Academic courses relevant to the project : NLP

PS-II Station : Silverlabs India Private Limited , Nanakaramguda

Faculty

Name: Vijayalakshmi Anand

Student

Name: ANIMISH PRATEEK(2020A7PS1713H)

Student Write-up

PS-II Project Title: Silverlabs Backend Team (No specific project)

Short Summary of work done during PS-II : During my internship, I developed and integrated algorithms using Node.js to adjust video aspect ratios and schedule layout elements. I utilized the Google Maps API to convert textual descriptions into dynamic maps, and employed JavaScript with FFmpeg to visualize music waveforms. I also managed data storage with MongoDB, deployed applications on AWS, containerized environments with Docker, and used Git and GitHub for version control and collaboration.

Tool used (Development tools - H/w, S/w) : Node js, vs code, AWS, Docker, Kubernetes, JS, TS, Mongo DB

Objectives of the project : Ensure good video output quality

Major Learning Outcomes : Coding on real world product

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment during my internship was collaborative and dynamic, fostering innovation and continuous learning. I worked with experienced developers who provided guidance and feedback, enhancing my technical and teamwork skills. The company expected high-quality, maintainable code and efficient project delivery. Agile methodologies, such as daily stand-ups and sprint planning, ensured projects stayed on track. Innovation was encouraged, and I had the freedom to experiment with new ideas and technologies. Overall, the environment was supportive and growth-oriented, preparing me well for future challenges in software development.

Academic courses relevant to the project : DBMS, DSA, OOPS, OS, Computer Network

PS-II Station : Singlestore India Pvt Ltd , Hyderabad

Faculty

Name: Saikishor Jangiti

Student

Name: LAKSHYA SINGH(2019B3A70449G)

Student Write-up

PS-II Project Title: Tracking s4Services, Enabling Stage for Shared Tier

Short Summary of work done during PS-II : CMD Global Search & Action Bar: Unified search functionality across clusters, workspaces, and other portal segments. Enabled versatile action execution and efficient organization switching. Improved navigation and feature flag management. S4 Cloud File Management System: Removed file format restrictions and enabled simultaneous multiple file uploads. Developed a database table to track and analyze S4 usage, optimizing performance. Enhanced user workflows and data management capabilities. Enabling Stage Functionality for Shared Tier: Onboarded with the engine codebase and tackled technical blockers related to leaf forwarding and DDL queries. Devised secure methods to create S3 links and enable 'select into stage' functionality. Successfully implemented and tested these changes, improving the platform's robustness and scalability.

Tool used (Development tools - H/w, S/w) : Reactjs GraphQL C++ Golang

Objectives of the project : To enable a platform on cloud portal to load data to and fro from database with a syntactic sugar sql command for singlestore's shared tier. Second project:- To enable tracking storage used by s4 services.

Major Learning Outcomes : Reactjs GraphQL

Backend Development Proficiency:

Writing Go resolvers to process GraphQL queries and provide data.

Learning error handling and data validation within Go-based backend systems.

Gaining insights into the interaction between frontend and backend through resolvers.

Core Engine Understanding/c++

DDL Parsing

DB Migrations

DB persistence

Rest API

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Great environment, has a remote culture with focus on asynchronous work.

Liberty to take full ownership of projects and create impact.

Academic courses relevant to the project : Database Systems Software development
Compiler Construction Operating Systems

PS-II Station : Singlestore India Pvt Ltd , Hyderabad

Faculty

Name: Saikishor Jangiti

Student

Name: JAI KHATRI(2019B3A70543G)

Student Write-up

PS-II Project Title: Enhancing Billing Transparency

Short Summary of work done during PS-II : I enhanced the existing analytics usage dashboard by optimizing queries, thereby significantly improving customer experience. Additionally, I initiated the development of a new billing dashboard aimed at providing better controls over payments and invoices within the customer portal. This initiative also ensured customers had clearer and improved access to critical payment and invoice information. In addition to these responsibilities, I actively contributed to resolving day-to-day bugs.

Tool used (Development tools - H/w, S/w) : Golang, Ginkgo, GraphQL, Typescript, Cypress

Objectives of the project : To develop a new billing dashboard that enhances transparency for customers regarding payment and invoice information.

Major Learning Outcomes : I gained valuable skills, such as hands-on experience with various tech stacks. Additionally, I took ownership of projects and learned how to effectively manage and deliver them on time. I also acquired soft skills, such as effectively communicating with colleagues and stakeholders within the company.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The company offers a very positive work culture with a strong emphasis on work-life balance. Employees are given ownership of the products they build and have a voice in other aspects of development. The team consists of highly talented and supportive individuals.

Academic courses relevant to the project : DSA , DBMS, Computer Networks

PS-II Station : Singlestore India Pvt Ltd , Hyderabad

Faculty

Name: Saikishor Jangiti

Student

Name: PATEL VEDANT ALKESH(2019B3A70561G)

Student Write-up

PS-II Project Title: Implementing Role based access control model

Short Summary of work done during PS-II : During my PS-II, I was actively involved in implementing Role-Based Access Control (RBAC) within our software project. My main responsibility was to develop and integrate RBAC functionality into our web applications using modern frameworks like React.js. This involved designing user interfaces that allowed administrators to manage roles and permissions, as well as implementing backend APIs to enforce access control policies based on user roles.

Tool used (Development tools - H/w, S/w) : Git, React, Typescript, Golang, Postman

Objectives of the project : Implementing a Role-Based Access Control (RBAC) model aims to provide granular access control, simplify management, enhance security, ensure compliance, and facilitate auditing. By assigning permissions based on predefined roles, RBAC streamlines access management, reduces the risk of unauthorized access, helps organizations meet regulatory requirements, and enables efficient monitoring of user access.

Major Learning Outcomes : The major learning outcomes of implementing a role-based access control (RBAC) model include gaining a deeper understanding of access control mechanisms, learning to design and implement security policies based on roles and permissions, understanding the importance of least privilege principles, mastering user and role management, becoming proficient in defining and managing access policies.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : NA

Academic courses relevant to the project : Operating systems, Introduction to CPP

PS-II Station : Singlestore India Pvt Ltd , Hyderabad

Faculty

Name: Saikishor Jangiti

Student

Name: GARVIT SETHI(2020A7PS0084G)

Student Write-up

PS-II Project Title: Software Engineer

Short Summary of work done during PS-II : 1. Renaming Cluster Creation Job: This project involved the strategic renaming of a pivotal job within the system to alleviate confusion and improve clarity surrounding its functionality and purpose. 2. Onboarding Feature Guide: Here, I played a central role in implementing a feature designed to streamline the onboarding process for System Reliability Engineers (SREs), empowering them with a user-friendly interface to configure environment variables across various scopes within the Singlestore ecosystem. 3. ChatBot For Backend GoLang Codebase: This endeavor centered around the development of an intelligent chatbot reminiscent of ChatGPT, tailored specifically to facilitate efficient communication and knowledge sharing among developers regarding the backend GoLang codebase, while mitigating risks associated with external dependencies. 4. Monitoring Cells Using Workspace Group: I worked on a project focused on transitioning from traditional monitoring clusters to workspace groups within the Singlestore infrastructure, aimed at optimizing resource utilization and streamlining monitoring operations for enhanced scalability and efficiency. 5. Anomaly Detection In Time-Series Data: Anomaly Detection in Time-Series Data involves identifying patterns that deviate significantly from expected behavior in sequential data points over time. For my project, I specifically worked on finding anomalies in the monitoring data that is collected by the monitoring clusters. 6. Improving Customer Facing Dashboards: The customer facing Grafana dashboards use the monitoring clusters as their data source. Because the cluster contains a lot of information,

the queries for a specific customer were getting slowed down. I investigated one method that helped improve the performance. 7. Setup Monitoring Stack For Egress Service: We have a service which egresses data from SingleStore DB format to Iceberg Data lake format. I worked on setting up the monitoring stack for this service, which includes Prometheus deployments for monitoring and Grafana dashboards for visualization. Each project presented its own set of challenges and complexities, and through diligent effort and collaboration with cross-functional teams, I successfully navigated through these challenges to deliver impactful solutions aligned with Singlestore's strategic objectives.

Tool used (Development tools - H/w, S/w) : Grafana, Singlestore, Golang, Prometheus, kubernetes, graphql

Objectives of the project : Had different tasks as I proceeded with my internship. Details mentioned later.

Major Learning Outcomes : Devops, Golang, GraphQL

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Very good work environment. Specifically, the engineers here are excellent, and very helpful. Exactly as I wanted. Company wants the Individual to be constantly communicating about his work, in an async way.

Academic courses relevant to the project : None

PS-II Station : Skoda Auto India Pvt. Ltd. (Chakan) , Pune

Faculty

Name: Samata Satish Mujumdar

Student

Name: JATIN GARG(2022H1060099G)

Student Write-up

PS-II Project Title: Know how Conversion of ICE into Hybrid

Short Summary of work done during PS-II : I had an opportunity to work on conducting a thorough research on conversion of internal combustion engine into the hybrid electric vehicle and studying which components have to add and which has to be removed using CAD software's. As converting an internal combustion engine vehicle to a hybrid involves integrating an electric propulsion system alongside the existing IC engine. The process begins with assessing the vehicle's current configuration, market survey and developing a detailed conversion plan, which includes selecting the type of hybrid system (micro, mild, full, or plug-in hybrid). Based upon the thorough research analysis mild hybrid system has been chosen into order to its feasibility with the current existing engine and the parts availability, upon these iterative calculations has been done in order to choose the rated power of the motor, battery, dc-dc converter for the conversion. After identification the components of specific specification, CAD assembly have been done in order to replacing the existing components from the engine. Alongside with this a detailed study of electrical architecture with the current existing engine have been carried out.

Tool used (Development tools - H/w, S/w) : Catia, MATLAB, Research Paper

Objectives of the project : Study and understand hybrid technology in an existing market, To develop strong base for conversion of IC engine to Hybrid engine

Major Learning Outcomes : CAD 3D modelling, Project management skills, innovation and research, Benchmarking.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment in the company is really good, and collaborative. The colleagues in the company is helpful and has a proactive attitude toward problem-solving. Good infrastructure is there in terms of soft skills and technical skills.

Academic courses relevant to the project : CAD

PS-II Station : Skoda Auto India Pvt. Ltd. (Chakan) , Pune

Faculty

Name: Samata Satish Mujumdar

Student

Name: KAUSTAV BHATTACHARJEE(2022H1410060G)

Student Write-up

PS-II Project Title: Know how - Conversion of conventional vehicle to hybrid electric vehicle

Short Summary of work done during PS-II : A comprehensive study and extensive calculations were conducted to explore the conversion of an internal combustion engine (ICE) into a hybrid engine. Through multiple iterations and detailed analysis, the research team successfully achieved a notable 13.7% increase in fuel mileage, marking a significant improvement in efficiency. The key components identified for this conversion included a 10 kW Integrated Starter Generator (ISG), a 48 V/0.6 kWh battery, and a 48V/12V DC-DC converter. The integration process was carefully examined using CAD assembly, ensuring that no fouling occurred during

the fitment of these parts. Additionally, the team meticulously worked out the electrical connections necessary to seamlessly integrate the hybrid system with the existing internal combustion engine, ensuring a smooth and efficient transition to a hybrid powertrain.

Tool used (Development tools - H/w, S/w) : MATLAB Simulink, Optimum Lap, CATIA

Objectives of the project : To study and understand hybrid technology in an existing market, To develop strong base for conversion of IC engine to Hybrid engine, To inculcate management skills through planning and execution of project

Major Learning Outcomes : Thorough research and calculations have been done to determine the conversion of internal combustion engines into hybrid engines.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company :

The working environment is dynamic and multifaceted, encompassing a range of activities from design and engineering to manufacturing and quality control. Engineers and designers typically work in office settings with advanced computer-aided design (CAD) software to create and test new vehicle models and components. The environment is more industrial, with assembly lines, robotic machinery, and strict adherence to safety protocols. Workers in these settings often perform tasks like assembly, welding, and painting, requiring manual and technical expertise. Quality control personnel work in office and factory environments, conducting rigorous testing and inspections to ensure vehicles meet stringent safety and performance standards. Collaboration across departments is essential, with teams frequently interacting to solve problems and innovate.

Academic courses relevant to the project : Mechanical, Electronics

PS-II Station : Smarbl Technologies Private Limited , Pune

Faculty

Name: Bandi Venkata Prasad

Student

Name: ADITHA VENKATA ANIMESH(2020A7PS0193H)

Student Write-up

PS-II Project Title: Smart BRE

Short Summary of work done during PS-II : I was involved in a lot of things during the R&D phase of my project where I had to study different libraries and compare them with each other. Measuring performance of libraries was also involved along with developing POCs. Once the R&D phase was done, I was tasked with developing the backend of the system while also integrating with their existing products. Later I was asked to look into LLMs in the efforts to build a chatbot.

Tool used (Development tools - H/w, S/w) : Java, Springboot, Python, LLMs, ML

Objectives of the project : To develop a business rule engine, that can be used in various ways like an early warning system

Major Learning Outcomes : Brief introduction to the Finance Domain, Regulatory Reporting, Software Architecture, Web Development

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The work environment is very good and has no micro management. Everyone is expected to work at their own pace although completing the assigned tasks at reasonable timelines is expected.

Academic courses relevant to the project : Software Engineering, OOPS, DBMS, OS

PS-II Station : Sona Comstar , Gurugram

Faculty

Name: Sameer Gupta .

Student

Name: ATHARVA SHRIKRISHNA BAJI(2022H1060096G)

Student Write-up

PS-II Project Title: Steering Gearbox

Short Summary of work done during PS-II : During my PS-II, I was involved in product development and engineering. I used the Solid Edge to create detailed 3D models and technical drawings, ensuring compliance with project specifications and industry standards such as DIN, ISO, and NPT. I effectively managed Bills of Materials (BOM) by understanding and systematically documenting the components. I also used precision measurement tools, including Vernier callipers, micrometres, and height gauges, to ensure accurate part dimensions. My work involved conducting a comprehensive review and analysis of a benchmarking product, which included disassembly and compiling a comprehensive BOM. I actively participated in meetings, contributing to discussions and ensuring alignment on product requirements. I also used Zeiss RE software for creating CAD models from the 3D scan data.

Tool used (Development tools - H/w, S/w) : Solid Edge, Zeiss RE

Objectives of the project : New Product Development. Developing a gearbox that is cost-effective to manufacture and maintain.

Major Learning Outcomes : Solid Edge for 3D modelling and technical drawings, BOM creation and management, Conducted effective reverse engineering and benchmarking and learned about bearing fixture design and assembly techniques.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The working environment at the company was moderate. You'll be directly immersed in new project activities. While there's no formal training, supportive colleagues are available for guidance. Also, there will be daily and weekly meetings to keep everyone updated on project progress and goals.

Academic courses relevant to the project : Engineering Drawing, Manufacturing Processes, Material Science

PS-II Station : Sona Comstar , Gurugram

Faculty

Name: Sameer Gupta .

Student

Name: MANU T JOSE(2022H1060154H)

Student Write-up

PS-II Project Title: Product Development of Bevel Gear Box used in steering mechanism of commercial vehicles

Short Summary of work done during PS-II : In this project, we developed a bevel gearbox for the steering mechanism of commercial vehicles. The process began with thorough market research and requirements analysis to identify customer needs and technical specifications. We generated and assessed multiple design concepts, followed by detailed CAD modeling and finite element analysis (FEA) to optimize the design for performance and durability. Prototypes were fabricated and subjected to rigorous testing to validate their reliability, precision, and compliance with industry standards. We focused on cost-effective manufacturing methods, selecting suitable materials and streamlining production processes. Additionally, we incorporated features for ease of maintenance and ensured the gearbox's compact and lightweight design. Throughout the project, we emphasized collaboration and communication across cross-functional teams to achieve a high-quality, efficient, and reliable final product.

Tool used (Development tools - H/w, S/w) : SolidEdge, Zeiss Reverse Engineering software

Objectives of the project : First, it aims to ensure reliable and consistent performance under various operating conditions through rigorous testing and validation. Durability and longevity are prioritized by selecting high-quality materials and designing for robustness to withstand harsh environments. Precision and accuracy are critical for enhancing vehicle control, achieved by optimizing gear tooth design and manufacturing processes. Cost-effectiveness is maintained by streamlining design for manufacturability and using cost-efficient materials.

Major Learning Outcomes : The major learning outcomes from the product development of a bevel gearbox for commercial vehicle steering mechanisms encompass a comprehensive understanding of gearbox design principles, including gear tooth geometry, load distribution, and material selection.

Details of Papers/patents : Design optimisation of bevel gear pair
January 2011 International Journal of Design Engineering 4(4):364 - 39

Brief Description of working environment, expectations from the company :

The working environment for the bevel gearbox project was dynamic and collaborative, involving a multidisciplinary team of engineers, designers, material scientists, and quality control experts. The use of advanced CAD and simulation tools, along with state-of-the-art manufacturing facilities, facilitated efficient design, analysis, and prototype testing. The company expected innovative and technically excellent solutions that balanced performance with cost efficiency. Stringent quality standards and compliance with industry regulations were mandatory, alongside adherence to a strict project timeline. Effective teamwork and communication were emphasized to ensure seamless integration of diverse expertise, with a strong focus on meeting customer needs and feedback throughout the development process.

Academic courses relevant to the project : Strength of Materials, Finite Element Method, TEP

PS-II Station : Sona Comstar , Gurugram

Faculty

Name: Sameer Gupta .

Student

Name: K ABHAY KUMAR(2022H1060163H)

Student Write-up

PS-II Project Title: Non- Linear Fea of Differential Unit

Short Summary of work done during PS-II : Learnt the working of differentials . Performed fea simulation of bevel gear pairs, different types of differentials. Fea involved geometry cleaning, idealizing the parts , seed meshing , final 3d meshing, creating simulation deck , defining constraints , loadings (boundary conditions) , contact defination , post processing , creating a

report according to company standards. Analysing the results and understanding them. Calculating FOS for the parts based on the results. Performing multiple simulations for calculating damage analytically. Calculated mean correction factor and performed different damage calculations for critical components in differential.

Tool used (Development tools - H/w, S/w) : Siemens NX (used nonlinear static NASTRAN/Adina Solver), Excel , PowerPoint .

Objectives of the project : To understand the types of differentials, physics of differentials , non linear Fea of the differentials .

Major Learning Outcomes : * Learnt about the manufacturing of bevel gears , helical gear , assembly of differential unit.

* Learnt about the types of differentials

* Learnt about the working of types of differentials

* Learnt different standard steps involved in a fea simulation as per company standards.

* Learnt performing non linear static simulation in Siemens NX using Nastran/Adina

* Learned the basics of performing MBD simulation in Siemens NX.

* Learnt to analyse the results and correlate it with actual failures occurring in parts after fatigue duty cycle testing.

* Learnt about mean correction factor to be used in analytical damage calculations.

* Learnt about the analytical damage calculations for the components undergoing fatigue load duty cycle.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : * Free environment to work

* Moderate Pressure

* As a fresher , we can get a good exposure to how work is done in a mechanical company. (Manufacturing, Design , Feasibility study using fea etc)

Academic courses relevant to the project : ME G512 (Finite Element Method) , ME G613 (Advanced Finite Element Modelling and Analysis) , ME G641 (Theory of Elasticity and Plasticity

), ME G535 (Advanced Engineering Mathematics), ME G 611(Computer Aided Analysis and Design)

PS-II Station : Sona Comstar , Gurugram

Faculty

Name: Sameer Gupta .

Student

Name: ARVIND SINGH GANGOLA(2022H1060218P)

Student Write-up

PS-II Project Title: Non- Linear Fea of Differential Unit

Short Summary of work done during PS-II : Learnt the working of differentials . Performed fea simulation of bevel gear pairs, different types of differentials. Fea involved geometry cleaning, idealizing the parts , seed meshing , final 3d meshing, creating simulation deck , defining constraints , loadings (boundary conditions) , contact defination , post processing , creating a report according to company standards. Analysing the results and understanding them. Calculating FOS for the parts based on the results. Performing multiple simulations for calculating damage analytically. Calculated mean correction factor and performed different damage calculations for critical components in differential.

Tool used (Development tools - H/w, S/w) : Siemens NX (used nonlinear static Nاستan/Adina Solver), Excel , PowerPoint

Objectives of the project : To understand the types of differentials, physics of differentials , non linear Fea of the differentials .

Major Learning Outcomes : * Learnt about the manufacturing of bevel gears , helical gear , assembly of differential unit.

* Learnt about the types of differentials.

* Learnt about the working of types of differentials.

* Learnt different standard steps involved in a fea simulation as per company standards.

* Learnt performing non linear static simulation in Siemens NX using Nastran/Adina.

* Learnt about the basics of performing MBD simulation in Siemens NX.

* Learnt to analyse the results and correlate it with actual failures occurring in parts after fatigue duty cycle testing.

* Learnt about mean correction factor to be used in analytical damage calculations.

* Learnt about the analytical damage calculations for the components undergoing fatigue load duty cycle.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : * Free environment to work.

* Moderate Pressure.

* As a fresher , we can get a good exposure to how work is done in a mechanical company. (Manufacturing, Design , Feasibility study using fea etc).

Academic courses relevant to the project : FEM, FRACTURE MECHANICS, QUALITY.

PS-II Station : Sona Comstar , Gurugram

Faculty

Name: Sameer Gupta .

Student

Name: PADHYE ANKIT KIRAN(2022H1410109H)

Student Write-up

PS-II Project Title: Gear Design and Development

Short Summary of work done during PS-II : Design and Development of Gear Pair. Drawing Release on central company server. PLM software training and file uploading. Manufacturing Feasibility check.

Tool used (Development tools - H/w, S/w) : CAD Software, FEA Software, PLM software, M.S Office

Objectives of the project : To design gear pair for optimum result.

Major Learning Outcomes : 1.) Learnt CAD modeling and Drafting
2.) Learnt FEA analysis
3.) PLM Software Training

Details of Papers/patents : No Papers required.

Brief Description of working environment, expectations from the company : 1.) Working culture is very good.
2.) Learning corporate rules in company.
3.) Supportive colleagues and seniors.
4.) Interactive Mentor.

Academic courses relevant to the project : 1.) Finite Element Method (ME G512
2.) Advanced Engineering Maths

PS-II Station : Sona Comstar , Gurugram

Faculty

Name: Sameer Gupta .

Student

Name: SAURAV UNIYAL(2022H1410137P)

Student Write-up

PS-II Project Title: FEA simulation of Gear Pair and Differential Unit in Siemens NX

Short Summary of work done during PS-II : I have learned about the workings of differentials and performed finite element analysis (FEA) simulations on bevel gear pairs and various types of differentials. The FEA process involved cleaning up the geometry, creating an idealized representation of the parts, generating an initial mesh, refining it into a final 3D mesh, creating a simulation model, defining constraints and loadings (boundary conditions), specifying contact parameters, conducting post-processing, and generating a report according to company standards. I analyzed the results and calculated the factor of safety (FOS) for the parts based on the findings. Additionally, I conducted multiple simulations to calculate damage analytically, determined the mean correction factor, and performed different damage calculations for critical differential components.

Tool used (Development tools - H/w, S/w) : Siemens NX

Objectives of the project : To understand the actual working of differential and through simulation find out the critical region in the differential unit and then optimize the design

Major Learning Outcomes : I have acquired knowledge about the following:

- Manufacturing of bevel gears, helical gears, and assembly of differential units.
- Types of differentials and their working principles.
- Standard steps involved in FEA simulation according to company standards.
- Performing non-linear static simulation in Siemens NX using Nastran.
- Basics of performing MBD simulation in Siemens NX.
- Analyzing results and correlating them with actual failures occurring in parts after fatigue duty cycle testing.
- Mean correction factor for use in analytical damage calculations.
- Analytical damage calculations for components undergoing fatigue load duty cycle.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : In a supportive and balanced work environment, we, as freshers, have the opportunity to gain valuable exposure to the operations of a mechanical company.

Academic courses relevant to the project : FEM, Advance Finite Element Method, Fracture Mechanics, Material, Testing & Technology

PS-II Station : Spanda AI , Hyderabad

Faculty

Name: Swapna S Kulkarni

Student

Name: MANAS CHATURVEDI(2019B3AA0488G)

Student Write-up

PS-II Project Title: Educational enhancement systems using GenAI & RAG

Short Summary of work done during PS-II : Building a user interface for an AI application. Working with RAG frameworks and NLP techniques. Integrating with external APIs and cloud services. Docker containerization and Kubernetes deployment.

Tool used (Development tools - H/w, S/w) : VSCode, JS, Python, UnstructuredIO, Weaviate, Ollama

Objectives of the project : To create 3 AI based application for WILP

Major Learning Outcomes : Building a user interface for an AI application.
Working with RAG frameworks and NLP techniques.
Integrating with external APIs and cloud services.
Docker containerization and Kubernetes deployment.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Chill working environment as it was a WFH intern. Good paying job, have pretty good PPO options considering it is WFH, learning wise not very well, would need to do everything on your own & my mentor was also learning the things I was working on during the intern so he wasnt much help

Academic courses relevant to the project : AI ML related courses

PS-II Station : Spanda AI , Hyderabad

Faculty

Name: Swapna S Kulkarni

Student

Name: BUGGAREDDIGARI HANISH REDDY(2020AAPS2103H)

Student Write-up

PS-II Project Title: Educational Enhancement System using GenAI and RAGframeworks

Short Summary of work done during PS-II : The development of the Educational Enhancement System using advanced GenAI and RAGframeworks demonstrates the substantial potential to revolutionize the educational experience within the WILP program. The projects aimed at generating multiple question paper variants, creating an AI-powered grading assistant, and identifying traits of a good instructor present transformative solutions to address persistent challenges within academia. The project combats academic malpractice and promotes student integrity by automating the creation of unique question paper variants. The implementation of an AI-powered grading assistant alleviates the burden on educators, provides real-time feedback to students, and fosters personalized learning experiences. Moreover, the analysis of instructor traits supports data-driven recruitment processes, tailored candidate improvement, and the cultivation of teaching excellence. While significant progress has been made, the project remains in its ongoing development phase. Future efforts will focus on the meticulous collection and preparation of data, rigorous model training and refinement, comprehensive user interface design, and exploring additional value-adding features. The successful implementation of this system enhances the overall quality, efficiency, and fairness of the WILP program. It reflects a strong collaboration between Spanda.AI and BITS Pilani, exemplifying the transformative power of artificial intelligence when responsibly applied to solve real-world problems in education

Tool used (Development tools - H/w, S/w) : Unstructured.IO, Weaviate, Docker, WindowsRetriever, PHP, Python, TWIG

Objectives of the project : Auto-Question Generator: Developing an automated system for generating diverse question paper variants to enhance educational assessments and relieve educators from manual paper creation, promoting comprehensive subject coverage and deeper understanding. Auto-Grading Assistant: Creating an AI-powered grading assistant to streamline grading tasks, provide real-time feedback, and facilitate personalized learning experiences, thereby freeing up professors' time and improving student engagement. Traits of Good Instructor: Exploring the traits of effective educators through data analysis to offer tailored improvement suggestions, enhance hiring processes, and provide data-driven assessment and feedback for instructor development and excellence in the classroom.

Major Learning Outcomes : PHP, Twig, Docker, Neo4j

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Technical Skillset:

Strong Python Programming: Proficiency in Python is essential for backend development, data manipulation, and integrating AI/ML models.

Web Development Expertise: Experience with frontend technologies like HTML, CSS, and JavaScript (or frameworks like React or Vue.js) for building user interfaces.

AI/ML Fundamentals: Understanding of machine learning concepts (e.g., natural language processing, text classification) and familiarity with relevant libraries (e.g., scikit-learn, TensorFlow, PyTorch).

Database Management: Experience with databases like Weaviate (vector database) or traditional SQL/NoSQL databases for storing and querying data.

API Development: Ability to design and build RESTful APIs for communication between frontend and backend components.

Academic courses relevant to the project : Database Systems, OOP, Machine Learning

PS-II Station : Sparrow Capital , Bengaluru

Faculty

Name: Sandeep Kayastha

Student

Name: ASHWIN KOTHARI .(2020A3PS1216P)

Student Write-up

PS-II Project Title: Creating a Data Repository on the Indian Economy

Short Summary of work done during PS-II : I am interning as an Investment Analyst here. My role involves mainly attending meetings with founders to understand what they are building, and carrying out market research and analysis for companies that we are evaluating for investments. In addition to that, I handle some compliance requirements for Sparrow such as documentation of account statements for investors on a quarterly basis. An important part of investment analysis is to research and analyze the broad economy as well as the sector to which the company belongs to. Since data on private companies is not so readily available, it takes time and effort to find this data from the web and carry out analysis each time. To save on this effort of carrying out market research practically from scratch every time a new startup comes, I worked on making a data repository or data repository on Google Sheets, which consisted of a concise summary of each broad sector and its sub-sectors and has a separate section on macroeconomy as well.

Tool used (Development tools - H/w, S/w) : Google Sheets(Cloud-based spreadsheet application), Microsoft Excel, Tracxn

Objectives of the project : Sector data and broad macroeconomic picture for investing.

Major Learning Outcomes : 1) Learnt how to research and collect data for investment purposes.

- 2) Learnt how to use tools such as Tracxn and Google Sheets for better compilation of data.
- 3) Learnt how to evaluate and understand startups.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Good opportunity to get exposed to the Venture Capital industry and understand how the industry works. As an intern, my role was to carry out due diligence, or research into deals that Sparrow was looking at. This involved:

- 1) Assess product and team capability via personal meetings and reference checks.
- 2) Conduct market research through both primary research by connecting with industry experts, and by secondary research to assess market sizing, perform competitor benchmarking, analyze feasibility of value proposition and metric traction for different financial models.
- 3) Present findings to investment committee based on diligence for approval.
- 4) Summarize due diligence for investors for approved deals by drafting investment memorandums.

My final project was to summarize and compile the results of due diligence to create a data repository for Sparrow's team to streamline the investment process when they work on a deal.

Academic courses relevant to the project : Business Analysis and Valuation, Fundamentals of Finance

PS-II Station : Spiralyze LLC , Atlanta, USA

Faculty

Name: Vijayalakshmi Anand

Student

Name: VINEET VATSAL(2019B1A71085G)

Student Write-up

PS-II Project Title: DevBoost

Short Summary of work done during PS-II : We created a Chrome extension which allowed for injecting .js, .css and .scss files into webpages. Along with this we created a VSCode extension which hosted a ftp server at a specified folder and this was read by our chrome extension to retrieve files which are supposed to be injected.

Tool used (Development tools - H/w, S/w) : VSCode, Google Chrome

Objectives of the project : Make a chrome extension for injecting .js and .css files into webpages

Major Learning Outcomes : Learnt how to create chrome and vscode extension

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Very relaxed working environment, no standups but people asynchronously met up as was required. Youre expected to learn and implement, things by your own, but since this isn't a large organization, the scope of the projects aren't very large.

Academic courses relevant to the project : DSA, OOP

PS-II Station : Spiralyze LLC , Atlanta, USA

Faculty

Name: Vijayalakshmi Anand

Student

Name: ROHIT RAJESH JAIN(2019B4A70727G)

Student Write-up

PS-II Project Title: Automated A/B Testing Monitoring Tool

Short Summary of work done during PS-II : the development and deployment of an automated A/B testing monitoring tool designed to enhance data accuracy in user retention and conversion rate analysis. Key innovations include the integration of Slack notifications, AWS Lambda for serverless processing, AI to minimize false positives, real-time dashboards, and CI/CD pipelines. Transitioning from 'scrapelt' to Puppeteer enabled effective component tracking in authenticated sessions, while the system architecture, built with Node.js and MongoDB, streamlined operations. Deployed on AWS, the tool has significantly reduced manual monitoring, increased reliability, and ensured timely stakeholder updates, thereby improving overall A/B testing efficiency and integrity.

Tool used (Development tools - H/w, S/w) : ### Tools Used Puppeteer, Node.js, Express, MongoDB, AWS Lambda, AWS CloudWatch, ChatGPT, Slack API, React.js, D3.js, Jenkins, GitHub Actions.

Objectives of the project : We aimed to automate the change detection and notification process, developing a tool accessible to users with varying technical backgrounds. This tool would monitor website changes, keep a detailed history of A/B tests, and provide real-time alerts and dashboards.

Major Learning Outcomes :

1. Technical Skills:

- Proficiency in Puppeteer for automated web scraping.
- Backend development with Node.js and Express.
- Database management using MongoDB.

2. AWS Integration:

- Utilizing AWS Lambda for serverless functions.
- Monitoring with AWS CloudWatch for performance and logging.

3. AI and Machine Learning:

- Integrating ChatGPT for anomaly detection and minimizing false positives.

4. Real-Time Notifications and Monitoring:

- Implementing real-time notifications using the Slack API.
- Developing interactive dashboards with React.js and D3.js.

5. CI/CD Pipelines:

- Setting up and managing pipelines with Jenkins and GitHub Actions.

6. Project Management and Collaboration:

- Collaborating effectively with cross-functional teams.
- Enhancing problem-solving and decision-making skills.

7. Communication and Reporting:

- Documenting technical processes and project updates.
- Engaging stakeholders with clear communication.

8. Industry and Domain Knowledge:

- Understanding Conversion Rate Optimization (CRO).
- Integrating technology and digital marketing strategies.

These outcomes highlight your comprehensive development in technical skills, AWS integration, AI application, real-time monitoring, CI/CD, project management, and industry knowledge.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Fully remote with flexible hours and no daily stand-ups. The focus is on getting your work done. The team consists of friendly and understanding people, creating a relaxed work environment with a manageable workload.

Academic courses relevant to the project : CS Related for fundamental understanding

PS-II Station : Sprinklr , Gurugram

Faculty

Name: Jyotsana Grover

Student

Name: HEMANT SURESH BAJPAI(2019B1A70855G)

Student Write-up

PS-II Project Title: Kubernetes and Kafka In depth

Short Summary of work done during PS-II : The work involved developing and implementing a Kubernetes monitoring system to track the expiry status of environment variable keys within pods, ensuring proactive security management. This system includes a monitoring agent for scanning the cluster, a key expiry checker for evaluating key statuses, and a logging server for centralized alert analysis. Additionally, a notification system using a MongoDB scheduler pipeline was created to send push notifications upon the expiry of cobrowse templates. Lastly, the Screen Utils method was refactored using the Factory Design Pattern to improve code maintainability, scalability, and readability. These efforts enhanced operational efficiency, security, and code quality within the organization.

Tool used (Development tools - H/w, S/w) : Java, Spring, MongoDB, elasticsearch, Kubernetes, Kafka

Objectives of the project : Main objective was to get familiar with sprinklr code base

Major Learning Outcomes : The learning outcomes include understanding the significance of proactive security management through real-time monitoring and maintenance of environment variable keys in Kubernetes, which is essential for data protection and regulatory compliance. It

emphasizes the value of designing a modular and scalable monitoring system with interconnected components such as a monitoring agent, key expiry checker, and logging server. Additionally, the project highlights the importance of efficient task scheduling and reliable notification delivery using MongoDB, and showcases the benefits of applying the Factory Design Pattern for enhancing code maintainability and scalability. Overall, these projects underscore the critical role of robust architecture, automated workflows, and proactive system management in modern software development.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment is good and supportive. Everybody here has exceptional knowledge and something you can learn from them. You will be required to put in the extra hours, but that will definitely teach you a lot about software development.

The company expects you to be a fast learner and have in-depth knowledge of key concepts in computer science like OOPS, DBMS, and CN. They want you to have the attitude to deal with errors and problems yourself, and you cannot expect any handholding here as everyone is really busy. If you want your mentor to help you with some doubt, you need to be thoroughly prepared with what you are going to ask and what you have done to solve that doubt yourself. Everyone is supportive, but you need to earn their respect.

Academic courses relevant to the project : OOPS, DSA, DBMS, CN

PS-II Station : Sprinklr , Gurugram

Faculty

Name: Jyotsana Grover

Student

Name: JOSHI SIDDHANT TUSHAR(2020A3PS0543G)

Student Write-up

PS-II Project Title: Ads Reporting in Sprinklr Marketing

Short Summary of work done during PS-II : I was part of the Ads Reporting team in Sprinklr Marketing. I majorly worked upon managing API integrations across different advertising channels to pull in data regarding how the ad performed. Some of my major contributions were successfully migrated Adobe APIs from v1.4 to v2.0, resolving issues with fetching specific report suites and ensuring continued functionality and compatibility with updated API standards. I also Identified key shortcomings in the Retry Policy for DV360, and enhanced the API Usage (by preventing unnecessary API calls) by 27%. Apart from this, I was also involved in resolving on-call support cases and other bug-fixes.

Tool used (Development tools - H/w, S/w) : Java, Spring Framework, MongoDB, Elasticsearch, Redis, Kafka, Kubernetes

Objectives of the project : Getting familiarised with the product our team was working on - it's business use-case and objectives. Understanding the system designed for achieving this. Going through the existing code architecture and understanding all relevant code-flows. Contributing to bug-fixes/feature improvement tickets.

Major Learning Outcomes : Java, Spring Framework, MongoDB, Elasticsearch, Redis, Kafka, Kubernetes

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Work, along with the exact expectations is team-specific, depending on the reporting manager. However, in the engineering department, the deadlines are usually tight. Sprinklr is known to have a "hyper-growth" environment. Many a times, you would require to go back home and complete the

assigned work, or work on weekends unless you manage your assigned work very smartly and efficiently. The work is interesting and has a lot of learning potential, but the initial learning curve is steep. Overall, you are expected to complete the assigned work in the assigned amount of time, and this may be difficult during the initial stages.

Academic courses relevant to the project : Object Oriented Programming, Data Structures & Algorithms, Database Management System

PS-II Station : Sprinklr , Gurugram

Faculty

Name: Jyotsana Grover

Student

Name: PARTHA SARATHI PURKAYASTHA .(2020A7PS0043P)

Student Write-up

PS-II Project Title: FrontEnd Development - Beyond Design

Short Summary of work done during PS-II : During my tenure at Sprinklr, I was tasked with constructing a mock webpage and associated services for simulation purposes. This involved employing technologies such as HTML, CSS, JavaScript (TypeScript), React.js, Next.js for server-side rendering (SSR) and static site generation (SSG), and tools like Memlab and BLeak for memory management. I focused on optimizing frontend performance metrics like First Contentful Paint, Largest Contentful Paint, Time to Interactive, Total Blocking Time, Cumulative Layout Shift, alongside reliability metrics such as uptime percentage, error rates, and failure rates??. Through this project, I learned the intricacies of frontend development, performance

optimization, and memory management. I developed a deep understanding of how to improve user experience by focusing on frontend parameters and reliability metrics. This hands-on experience with cutting-edge technologies and tools has significantly enhanced my skills and knowledge in web development.

Tool used (Development tools - H/w, S/w) : S/w- VScode, Memlab, BLeak, Sentry, Graylog

Objectives of the project : The objective of the project was to create a tool for frontend development setup for development testing and to improve the existing codebase in terms of efficiency, performance and resiliency.

Major Learning Outcomes : The nature of the learning involved both New Product Development and Improvement in the productivity and efficiency of the product and services.

Details of Papers/patents : NIL

Brief Description of working environment, expectations from the company : Working within the Sprinklr Frontend Team involves a dynamic environment focused on enhancing performance and resilience of their applications. The team collaborates closely with backend developers, UX/UI designers, and DevOps engineers to ensure that the user-facing aspects of Sprinklr's products are not only visually appealing but also competent and efficient.

Expectations from the company revolve around delivering high-quality frontend solutions that meet or exceed industry standards. This includes optimizing code for speed and responsiveness to ensure a smooth user experience, especially crucial in platforms dealing with real-time data and analytics like Sprinklr. Moreover, emphasis is placed on maintaining resilience, ensuring that the frontend can gracefully handle errors or fluctuations in network conditions without compromising functionality.

Academic courses relevant to the project : OOP, DBS, DAA, DSA, HCI

PS-II Station : Sprinklr , Gurugram

Faculty

Name: Jyotsana Grover

Student

Name: GHULE ANISH SUBHASH .(2020A7PS0129P)

Student Write-up

PS-II Project Title: Elasticsearch Infra Management

Short Summary of work done during PS-II : The goal is to manage the scalable infrastructure for Elasticsearch, is an open-source, cloud based, large-scale distributed search-based engine. This includes but is not limited to cost reduction and optimization, ensuring availability, low latency, and ensuring reliable service for our clients.

Tool used (Development tools - H/w, S/w) : Java, Python, Kubernetes, Elasticsearch, Distributed Systems, Resiliency, Kibana, Grafana, JVM Performance Tuning

Objectives of the project : The tasks span from designing fault-tolerant architectures to ensuring high availability, low latency, and reliable service delivery to clients. Additionally, the team focuses on optimizing costs through resource utilization strategies and capacity planning, while also fine-tuning performance through indexing and query optimizations.

Major Learning Outcomes : Working in real life corporate settings with problems related to scalability and robustness of distributed systems

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Sprinklr has a very bad work culture, and the values they preach are not what they follow. "People never forget how you make them feel" says the CEO, but on the other hand makes the employees feel deceived, heartbroken, mentally drained, helpless and harassed by leadership decisions like offer revokal without any financial compensation for loss of time and opportunity with the potential full-time offer. With all due respect, the company is expected to not give false assurances like 'PPO offers are safe', or unilaterally terminate offers violating good faith principles after placing a PS-2 lock. Providing severance is a basic thing (like Atlassian did with 8.5L severance), but Sprinklr did not provide any compensation for the period of the actual full-time offer, which was expected out of them.

Academic courses relevant to the project : Object Oriented Programming, Distributed Systems, Database Management Systems, Data Structures and Algorithms

PS-II Station : Sprinklr , Gurugram

Faculty

Name: Jyotsana Grover

Student

Name: MITHIL SHAH .(2020A7PS0980P)

Student Write-up

PS-II Project Title: Interactive Voice Response Components

Short Summary of work done during PS-II : During the PS-II internship at Sprinklr, I worked on enhancing the features of the voice care product, specifically focusing on voice applications and

interactive voice response (IVR) systems. I contributed to the integration of generative AI for IVR flow, implemented governance rules for voice call recordings, and added recording announcement support. Initially, I familiarized myself with the existing codebase and worked on bug fixes. Later, I developed a GraphQL endpoint to interface with machine learning endpoints, ensuring efficient data handling and enhancing user interaction accuracy. I also worked on defining access rules within the IVR system to ensure secure and efficient handling of customer interactions and implemented features to ensure compliance with legal requirements for call recordings

Tool used (Development tools - H/w, S/w) : Java, Spring, MongoDB, Kubernetes, Redis, ElasticSearch, Kafka, GraphQL, JUnit

Objectives of the project : Implement or add features for Interactive Voice Response (IVR) components at Sprinklr.

Major Learning Outcomes : Gained practical experience with various technologies such as Java, Spring, MongoDB, Kubernetes, Redis, ElasticSearch, and Kafka, enhancing software engineering skills and understanding of production-level code development.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at Sprinklr was collaborative and supportive, fostering continuous learning and professional growth. The company provided ample opportunities to work with advanced technologies and gain hands-on experience with real-world projects.

Academic courses relevant to the project : Object Oriented Programming

PS-II Station : Spyne (Eventila Technologies) - Product , Gurugram

Faculty

Name: Nishit Narang

Student

Name: ESHA BHARGAVA .(2020A2PS1772P)

Student Write-up

PS-II Project Title: Innovative Techniques Used in Civil Engineering

Short Summary of work done during PS-II : I learned about critical role of instrumentation in the maintenance and assessment of essential infrastructure elements, including structures, pavements, railways, and geophysical explorations. Through precise data collection, real-time monitoring, and proactive maintenance measures, instrumentation contributes significantly to ensuring the safety, efficiency, and longevity of vital assets. By attending conferences, obtaining certifications, and completing assigned tasks during my tenure in the Practice School (PS), I have further deepened my understanding and expertise in instrumentation technologies and their applications across various domains. Moving forward, I am committed to leveraging this knowledge and experience to contribute effectively to the continued improvement and resilience of critical infrastructure networks.

Tool used (Development tools - H/w, S/w) : MS Office, STAAD Pro

Objectives of the project : To learn the significance, working and operations of methods and instruments used for monitoring and evaluation of infrastructure

Major Learning Outcomes : I learned about the importance of health monitoring and evaluation of structures like bridges, dams, pavements and railways and know how of equipment used for the same. Moreover, I also gained experience in computer aided design in STAAD Pro software. My PS tenure availed me with opportunity to travel and attend conferences and increase my networking.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : My company creates a positive environment that helps me grow and stay happy. Open communication makes sure my ideas are heard and valued. Friendly colleagues and supportive managers make the workplace welcoming and encourage teamwork. I benefit from training and mentorship that improve my skills and career prospects. The company respects work-life balance with flexible hours and wellness programs, which enhance my well-being. Recognition and rewards for hard work motivate me to do my best. This supportive environment boosts my productivity and makes me feel loyal and connected to the organization.

Academic courses relevant to the project : B.E Civil

PS-II Station : Srifin Credit Private Limited , Hyderabad

Faculty

Name: Vaishali Pagaria

Student

Name: MUNNANGI TEJA VENKATA KUMAR(2022H1030119P)

Student Write-up

PS-II Project Title: API integrations

Short Summary of work done during PS-II : I've developed a project to track the movements of CSM employees' bikes across roughly 60 branches spanning three states. The project includes

filtering out inaccurate data from tracking devices, monitoring idle, walking, and biking durations, and validating route accuracy using metrics like moving average speed, average speed, and delta time. For implementation, I've utilized OpenLayers for mapping, Java Spring Boot for the backend, Angular for the frontend, PostgreSQL for the database, and Docker for deployment.

Tool used (Development tools - H/w, S/w) : java spring boot, angular , postgresql,docker

Objectives of the project : to create a website which will be deployed in srifin main website.

Major Learning Outcomes : learnt how to deploy full stack application in real world.

Details of Papers/patents : none

Brief Description of working environment, expectations from the company : good

Academic courses relevant to the project : cloud computing,ST

PS-II Station : ST Microelectronics(I) Pvt.Ltd. , Greater noida

Faculty

Name: Pawan Sharma

Student

Name: VENIGANDLA SAI TEJA(2022H1230111G)

Student Write-up

PS-II Project Title: Analog design automation as use case for AI

Short Summary of work done during PS-II : prepared exhaustive analog ckt topologies dataset for finetuning, Finetuned the LLM with analog circuit topologies dataset, enhanced the dataset to improve response accuracy, literature review on gm/Id methodology, automated the gm/ID device characterization for any given device across all technology node using python scripting.

Tool used (Development tools - H/w, S/w) : LightningAI, Langchain, vscode, cadence virtuoso, spectre simulator, eldo simulator, python scripting

Objectives of the project : Automate building analog design topologies by leveraging the use of LLMs and automating the design parameters selection using AI

Major Learning Outcomes : Finetuning and RAG on LLMs for domain-specific learning for the model, python scripting for automating the flows, overview on LightningAI and Langchain frameworks, gm/ID methodology for analog design

Details of Papers/patents : na

Brief Description of working environment, expectations from the company : My project had a great working environment. Since it was just me and my mentor, we had excellent collaboration through frequent meetings. My mentor was very supportive and provided ample time to understand the problem statement. He appreciated my work and was also open to ideas from my side. This supportive and collaborative atmosphere made a very positive experience.

Academic courses relevant to the project : Introduction to Artificial Neural networks

PS-II Station : Strand Life Sciences Pvt Ltd , Bengaluru

Faculty

Name: Bharathi R

Student

Name: NIRSHA MAGESHWARAN(2022H1290009P)

Student Write-up

PS-II Project Title: ORGANIZING SCIENTIFIC LITERATURE, INTERPRETING CLINICAL FINDINGS, AND REPORTING ON INHERITED CANCERS.

Short Summary of work done during PS-II : Germline cancer arises when mutations occur in reproductive cells, which make them heritable and lead to familial cancer occurrences. Those who have germline mutations are at increased risk of developing cancer earlier in life as compared to the general population. Identifying such mutations is crucial as it enables testing of relatives for carrier status and facilitates appropriate preventive measures. Moreover, knowledge of specific mutations aids in treatment decisions and prognosis estimation. Next- generation sequencing (NGS) is employed due to its ability to detect various DNA variants, streamlining decision-making. Interpretation of NGS data involves adhering to American College of Medical Genetics (ACMG) guidelines, supplemented by bioinformatics, literature, and population studies. The resultant report provides comprehensive evidence supporting variant identification. Ultimately, this endeavor aims to deepen understanding of ACMG guidelines and proficiently utilize the StrandOmics platform for variant interpretation.

Tool used (Development tools - H/w, S/w) : STRANDOMS(TM); Clinvar. BDGP, MaxEntScan. SpliceAi, ASSP, Microsoft Excel, Ensembl, FLOSSIES, gnomAD, UCSC browser

Objectives of the project : Interpretation and analysis of sequence variants in germline cancer and Reporting these variants based on the patient's cancer type.

Major Learning Outcomes : o Acquiring a comprehensive understanding of sequence variant interpretation.

- o Implementing variant classification in accordance with the guidelines outlined by the American College of Medical Genetics (ACMG).
- o Generating individual reports utilizing the capabilities of the StrandOmics™ platform.

Details of Papers/patents : nil

Brief Description of working environment, expectations from the company : The working environment in the office was very welcoming and all seniors were available to us at all times for any doubt or clarification. All the people were very approachable and would help us in any possible way. The company only expected us to submit the report on time before the due date, but would still be understanding if there were any delays due to unforeseen reasons

Academic courses relevant to the project : Molecular Biology, Bioinformatics, Cancer biology

PS-II Station : Strand Life Sciences Pvt Ltd , Bengaluru

Faculty

Name: Bharathi R

Student

Name: SWETA SINGH(2022H1290012P)

Student Write-up

PS-II Project Title: INTERPRETATION AND REPORTING OF VARIANTS IN GERMLINE CANCER

Short Summary of work done during PS-II : During my internship at Strand Life sciences, I was mainly responsible for interpretation and analysing the variants and report them based on their pathogenicity. : Based on the clinical indications and family history gene list is to be applied against the product referred and issued for the patient. On correct application of the gene list for the cancer type of the proband, the genes and its variants are analysed followed by generating the label of the variant based on the scores that result from the evidence granulated by strength or weightage and thereby classifying them according to “American College of Medical Genetics and Genomics (ACMG)” guidelines into pathogenic, likely pathogenic, uncertain significance, likely benign, or benign. At the end of the thorough interpretation, the variants are reported including the details of the identified variant with classification and comprising the population, bioinformatics and literature summary pertaining to the reported variants.

Tool used (Development tools - H/w, S/w) : StrandOmics™ platform, ASSP, Splice AI, BDGP

Objectives of the project : Interpretation and analysis of sequence variants in germline cancer, Reporting the variants pertaining to the cancer type of the patient, Updating resolutions regarding the clinical indications of the clients which include the diagnosis, the age at diagnosis, and any family history of cancer in the patient’s family if applicable

Major Learning Outcomes : Analyzed mutations in cancer-related genes using Strand's products/tests, Gained experience in generating reports for pathogenic, benign, and VUS variants, Improved teamwork, communication, time management, and meeting deadlines

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment is very cooperative and supportive. I was assigned a mentor who would guide me through the workflow and all the information regarding the tools and techniques that would be required for me to use in daily interpretations and reporting. Even the senior scientists would help us in case we have any doubts requiring their guidance

Academic courses relevant to the project : Bioinformatics and Genetics

PS-II Station : Strand Life Sciences Pvt Ltd , Bengaluru

Faculty

Name: Bharathi R

Student

Name: HARSHITA(2022H1290020P)

Student Write-up

PS-II Project Title: CURATION OF SCIENTIFIC DATA/LITERATURE, INTERPRETING CLINICAL FINDINGS AND REPORTING GERMLINE DISEASE

Short Summary of work done during PS-II : Germline cancer is caused by mutations in the reproductive cells. These mutations are heritable, therefore tumors caused by them may run in families. Individuals with germline mutations are more prone to acquire cancer at an earlier age than the general population. whether a person has a heritable mutation, their relatives may be tested to see whether they are also carriers. This allows for remedial or preventive action to be done. Understanding the precise mutation may inform therapy decisions and illness prognosis. Next- generation sequencing (NGS) is an all-in-one technology that detects several kinds of variations in DNA sequences, making it useful for decision-making. Data from NGS was interpreted based on the patient's cancer type and impacted status. To evaluate NGS data, individuals' sequence variations were labelled according to ACMG criteria. Bioinformatics data, literature, and demographic studies were cited as evidence supporting the variant designation. The data was evaluated and provided as a report, together with supporting evidence for the variation designation. This effort aims to provide a comprehensive grasp of ACMG standards and expertise in interpreting variants using the StrandOmics platform.

Tool used (Development tools - H/w, S/w) : 1. StrandOmics™; 2. ClinVar; 3. Ensembl; 4. BDGP; 5. ASSP; 6. SpliceAI; 7. MaxentScan; 8. Microsoft excel; 9. UCSC browser

Objectives of the project : 1. Interpretation and analysis of sequence variations in germline cancer. Interpretation entails taking Next Generation Sequencing (NGS) data and determining its meaning in the context of germline cancer. A sequence variation is a DNA sequence that differs from the reference "correct" sequence. 2. Reporting these mutations according to the cancer kind of the patient.

Major Learning Outcomes :

- Being able to understand clinical data and use it for case solving,
- Interpretation of sequence variants,
- Learned how to use ACMG guidelines in order to score and label the variant,
- Use of StrandOmics™ platform
- How to work on curation projects, Collaborating with team mates and following strict deadlines.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Strand Life Sciences offers an exceptional working environment that stands out in the industry. The atmosphere is collegial, and every team member is easily approachable, helpful, and polite, fostering a collaborative and supportive workplace culture. This positive environment ensures that employees feel valued and motivated, contributing to high job satisfaction and productivity. Expectations from the company- anticipating a robust growth curve that provides ample opportunities for career advancement and professional development. Strand Life Sciences emphasizes maintaining a healthy work-life balance, ensuring that employees can manage their personal and professional commitments effectively. The company also promotes a healthy level of pressure and competition. Organization prides itself on being accessible at all levels, allowing for open communication and the easy resolution of issues or concerns. Overall, Strand Life Sciences is committed to creating a dynamic and nurturing workplace where employees can thrive, grow, and achieve their full potential, making it a preferred employer in the life sciences sector.

Academic courses relevant to the project : Molecular Biology, Bioinformatics, Genetics, Cancer biology

PS-II Station : Sundial Systems Pvt. Ltd. , Bengaluru

Faculty

Name: Preethi N. G

Student

Name: YADNESH PRAVINKUMAR MUNDHADA .(2019B3A70394P)

Student Write-up

PS-II Project Title: Self Serve Ingestion

Short Summary of work done during PS-II : During my internship, I worked on two key projects: Preview Data and Self-Serve Ingestion. The Preview Data project involved creating a system to generate lightweight data previews from various sources, utilizing Views, SQL Views, and Mapping Functions. These components could be chained together and combined through operations such as Join, Union, and Group By. The data was loaded into Spark using the Livy server, enabling efficient and scalable data previews. The implementation was done using Golang for the backend logic and Pyspark for data loading and processing. In the Self-Serve Ingestion project, I developed a platform that empowers users to independently ingest data from multiple sources into the data platform. This included building a user-friendly interface for configuring data ingestion parameters, supporting a wide range of data sources, and implementing ETL capabilities for data transformation. The project aimed to enhance data accessibility and usability across the organization, reducing reliance on IT and data engineering teams. Both projects significantly improved data handling efficiency and user autonomy, contributing to the overall agility of the data operations.

Tool used (Development tools - H/w, S/w) : Golang, Python, Pyspark, AWS, EMR, Dagster, Typescript

Objectives of the project : The primary objective of a Self-Serve Ingestion project is to empower end-users (such as data analysts, data scientists, and business users) to independently and efficiently ingest data into a data platform without needing extensive support from IT or data engineering teams. This facilitates faster data access and processing, promoting agility and democratizing data usage across the organization.

Major Learning Outcomes : 1. Software Development, Backend Development
2. Major tech stacks like Golang, Python, Pyspark, AWS, EMR, Dagster
2.Soft Skills, communication skills

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment was great and expectations from Interns were as high as the other employees. It is a collaborative culture where teamwork and innovation are highly valued. We had to often wear multiple hats, gaining exposure to diverse aspects of the business and technology. The atmosphere is very informal, promoting open communication and flexibility.

Academic courses relevant to the project : OOP, OS, Computer Networks, DBMS

PS-II Station : SunTec Business Solutions Pvt. Ltd. , Thiruvananthapuram

Faculty

Name: Sindhu S

Student

Name: DONTTHIREDDY MITHUN REDDY(2020A3PS0501H)

Student Write-up

PS-II Project Title: API Development with Java 8 Functional Programming

Short Summary of work done during PS-II : During my five-month internship at Suntec Business Solutions, I focused on developing and integrating APIs using Java 8 functional programming. I was involved in designing and implementing several API endpoints, using features like lambda expressions and streams to write efficient code. IntelliJ IDEA was my main development tool, and I used Postman for testing APIs, Bitbucket for version control, and SonarLint for ensuring code quality. I worked on configuring and testing the end-to-end flow of APIs and their integration with other application components. This required close collaboration with different teams to ensure everything worked well together and data remained consistent.

Tool used (Development tools - H/w, S/w) : IntelliJ IDEA, BitBucket, Postman, DBeaver

Objectives of the project : The objective of my project at Suntec Business Solutions was to design, develop, and integrate robust and scalable APIs using Java 8 functional programming principles.

Major Learning Outcomes :

1. Gained in-depth knowledge and practical experience in designing, developing, and testing APIs using Java 8 functional programming.
2. Developed proficiency in using tools like IntelliJ IDEA, Postman, TestNG, and Mockito for coding, testing, and debugging APIs.
3. Acquired hands-on experience in configuring and testing the end-to-end flow and integration of APIs and components.
4. Collaborated with cross-functional teams to troubleshoot integration issues, ensuring seamless interoperability and data consistency across the system.
5. Enhanced project management skills by planning, executing, and reviewing tasks systematically.

6. Developed strong problem-solving skills by addressing integration issues, performance bottlenecks, and security concerns.

7. Gained valuable insights into the software development lifecycle, from design and implementation to testing and deployment.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : In SunTec, as an intern you will be working on the same projects the developers who are working there. It will take a bit of time to get used to the company specific things, the training offered in the initial phase will help a lot with this. The people in SunTec the mentors, managers and coworkers are very supporting and approachable, you'll get a lot of learning opportunities.

Academic courses relevant to the project : Computer Programming, Object Oriented Programming, Data Base Systems

PS-II Station : SunTec Business Solutions Pvt. Ltd. , Thiruvananthapuram

Faculty

Name: Sindhu S

Student

Name: ARNAV J PILLAI(2020A7PS2053H)

Student Write-up

PS-II Project Title: Testing and Deployment Automation

Short Summary of work done during PS-II : Worked with tools like Kubernetes to deploy the company product on servers. Setting up environments on both remote and on-premise servers. Working with scripting languages and APIs of tools to extend functionality through programs or plugins. Writing programs to provide support to developer tasks such as log analysis and validation of configuration files.

Tool used (Development tools - H/w, S/w) : Docker, Kubernetes, Helm, Terraform, Ansible, EFK stack, Mend, Linux, Python, Bash, Lua, Java

Objectives of the project : Learning how to use standard industry tools used in DevOps teams and writing programs to extend their functionality

Major Learning Outcomes : DevOps tools and tasks, scripting languages

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Being in a support role, smaller individual projects were assigned to setup tools or write programs, had freedom to decide on how to implement them and didn't have strict deadlines

Academic courses relevant to the project : Operating Systems, Computer Networks, Data Structures and Algorithms

PS-II Station : Synchrony , Hyderabad

Faculty

Name: Y V K Ravi Kumar

Student

Name: GUJAR VEDANT MILIND(2019B1A80957G)

Student Write-up

PS-II Project Title: E-bill AWS migration

Short Summary of work done during PS-II : During my internship, I mastered Spring, Spring Batch, Kafka, and MySQL. I gained practical experience by contributing to a real-time project at a large company, where I honed my problem-solving skills by tackling various technical challenges. I successfully adapted to the corporate culture, learning the importance of communication, teamwork, and professionalism in a large organization.

Tool used (Development tools - H/w, S/w) : AWS, Kafka, oracle SQL developer, PCF, JIRA etc

Objectives of the project : to migrate e-statements to AWS

Major Learning Outcomes : AWS, Springboot, Springbatch, Kafka, Communication etc

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment was very good, every one is helpful and really result oriented which boosts you to push forward and make improvements in yourself.

Academic courses relevant to the project : Computer Science

PS-II Station : Synchrony , Hyderabad

Faculty

Name: Y V K Ravi Kumar

Student

Name: VARTIKA GUPTA(2019B3A70729H)

Student Write-up

PS-II Project Title: Poc for chatbot for DevOps team

Short Summary of work done during PS-II : Figured out how to use AWS bedrock to create a chatbot and make calls to various websites, Service now portal, went through weekly tickets to optimise the working of the DevOps team

Tool used (Development tools - H/w, S/w) : Jenkins, Cloudbees

Objectives of the project : Finding technology to create a chatbot that fits our use case

Major Learning Outcomes : AWS bedrock, Amazon Lex

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Work environment was extremely supportive, got all the necessary guidance, feedback

Academic courses relevant to the project : Operation system, Computer networks

PS-II Station : Synchrony , Hyderabad

Faculty

Name: Y V K Ravi Kumar

Student

Name: AMITABH S MISHRA .(2019B5A80800P)

Student Write-up

PS-II Project Title: Project Workstation

Short Summary of work done during PS-II : During the initial stage of my internship at Synchrony, I had the privilege of collaborating closely with a skilled and committed team. The internship commenced with an orientation session, promptly followed by an introduction to our manager, Ameena. Ameena entrusted us with multiple Compliance Trainings and organized meetings for us to engage with various departments within Synchrony. Mentor Alignment: Upon familiarizing myself with the company's operations, products, and Verticals and various functions by the medium of Training sessions scheduled by our manager. I was given the opportunity to work as full stack developer intern and was assigned a mentor in accordance with that. Learnings: Before starting to work on issues, I was asked by my mentor to enhance my learning in Spring, SpringBoot, Struts Framework, Unix Command and JavaScript.

Tool used (Development tools - H/w, S/w) : SW- Spring tool suite, vsc, git

Objectives of the project : To make the experience of customer service agents convenient while solving the queries of customers for promotion

Major Learning Outcomes : Backend and frontend development

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The work environment really encouraged me to enhance my skills and apply my learning to live projects. The mode of work is remote, however we can also visit the office whenever we wish to. We have the american office naming culture that is we call everyone by name, even the head of the company

Academic courses relevant to the project : No course in BITS helped me in my internship.

PS-II Station : Synchrony , Hyderabad

Faculty

Name: Y V K Ravi Kumar

Student

Name: SANJUKTHA ANEM(2020A7PS0001H)

Student Write-up

PS-II Project Title: Developing and Upgrading Microservices

Short Summary of work done during PS-II : I successfully upgraded multiple microservices from Spring Boot 2.x to Spring Boot 3.x, ensuring seamless integration and functionality with the new version of the Spring framework. This process included updating dependencies, refactoring code, and resolving compatibility issues. Additionally, I integrated Spring Security 6, which required an understanding of new security features and configurations. To enhance code quality, I increased code coverage using Mockito and JUnit, writing and refining unit tests to cover a wide

range of scenarios. The use of SonarQube was pivotal in visualizing code coverage and identifying areas for improvement, helping to maintain high coding standards and reduce technical debt.

Tool used (Development tools - H/w, S/w) : Springboot, Java, Spring framework, Spring Security, Mockito, Junit, Postman, Jenkins

Objectives of the project : To upgrade microservices from springboot 2.x to springboot 3.x using spring framework, spring security 6, java, also to increase the code coverage of the service using Mockito and junit visualizing the sonarqube report.

Major Learning Outcomes : I developed a deep understanding of the new features and improvements in Spring Boot 3.x, mastering dependency management, configuration changes, and compatibility considerations. My expertise in implementing and configuring advanced security measures was enhanced through working with Spring Security 6, significantly bolstering the security of applications. Additionally, I honed my skills in writing and refining unit tests using Mockito and JUnit, which led to higher code coverage and more reliable applications. Utilizing SonarQube allowed me to effectively visualize code quality and manage technical debt, ensuring that the codebase remains clean, efficient, and maintainable.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : At our company, we work in a friendly and collaborative atmosphere where teamwork and new ideas are valued. We have a talented team that loves technology and aims for excellence. We use the latest tools and technologies to stay ahead in our industry. We expect the company to provide opportunities for us to learn and grow through training and workshops. It's important for us to have a good balance between work and personal life. Clear communication about project goals and feedback helps us do our best work. We look forward to working on challenging projects that make a real difference. Collaborating on research and consulting projects would be exciting opportunities to learn more and contribute to the company's success. Overall, we thrive in an environment that supports creativity, learning, and career advancement for everyone involved.

Academic courses relevant to the project : Object Oriented Programming in java, Data Structures and Algorithms, DBMS

PS-II Station : Synchrony , Hyderabad

Faculty

Name: Y V K Ravi Kumar

Student

Name: KODITALA SHREYA(2020A7PS0176H)

Student Write-up

PS-II Project Title: Splunk development and Optimisation

Short Summary of work done during PS-II : Collaborated with a team and developed a pathway for optimization process of Splunk resource utilization. Automated the process of identifying long running and skipped searches and rewrote their queries to run for fewer iterations and consume lesser SVCs. Additionally, I handled requests from other teams to build dashboards, reports, and alerts. Was involved in the entire process - gathering requirements, deciding on suitable knowledge objects, configuring the solutions, and monitoring the final results to ensure efficiency and effectiveness.

Tool used (Development tools - H/w, S/w) : Splunk, Cribl, Jira

Objectives of the project : To optimise splunk configurations and reduce virtual compute consumption. Build dashboards and alerts for cross functional teams in the organisation

Major Learning Outcomes : Splunk, Regex, Optimising SQL Queries, Presentation Skills

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Although the internship was completely remote, the organization arranged numerous interaction sessions with leaders to ensure effective communication and engagement. The workload was manageable, providing a hands-on experience on par with full-time employees. The mentors and team mates were supportive and helpful. Additionally, the organization offered various training programs aimed at fostering all-round development, enhancing both professional skills and personal growth.

Academic courses relevant to the project : Database Management, Information Retrieval, Computer Architecture

PS-II Station : Synechron Technologies Pvt. Ltd. , Bengaluru

Faculty

Name: Chetana Anoop Gavankar g

Student

Name: MS ANUPAMA SHARMA(2019B5A30853G)

Student Write-up

PS-II Project Title: Enhancing Virtual Assistants with Agentic Behavior and Memory: Integrating Open Source Solutions like MemGPT, LangGraph, AutoGen, Ollama

Short Summary of work done during PS-II : Hallucination poses a significant challenge for Language Model (LM) systems, undermining their reliability and utility. To combat this issue, a comprehensive understanding of its origins, manifestations, and impacts is crucial. Detecting and mitigating hallucination involves deploying effective methods and tools. Addressing these challenges enhances LM robustness and credibility, unlocking their potential across various applications. In the quest to empower virtual assistants with agentic behavior and memory capabilities, several open-source solutions were integrated and assessed. MemGPT emerged as pivotal, innovatively managing memory within LMs to sustain coherence over extended interactions, transcending limitations of context windows. LangGraph and AutoGen facilitated the development of sophisticated multi-agent systems adept at complex workflows and dynamic decision-making. Meanwhile, Ollama provided robust infrastructure for local deployment and management across diverse operating systems, enhancing flexibility and scalability in virtual assistant applications. Collectively, these technologies synergistically bolstered virtual assistants' autonomy, enabling them to manage prolonged conversations and deliver contextually relevant responses. This integration not only improves user interaction experiences but also fortifies the overall functionality and reliability of LM-driven virtual assistants in practical settings.

Tool used (Development tools - H/w, S/w) : Llamda labs, Google colab, vs code

Objectives of the project :

- To identify and categorize the various causes of hallucination in LLMs.
- To explore different methods for detecting hallucination.
- To evaluate and recommend strategies for mitigating hallucination, enhancing the reliability of LLM outputs.
- To overcome the current limitations by leveraging open-source frameworks and LLMs.
- To integrate MemGPT to address memory issues by providing virtual assistants with virtually unlimited memory without increasing the token limit, thereby enhancing their ability to personalize interactions and maintain context over extended conversations.
- To explore the functionalities of LangGraph, AutoGen, and Ollama to establish an understanding of their codebases and assess their potential for integration into ongoing agentic AI projects.
- To experiment with these solutions to enable the creation of multi-agent systems, where different agents powered by various LLMs can operate concurrently, each utilizing specialized tools to perform distinct tasks.
- To enhance the overall capability, flexibility, and user experience of virtual assistants, ensuring they can meet complex client needs through natural language queries and efficient data operations.

Major Learning Outcomes : During my internship, I gained a thorough understanding of hallucination in Language Model systems and learned effective strategies to detect and mitigate it, thereby improving model reliability. I gained practical experience by integrating MemGPT, LangGraph, AutoGen, and Ollama to enhance virtual assistants with agentic behavior and optimized memory management. Specifically, I explored MemGPT's innovative memory handling methods, which overcome context limitations, and developed multi-agent systems using LangGraph and AutoGen for intricate workflows and decision-making processes. I also acquired skills in deploying and managing these systems locally with Ollama, supporting various operating environments. These experiences enhanced my problem-solving abilities, adaptability to emerging technologies, and comprehension of real-world applications in advancing virtual assistant autonomy and functionality across diverse sectors.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The team was very helpful, overall working environment was friendly but challenging.

Academic courses relevant to the project : AI/ML, Data science courses

PS-II Station : Syneos Health , Gurugram

Faculty

Name: Bharathi R

Student

Name: TRIVEDI GAHAN KALPESHMALTIBEN(2022H1290014P)

Student Write-up

PS-II Project Title: End to End Implementation Project (Consulting)

Short Summary of work done during PS-II : I was part of a global team catering a top 25 pharma company to help them implement and transition to Veeva Vault for their end to end clinical and regulatory solutions. I was able to quickly catchup and started taking client calls, understanding their organisation, IT systems and also was trained in-house by Syneos for Consulting best practices, R&D Advisory best practices. Together with my team I had direct contribution to deliverables worth >\$5000

Tool used (Development tools - H/w, S/w) : Bpanda: Business Process Model Notation

Objectives of the project : To cater to our client's changing digital infrastructure and help in implementing Veeva Vault for their end to end clinical data management needs.

Major Learning Outcomes : Process Modelling using Bpanda, Overview of Clinical Data Management and Spearheading Client Relations

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Working culture at Syneos is top notch. They are welcoming and very warm to new joiners. It all depends on the proactive nature of the candidates to really extract out creme la creme information from seniors or resources available and accessible. Filled with perks and empathetic people, it truly is a great place to work. Expectations from us are decently gauged and outlined. They push us but never forces us to go above and beyond but ensure that our minds are trinkled with curiosity that drives self and activates mind which helps us push more ourselves from within.

Academic courses relevant to the project : No real alignment with the coursework. M.E. Biotechnology coursework must include atleast 2 electives which are related to Life-Science Consulting or Lifescience Marketing or Pharma/Biotech Forecasting. It will make us job ready and companies will respect

PS-II Station : Syneos Health , Gurugram

Faculty

Name: Bharathi R

Student

Name: LIPIKA UPPAL(2022H1460315P)

Student Write-up

PS-II Project Title: RA Assest Authoring

Short Summary of work done during PS-II : During my PS-II internship at Syneos Health, I played a key role in the system implementation project aimed at improving clinical trials for a client in the healthcare sector. My primary responsibility was asset authoring, which involved creating comprehensive and user-friendly documentation to facilitate the effective adoption and utilization of the new system. This documentation included user manuals, training guides, and support materials, designed to translate complex technical features into accessible information for end-users. I began by thoroughly understanding the system's functionalities and the specific needs of the clinical trial teams. Collaborating closely with software developers, project managers, and the client, I ensured that the documentation was accurate, relevant, and aligned with the project's goals. My work involved detailed research, drafting, iterative reviews, and finalizing documents to maintain high standards of clarity and utility. Through this process, I significantly contributed to the project by reducing the learning curve for system users, minimizing errors, and enhancing overall efficiency. The feedback from both the client and the internal team was overwhelmingly positive, highlighting the value of the documentation in easing the transition to the new system. This experience allowed me to develop key skills in technical writing, project management, and stakeholder communication, while also gaining a deeper understanding of regulatory

requirements in clinical trials. My contributions not only supported the project's success but also provided me with invaluable insights and professional growth in the field of healthcare consulting and technology.

Tool used (Development tools - H/w, S/w) : Microsoft Word, Microsoft Excel

Objectives of the project : To streamline clinical trial processes and improve data accuracy. To enhance patient engagement and recruitment strategies. To ensure compliance with regulatory standards more efficiently. To reduce the time and cost associated with bringing new medicines to market.

Major Learning Outcomes : From this project, my major learning outcomes include a profound understanding of the intricacies of system implementation within the healthcare sector and the critical role of effective documentation in ensuring project success. I developed advanced skills in asset authoring, which involved translating complex technical features into user-friendly guides, thereby facilitating smoother user adoption and operational efficiency. Additionally, I gained valuable insights into project management and regulatory compliance, learning to navigate challenges with strategic problem-solving and effective communication.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at Syneos Health was exceptionally positive and nurturing. From the very beginning, I was warmly welcomed by everyone, which set the tone for a supportive and inclusive atmosphere. The people at Syneos Health are not only friendly but also incredibly supportive, always willing to lend a hand or offer guidance whenever needed. This camaraderie and willingness to collaborate created an environment conducive to both personal and professional growth.

The company's work culture stands out as one of the best I have experienced. It promotes a balance of hard work and personal well-being, making it an ideal place to work. I had the flexibility to work from home, which not only provided convenience but also demonstrated the company's trust in its employees to manage their responsibilities effectively.

The learning experience at Syneos Health was nothing short of amazing. The managers and team members were highly approachable and dedicated to my development. They provided continuous

mentorship and shared their extensive knowledge, which significantly enhanced my understanding and skills in healthcare consulting and system implementation. Their constructive feedback and encouragement fostered a productive learning curve, allowing me to tackle challenges confidently.

Academic courses relevant to the project : Regulatory Affairs

PS-II Station : Synopsys , Noida

Faculty

Name: Shree Prasad Maruthi

Student

Name: KHUNT MAYUR DHIRAJLAL(2022H1400168P)

Student Write-up

PS-II Project Title: SRAM Compiler Design

Short Summary of work done during PS-II : Gained comprehensive knowledge of the complete SRAM compiler development flow through memory design training. Developed basic scripting skills to automate the generation of simulation reports and expedite analysis. Acquired in-depth understanding of various design aspects of memory and its sub-circuits through project tasks. Gained hands-on experience with simulation tools. Learned to navigate corporate work culture, including completing tasks within deadlines and effectively collaborating in a team environment.

Tool used (Development tools - H/w, S/w) : Hspice

Objectives of the project : Optimized for low power, high performance and high density, Synopsys Memory Compilers offer advanced power management features such as light sleep, deep sleep, shut down and dual power rails, allowing designers to meet the stringent low-power requirements of today's system-on-chips (SoCs).

Major Learning Outcomes : This company is a leader in SRAM compiler design, providing me with extensive experience in memory circuit design and hands-on experience with SPICE simulation tools.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : During my six-month internship at Synopsys-Noida, I had the privilege of receiving intensive and dedicated training. The company is committed to the professional development of its interns, providing comprehensive training sessions that covered both foundational and advanced concepts relevant to my field. This structured training program ensured that I was well-prepared to tackle the challenges of my live project.

Academic courses relevant to the project : VLSI Design , Advance VLSI Design ,VLSI Architecture ,Embedded System Design , Reconfigurable Computing

PS-II Station : T Works Foundation , Hyderabad

Faculty

Name: Panchagnula Jayaprakash Sharma

Student

Name: ARYAN KUMAR(2020A3PS0521P)

Student Write-up

PS-II Project Title: Colour Candy Sorter

Short Summary of work done during PS-II : My work can be divided into three parts: 1. Workflow for Embedded Interns: This was a training workflow given by sir to all incoming interns. As part of the program, using Arduino Mega, I learnt interfacing inputs and outputs (buzzer, LED, Relay, Alpha-Numeric LCD), concept of interrupts, working with Timers, configuring Timers for PWM, using ADC & DAC, concept of USART, SPI and I2C, and finally introduction to CAN & LIN networks. 2. Colour Candy Sorter: This was a prototype developed from scratch according to a client's requirement. The machine sorts Cadbury gems based on different colours using RGB readings from a colour sensor (TCS3200). I came up with the logic to run the machine, design the machine on Autodesk Fusion and Solidworks, 3D print/Laser-cut the required parts and assemble and demonstrate the fully-working machine. 3. Other projects and minor tasks: In addition to the above mentioned work, I also did the following other works: a. Prepared the Electronics Cheat Sheet and Electronics Components Board to teach a layman basic electronics. b. Made Connections and tested the Tumbler: A rotating drum used for Coating Seeds. The said drum is run by a BLDC motor, which is controlled by a Motor Controller and powered by SMPS. c. Teaching Electronics and the concept of Wearables to FDDI Students in a dedicated hands-on workshop. d. Teaching Soldering to students of Standards VIII, IX, X, XI, XII. e. Co-Developing Shop Display System: A master-slave system which displays information of a said shop and its workload on a dedicated LCD screen outside it. Other minor tasks such as Rearranging the Lab, checking inventory and typing company responses (provided in response to clients' feedback) for different projects.

Tool used (Development tools - H/w, S/w) : Software: Arduino IDE, Python, BIPES, Docklight, SolidWorks, Autodesk Fusion Hardware: Vernier Callipers, X1-E Carbon 3D Printer, Tactile 4 Pin Push Button Switch, HMB1275-05 Piezoelectric Buzzer, Green LED, Blue LED, JQC-3FF-S-Z Relay, BC547 NPN Transistor, JHD162a AlphaNumeric LCD, RIGOL DG4162 Function generator, Rigol MSO5104 Oscilloscope, LM358 Operational Amplifier, ADS1115, Nema 17

H34RLD-4988A 200315RITRLD Stepper Motor, Limit Switch, CNC Shield v3, A4988 Stepper Motor Driver, TMC2208 Stepper Motor Driver, L298N stepper Motor Driver, Fielect Speed Sensor Module LM393 Motor Measuring Comparator Slot Type IR Optocoupler, TENMA 72-2690 Single Output DC Bench Power Supply, LED, Fluke 115 Multimeter, MG90S Micro-Servo Motor, Hakko FX-888D Digital Soldering Station, E-BIKE DC GEARED MOTOR MY1016Z2 24V 300RPM 250W, Yalu YL-03 Motor Controller, LRS-450-24 Mean Well SMPS, STAR ME-120W SMPS, TCS3200 Colour Sensor, Arduino Mega 2560, Arduino Uno

Objectives of the project : To make a simple Colour Candy Sorting Machine

Major Learning Outcomes : They are:

1. During the training: Coding in Arduino IDE, Interfacing Inputs and Outputs to Arduino Mega, Using Docklight, Learning the concept of Interrupts, Working with Timers, configuring Timers for Interrupts and PWM, Implementing ADC (using ADS1115) and DAC (on Arduino Mega), Learning and implementing the concept of USART, SPI and I2C in different devices and using different formats, and Interfacing components using CAN and LIN Networks
2. During the project: Interfacing Colour Sensor, Limit Switch and Fork (IR) Sensor to Arduino Mega, Using Servo Motor and Stepper Motor, Learning how to use draw and design components on AutoDesk Fusion and Solidworks, how to assemble components on Fusion 360, How to 3D print components by Slicing them and giving prints, how to decide the material to be used for each components in addition to considering mechanical strength of each material and producing a sound mechanical Design, and finally how to make the design working.
3. During the other tasks: Learning and coding with BIPES, How to Desolder. Additionally teaching people electronics and soldering from non-electronics background was quite a learning experience.

Details of Papers/patents : None as such used.

Brief Description of working environment, expectations from the company : Talking about the company:

First talking the working environment:

1. T-Works is a wonderful place. It has Metal shop, Woodshop, PCB Fabrication shop, 3D printing shop, Laser-Cutting Shop, Sensor Lab, Electronics Lab, Ceramics Shop, Textile Shop

under one roof. One can make use of all available opportunities to arrive at a solution for any particular problem.

2. The company has several people who are extremely good in their field. They are extremely helpful and ready to help you, provided you have done your homework regarding any doubt.

3. The company provides several opportunities to interact with dignitaries and delegations from different companies and countries. I met the D. Shridhar Babu (IT minister of Telangana), delegation from Panasonic, Thermofisher, Lam Research, and Orica to name a few.

To sum up, the working environment is very pleasant and conducive to do work on multidimensional projects.

Now talking about the expectations from the company:

1. The company expects one to make full use of the equipment and facilities required. One should be proficient in one's field, but additionally develop an understanding of non-related fields. As an electronics engineer, I was also expected to develop an understanding of Designing, 3D Printing and Laser-Cutting, in addition to improving my skills as an electronics engineer.

2. The company expects one to be professional and very productive in work. In addition, a work well done is often expected to be finished in-time and finishing it before time is appreciated.

3. The company expects one to everyone to be a brand-ambassador for the company. I personally talked to several people looking for electronics solutions and introduced them to my manager.

The company expects one to do good work for the clients and the society at large.

Academic courses relevant to the project : They are: IoT (Internet of Things) and Embedded Systems.

PS-II Station : T Works Foundation , Hyderabad

Faculty

Name: Panchagnula Jayaprakash Sharma

Student

Name: SAROJ CHANDRA BISWAL(2022H1060091G)

Student Write-up

PS-II Project Title: Deloitte pillar (Scrolling board) project, Seedball dispenser project

Short Summary of work done during PS-II : During my PS-II, I have learned different types of machines which include SIL laser machine, 3D printing, etc. I have worked on a project for Deloitte pillar scrolling board where I have done the mechanical assembly and in the process I learned how to use different tools and machines. I have also done structural analysis on seedball dispenser top plate to find the total deformation and equivalent stress by comparing magnesium and carbon fibre materials by using ANSYS workbench, along with that I have learned Fusion 360 software as well as ANSYS ACP for the analysis of different composites and done analysis of different models.

Tool used (Development tools - H/w, S/w) : Cordless drill machine, Ratchet, pliers, vernier callipers, measuring tape, file, deburring tool, etc.

Objectives of the project : To make a scrolling board in which the white board can move either side so that people sitting on the other side can see what is written on the board. It is controlled by the switches on the microcontroller assembled on the board.

Major Learning Outcomes : Mechanical assembly of different structures which includes aluminium extrusions with different fasteners, modelling using Fusion 360, Structural analysis using ANSYS ACP, SIL laser cutting machine, 3D printings

Details of Papers/patents : Nil

Brief Description of working environment, expectations from the company : Good working environment with good facilities.

Academic courses relevant to the project : Finite elements method, machine tool engineering

PS-II Station : Techture Structures , Indore

Faculty

Name: Mahesh K Hamirwasia

Student

Name: ATHARVA NAMJOSHI .(2020A2PS1496P)

Student Write-up

PS-II Project Title: Modeling of High speed railway steel bridge, Rebar modeling of building , Cad detailing, Pdf Plotting and Photo linking of the pictures

Short Summary of work done during PS-II : Work done in the PS station can be divided into 2 parts, Pre mid sem and Post mid sem. In the pre mid sem part more work was done in the documentation and modeling of 2 major steel bridges related to a high speel rail project working on revit software. This included marking of each and every component of the bridge. In the post mid sem portion major work was done in the rebar modeling of the beams of a building, this includes detailed modeling of the beams of the project. Also in this portion another work that was given was the CAD detailing , Picture linking and pdf plotting of various stores of a Major fast food chain in the US

Tool used (Development tools - H/w, S/w) : Revit , AutoCAD, Bluebeams, Pano 2 VR , adobe, fenix web servers

Objectives of the project : Documentation and modeling of components of a steel bridge, rebar quantity of beams of a building and picture linked pdfs of stores

Major Learning Outcomes : In depth knowledge of revit, autocad , drawings of projects , bluebeam adobe and various other softwares related to the project.

Details of Papers/patents : Nil

Brief Description of working environment, expectations from the company : The working environment at the Station was very friendly and open, the mentors were very patient when teaching things and were also open to discussion in project related doubts. The work culture at the station is very warm and helpful for the employees

Academic courses relevant to the project : Design of steel structures, Design of reinforced concrete structure.

PS-II Station : Tega Industries , Kolkata

Faculty

Name: Arun Maity

Student

Name: NIMMAKAYALA MADHU(2022H1410117H)

Student Write-up

PS-II Project Title: Planning, execution and process validation for installation of sewage treatment plant at Samali Plant, Design Calculations for the Mould Rack Deflection, Cycle Time Study for Blasting Operation

Short Summary of work done during PS-II : Planning of complete project using Gantt charts method, assigning tasks and tracking the tasks completed, what is the delay for project, challenges faced during work, resolving them at earliest, ensuring all tasks completed properly according to design and ensuring all piping and electrical connections are correct.

Tool used (Development tools - H/w, S/w) : MS Excel

Objectives of the project : Time management, stakeholder management, budget management, team management, monitoring and controlling, communication, validation, quality.

Major Learning Outcomes : How to deal project from planning, procurement to project validation, cycle time study.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Working environment is little bit okay since the company deals with rubber production, work life balance is good, project department team members are helping in nature.

Academic courses relevant to the project : Project management, Design Calculations for deflection.

PS-II Station : Tejas Networks , Bengaluru

Faculty

Name: Rajesh Kumar Tiwary

Student

Name: ABHINAV DIXIT(2022H1230106G)

Student Write-up

PS-II Project Title: Ethernet Frame Generation and ORX controller FSM

Short Summary of work done during PS-II : Initially we were told to learn about Verilog. I have done two projects here, one was related to Ethernet Frame Generation and other was orx controller FSM design

Tool used (Development tools - H/w, S/w) : Xilinx Vivado, Sim vision

Objectives of the project : Write verilog code for ethernet frame generation

Major Learning Outcomes : Verilog coding style for FSM design

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Here, in Tejas Networks we have very good learning environment. Like we can ask any doubt to anyone and all the seniors are very supportive and willing to help us

Academic courses relevant to the project : RTL design using verilog

PS-II Station : Tejas Networks , Bengaluru

Faculty

Name: Rajesh Kumar Tiwary

Student

Name: ADITI VYAS(2022H1230138G)

Student Write-up

PS-II Project Title: Designing of Observational Receiver (ORX) Control FSM for Radio Unit (RU), Booth Multiplier with FSM and FOR loop approaches and I2C Protocol

Short Summary of work done during PS-II : Designing of of an observational receiver (ORX) control FSM for radio unit (RU) helps us to understand the RTL designing and verification part. We understand that how to write the proper test benches to verify the functionality and each cases. Also while designing how to make the RTL code efficient in terms of hardware designing. The booth Multiplier with FSM and FOR loop approaches gave us the idea for the utilization and speed like the way we change the design approach from FSM to FOR loop how many clock cycles are needed. at last coding of I2C protocol helps us to understand how the master and slave communicate.

Tool used (Development tools - H/w, S/w) : Quartus Prime, cadence xcelium, simvision, Vivado

Objectives of the project : This project scope on the designing and verification of an observational receiver (ORX) control FSM for radio unit (RU) that is used in 5G downlink channel. It highlights the designing of Booth Multiplier (with FSM and FOR loop based approaches)that is used in downlink where IFFT and FFT has been done also the implementation of the I2C protocol. We understood the designing perspective considering the real time scenario also the basic approach that need to be follow for simple verification and RTL designing.

Major Learning Outcomes : RTL Designing coding style, Writing proper test bench for verification covering all required cases.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : In Tejas Networks we have a good Training Academy teams that helps us to build the initial foundation to

know about the telecom product what they provide and what work is going on. Also the environment of the company is so encouraging to work hard and finds the new solutions to the real time problem. All the seniors from our team as well as other teams are supportive enough to clear our doubts and give guidance. They are always ready to help and give feedback for the work and doubts we have.

Academic courses relevant to the project : VLSI Design, Reconfigurable Computing (Verilog Coding),

PS-II Station : Tejas Networks , Bengaluru

Faculty

Name: Rajesh Kumar Tiwary

Student

Name: LAGAD PRERANA SAMBHAJI(2022H1400086G)

Student Write-up

PS-II Project Title: 1. Implementation of Reed Solomon Encoder and Decoder for Forward Error Correction 2. Implementation of I2C protocol

Short Summary of work done during PS-II : In Ps-II, I worked on two projects. 1. Implementation of I2C protocol 2. Implementation of optimized design of Reed Solomon Encoder and Decoder for designing an IP. In first project, I have implemented I2C protocol in Verilog and synthesized on xilinx 7 series FPGA. In second project, I have done research to find efficient algorithms which uses minimum amount of hardware. I have implemented encoder in Verilog and synthesized using Xilinx 7 series FPGA.

Tool used (Development tools - H/w, S/w) : Xilinx Vivado

Objectives of the project : It should use minimum amount of hardware as purpose of this project is to design IP

Major Learning Outcomes : I learned how to write efficient verilog code so that it uses minimum amount of hardware

Details of Papers/patents : Not any

Brief Description of working environment, expectations from the company : I have learned many things in the company. Working environment is very good. All people are helpful. They give very interesting and responsible work to the students and help them for learning and experiencing practical things.

Academic courses relevant to the project : Reconfigurable Computing, VLSI Architecture, Hardware Software Codesign

PS-II Station : Telus International AI - Machine Learning , Bengaluru

Faculty

Name: Vimal S P

Student

Name: VEDANT MATHUR(2020A7PS2047H)

Student Write-up

PS-II Project Title: Machine Learning Intern

Short Summary of work done during PS-II : During my internship at Telus International AI, I worked on various projects focusing on natural language processing and machine learning. I developed a BERT transformer model for multiclass classification using the Helpsteer dataset, and evaluated LLMs like Mistral7b and Gemma7b for Italian translation. I also created a pipeline for factual verification and hallucination detection in LLM outputs, and suggested improvements for data deduplication methods. Additionally, I established a process for validating and solving math prompts generated by LLMs. These projects provided valuable practical exposure to advanced AI techniques, contributing significantly to both personal development and the company's objectives.

Tool used (Development tools - H/w, S/w) : Python, PyTorch, Huggingface models, ReTool, Notion

Objectives of the project : To develop and enhance machine learning models and methodologies to improve AI-driven services at Telus International AI. This includes projects on multiclass classification, language translation, factual verification, data deduplication, and math prompt validation.

Major Learning Outcomes : Hands-on experience with advanced ML models and frameworks.
Improved understanding of prompt engineering and language model translation.
Skills in designing and implementing verification pipelines.
Knowledge in data deduplication and validation techniques.
Enhanced problem-solving skills applying AI techniques to real-world scenarios.

Details of Papers/patents : No papers or patents were produced during the internship.

Brief Description of working environment, expectations from the company : The working environment at Telus International AI was highly collaborative and dynamic, fostering a culture of continuous learning and innovation. The company provided all necessary resources and support to work on advanced machine learning projects. The expectations included developing and enhancing machine learning models, contributing to various projects, and collaborating with team

members to solve complex problems. The mentorship and guidance from experienced professionals were invaluable in navigating project challenges and achieving desired outcomes. Overall, the supportive and resource-rich environment significantly enhanced my learning and professional growth.

Academic courses relevant to the project : Machine Learning

Natural Language Processing

Data Structures and Algorithms

Artificial Intelligence

Advanced Programming Techniques

PS-II Station : Tenstorrent , Bengaluru

Faculty

Name: Rajesh Kumar Tiwary

Student

Name: GOPARAJU SAI RAJAT(2020A3PS0258H)

Student Write-up

PS-II Project Title: Testbench Modelling for Tenstorrent's HPC CPU

Short Summary of work done during PS-II : Defined DV requirements for design changes resulting from rapidly evolving AI/ML models; worked with engineers across domains to understand real world use cases. Wrote checkers for Memory attribute checks and VA to PA translation checks. Added the Hypervisor related two stage translation. Wrote the code for a monitor that maintains cache coherency checks before sending CHI transactions to the L2

(Shared Cache) checker. Debugged RTL related issues in the RTL design for the CPU. Deploying IO checkers that makes sure that memory accesses to sensitive memory regions aren't due to a speculative branch prediction. Deployed the memory attribute checker , which was successful in catching hidden bugs. Wrote interfaces for the DUT in accordance with AMBA CHI protocol , which is a protocol that is used to maintain cache coherency. Came up with corner case sequences for cache coherency situations in a Multicore processor. Resolved Bazel dependencies in a verification environment where there are multi-language verification components.

Tool used (Development tools - H/w, S/w) : System Verilog , Spike ISS by Google , RISC-V specifications , VS Code , C++ and Python

Objectives of the project : To come up with the entire testbench components such as environment , agents , monitors and scoreboards to perform DV checks. Develop DV testplans for ISA and microarchitecture and execute on them. Build architectural tools for ISA level verification.

Major Learning Outcomes : Learnt How to write the code for monitors , scoreboards and interfaces in System Verilog.

Writing Architectural checkers in C++.

Micro-architecture of a High Performance CPU.

RISCV-Architecture philosophy.

Details of Papers/patents : Industrial PS 2 , wasnt involved in research papers or patent development.

Brief Description of working environment, expectations from the company : The working environment at Tenstorrent gives a lot of importance to collaboration between engineers from different teams. The team members are really supportive and the discussion regarding the project are very insightful. The problem statements given as tasks , aren't very straightforward and require careful analysis before developing a detailed approach to solve and code for the problem.

Academic courses relevant to the project : Computer Architecture , Micro-Processors and Interfacing , Digital Design and Embedded Systems

PS-II Station : Tenstorrent , Bengaluru

Faculty

Name: Rajesh Kumar Tiwary

Student

Name: NIKITA TAWANI .(2020A8PS1803P)

Student Write-up

PS-II Project Title: Enabling of certain features in CPU

Short Summary of work done during PS-II : At Tenstorrent, where I was working as an intern, I was a member of the Core Test Plan team. In general, the primary goal of this team is to enable features by writing detests, snippets, and coverage, as well as diagnosing failures that are associated with such features. This includes taking into consideration a variety of scenarios that are associated with that feature and require it to achieve its requirements. In addition to the process of enabling features, I was also involved in performing regression debugs from the main development line. I was employed in a number of different features, including zjpm, zicboz, svadu, pma, and pmp. Snippets are snippets of code that are used to test a feature under a variety of scenarios by altering particular parameters. Directive tests, sometimes known as detests, are directed tests that examine the fundamental capabilities of a feature. The term "coverage" refers to a test plan that has been transformed into code and contains a number of cover points and cross-coverpoints. The purpose of this is to check for scenarios in which the feature might fail. I contributed to a number of features, including the following: A feature that masks pointers is called Zjpm, while Svadu is a hardware update that updates the A and D bits in PTE. A feature known as Zicboz is responsible for introducing a CMO instruction known as cbo.zero. This instruction is

responsible for rendering the entire cache line zero. A feature for protecting physical memory is referred to as PMP, while a feature for determining the physical memory properties of a memory region is referred to as PMA. Writing and analysing detests, snippets, and coverage are all required steps in the process of enabling a feature.

Tool used (Development tools - H/w, S/w) : Vs code, vnc viewer, vcs, Verilog zebu simulators

Objectives of the project : To enable new features in companies CPU for better performance

Major Learning Outcomes : My work at Tenstorrent was mainly focused on enabling features from Test Plan point of view after their code is being added to main RTL coding in order to test their functioning and raise bugs if there are any. I worked on various features which includes: Zjpm: a pointer masking feature, Svadu: Hardware update of A and D bits in PTE, Zicboz: a Feature

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The overall environment was learning and people of my team were very helpful. There were knowledge transfer sessions regularly to enhance our knowledge towards industry and work.

Academic courses relevant to the project : Computer architecture, digital design

PS-II Station : Tetrapak , Pune

Faculty

Name: Gaurav Nagpal

Student

Name: SAHIL SHARMA(2022H1540825P)

Student Write-up

PS-II Project Title: Analytics on Customer Adjustments

Short Summary of work done during PS-II : Learned to use Knime(Visual analytics software), and implemented statistical tests

Tool used (Development tools - H/w, S/w) : Knime, Excel

Objectives of the project : Check for relationship between data

Major Learning Outcomes : Learned new way of creating relationship in Time series data

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Good

Academic courses relevant to the project : Time series

PS-II Station : Texas Instruments (I) Pvt. Ltd - Systems , Bengaluru

Faculty

Name: Sathisha Shet K

Student

Name: AVANTIKA RANIWALA .(2020A3PS1780P)

Student Write-up

PS-II Project Title: Waveform analysis automation

Short Summary of work done during PS-II : Worked on automations to reduce manual effort in validation

Tool used (Development tools - H/w, S/w) : Python, TestStand

Objectives of the project : Automation

Major Learning Outcomes : Python, TestStand

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Good working environment, lots of learning

Academic courses relevant to the project : -

PS-II Station : Texas Instruments (I) Pvt. Ltd - Systems , Bengaluru

Faculty

Name: Sathisha Shet K

Student

Name: MOHITE PIYUSH SHRINIVAS(2020A7PS0114G)

Student Write-up

PS-II Project Title: Near Real Time Data Framework

Short Summary of work done during PS-II : Built a near real time data framework for QA Holds of materials and batches/STCs. This allowed quick decision making for quarantine of materials and products that are non conformant. Additionally, I migrated google analytics data pipeline from an Oracle database based architecture to a SqreamDB based architecture. This is significant for BO reports and dashboards.

Tool used (Development tools - H/w, S/w) : SqreamDB, Oracle SQL, Python

Objectives of the project : Inventory Management System operations

Major Learning Outcomes : Tech Stack - Oracle SQL, Sqream, Python

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment in the team was helpful, office restrictions were limited, requirement for good and upfront behavior. The team members are humble and ready to help, they point to the relevant persons related to queries. Working requires being frequently outspoken about queries/ongoing statuses. Requires constant follow-up from the side of interns, since the mentors can be busy with multiple responsibilities.

Academic courses relevant to the project : Database Systems

PS-II Station : Texas Instruments (I) Pvt. Ltd - Systems , Bengaluru

Faculty

Name: Sathisha Shet K

Student

Name: FAIZAN BEG(2022H1240094P)

Student Write-up

PS-II Project Title: Automation of Relcon condition

Short Summary of work done during PS-II : Automate the Relcon and wrote test program for LM4040 devices.

Tool used (Development tools - H/w, S/w) : C++, Eagle Test System, Batch file

Objectives of the project : To Automate the release condition(Relcon) to save engineer's time.

Major Learning Outcomes : Learnt how test flow works of analog chips.

Details of Papers/patents : Haven't wrote any paper.

Brief Description of working environment, expectations from the company : People were very helpful, learnt how organization works.Did some projects.

Academic courses relevant to the project : Mainly Vlsi courses, like Vlsi design and analog electronics

PS-II Station : Texas Instruments (I) Pvt. Ltd - Systems , Bengaluru

Faculty

Name: Sathisha Shet K

Student

Name: SAYANTAN SARKAR(2022H1400079G)

Student Write-up

PS-II Project Title: Market Analysis of Consumer Power Supplies

Short Summary of work done during PS-II : The project's scope involved developing a strategy to capture market share for high voltage controller solutions within the consumer AC/DC market. This entailed a thorough understanding of the Total Addressable Market (TAM), analysis of the market landscape, identification of key system challenges, examination of competitive offerings, and the creation of necessary reference designs. Additionally, the project aimed to produce end equipment collateral, such as equipment guides and reference designs, to educate sales teams and customers about the HVC portfolio's capabilities and benefits in the Consumer AC/DC PSU market.

Tool used (Development tools - H/w, S/w) : Excel Tool, Office Tools

Objectives of the project : TAM Estimation, Revenue Growth, EE Guide

Major Learning Outcomes : Analog Power Controllers , Power Supply Market and Customer Trends , Marketing Basics

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Very skillful workforce and supportive environment with huge interaction opportunities with everyone, company will expect a great understanding of the very basic

Academic courses relevant to the project : Power Electronics and Analog IC Design

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Analog , Bengaluru

Faculty

Name: Sathisha Shet K

Student

Name: PRATYUSH GUPTA(2020A3PS1028P)

Student Write-up

PS-II Project Title: Silicon Odometer

Short Summary of work done during PS-II : Implemented the project from RTL level to final handoff for fabrication

Tool used (Development tools - H/w, S/w) : Cadence Virtuoso, Simvision, Innovus, Tempus, Voltus

Objectives of the project : RTL to Handoff

Major Learning Outcomes : Learn about complete flow in a digital chip design

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Team Dependent

Academic courses relevant to the project : ADVD, DD, MuE, Computer Architecture

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Analog , Bengaluru

Faculty

Name: Sathisha Shet K

Student

Name: ANANYA SINGH .(2020A8PS1804P)

Student Write-up

PS-II Project Title: Biomedical Monitoring Systems: Implementation of ECG, Temperature and Pressure Sensors

Short Summary of work done during PS-II : My project started with observing ECG using TI's ASLK Pro Kit. TI gives this as a hackathon problem in college. My second project was on thermistor applications in temperature sensing. We needed an accuracy of 0.1C. My third project was on analyzing and comparing two pressure sensors for blood pressure measurement. My last project was on understanding the response of FIR and CIC filters used in the ECG and Respiration signal chain of front end device of TI.

Tool used (Development tools - H/w, S/w) : TI's ASLK Pro Kit, Matlab, Python, Lab Equipments like resistors, capacitors, amplifiers, TI's analog front end device.

Objectives of the project : TI has a device which measures ECG, Pace and Respiration of a patient. We want to measure temperature and Blood Pressure using the same device.

Major Learning Outcomes : I learnt about thermal noise of resistors, Signals and systems, Digital filters, Effect of 50 Hz supply noise on measurements, characterizing the source and filters.

Details of Papers/patents : No papers published.

Brief Description of working environment, expectations from the company : The working environment should be good, supportive, and cheerful. the company should focus on giving proper training to the freshers.

Academic courses relevant to the project : Transducers and Measurements, Signals and Systems, Analog Electronics, Digital Signal Processing.

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Analog , Bengaluru

Faculty

Name: Sathisha Shet K

Student

Name: KUMAR AAYUSH(2020AAPS0306G)

Student Write-up

PS-II Project Title: Dynamic noise suppression, voice activity trigger detection, creation of master test bench for amp and comparator

Short Summary of work done during PS-II : Started the work in firmware division of low power audio team, completed two protects which were Dynamic noise suppression and call activity trigger detection. Team was then changed to Analog and then made master test bench for amp and comparator in cadence virtuoso.

Tool used (Development tools - H/w, S/w) : Python, pytorch, unix, Cadence Virtuoso

Objectives of the project : 1. To create neural network model for dynamic noise suppression application. 2. To understand existing neural network model for voice activity trigger detection and perform training and testing, 3. To create master test bench for verification of amp and comparator design.

Major Learning Outcomes : Neural networks, Cadence virtuoso

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Good working environment

Academic courses relevant to the project : MUE, ADVD

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Analog , Bengaluru

Faculty

Name: Sathisha Shet K

Student

Name: ABHIJAY SINHA(2020AAPS1748G)

Student Write-up

PS-II Project Title: Project1: Implementation Of I2C Communication through Digital Patterns; Project 2:Writing a Power Up Sequence for the device with fault detection

Short Summary of work done during PS-II : I had to implement communication between our powerstage device and our hardware tester using the I2C communication protocol and digital patterns. Digital patterns help make the entire process more dynamic and less time-consuming. The advantage of this is the cost benefits, as the testing cost is proportional to the testing time. Thus, a less time-consuming test program saves money. Through this, the estimated cost saved is \$7500. My secondary project was to write a power-up sequence of our device with fault detection. This will start the device and allow the test engineer to switch on the fault detection mechanism and check the status of each functional block. I also did some miscellaneous work like spike check, temperature testing, making existing test programs modular, and Python scripting.

Tool used (Development tools - H/w, S/w) : TI test equipment and test software, VS code, Python IDLE

Objectives of the project : I had to implement an i2c communication between our device and the testing equipment using digital patterns. This also helped in reducing test time which had cost benefits.

Major Learning Outcomes : I learnt about I2C communication protocol, python and C++, TI power stage devices and how a product is made

Details of Papers/patents : No papers/patents.

Brief Description of working environment, expectations from the company : The company expects you to learn and be curious about every situation. At the end of every task, I was asked

what I learned before the specifics of the tasks. In terms of the working environment, everyone tries to do their best, and they try not to complete a task just by finishing it, but they see if any improvement can be brought about in the situation. Also, every task is done with the mindset that the outcome should benefit as many people/teams as possible.

Academic courses relevant to the project : Communication Networks, Microelectronic circuits, Power electronics

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Analog , Bengaluru

Faculty

Name: Sathisha Shet K

Student

Name: RAPOLU SIVAPRASAD(2022H1230178H)

Student Write-up

PS-II Project Title: Design of High Frequency Crystal Oscillator for Wi-Fi

Short Summary of work done during PS-II : My project is to generate a high frequency (40MHz) analog and digital clocks, So I started with the selection of three different architectures, and to select which satisfies my phase noise(PN) spec. I have analyzed the Pierce and Colpitts crystal oscillator(XOSC) and selected the Pierce oscillator because of good phase noise and low settling time, Then I started adding additional programmability to increase the gain on the silicon and made it to work and give better phase noise across PVT when compared to the previous design my team has done last year.

Tool used (Development tools - H/w, S/w) : Cadence Virtuoso

Objectives of the project : To design a clock with very stable frequency, better area than previous version and with good phase noise.

Major Learning Outcomes : How important the clock stability over PVT and the difference in the clock that a digital system uses and the clock that a analog RF circuit uses. How Phase noise specs are important wrt to Wi-Fi.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Work environment in TI is really good, You get the freedom to work on your own ideas and the team encourages you to do it. I use to have daily interaction with my manager where he used to teach me about the tools and designs. I used to have regular design reviews with the team where i used to get so many insights and ideas to implement in my design.

Academic courses relevant to the project : Analog electronics, Analog IC Design

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Analog , Bengaluru

Faculty

Name: Sathisha Shet K

Student

Name: SHEKHAR GUPTA(2022H1230241P)

Student Write-up

PS-II Project Title: Asic Design and Verification

Short Summary of work done during PS-II : Learned about industry standard to be followed while developing Asic from design to synthesis .Ive trained in the areas of Design and Verification using Verilog, System Verilog and UVM.

Tool used (Development tools - H/w, S/w) : Synopsis Eda tools , PYTHON ,

Objectives of the project : To understand the full flow of Asic Design

Major Learning Outcomes : RTL DESIGN, RTL Verification, Python

Details of Papers/patents : NOT APPLICABLE

Brief Description of working environment, expectations from the company : EACH AND EVERY EMPLOYEE IN THE ORGANISATION IS VERY FRIENDLY AND ALWAYS SUPPORTIVE TO HELP OUT IN CASE OF ANY DIFFICULTIES FACED. ALWAYS TRY TO MOTIVATE ME TO PERFORM AT MY 100 PERCENTAGE .

Academic courses relevant to the project : Vlsi design.,VLSI ARCHITECTURE, ANALOG DESIGN, CAD ,VTT

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Analog , Bengaluru

Faculty

Name: Sathisha Shet K

Student

Name: MYSAKSHI CHANDU(2022H1240098P)

Student Write-up

PS-II Project Title: Auto verify Break the part Test

Short Summary of work done during PS-II : Performed BTP of a device and got the data for evaluation against the ML model built.

Tool used (Development tools - H/w, S/w) : Python, NI Test stand, Thermostream, Voltage generators and oscilloscopes

Objectives of the project : Able to detect the glitch present in the BTP Test

Major Learning Outcomes : Python coding, Testing of Analog Devices, Automation of instruments in lab

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : It was a good experience and more you need to be independent and try to solve your own problems rather than depending on other.

Academic courses relevant to the project : Machine Learning, Analog Circuits, VLSI Design, Python Programming

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Analog , Bengaluru

Faculty

Name: Sathisha Shet K

Student

Name: ANKIT KUMAR MISHRA(2022H1400170P)

Student Write-up

PS-II Project Title: Double paper feed detection,bubble detection in fluid using ultrasonic sensor

Short Summary of work done during PS-II : I design a circuit that will help out to detect the presence of double paper feed,bubble in the fluid and different kind of object differentiation.

Tool used (Development tools - H/w, S/w) : Tina simulator,altium designer

Objectives of the project : Main objective is to prevent the paper jam and penetrating bubble in blood during dialysis.

Major Learning Outcomes : Practical implementation of knowledge of theory.

Details of Papers/patents : Ti data sheet and ti precision vedios

Brief Description of working environment, expectations from the company : Working environment is very good. Everyone is always ready if you have any doubt to discuss. They mainly test your approach not exact your answer.

Academic courses relevant to the project : Yes

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: ARUSHI GOEL .(2019B2A31011P)

Student Write-up

PS-II Project Title: RTL Power Estimation and Analysis using Cadence's Joules RTL Power Solution

Short Summary of work done during PS-II : Through this internship, I got a thorough understanding of Cadence's Joules RTL Power Solution (EDA tool for RTL Power Estimation). I've learned the complete process of setup and run of the tool, how to prepare the scripts, debug the errors, generate necessary reports and to analyse the results in order to draw meaningful conclusions. Based on the conclusions drawn, various strategies are employed or changes are made in the RTL to reduce the power. Understanding the top-level design of the digital block from the point of view of power. This project has also given me opportunity to increase my technical proficiency in SystemVerilog, Perl scripting language, Unix commands, Ms-Excel and Gvim text editor.

Tool used (Development tools - H/w, S/w) : Cadence's Joules RTL Power Solution, Gvim text editor, Ms-Excel

Objectives of the project : To compute the Power consumption of the digital block using Cadence's Joules RTL Power Solution and analyze the results to develop strategies in order to optimize power

Major Learning Outcomes : Thorough understanding of Cadence's Joules RTL Power Solution (EDA tool for RTL Power Estimation)

Learned about the various power reduction techniques used to optimize power at device level as well as architecture level

Details of Papers/patents : Didn't publish any paper/patent

Brief Description of working environment, expectations from the company : The working environment at Texas Instruments is a blend of innovation and collaboration. The office features an open-plan layout with plenty of natural light and designated collaborative spaces to foster teamwork. The company's core values of integrity, excellence, and respect are reflected in its inclusive culture. Team dynamics are highly collaborative, with cross-functional teams working together on projects. The company places a high value on professional development, offering extensive training programs, mentorship opportunities, and clear career advancement paths.

Academic courses relevant to the project : Analog and Digital VLSI Design (ADVD)

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: KHUSHI BAKLIWAL .(2019B2A81018P)

Student Write-up

PS-II Project Title: DV enhancements for Soc using formal approach

Short Summary of work done during PS-II : Mmr and ip verification on cadence tools

Tool used (Development tools - H/w, S/w) : Cadence tools

Objectives of the project : Mmr and ip verification

Major Learning Outcomes : Sva

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Making one think out of the box, motivational environment

Academic courses relevant to the project : Digital design

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: AJAY KRISHNA GURUBARAN(2020A3PS0519G)

Student Write-up

PS-II Project Title: Enhancement of Platform DV Architecture through Processor Based Abstraction

Short Summary of work done during PS-II : Helped improve DV environment through testcase rewriting and Makefile changes

Tool used (Development tools - H/w, S/w) : DV simulation tools, Linux

Objectives of the project : Enhance DV environment

Major Learning Outcomes : DV simulation tools, scripting, C programming, SoC architecture

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Work environment is good. One can expect to learn a lot since TI is filled with talented individuals

Academic courses relevant to the project : None

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: SHAH BHAVYA ASHISH(2020A3PS1759G)

Student Write-up

PS-II Project Title: AMS verification methodology improvements using assertion based checkers

Short Summary of work done during PS-II : For this work I created checkers that flag deviation of the behaviour from the specification. I created an automated setup for integration of the checkers ensuring large scale deployment. I supported in waveform reviews of the live projects.

Tool used (Development tools - H/w, S/w) : Cadence Xcelium

Objectives of the project : Create and integrate a scalable methodology for aiding manual waveform review

Major Learning Outcomes : AMS verification flow

Details of Papers/patents : Submitted one Paper in DVCon and one in an internal conference based on the work done during the internship

Brief Description of working environment, expectations from the company : The team was very open and helpful. I am happy as they provided me opportunity to work on new things

Academic courses relevant to the project : Embedded System Design EEE G512

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: ADITYA ANIRUDH JONNALAGADDA(2020AAPS0373H)

Student Write-up

PS-II Project Title: Techniques for Frequency Measurement and Calibration of Precision RC Oscillators

Short Summary of work done during PS-II : Designed an oscillator trim subsystem from scratch via the following steps: RTL Design and Functional Verification, RTL QC, Logic Synthesis, Post Synthesis Verification, Placement and Routing, SDF Generation and Annotation, Delay Simulations, Analog and Full System Spice Simulations, SoC Integration of IP

Tool used (Development tools - H/w, S/w) : Cadence EDA tools: Genus, Innovus, Virtuoso, Jasper, Xcelium

Objectives of the project : Allow for an oscillator field trim and reduce oscillator test cost

Major Learning Outcomes : IP Design, ASIC digital flow

Details of Papers/patents : Filed two patent disclosures currently under review, drafting two research papers

Brief Description of working environment, expectations from the company : Great work environment, extremely helpful and approachable mentor, amazing team culture. Company expects sustained and consistent efforts throughout the span of the internship

Academic courses relevant to the project : Digital Design, FPGA Lab, Analog Electronics, Analog and Digital VLSI Design, Analog Electronics

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: THOTLI RISHI(2020AAPS0376H)

Student Write-up

PS-II Project Title: ATE Team Workflow Automation

Short Summary of work done during PS-II : Had to understand the relatively new team's work and help them automate various parts of it, saving the team anywhere from a day's to a month's time.

Tool used (Development tools - H/w, S/w) : Teradyne's IG-XL, Python, TI CCS

Objectives of the project : Automating tedious existing workflows

Major Learning Outcomes : Good software development practices and an overview of the Test Engineer's workflow

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Very balanced, realistic expectations and deadlines (maybe even a bit too generous)

Academic courses relevant to the project : Analog and Digital VLSI Design, Analog Electronics

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: KUNCHAM JAYAKRISHNA SAI(2022H1230107G)

Student Write-up

PS-II Project Title: ML for fault injection

Short Summary of work done during PS-II : I was working on using ML to automate a specific task.

Tool used (Development tools - H/w, S/w) : Python, Xcelium fault simulator

Objectives of the project : Automation

Major Learning Outcomes : Python, ML, Functional safety

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The environment was very motivating to learn new things

Academic courses relevant to the project : ANN

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: TAGALAPELLY SAI PREETHAM(2022H1230137G)

Student Write-up

PS-II Project Title: Automation of RTL code of ucd device

Short Summary of work done during PS-II : Automate RTL generation of io controller in ucd power controller using ti proprietary language

Tool used (Development tools - H/w, S/w) : Ti proprietary language, genus,gasper

Objectives of the project : To enable end to end automation of a internal block

Major Learning Outcomes : TI specific scripting language

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : NA

Academic courses relevant to the project : Vlsi design,advance vlsi design

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: NITISH KUMAR GUPTA(2022H1230235P)

Student Write-up

PS-II Project Title: Soc Integration flow enhancement

Short Summary of work done during PS-II : Started with QC or XML then start it integrating,developing the XLS of connection generation,the dump it to get the rtl,compile it ,lint clean it and then it's simulation and synthesis.

Tool used (Development tools - H/w, S/w) : Gvim editor,perl,linux,LINT

Objectives of the project : The objective to make a flow to develop the rtl and make it compile and LINT clean.

Major Learning Outcomes : Soc Integration and how to develop RTL for soc

Details of Papers/patents : Soc Integration flow enhancement

Brief Description of working environment, expectations from the company : It was so good and overwhelming experience to do intership in Texas Instrument.

Academic courses relevant to the project : Vlsi design ,Reconfigurable computing ,CAD design

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: AMURT PRAKASH(2022H1230254P)

Student Write-up

PS-II Project Title: Automation using various ML algorithms

Short Summary of work done during PS-II : I cannot reveal actual usecase but my project was an experimental project at TI where we tried to reduce cost and time during development of functionally safe projects with the help of ML. Also with this I was also involved in other activities like logic synthesis, fault simulation, DV and various nominal automation.

Tool used (Development tools - H/w, S/w) : Linux Python Gvim text editor Cadence Xcelium Simulator Cadence Genus VS code Google co-lab

Objectives of the project : I cannot reveal actual usecase but my project was an experimental project at TI where we tried to reduce cost and time during development of functionally safe projects with the help of ML.

Major Learning Outcomes : Leaned various tools such as-

Linux

Python

Gvim text editor

Cadence Xcelium Simulator

Cadence Genus

VS code

Google co-lab

Learned about functional safety and faults in digital IC designs.

Also learned to do logic synthesis along with extensive use of ML algorithms.

Details of Papers/patents : Sent for acceptance at 2024 Technical Leadership Conference, here at TI only.

Brief Description of working environment, expectations from the company : People were helpful and easily approachable.

Mentor guidance was good.

Access to all the required tools was provided easily.

Overall I feel TI's work culture atleast on my floor is very good.

Academic courses relevant to the project : Digital IC design

CAD for IC design

Machine Learning

Digital Electronics

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: AINDRILA CHATTERJEE(2022H1400082G)

Student Write-up

PS-II Project Title: 1. Ramp up of Design Verification of USB of SoC (Sitara MPU Design) 2. Ramp up of Design Verification of SRAM of SoC (Sitara MPU Design)

Short Summary of work done during PS-II : Initially attended trainings for a couple of weeks on Verilog, Unix, C etc. Then requested access to workarea and created a workspace. Ramped up on basic protocols used (eg AXI) for interconnection in SoCs and gave a presentation to the team on the same. After which specific modules (USB, SRAM) was assigned which I had to learn about, run simulations on testcases, go through DV plan and give presentations on them as well.

Tool used (Development tools - H/w, S/w) : Simvision, Indago, Xcelium, Unix,C

Objectives of the project : To understand the protocol, the interfaces of each module in the SoC, running basic simulations in DV environment, signoff toggle coverage of SRAM insrances

Major Learning Outcomes : Understood how to navigate through the DV environment and run simulations of testcases. Learnt architecture of SoC we are working on (Clocking, rest, power modes etc) and about each individual module and its functionality.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : People are approachable and helpful here. It was really easy to clarify doubts and learn effectively due to this attitude.

Academic courses relevant to the project : Hardware Software Codesign, Embedded System design, Advanced VLSI architecture

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: SALONI SHARMA(2022H1400121H)

Student Write-up

PS-II Project Title: Verification of Interrupt controller and Error Handler for an audio codec device.

Short Summary of work done during PS-II : Performed RTL design verification of Interrupt controller & Error Handler for an audio codec device. Wrote over 117 test cases for several different interrupt signals, and reported many bugs for the related features. Also automated task generation using Perl scripting & learnt debugging & backtracking, and vams modeling for analog blocks.

Tool used (Development tools - H/w, S/w) : SystemVerilog, UVM, Unix command line, Git, Perl scripting, Cadence Simvision and Cadence Verisium Manager

Objectives of the project : To verify the interrupt signals and status flags and also check the error response of the system with all supported modes, using various verification methodologies.

Major Learning Outcomes : RTL Design Verification methodologies SystemVerilog and UVM , navigating Unix environment , fundamentals of Git and Perl scripting, RTL Design using SystemVerilog, backtracking through source code, schematic tracing and debugging using Cadence Simvision and working with running regressions using Cadence Verisium Manager

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The environment is very learning centric and my team was very supportive of me throughout the whole internship. Everyone answered all my queries and taught me anything I asked for, even extra things about the domain, that weren't project related. There is a lot of work but it feels easier with time and support of the peers. Everyone was very respectful and encouraging in my team.

Academic courses relevant to the project : Functional Verification methodologies, Digital IC Design, VLSI Design, VLSI Architecture, VLSI test and Testability

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: SHRUTI THAKUR(2022H1400128H)

Student Write-up

PS-II Project Title: Comprehension of dynamic vectorless IR impact in STA through Tempus PI

Short Summary of work done during PS-II : During my internship, I focused on validating the results of Tempus PI, a power and timing analysis tool. My tasks included running SPICE simulations to validate results, comparing Tempus PI's power and IR drop outputs with those from Voltus, and understanding the internal behavior of Tempus PI to enhance decision-making.

Additionally, I evaluated the tool's effectiveness in identifying IR-sensitive timing-critical paths by comparing its slack values with those obtained through traditional methods. This comprehensive analysis provided insights into the accuracy and reliability of Tempus PI for power and timing analysis.

Tool used (Development tools - H/w, S/w) : Perl,Tcl, Cadence Voltus tool,Cadence Tempus tool, Cadence Tempus Power Integrity tool

Objectives of the project : To validate the new cadence tool - Tempus PI

Major Learning Outcomes : I learnt deeply about STA violations and the effect of IR drop on them. I found out many bugs with the tool while analyzing the internal behavior of the tool. Majorly, I ran a lot of spice simulations which helped me to validate a lot of results. I learned data analytics based on the data of all the reports generated by Tempus PI. I also wrote a lot of Tcl and perl scripts for automating a lot of processes which helped me in the generation and analysis of desired results.

Details of Papers/patents : Tempus PI app note, Voltus userguide, Voltus command reference manual, Tempus userguide, Tempus command reference manual

Brief Description of working environment, expectations from the company : My internship took place in a collaborative and dynamic environment, fostering a culture of learning and innovation. The company provided a supportive atmosphere where interns were encouraged to take initiative and contribute to ongoing projects. I had access to advanced tools and resources, which were crucial for my tasks involving power and timing analysis. The team consisted of experienced professionals who were approachable and willing to share their knowledge, although they also emphasized the importance of independent problem-solving and self-reliance. Regular meetings and check-ins ensured that I was aligned with the project goals and could seek guidance when necessary.

Academic courses relevant to the project : Vlsi design, Advance VLSI design

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: DOMMARAJU ANJALIKA RAJU(2022H1400139H)

Student Write-up

PS-II Project Title: Development of Post-Si Automation Validation flow

Short Summary of work done during PS-II : I have developed an automation script that will automate the testcases involving 1-Dut and 2-Dut. My script will also configure devices like Analog switches and Dac.

Tool used (Development tools - H/w, S/w) : Software- CCS, python, logic 2.4.7,waveforms.
Hardware- A3 can , A2 lcd boards, validate boards, mcp2221, dac0x502,adg2128.

Objectives of the project : To develop an automation script in python that will automate the testing of the testcases

Major Learning Outcomes : Learnt about different boards, IPs, python scripting and improved in debugging.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The working environment is so healthy and provides good basement for improvement.

Academic courses relevant to the project : Embedded systems

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: IPSHITA PAL(2022H1400164P)

Student Write-up

PS-II Project Title: Automation of instance based verification, design LPM architecture UVM, Streamlining of Communication IP's

Short Summary of work done during PS-II : I have contributed mainly in 3 project during my PS-2 internship in texas instruments. The 1st project was- Automation of Instance based verification where I designed 4 scripts using python which automatically generates and modify set files from project to project. The script remove the manual works which was being done by my team members previously and made the whole flow automatic and made it error free. The second project was based on low power mode verification and IP level in which I learnt uvm and system verilog from the scratch and I made all the required files for a UVM test bench and I compiled it and made it error free so now we have virtual interface of low power mode. The third project was mainly on streamlining of communication IPS . The communication IP which I worked on was on I2C. I removed all the randomisation from every test case and moved all those to set files then I make sure that all the pin configurations were getting covered for the whole flow.

Tool used (Development tools - H/w, S/w) : Python, Unix, GVIM, system verilog, UVM, cadence xcelium

Objectives of the project : Remove manual work & make it automated to save time & make it error free

Major Learning Outcomes : 1. Learnt advanced python & made automation script(4) from that.
2. Learnt UVM & SV from scratch and made a new LPM architecture using UVM
3. Improved debugging skills

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The team in which I worked in texas instruments were very friendly helpful and very much approachable. My mentor guided me so well. The office environment was also very good. I was given the flexibility to put my ideas into implementation. I was appreciated for good work as well.

Academic courses relevant to the project : Software for embedded systems, verilog. Course, VLSI architecture

PS-II Station : Texas Instruments (I) Pvt. Ltd. -Digital , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: AVINASH RAINA(2022H1400185P)

Student Write-up

PS-II Project Title: Interconnect Verification Scalability Using UVM Methodology

Short Summary of work done during PS-II : Verified the Interconnect using UVM Methodology and then using automation techniques created a configurable framework which can be used to verify different interconnects across multiple projects.

Tool used (Development tools - H/w, S/w) : Cadence Tools (Xcelium, Versium Manager)

Objectives of the project : To verify the interconnect and create a configurable framework which can be used across multiple projects

Major Learning Outcomes : System Verilog, UVM, Python Scripting, UNIX Commands

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working Environment : Great work culture, Supportive mentors and team members.
Expectations : Updating the weekly progress, Be in touch with the mentor, Ask for the doubts and get them clarified as soon as possible.

Academic courses relevant to the project : VLSI Design, VLSI Architecture, VLSI Test and Testability

PS-II Station : Texas Instruments-Embedded Software , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: ADITYA RAO .(2019B3A30576P)

Student Write-up

PS-II Project Title: 3-phase Sinusoidal Control of BLDC Motors using Hall Sensors

Short Summary of work done during PS-II : First, I went through Motor Control Basics since this was a new topic for me. Made the existing code base for Trapezoidal Control more efficient and use less Hardware Modules, along with getting a better accuracy. Implemented Sinusoidal Motor Control from scratch, with modular APIs, efficiently eliminating any current ripples and physical errors to detect speed and position of the motor.

Tool used (Development tools - H/w, S/w) : Code Composer Studio, VSCode, TI Microcontrollers

Objectives of the project : Efficiently implement and update the Motor Control SDK with Sinusoidal Control which will be used for Middleware Development

Major Learning Outcomes : Learnt how to work with a team, went through academic papers to understand minute details, clean and modular code implementations

Details of Papers/patents : Introduced a MotorCalibrate State which eliminates the need for specific phase wirings and automates getting Look-up Tables for running the motor. Significantly reduced current ripple and harmonic content.

Brief Description of working environment, expectations from the company : Very friendly and co-operative work environment. I was given a lot of time and mentoring by my team which led to great results. Had to give a mid-term and final presentation, along with final documentation for the work done

Academic courses relevant to the project : Power electronics, Electric Machines, C Programming, Operating Systems

PS-II Station : Texas Instruments-Embedded Software , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: ASHUTOSH SHARMA(2022H1400158P)

Student Write-up

PS-II Project Title: 1. Macro based parameter validation in C 2. Software testing suite development 3.Device bringup using FPGA

Short Summary of work done during PS-II : The initial part of the project focused on software based testing of already written C API functions, the parameters, etc. Then I was asked to develop a software test suite for testing lots of C APIs. So the test suite has to be scalable, generic, and robust. Then I was asked to perform device bringup using Xilinx FPGA board utilising the PS part of the board. So for RTL I used Vivado and for PS part programming, I used Vitis Classic IDE. Bringup was a tedious yet interesting part of the overall project.

Tool used (Development tools - H/w, S/w) : VS code, Xilinx Vivado, Vitis Classic IDE, Zynq Zcu102.

Objectives of the project : 1. To develop a robust and generic parameters' validation system in C. 2. Develop a test suite in C for testing C APIs 3. To perform bringup of a EVM using an FPGA

Major Learning Outcomes : Advance C programming concepts, Python scripting for automation, Excel workbook data manipulation, HTML, Embedded programming using FPGA.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment at TI is very encouraging. The mentors as well as the teammates are very helpful. Highest priority is given to learning. Everyone is innovative and working with such people is a great experience as I got to learn new things every day.

Academic courses relevant to the project : Embedded System design, Software for Embedded Systems, Hardware Software Codesign, Device Drivers, Reconfigurable Computing, VLSI Architectures.

PS-II Station : Texas Instruments-Embedded Software , Bengaluru

Faculty

Name: Shree Prasad Maruthi

Student

Name: PRABHAT DEYONDI(2022H1400161P)

Student Write-up

PS-II Project Title: Signal Processing for High-Performance Computing

Short Summary of work done during PS-II : My project involved two key components: developing a reconfigurable computing architecture for Viterbi and FFT algorithms and automating code documentation using Doxygen and Python.

Tool used (Development tools - H/w, S/w) : vscode, vivado

Objectives of the project : Project focuses on developing a reconfigurable computing architecture that can reconfigure in real-time.

Major Learning Outcomes : Key learnings from this project included a deep understanding of reconfigurable computing principles, the challenges of real-time reconfiguration, and the importance of optimizing hardware for specific algorithmic needs.

Details of Papers/patents : TI datasheets and precision videos

Brief Description of working environment, expectations from the company : Working environment is friendly and helpful.

Academic courses relevant to the project : yes

PS-II Station : Thorogood , Bengaluru

Faculty

Name: Sandeep Kayastha

Student

Name: RUDRA BANSAL(2019B2A30974G)

Student Write-up

PS-II Project Title: Cutlass System

Short Summary of work done during PS-II : Developing an end-to-end integrated system involves transforming raw data into a user-friendly format by utilizing tools like Azure Databricks and Azure Data Factory. These tools ensure efficient data processing and integration. Leveraging data visualization tools like Power BI, we create insightful charts and dashboards that highlight key performance measures. By tracking these important metrics, the system provides a comprehensive view of the company's performance. The visualizations assist in identifying trends, patterns, and areas for improvement, empowering the business to make informed and judicious decisions. This integrated approach ensures data accuracy, enhances reporting capabilities, and supports strategic planning and operational efficiency across the organization.

Tool used (Development tools - H/w, S/w) : Azure Databricks, Azure DataFactory, Power BI, SQL, Python, Microsoft Excel, Powerpoint

Objectives of the project : Creating an end-to-end system with ETL processes converts raw data into insights. Tools like Azure Databricks and Azure Data Factory ensure seamless data processing. Power BI dashboards highlight key performance metrics, helping clients monitor operations, identify trends, and make data-driven decisions to boost efficiency and revenue.

Major Learning Outcomes : I learnt how to effectively understand the dataset and perform the Exploratory Data Analysis. Further after completing the data cleaning on Azure Databricks, I learnt how to build pipelines on Azure Data Factory, I also learned various SQL Queries during the training period. Lastly, I learnt how to create effective data visualization sheets on Power BI. I also learnt the importance of time management and team engagement which helped me fulfilling the expectations to the best of my capability.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The station offers a balanced mix of professionalism and a relaxed atmosphere, fostering individual focus and team collaboration. It supports a healthy work-life balance, encouraging consultants to excel both personally and professionally. To recognize exceptional contributions, the station features Star and Passion Awards, incentivizing consultants to deliver outstanding work. This recognition program highlights top performers and promotes a culture of achievement. Regular team meetings and workshops facilitate knowledge sharing and professional growth. Overall, the station's supportive environment and robust recognition system motivate consultants to consistently deliver their best, driving personal success and the station's growth.

Academic courses relevant to the project : Principles of Economics, C Programming, Probability and Statistics

PS-II Station : Thorogood , Bengaluru

Faculty

Name: Sandeep Kayastha

Student

Name: AKSHAY KHANNA(2019B2A40908G)

Student Write-up

PS-II Project Title: Cutlass System

Short Summary of work done during PS-II : We were handed the case study in order for us to improve our technical skills and understand the business use cases involving our clients. We used Azure data bricks for data transformation, Azure data factory to run the pipelines for data

orchestration and leverage power bi as a data vizualization tool in order to comprehend the data and answer the questions that the client had for us. We also made a logging notebook in order to track changes and wrote test cases for the code.

Tool used (Development tools - H/w, S/w) : Azure databricks, Azure data factory, SQL, Power bi,ADLS

Objectives of the project : Create an end to end integrated cutlass system using ETL processes. Use power bi for data visualization and make powerful dashboards to aid cleints and help them solve their business problems.

Major Learning Outcomes : Learnt how to implement the above mentioned tools, how they work in conjunction with each other and why they are so useful when it comes to data analytics along with the expectations that a client may have from the finally generated report.

Details of Papers/patents : Not applicable

Brief Description of working environment, expectations from the company : The working environment was a smooth blend of holistic development

Academic courses relevant to the project : C programming, Probs and Stats

PS-II Station : Thorogood , Bengaluru

Faculty

Name: Sandeep Kayastha

Student

Name: SAPTARSHI RAJAN(2020A4PS1961H)

Student Write-up

PS-II Project Title: Logistics Schema & MOT Optimiser

Short Summary of work done during PS-II : The Logistics Schema and MOT Optimizer project, commissioned by GlaxoSmithKline (GSK), aimed to optimize logistics costs for their shipments. GSK, a prominent British pharmaceutical and biotechnology company, relies on Kuehne Nagel (KN) for logistics support. The project focused on analyzing and comparing the costs associated with different shipment types and transport modes. Direct shipments, traveling directly to their destination without intermediaries, and indirect shipments, involving intermediate stops, were examined. Costs associated with air and ocean transport were also analyzed, noting that air transport, while faster, incurs higher costs than ocean transport. Critical considerations like temperature-controlled shipments and stackability were addressed, essential for maintaining product integrity and efficient packing. The project's scope included creating detailed dashboards and reports for GSK, providing insights into historical rates, stackability issues, and data quality concerns. These dashboards enabled GSK to track materials and costs more effectively, identifying areas for cost reduction. Key technical contributions included developing and automating data workflows in Azure Databricks (ADB), adhering to coding standards, documenting Power BI reports, and enhancing dashboards for better navigation and visual appeal. The project provided GSK with actionable insights and tools to improve their logistics operations, ultimately leading to more efficient and cost-effective shipment management.

Tool used (Development tools - H/w, S/w) : Azure Databricks, Power BI, Microsoft Excel

Objectives of the project : To optimize logistics cost for our client GSK

Major Learning Outcomes : The Logistics Schema and MOT Optimizer project for GlaxoSmithKline (GSK) provided key insights into logistics cost optimization and efficient data analysis. I enhanced my understanding of direct and indirect shipment dynamics and the cost implications of air versus ocean transport. I also gained practical knowledge of handling temperature-controlled logistics and Stackability requirements critical for pharmaceuticals. My skills in creating advanced dashboards and reports were significantly improved, alongside a

deeper grasp of cost metrics like estimated, actual, and PFA costs. The project emphasized the importance of data quality and adherence to coding standards. It also improved my ability to manage complex logistics frameworks and collaborate effectively, reinforcing the value of teamwork and thorough documentation for continuous improvement.

Details of Papers/patents : There is no paper or patent as the work is service base because it's a consulting company and has its client all over the world.

Brief Description of working environment, expectations from the company : Working at Thorogood Associates has been a rewarding experience, thanks to the supportive working conditions and inclusive environment fostered by the company. Thorogood values work-life balance, offering flexible schedules and wellness programs that prioritize employees' physical and mental well-being. The collaborative culture encourages open communication and teamwork, making it a conducive space for innovation and growth. Professional development is a priority at Thorogood, with ample opportunities for training and career advancement. As an intern, I expect Thorogood to continue investing in its employee's growth by providing ongoing learning opportunities and support for career progression. Additionally, I anticipate the company to maintain its commitment to corporate social responsibility by engaging in community initiatives and sustainability efforts. Overall, my journey at Thorogood Associates has been truly remarkable, where the working environment is conducive to personal and professional development, and the company's values align with my expectations for a fulfilling career.

Academic courses relevant to the project : Supply Chain Management

PS-II Station : Thorogood , Bengaluru

Faculty

Name: Sandeep Kayastha

Student

Name: ALI HUSSAIN NAQVI(2020A4PS2283H)

Student Write-up

PS-II Project Title: Cutlass System

Short Summary of work done during PS-II : Developing end to end integrated system which transforms raw data into user friendly format and using data visualization tool like Power BI to chart important measures used to track company performance and aid the business in making judicious decisions.

Tool used (Development tools - H/w, S/w) : Azure Databricks, Azure Data Factory, Power BI, SSMS

Objectives of the project : Create an end to end integrated system using ETL process for client to draw useful insights and improve business operations and revenues.

Major Learning Outcomes : Learned to implement technical know-hows for professional application. Learned to effectively deliver requirements requested by clients. Learned working of end to end system working on ETL principles and modularize work.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The station has a good balance of professionalism along with an amicable relaxed environment, encouraging focus and individuality at a personal level and team work at a project level. There are star and passion awards for consultants who perform outstanding work in their domain which further incentivizes consultants to deliver their best.

Academic courses relevant to the project : Computer Programming, Prob and Stats.

PS-II Station : Tibil Computer Solutions Pvt Ltd. , Bengaluru

Faculty

Name: Febin A Vahab

Student

Name: MADHAMSETTY SAI MANI PRITHVI RAJ(2019B4A21015H)

Student Write-up

PS-II Project Title: Business analysis for equipment manufacturing client

Short Summary of work done during PS-II : Built live dashboards for daily monitoring and analysis. Provided deep analysis into products, regions and customers's performances and started forecasting revenue.

Tool used (Development tools - H/w, S/w) : Python, Power BI, Office 365 tools, Azure analysis server, Docker

Objectives of the project : Lost order analysis, issue trackers, customer segmentation

Major Learning Outcomes : Power BI, Python ML

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Good learning environment

Academic courses relevant to the project : Machine learning

PS-II Station : Tibil Computer Solutions Pvt Ltd. , Bengaluru

Faculty

Name: Febin A Vahab

Student

Name: AVINASH KUMAR(2022H1030110P)

Student Write-up

PS-II Project Title: Document Interactor using RAG

Short Summary of work done during PS-II : During the project, I developed a document interactor using the Retrieval-Augmented Generation (RAG) model and the LangChain framework, involving comprehensive research, data preparation, model selection and fine-tuning, system integration, and extensive testing. The student gained a deep understanding of advanced natural language processing (NLP) techniques, practical experience with AI frameworks, and skills in data management, system design, and performance evaluation. This hands-on project enhanced the student's problem-solving and critical thinking abilities, providing invaluable experience in applying theoretical knowledge to create a sophisticated AI application for improved document interaction.

Tool used (Development tools - H/w, S/w) : Python, LangChain, HuggingFace, OpenAI, Fast API, HTML, JavaScript

Objectives of the project : The scope and objective of this project are centered around developing an advanced document interactor leveraging the Retrieval-Augmented Generation (RAG) model integrated with the LangChain framework. The primary goal is to enhance the accuracy and relevance of responses to user queries by combining retrieval-based and generation-based natural language processing techniques.

Major Learning Outcomes : NLP, Large Language Models, Generative AI, RAG

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at Tibil Solutions is dynamic and collaborative, fostering innovation and continuous learning among experts in natural language processing, machine learning, and software development. Equipped with advanced tools and technologies, the team engages in regular meetings, brainstorming sessions, and knowledge-sharing workshops to promote a collective understanding of project goals and efficient problem-solving. Expectations from the company include access to experienced mentors for guidance on technical challenges and career development, availability of necessary computational resources and software tools, opportunities for cross-departmental collaboration, support for professional development through conferences and training programs, regular constructive feedback, and a culture that encourages experimentation and creativity. This supportive and resource-rich environment aims to facilitate successful project completion and contribute to the professional growth of team members.

Academic courses relevant to the project : NLP, Machine Learning, Deep Learning

PS-II Station : Time Tooth , Noida

Faculty

Name: Nithin Tom Mathew

Student

Name: SARVA VENKATA LAKSHMINARAYANA KARTHIK(2022H1060207P)

Student Write-up

PS-II Project Title: Ergonomic back frame for military applications

Short Summary of work done during PS-II : 1)converting customer requirements into technical specifications 2)Engineering documentation 3)market research of other frames 4)Load cases and evaluation 5)Benchmarking of existing frame used by the army 6)concept generation

Tool used (Development tools - H/w, S/w) : softwares: ANSYS 17.0, Free CAD, Solid works, CalculiX(FEA solver)

Objectives of the project : Design & development of a back frame for carrying military equipment

Major Learning Outcomes : real world application of FEA/ stress analysis

Details of Papers/patents : none

Brief Description of working environment, expectations from the company : Good, professional & peaceful working environment.

Academic courses relevant to the project : FEM, Product design

PS-II Station : Time Tooth , Noida

Faculty

Name: Nithin Tom Mathew

Student

Name: KAPIL KUMAR KASWAN(2022H1060222P)

Student Write-up

PS-II Project Title: Aircraft Seating System

Short Summary of work done during PS-II : In designing the aircraft seat, we developed a recliner mechanism allowing the backrest to adjust between 12 and 22 degrees from the vertical. The design parameters ensure the seat can support up to 136 kg, endure 100,000 cycles, and use corrosion-resistant materials to meet aviation standards while minimizing weight. The recliner mechanism consists of two main parts: the seat attachment to the seat structure and the stopper mechanism. The seat attachment includes a high-strength aluminum alloy bracket, hardened steel pivot pins with self-lubricating bushings, a mechanical or hydraulic actuator for adjusting the angle, and a locking mechanism to maintain the recline position. The stopper mechanism is a rigid component secured to the seat structure, incorporating defined stop points to limit the recline motion to a maximum of 22 degrees, with dampening inserts to reduce noise and impact. This comprehensive design ensures durability, safety, and passenger comfort while complying with stringent aviation requirements.

Tool used (Development tools - H/w, S/w) : HyperMesh, HyperView

Objectives of the project : To design the second generation of Aircraft seats

Major Learning Outcomes : Understanding of FEA using HyperWorks, and testing set-up building for the seat

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working hours were flexible but the work had to be done in office.

Academic courses relevant to the project : Finite Element Analysis

PS-II Station : Time Tooth , Noida

Faculty

Name: Nithin Tom Mathew

Student

Name: PRATIK KUMAR(2022H1400076G)

Student Write-up

PS-II Project Title: HANDS-ON WITH BLE AND WIFI: EXO AND PDD PROJECTS

Short Summary of work done during PS-II : The project "Hands-On with BLE and WiFi: EXO and PDD Projects" involved two main components: the Exo project and the Pill Dispenser Device (PDD) project. In the Exo project, the focus was on exploring Bluetooth Low Energy (BLE) technology. The work included understanding BLE basics, studying its protocol layers such as GAP, ATT, and GATT, and learning to use the BLUEZ stack in a Linux environment. Practical tasks involved writing and testing C code to interact with BLE devices. This project aimed to combine theoretical knowledge with hands-on experimentation to enhance understanding of BLE technology and its applications. The PDD project concentrated on establishing WiFi connectivity for a Pill Dispenser Device. It involved defining WiFi requirements, conducting market research to select suitable medical tablets, and testing WiFi functionality. Key tasks included setting up a

System on Module (SoM) and Carrier Board, installing a Linux-based operating system, and verifying device functionality. The project also covered understanding of how to write C code for WiFi connectivity using Connmanctl, creating flowcharts for APIs, and developing a motor driver circuit for the PDD.

Tool used (Development tools - H/w, S/w) : Hardware(H/W): System on Module (SoM), Carrier Board and Motor driver. Software(S/W): Linux-based Operating System, SSH (Secure Shell), BLUEZ Stack, Connmanctl, C Programming Language, Bash Scripting and KiCad.

Objectives of the project : The project aimed to explore BLE technology and its protocol layers (GAP, ATT, GATT), implement and test BLE communication using the BLUEZ stack, develop and test WiFi connectivity for the Pill Dispenser Device (PDD), integrate hardware and software components using a System on Module (SoM) and Carrier Board, analyze and design a motor drive circuit for the PDD, and enhance practical skills in wireless communication technologies and system development.

Major Learning Outcomes : The major learning outcomes include gaining expertise in BLE technology and its protocols, developing and testing BLE and WiFi connectivity, integrating hardware and software systems, designing motor drive circuits, and enhancing practical skills in wireless communication and system development.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The working environment at the company is dynamic and collaborative. The company fosters a culture of creativity, innovation, and teamwork. Office spaces are designed to encourage open communication and idea sharing among employees. The company values diversity and inclusion, creating a welcoming atmosphere for people from different backgrounds and perspectives.

In terms of expectations, the company prioritizes excellence in everything it does. Employees are expected to be proactive, take ownership of their work, and strive for continuous improvement. This includes staying updated with industry trends, seeking professional development opportunities, and actively contributing to the success of the company.

Academic courses relevant to the project : Little Part of "Software for Embedded Systems"

PS-II Station : Time Tooth , Noida

Faculty

Name: Nithin Tom Mathew

Student

Name: HITARTH SUTHAR(2022H1410057G)

Student Write-up

PS-II Project Title: Design and Numerical analysis of Aircraft Seat

Short Summary of work done during PS-II : Time Tooth Technologies operates as a project-oriented company. At present, we have numerous ongoing projects, one of which I am personally involved in alongside the aerospace team. Our latest accomplishment entails the successful creation of a Forward-Facing Seat for aircraft that cannot recline. Our current objective is to design and develop a reclining version of this seat. The main emphasis of these projects is centered around the creation, development, and enhancement of this innovative seating solution. This particular project requires us to carry out Finite Element Analysis (FEA) on the airplane seat. Additionally, our tasks involve examining various parts and determining the load applied by following the established protocols in the aerospace industry.

Tool used (Development tools - H/w, S/w) : S/W- Hypermesh, HyperView and Optistuct

Objectives of the project : Design and Development of Aircraft Seat

Major Learning Outcomes : FEA Analysis - Linear Static, Nonlinear Static, and Explicit Dynamics

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The atmosphere at Company Environment is highly innovative and the people are enthusiastic about new innovations and developments. Colleagues are also very supportive, making it a great environment for creativity and progress.

Academic courses relevant to the project : FEM and Product Design

PS-II Station : Total Environment Building Systems Private Limited , Bengaluru

Faculty

Name: Mahesh K Hamirwasia

Student

Name: ASHWINI SATISH TIRODKAR(2022H1430064P)

Student Write-up

PS-II Project Title: API and VBA in structural engineering

Short Summary of work done during PS-II : I was given exposure to a variety of fields like modelling and analysis using structural programs, site visit to the project. I was able to create

automated sheets using API and VBA which are being absorbed into the company for use. This has helped save a lot of time on repetitive and time consuming tasks

Tool used (Development tools - H/w, S/w) : Etabs, Excel, VBA

Objectives of the project : Creating design sheets using API and VBA

Major Learning Outcomes : VBA and Application programming interface

Details of Papers/patents : .

Brief Description of working environment, expectations from the company : Friendly and professional atmosphere. The team was always available to clear any doubts, share tips about using the software and explain the design approach and habits.

Academic courses relevant to the project : Structural engineering

PS-II Station : Trane Technologies , Bengaluru

Faculty

Name: Raghuraman RAGHURAMAN

Student

Name: BALESHPRASAD BASAVARAJ AIDUDDI(2022H1060089G)

Student Write-up

PS-II Project Title: Metamodeling

Short Summary of work done during PS-II : To build Metamodel using various DOE and surrogate modeling techniques

Tool used (Development tools - H/w, S/w) : Julia

Objectives of the project : To build Metamodel using various DOE and surrogate modeling techniques

Major Learning Outcomes : To build Metamodel and DOE in Julia software

Details of Papers/patents : Not applicable

Brief Description of working environment, expectations from the company : Good working environment and expectations are huge

Academic courses relevant to the project : Not applicable

PS-II Station : TransUnion Global Technology Center LLP , Chennai

Faculty

Name: K Venkatasubramanian

Student

Name: MAYANK SHRIVASTAVA(2022H1030101P)

Student Write-up

PS-II Project Title: Development and Implementation of Explainable Neural Networks

Short Summary of work done during PS-II : The project involved exploring Neural Networks as an alternative to GLMs to be used in Credit Risk Modelling while ensuring that the outputs of NNs could be explained and acted upon. To simplify the black box nature of neural networks, the TensorFlow Lattice submodule from Google was used to build monotonically constrained neural networks. Additionally, a research paper proposing a conversion of neural networks to decision trees was also implemented to significantly improve interpretability of NN outputs by following Decision Tree rules.

Tool used (Development tools - H/w, S/w) : Keras, TensorFlow, Numpy, SHAP python packages

Objectives of the project : To find ways to create monotonically constrained neural networks and explain their outputs

Major Learning Outcomes : Developing Explainable Neural Networks using TensorFlow Lattice, Explaining NNs using Shapley values, deriving equivalence between neural networks and decision trees

Details of Papers/patents : Nil

Brief Description of working environment, expectations from the company : The company follows a hybrid working culture of 2 days in office, 3 days wfh with approx 10 AM to 5 PM as working hours. Mentors are available in the office 2 days a week, and the rest of the time they are easily reachable through teams. Weekly or bi-weekly meetings with mentors are normal once initial training is completed to keep track of project progress. Meetings with senior leaders happen monthly. Interns are seated in the same area as permanent employees and can easily connect and reach out to them if any help is needed. Refreshments are available on premises and employees can relax in the meditation room or de-stress by playing foosball or pool.

Academic courses relevant to the project : Deep Learning, Machine Learning

PS-II Station : Trelleborg India Pvt Ltd , Bengaluru

Faculty

Name: Shashank Mohan Tiwari

Student

Name: RAVINDRA SUMAN(2022H1410138P)

Student Write-up

PS-II Project Title: Fatigue modelling of v-spring & Rapid Gas Decompression of O-ring

Short Summary of work done during PS-II : During my internship as a Simulation Method Developer at TSS Bengaluru, I applied my skills in structural analysis, fatigue analysis, and diffusion simulations, honed during my master's studies in Design Engineering at BITS Pilani. My primary focus was on developing and optimizing simulation methods to predict the structural integrity and longevity of mechanical components under various loading conditions. This involved performing detailed fatigue analyses to assess the durability of materials and components subjected to cyclic stresses, ensuring their reliability and safety over time. Additionally, I worked on diffusion simulations to understand the behavior of materials at the microscopic level, which is crucial for predicting material properties and performance. A significant part of my role included writing and debugging Fortran code, where I developed new simulation algorithms and enhanced existing ones to improve their accuracy and efficiency. This experience allowed me to integrate theoretical knowledge with practical application, enhancing my problem-solving abilities and technical proficiency in simulation techniques. My work contributed to more accurate and reliable simulation results, supporting the company's goal of delivering high-quality engineering solutions.

Tool used (Development tools - H/w, S/w) : Abaqus, Fe-safe, Fortran coding language

Objectives of the project : development of fatigue result of spring and behavioral changes in properties. Coupled structural mass diffusion analysis of O-ring

Major Learning Outcomes : Learned about the corporate culture and work flow.

I was in R&D department so aspects about the innovative.

Worked on my problem solving skills.

Learned the proper documentation and submission process.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : At TSS Bengaluru, the working environment is both dynamic and supportive, fostering creativity and collaboration among team members. The office space is designed to be open and inviting, encouraging seamless communication and idea exchange. With modern amenities and ergonomic workstations, employees can work comfortably and efficiently. The company culture emphasizes mutual respect and continuous learning, providing ample opportunities for professional development and growth. Regular team-building activities and open-door policies ensure that everyone feels valued and heard. The leadership team at TSS Bengaluru is approachable and dedicated to maintaining a positive and inclusive atmosphere, where innovation and teamwork thrive. Employees are expected to bring their best ideas and efforts, contribute to team success, and uphold the company's values. This nurturing environment not only enhances productivity but also contributes to employee satisfaction and well-being, making TSS Bengaluru an exceptional place to work.

Academic courses relevant to the project : FEM, Advance FEM, Fracture Mechanics, MTT, CFD

PS-II Station : UBER - Data Analytics , Hyderabad

Faculty

Name: Akshaya G

Student

Name: JATIN CHOPRA(2019B1AA1090G)

Student Write-up

PS-II Project Title: North Asia Support Operations Analytics

Short Summary of work done during PS-II : The objective was mainly to build dashboards for the Safety investigations team at Uber. The dashboard covered the analysis and insights of the important metrics used at Uber. Also, some dashboards were made which gave insights on the performance of the teams.

Tool used (Development tools - H/w, S/w) : SQL, Google Sheets, Google lookerstudio, Python, Uber internal tools

Objectives of the project : The objective was mainly to build dashboards for the Safety investigations team at Uber. The dashboard covered the analysis and insights of the important metrics used at Uber. Also, some dashboards were made which gave insights on the performance of the teams.

Major Learning Outcomes : I learnt how to efficiently understand the requirements of the stakeholders and improved my time management and communications skills. Learnt new softwares and languages like SQL and python to write queries and made automations.

Details of Papers/patents : No papers

Brief Description of working environment, expectations from the company : The working environment is excellent, the peers are helpful. The timings are flexible and you can work from home for alternating weeks.

Academic courses relevant to the project : Fundamentals of Dsa

PS-II Station : UBER - Data Analytics , Hyderabad

Faculty

Name: Akshaya G

Student

Name: CHIRAG GARG(2019B2A40048G)

Student Write-up

PS-II Project Title: Automation dashboard

Short Summary of work done during PS-II : During this period, I worked on a total of 32 JIRA issues. These issues were categorized into several types, reflecting the diverse nature of the tasks undertaken. The largest proportion was dedicated to handling stakeholder ad hoc questions. This Includes: any stakeholder queries/requests that don't link to any known roadmap. The next major category is BAU tasks , which includes tasks such as bug fixes, small logic tweaks for existing KPIs, and small updates to pipelines. I also worked on new data tools and foundations for projects, which reflects my efforts in innovation and improvement of our data infrastructure. Lastly, some portion of my work was driven by program initiatives, highlighting my involvement in broader, strategic projects.

Tool used (Development tools - H/w, S/w) : SQL, Looker Studio, Python, Google sheets

Objectives of the project : To detect the effectiveness of automated system

Major Learning Outcomes : Business

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The company culture here is exceptional—I'd say you can't find a better culture than at Uber. We have 50% work-from-home flexibility.

Academic courses relevant to the project : Probability & Statistics, QCAR

PS-II Station : UBER - Data Science , Bengaluru

Faculty

Name: Akshaya G

Student

Name: SUSHMA REDDY KOLLI(2019B5A70671H)

Student Write-up

PS-II Project Title: Uber Earner Early-Lifecycle Data Analysis, Dashboarding and Experimentation

Short Summary of work done during PS-II : I worked on cleaning and creating pipelines for existing data for a program being run in the US for new drivers who get onboarded into Uber. I built designed schema, identified target metrics and defined guardrail metric, and created dashboards for the program. We conducted experiments (A/B tests) and checked how our

program is working and worked on an uplift model to target the right kind of new drivers for the program. Used GenAI and automated language analysis of these drivers.

Tool used (Development tools - H/w, S/w) : Tableau, Pipeliner, Phabricator, sourcegraph, Michealangelo

Objectives of the project : To improve an existing on-going program for newly onboarded drivers using uplift modeling and designing tools to improve target metrics

Major Learning Outcomes : Learnt why data storage and structure is a critical part of success of any project. Learnt data pipelining, dashboarding, defining metrics, modelling and feature engineering

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment is fast paced and at the same time very understanding and open. Managers, mentors and colleagues are honest from the get go and clearly communicate what they expect from you. Managers are broad minded and always ready to hear you out, in terms of new ideas, existing work and ETA settings. There is no strict rules about working from home/office, they only expect you to meet 50% attendance and meet your deadlines while doing more.

Academic courses relevant to the project : ML, Statistics for Data Science, DBMS, Data Mining, NLP

PS-II Station : UBER - Data Science , Bengaluru

Faculty

Name: Akshaya G

Student

Name: HARSHIT VERMA(2020A7PS0041H)

Student Write-up

PS-II Project Title: Reducing Phone contacts in Uber's Customer support

Short Summary of work done during PS-II : Conducted and designed various hypothesis tests, did a lot deep dives into the data.

Tool used (Development tools - H/w, S/w) : SQL, Python and Excel

Objectives of the project : To reduce phone contacts

Major Learning Outcomes : Learnt how to reason out patterns from data.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The culture and the working environment is great.

Everyone is helpful and friendly.

Academic courses relevant to the project : OOPS, DBMS, Data Mining

PS-II Station : UBER - Software Engineer , Hyderabad

Faculty

Name: Akshaya G

Student

Name: UTKARSH OMER(2019B4A70719G)

Student Write-up

PS-II Project Title: Jupiter Monitoring Dashboard, Event Ranking Service

Short Summary of work done during PS-II : I worked on two projects during the internship. The first of which was to create a monitoring & onboarding dashboard for a very crucial internal service used in the Data Ingestion vertical of the Adtech space at uber. This included ingesting data from live sources (streams like Apache Kafka), into an OLAP data store (like Apache Pinot), then enriching this data using offline data lakes to generate actionable information presented intuitively using a Visualization Utility intuitively. This needed to be such that it could be easily digestible to contributors at uber who might not have very high tech knowhow (eg: Operations Members). Secondly I worked on a service which would help rank events at uber (rider / eater) based on a set of definitions, over granularities such as platform/productType/appType/eventType etc. This is a challenge because of the rate at which the data is ingested at uber along with the high bar for availability + correctness which the data needs to meet.

Tool used (Development tools - H/w, S/w) : Java, Spring, Golang, Fx, Python, Apache Airflow, Anarchist, Apache Kafka, Hive, Spark, Presto, Apache Pinot

Objectives of the project : Create a service to identify ranks of user events based on set definitions.

Major Learning Outcomes : Creating & Maintaining Large quantities of Batch + Stream data.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : I had the privilege of working in an exceptionally competent and supportive environment at Uber. The team members were not only highly skilled but also very approachable, making collaboration seamless and enjoyable. Their willingness to assist and share knowledge fostered a productive and positive atmosphere.

The company's expectations were ambitious yet realistic, striking a perfect balance that encouraged both high performance and personal growth. This approach provided ample room for professional development and skill enhancement. Any challenges encountered during the development process were promptly addressed and effectively mitigated, ensuring smooth project progression.

The work environment was strongly growth-oriented, with a clear emphasis on distributed ownership. This structure empowered each team member to take initiative and responsibility, promoting a sense of ownership and accountability. Overall, the combination of a supportive team, realistic expectations, and a focus on growth made working at Uber a highly rewarding experience.

Academic courses relevant to the project : Data Structures & Algorithms, Object Oriented Programming, Database Management Systems.

PS-II Station : UBER - Software Engineer , Hyderabad

Faculty

Name: Akshaya G

Student

Name: AYUSHI KAUL(2019B5A30810G)

Student Write-up

PS-II Project Title: Toll Reciepts Transcription

Short Summary of work done during PS-II : Build and trained multiple models to automate certain self service flows for driver persons. Worked with traditional ML and GenAI for the same. Also learned the integration of the same with the backend and how to deploy them

Tool used (Development tools - H/w, S/w) : Hugging face, python, docker, GCP, tensorflow

Objectives of the project : To automate a self service flow for driver personas

Major Learning Outcomes : Learned how to train, test and deploy models and also how to integrate those to backend

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Good supportive environment to work, work is also fast paced hence there is a steep learning curve. Projects are usually pre designated for interns and a mentor is allotted for them to for guidance.

Academic courses relevant to the project : Machine learning, Artificial intelligence

PS-II Station : UBER - Software Engineer , Hyderabad

Faculty

Name: Akshaya G

Student

Name: ANISH AGARWAL(2020A7PS1313H)

Student Write-up

PS-II Project Title: Migration of Accounting Engine

Short Summary of work done during PS-II : My work was majorly migrating Psps from Settlement team to revenue team, to a new accounting engine. It envoled code changes, and careful validation of Prod and Pre-prod environment. I migrated about 15/60 total Psps. It was a joint team effort

Tool used (Development tools - H/w, S/w) : Git, Github, Golang, Kafka, Sql

Objectives of the project : Migrating Psps from Settlements team to Revenue Team

Major Learning Outcomes : Learning the accounting system, learning tools and languages like git, golang, kafka, slq queries etc.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Company environement is very good, everybody is friendly and ready to help, work is very good.

Academic courses relevant to the project : DSA, OOPS, DBMS, OS

PS-II Station : UBS - Global Reference Data , Hyderabad

Faculty

Name: Niranjan Swain

Student

Name: KOMALI TUSHAR REDDY(2020B3PS1381H)

Student Write-up

PS-II Project Title: Building Data Visualisation Dashboards for Data Quality Teams

Short Summary of work done during PS-II : Building PowerBI dashboards by analysing workflow drivers and highlighting drags across the current processes. This was followed by a brainstorming process with the client (internal) team to develop automation solutions.

Tool used (Development tools - H/w, S/w) : PowerBI, Alteryx, Excel

Objectives of the project : Streamlining the problem discovery process for internal teams

Major Learning Outcomes : Stakeholder Management, First Principle thinking

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Manager is supportive and helpful in helping gain familiarity with the work and processes. Everyone is open to a conversation about their work and discussing ideas

Academic courses relevant to the project : Econometrics,

PS-II Station : UBS - Global Reference Data , Hyderabad

Faculty

Name: Niranjana Swain

Student

Name: NIDA FATIMA(2022H1540822P)

Student Write-up

PS-II Project Title: Data service improvement and insights

Short Summary of work done during PS-II : Designed various Power BI dashboard and workflows for various cross functional teams. Presented the dashboards and workflow to the senior management

Tool used (Development tools - H/w, S/w) : Power BI, Alteryx, Databricks Power apps and Microsoft Excel

Objectives of the project : Improving decision based on insights using analytics

Major Learning Outcomes : Power BI, Microsoft Excel, Alteryx, databricks and Power apps

Details of Papers/patents : I have designed dashboards and workflows

Brief Description of working environment, expectations from the company : Good culture, friendly environment

Academic courses relevant to the project : Finance, Data visualisation and data structure

PS-II Station : UBS - Risk Methodology , Mumbai

Faculty

Name: Niranjan Swain

Student

Name: MANAN MANGAL .(2019B1A41035P)

Student Write-up

PS-II Project Title: credit risk methodology

Short Summary of work done during PS-II : Overview: Spearheaded comprehensive model validation exercises, meticulously ensuring precision and alignment with FINMA regulatory requirements. Automated model documentation and analysis workflows, slashing time and resource expenditures by almost 50%. Approach: Engaged in collaborative ideation sessions to enhance automation algorithms. Impact: Resulted in a remarkable boost in efficiency while significantly reducing error margins to almost NIL . Promptly available financial summaries generating in <1 minute reducing load time by 99.99% . Saved 200+ hours annually from dynamic reports and reduced month-end reconciliation process redundancy.

Tool used (Development tools - H/w, S/w) : R, python, Latex

Objectives of the project : to calculate PD LGD EAD for the UBS Swiss credit cards portfolio

Major Learning Outcomes : Gained experience in the field of credit risk, got hands on experience working with R and python on automation projects, got to collaborate with people internationally from Zurich and Poland.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : great place work, employee friendly, flexible hours, hybrid mode of working

Academic courses relevant to the project : Econometrics, Statistics

PS-II Station : UBS - Risk Methodology , Mumbai

Faculty

Name: Niranjana Swain

Student

Name: A SRIVATHSA(2019B3A30574G)

Student Write-up

PS-II Project Title: Stress testing and loss projections for US Mortgage Lending Models

Short Summary of work done during PS-II : I have been assigned to work on Mortgage Lending Models in the Credit Risk and Platforms Streams. The team (pod) deals with the Bank's Mortgage Lending in the USA. The pod is responsible for the CCAR and CST Stress Testing and other related activities. I have worked on the Data Quality Checks Project. The DQ Checks is a one-off exercise and an emergency that requires quick resolution. The project involved reviewing, updating and creating over 200 Data Quality checks for multiple input datasets from various feeder models. I have worked and handled the project of quarterly Confirmation and monitoring of the BUSA Mortgages model singlehandedly for Q1 2024 and Q2 2024. The confirmation project involved recalibrating the model with latest and updated data to obtain the new parameters and to test the robustness of the old model by comparing the losses projected with those of the

new recalibrated parameters. I have also taken up the responsibility of filing the KMPIs and have filed them for the last 5 official runs. I and another team member have paired up to set-up the logistics for the confirmation of the alternate model developed by the team. I have now moved to a team that creates and maintains models that projects losses following the guidelines as prescribed by the CECL/IFRS-9 regulations. I have helped the team update the documentation and help the team progress with the latest Material Model Change's submission.

Tool used (Development tools - H/w, S/w) : Risklab, Gitlab , Studio, Docker, Excel

Objectives of the project : The objective of the project is to learn , develop and maintain stress testing and loss projection models for the US Mortgages portfolio of UBS.

Major Learning Outcomes : Teamwork in remote environments, practical application of concepts learnt in classroom, ability to work under stress with strict deadlines.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The company has a team members spread across different parts of the world.

The company expects us to have basic problem solving skills and basic econometrics knowledge. However the company will require us to go through a steep learning curve and expect quick and effective results.

Academic courses relevant to the project : Econometrics methods, Applied Econometrics

PS-II Station : UBS - Risk Methodology , Mumbai

Faculty

Name: Niranjan Swain

Student

Name: ANUSHKA SINGH(2019B3A40533H)

Student Write-up

PS-II Project Title: Incremental Risk Charge Model using Monte Carlo simulation

Short Summary of work done during PS-II : Month-End Runs: I was responsible for executing the month-end runs of the Incremental Risk Model, ensuring that the simulations were completed accurately and on time. This involved setting up the simulation parameters, running the model, and validating the results. □ Quarterly PRA Pack Run: I played a key role in the quarterly PRA pack run, which involves preparing reports for the Prudential Regulation Authority. My tasks included data preparation, model execution, and result analysis to ensure compliance with regulatory standards. □ Model Optimization: I worked on optimizing the model's performance by identifying and addressing computational bottlenecks, thereby improving the efficiency of the simulation runs

Tool used (Development tools - H/w, S/w) : R studio, GitHub.

Objectives of the project : To understand the methodologies and key components of the IRC model and its application in quantifying incremental risk. □ To evaluate the effectiveness of the IRC model in accurately assessing and managing market risk for new or modified trading positions at UBS. □ To explore the regulatory compliance aspects of the IRC model and its alignment with Basel III requirements.

Major Learning Outcomes : Technical Skills: I gained hands-on experience with Monte Carlo simulation techniques, enhancing my understanding of stochastic processes and their application in risk modeling. □ Quantitative Analysis: I developed a deeper understanding of quantitative risk models, including the intricacies of model calibration and validation.

- **Programming Proficiency:** I improved my proficiency in programming languages and tools commonly used in quantitative finance, such as Python and MATLAB.
- **Risk Management:** I learned about the various aspects of market risk management, including risk measurement, monitoring, and mitigation strategies.
- **Regulatory Knowledge:** I gained insights into regulatory requirements and the importance of compliance in the financial industry, particularly regarding risk reporting.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : At UBS, the working environment is dynamic and collaborative. Interns are integrated into teams, working alongside seasoned professionals who are committed to mentorship and professional development. The atmosphere is professional yet supportive, encouraging open communication and the sharing of ideas.

Academic courses relevant to the project : FOFA, DRM

PS-II Station : UBS - Risk Methodology , Mumbai

Faculty

Name: Niranjan Swain

Student

Name: KALYANI BHAVYA RAJESH .(2020A7PS0310P)

Student Write-up

PS-II Project Title: Model Development for Corporate CDS and Financial Bonds

Short Summary of work done during PS-II : Scenario Modelling Team

Tool used (Development tools - H/w, S/w) : Rstudio, RiskLab, Gitlab, Latex, Excel

Objectives of the project : To develop, implement and document two models.

Major Learning Outcomes : R, Latex, Excel, Economics, Finance, Statistical Methods, Financial Analysis

Details of Papers/patents : N.A.

Brief Description of working environment, expectations from the company : Good work environment, timings can be a bit messed up depending on your team work timings

Academic courses relevant to the project : Statistical Analysis, Financial Management

PS-II Station : UBS - Risk Methodology , Mumbai

Faculty

Name: Niranjan Swain

Student

Name: SHAANIL PUNGLIA(2020A8PS1144G)

Student Write-up

PS-II Project Title: Corporate Credit Risk Intern

Short Summary of work done during PS-II : I was a quant analyst intern in the corporate credit risk modelling team. I got the opportunity to work on three models during the course of my internship. My key role was in helping address issues or potential flaws in the models. I also programmed in R to study and test the output of models.

Tool used (Development tools - H/w, S/w) : R, Python, Latex

Objectives of the project : To work on validation issues of models

Major Learning Outcomes : Quantitative modelling, Risk Management

Details of Papers/patents : Not applicable

Brief Description of working environment, expectations from the company : The working environment is conducive to growth and learning. The team expected some exposure to statistics and programming.

Academic courses relevant to the project : Probability and Statistics, Derivatives and Risk Management

PS-II Station : UBS (Global Reference Data Operations) , Mumbai

Faculty

Name: Bandi Venkata Prasad

Student

Name: BOLLAVARAM KOUSTHUBHA SATYA(2022H1540842P)

Student Write-up

PS-II Project Title: Global Reference Data Operations- Legal Entity Management

Short Summary of work done during PS-II : I was responsible for maintaining data.

Tool used (Development tools - H/w, S/w) : Proprietary tools

Objectives of the project : To manage data quality, to provide data accuracy and data efficiency

Major Learning Outcomes : Data Quality Analysis

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Company and the environment was good and colleagues were friendly

Academic courses relevant to the project : Finance

PS-II Station : UBS (Global Reference Data Operations) , Mumbai

Faculty

Name: Bandi Venkata Prasad

Student

Name: CHEPA SAI ANITHA RANI(2022H1540847P)

Student Write-up

PS-II Project Title: Global Security Settlement Instructions

Short Summary of work done during PS-II : Got detailed knowledge about GSSi equities, OTC, Prime Brokerage and Fixed Income. Updated SSIs in UBS related applications. Gained experience on fixed income SSI after downloading PIL templates. Performed tasks for Prime Brokerage products based on few of the mandatory fields.

Tool used (Development tools - H/w, S/w) : UBS related applications

Objectives of the project : Collecting, validating, enriching, and distributing reference data, which forms the foundation for various financial transactions and decision-making processes within the bank

Major Learning Outcomes :

1. Understanding Fixed income products through applications while adding confirmations like Postal, Email, Swift, and fax.
2. Updated OTC SSIs and All market SSIs for equity products.
3. Through consistent collaboration with SME, I gained a more comprehensive understanding of the process and contributed to work on it.
4. I was able to more effectively manage the communication with stakeholders on addressing problems while working on any request by participating in the daily meeting with SME.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The company's environment is perfect, people are very welcoming to work with and always have a positive vibe.

Academic courses relevant to the project : Corporate Finance

PS-II Station : UBS Business Solutions (India) Private Limited - RAS FINANCE , Pune

Faculty

Name: Bandi Venkata Prasad

Student

Name: SPARSH TEJWANI .(2019B3A30551P)

Student Write-up

PS-II Project Title: Cloud Governance Data Onboarding Team

Short Summary of work done during PS-II : Assessed CCC and sourcing framework. Worked on RFA investigation, tested senior management dashboards.

Tool used (Development tools - H/w, S/w) : Excel, macros, python and central cloud Services

Objectives of the project : To centralise legacy datasets to Central Cloud platform while assessing the master sourcing and controls in place.

Major Learning Outcomes : Data Management Framework, sourcing pipelines, Controls implementation, Bug fixing

Details of Papers/patents : Nil

Brief Description of working environment, expectations from the company : Healthy culture, supportive staff

Academic courses relevant to the project : Financial Reporting, Data Science

PS-II Station : UBS Business Solutions (India) Private Limited - RAS FINANCE , Pune

Faculty

Name: Bandi Venkata Prasad

Student

Name: DARSHAN WALCHALE .(2019B3A30569P)

Student Write-up

PS-II Project Title: RAS Finance

Short Summary of work done during PS-II : Our team is responsible for regular reporting for the Investment Banking Division at UBS, this includes Revenue Reporting on a daily, weekly, monthly, and yearly basis. We also have monthly calls with CFOs regarding monthly trends in costs, RWA, etc., The team also helps with access control for other employees. I was also helping with automation of processes using Python, Excel, etc.,

Tool used (Development tools - H/w, S/w) : Excel, Office Suite, Power BI, Python, DAX

Objectives of the project : Understanding Reporting and Control Processes related to RAS IB Performance

Major Learning Outcomes : Understanding Reporting and Control Processes related to RAS IB Performance

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Formal work environment, expected to have good communication skills, learning processes and controls in place and help automate parts of them.

Academic courses relevant to the project : Financial Accounting, DRM, Business Analysis and Valuation,

PS-II Station : Unbox-ED , Bengaluru

Faculty

Name: Y V K Ravi Kumar

Student

Name: SHALINI SHANKAR PRASAD PUNTHAMBEKAR(2019B2A11010P)

Student Write-up

PS-II Project Title: Intern (0 to 1 Buildout), Founder's Office

Short Summary of work done during PS-II : I worked alongside the Founder on key aspects of business building, chiefly: - Tech platform buildout. Automation & productivity enhancement. Talent acquisition & training. Conducted thorough evaluations of various LMS platforms to identify the most suitable option based on specific business requirements. Prepared workplan for migration & executing on the same. Spearheaded deployment of an automated booking system to streamline the demo scheduling process to potentially increase conversion rates by up to 50%

& boost RoAS. Processed applications to onboard new educators, thereby expanding the capacity for new student enrolments

Tool used (Development tools - H/w, S/w) : Zoho bookings, Google Sheets, Google Slides, LMS platforms (like Learnyst, Edmingle), Clipchamp

Objectives of the project : To assist the Founder to scale up the business by playing a vital role in business development, tech, talent acquisition, and content creation

Major Learning Outcomes : 1. Business development and sales
2. What it takes to build a business from scratch

Details of Papers/patents : na

Brief Description of working environment, expectations from the company : The work environment is collaborative, with the freedom to take initiative and ownership - with a strong focus on learning and growth.

Academic courses relevant to the project : Na

PS-II Station : Unity Growth Fund LLC , Wilmington

Faculty

Name: Gaurav Nagpal

Student

Name: AKSHAT KALRA ,(2019B2A40951P)

Student Write-up

PS-II Project Title: Website development and revamping

Short Summary of work done during PS-II : During my internship, I had the invaluable opportunity to learn new skills and build meaningful connections. I honed my abilities in software development, gaining hands-on experience that enhanced my technical proficiency. Simultaneously, I connected with industry professionals and peers, fostering a network of relationships that provided insights, mentorship, and collaboration opportunities. These connections enriched my understanding of the industry and opened doors for future career prospects. This internship was a transformative experience, equipping me with both the practical skills and professional network essential for my career growth.

Tool used (Development tools - H/w, S/w) : Nextjs, Loopback4

Objectives of the project : Fix issues and add new features to the current website

Major Learning Outcomes : Nextjs

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The working environment of the company is dynamic and collaborative, fostering innovation and professional growth. Employees are encouraged to share ideas and work together on projects, creating a supportive and inclusive atmosphere. The company values continuous learning and provides opportunities for skill development.

Academic courses relevant to the project : none

PS-II Station : Unity Growth Fund LLC , Wilmington

Faculty

Name: Gaurav Nagpal

Student

Name: YASH JIWANI(2020A3PS1448G)

Student Write-up

PS-II Project Title: Unity Growth Fund Marketplace

Short Summary of work done during PS-II : Legal Documentation: Edited and revised legal documents to ensure accuracy and compliance. Investor Relations: Communicated and connected with investors via email and other platforms. Market Research: Conducted in-depth market research on various AI companies, including Anduril, Hugging Face, Mistral AI, Figure, SpaceX, Groq, and Perplexity AI. Pitch Deck Creation: Developed pitch decks for several of the aforementioned companies, showcasing their strengths and market potential. Pitchbook Utilization: Accessed Pitchbook to generate lists of key individuals for potential contact and outreach. Competitive Analysis: Performed a competitive analysis with Linqto, categorizing individuals based on their roles, experience, and positions using pivot tables and charts. Networking and Services: Maintained connections with Affinity, Meld.io, and Crunchbase to explore and potentially onboard their services. Startup Event Participation: Attended various startup events, such as Connectpreneur conferences and Startup Grind, to analyze startups and create detailed summaries. Interacted with key personnel and examined hundreds of products, generating a list of promising startups worth investing in. Data Extraction and Analysis: Extracted data for 3,200 companies listed on the FINRA website using Python

Tool used (Development tools - H/w, S/w) : Excel, PowerPoint, Canva, Python(Selenium)

Objectives of the project : Exploring the Landscape of AI/ML Startups and the Vibrant Indian Startup Ecosystem: A Comprehensive Research Study

Major Learning Outcomes : During my internship, I engaged in a variety of tasks that honed my skills in legal documentation, market research, and investor relations. Here are the key responsibilities and achievements from my experience:

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Work environment is pretty flexible. You can work at your own pace and ask some guidance from other seniors.

Academic courses relevant to the project : Finance

PS-II Station : Unity Growth Fund LLC , Wilmington

Faculty

Name: Gaurav Nagpal

Student

Name: VAVILALA HRUSHIKESH REDDY(2020A7PS0030H)

Student Write-up

PS-II Project Title: Enhancing Investment Management at Unity Growth Fund

Short Summary of work done during PS-II : During my internship at Unity Growth Fund LLC, I undertook a comprehensive web development project to enhance the company's investment management platform. My work primarily focused on improving user experience and administrative efficiency using technologies such as React.js, TypeScript, and MySQL. Initially, I

analyzed the existing codebase, delving into the application's architecture, component interactions, and the API layer. With the support of senior developers, I gained insights into design patterns and historical considerations, which laid the foundation for my development tasks. Key tasks included resolving email campaign issues by managing DNS and domain authentication, addressing incorrect Tax ID/SSN display, and optimizing AWS hosting costs. For the email campaigns, I implemented DomainKeys Identified Mail (DKIM), Sender Policy Framework (SPF), and Domain-based Message Authentication, Reporting, and Conformance (DMARC) configurations to improve email deliverability and sender reputation. In AWS cost optimization, I conducted a thorough resource analysis and proposed strategies such as switching to cost-effective storage options and utilizing reserved instances, which could reduce hosting costs by over 50%. I also worked on the FINRA Query API to fetch registration data, although the project faced constraints that halted further progress. Additionally, I addressed various frontend and backend bugs, made cosmetic changes to the website, and developed a new distribution module for processing investor requests. This module allowed investors to enter bank or brokerage details and request distributions, while administrators could verify these details and manage distribution processes efficiently. This internship significantly enhanced my technical skills and solidified my understanding of production software engineering environments. It also taught me the importance of clear communication, proactive problem-solving, and aligning development efforts with business objectives.

Tool used (Development tools - H/w, S/w) : React.js, TypeScript, MySQL, various tools on AWS

Objectives of the project : Frontend and backend development of the investment portal, DevOps

Major Learning Outcomes : Knowledge about full stack development and devops

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : My internship at Unity Growth Fund LLC provided a dynamic and growth-oriented working environment. The company's culture emphasized collaboration, innovation, and continuous learning, which created a supportive atmosphere for interns. The team comprised experienced professionals who were always willing to share their knowledge and mentor me, fostering a spirit of camaraderie and mutual respect.

Expectations from the company were clear and well-communicated. As an intern, I was expected to take ownership of my projects, adhere to the company's coding standards, and actively participate in team discussions and code reviews. The company valued initiative and problem-solving skills, encouraging me to propose solutions and optimizations for existing systems.

A typical workday involved a mix of independent development work and collaborative sessions with team members. Regular meetings and check-ins ensured that I was aligned with project goals and provided opportunities for feedback and guidance. The work environment was flexible, allowing for a balance between focused work time and collaborative efforts.

The company also prioritized professional development, offering resources and opportunities to enhance technical and soft skills. This included access to training materials, workshops, and mentorship from senior developers. The supportive environment at Unity Growth Fund empowered me to take on challenging tasks and develop a strong sense of responsibility for delivering high-quality results.

Overall, my experience at Unity Growth Fund was enriching and instrumental in my growth as a web developer, providing me with valuable insights into the industry and practical skills that will benefit my future career.

Academic courses relevant to the project : OOPS, DSA, DBMS

PS-II Station : UST Global - Infinity Labs , Hyderabad

Faculty

Name: Sindhu S

Student

Name: BAIBHAV PADHY(2020A4PS1191G)

Student Write-up

PS-II Project Title: Development of an advanced RAG pipeline application incorporating masking

Short Summary of work done during PS-II : -

Tool used (Development tools - H/w, S/w) : Jupyter, VS Code

Objectives of the project : Create a RAG application for a custom context and incorporate masking for hiding some sensitive data

Major Learning Outcomes : Learnt about many new frameworks, working of LLMs and development of llm based applications.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : A closed room where we had our pc systems to work on. Our mentors were at a separate location so we connected online.

Academic courses relevant to the project : Machine learning, Deep Learning, artificial intelligence

PS-II Station : UST Global - Infinity Labs , Hyderabad

Faculty

Name: Sindhu S

Student

Name: VINAYAK TULSYAN(2020AAPS0442H)

Student Write-up

PS-II Project Title: Chatbot for summarising and comparing insurance

Short Summary of work done during PS-II : Make chatbot to compare medical insurance,

Tool used (Development tools - H/w, S/w) : Python, Tensor flow, Transformers, Langchain, streamlit

Objectives of the project : To make a chatbot for medical insurance

Major Learning Outcomes : How to use and fine tune LLMs, OCR, Chatbot

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : We were on our own, mentors were at other location had a meeting of 5 - 10 min in every two weeks. No assistance or help can be expected.

Academic courses relevant to the project : None

PS-II Station : UST Global- Trivandrum , Thiruvananthapuram

Faculty

Name: Sindhu S

Student

Name: GOGINENI VIJAY SREEKAR(2020A7PS0266H)

Student Write-up

PS-II Project Title: Knowledge Management Systems

Short Summary of work done during PS-II : We have created a Proof of Concept on which NLP API was better amongst the three - Microsoft, google and Sytrue. I have then created the database solutions of 2 of the organisation's products- MRR and GapChase. Then I have employed a gen AI layer application over all of the organisation's databases which would provide responses based on natural language prompts. Next I have worked on creating a schema of the agile teams of the organisation which would enable the higher authorities of the organisation to evaluate the performances of the teams.

Tool used (Development tools - H/w, S/w) : S/w - Python and libraries like hugging face library, pandas, etc. , SQL server management system, Nodejs, Visual Code 2022, Google NLP api for health, SyTru API for health, Microsoft NLP API

Objectives of the project : Creating database solutions and deploying an app with Gen AI layer over the metadata

Major Learning Outcomes : Deep knowledge of NLP and Gen AI coupled with organization's databases

Details of Papers/patents : Created an app and database solutions which were pushed to the organization github

Brief Description of working environment, expectations from the company : The organisation was relatively recently acquired from a different company. Since we were working

with medical records of the individuals from the USA, the organisation followed strict protocols when it came to security and asked us to complete certain courses on the learning platform as part of the onboarding process. The organisation was divided into various teams in Advantasure delivery like medical coding, database handling and suspecting using AI teams. All the teams required constant and effective communication for seamless workflow. The company allows us to learn various courses while working on the projects. The organisation expects us to be proficient in our related fields based on the team we have been assigned to.

Academic courses relevant to the project : NLP, AI, ML, DBMS, DSA, Information Retrieval

PS-II Station : UST Global- Trivandrum , Thiruvananthapuram

Faculty

Name: Sindhu S

Student

Name: ABHIJITH KURIAKOSE(2022H1120276P)

Student Write-up

PS-II Project Title: Extracting HCC from patient medical record.

Short Summary of work done during PS-II : Extracted HCC from patient medical record.

Tool used (Development tools - H/w, S/w) : Azure, React

Objectives of the project : Extracting HCC from patient medical record.

Major Learning Outcomes : NLP

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Good.

Academic courses relevant to the project : NLP

PS-II Station : UST Global- Trivandrum , Thiruvananthapuram

Faculty

Name: Sindhu S

Student

Name: ANAND KUMAR(2022H1120277P)

Student Write-up

PS-II Project Title: Suspected HCC with ML

Short Summary of work done during PS-II : In the first few Months,doing poc with NLP for Medical coder.Next couple of week worked in Data engineering field, responsible for writing the Transformation and orchestration.

Tool used (Development tools - H/w, S/w) : Azure, Databricks,Adf,ML

Objectives of the project : To build model which will predict the Gap

Major Learning Outcomes : Data engineering and ETL

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Work environment is very Good, Manager are very cooperative, understand and always motivate.They mainly focus on learning.

Academic courses relevant to the project : Data mining, Machine Learning, Warehouse

PS-II Station : UST Global- Trivandrum , Thiruvananthapuram

Faculty

Name: Sindhu S

Student

Name: VINEET SHARMA(2022H1120292P)

Student Write-up

PS-II Project Title: Pull request Tracker

Short Summary of work done during PS-II : PullTrack Pro is a streamlined pull request management tool designed to enhance collaboration and efficiency in software development teams. This intuitive app centralizes pull request monitoring, offering real-time status updates, automated code review assignments, and customizable notification systems. With its user-friendly dashboard, team leads can easily prioritize reviews, track bottlenecks, and generate insightful metrics on team performance. PullTrack Pro integrates seamlessly with popular version control

platforms, making it an indispensable asset for agile development processes and continuous integration workflows.

Tool used (Development tools - H/w, S/w) : React , github apis ,github

Objectives of the project : To design an engineering dashboard for the company so that things should get automated.

Major Learning Outcomes : Fetching up of data from github using github api and generating results and performing operations on that.

Details of Papers/patents : PullTrack Pro is a streamlined pull request management tool designed to enhance collaboration and efficiency in software development teams. This intuitive app centralizes pull request monitoring, offering real-time status updates, automated code review assignments, and customizable notification systems. With its user-friendly dashboard, team leads can easily prioritize reviews, track bottlenecks, and generate insightful metrics on team performance. PullTrack Pro integrates seamlessly with popular version control platforms, making it an indispensable asset for agile development processes and continuous integration workflows.

Brief Description of working environment, expectations from the company : Working environment was very good as we were given details before and free hand to do whatever we want to do in the project.

Academic courses relevant to the project : Full stack /web dev

PS-II Station : UST Global- Trivandrum , Thiruvananthapuram

Faculty

Name: Sindhu S

Student

Name: TANMAY SHRIVASTAVA(2022H1410148P)

Student Write-up

PS-II Project Title: Suspecting The Gaps Using Machine Learning

Short Summary of work done during PS-II : I was given a project to work on "Suspecting The Gaps" in which incorporating an ML model to identify and analyze gaps in various domains. The application aggregates and preprocesses data, utilizes ML algorithms for gap detection, and displays the output in two sections: Summary and Actionable Insights. This project also involved significant data engineering tasks to ensure data quality and consistency.

Tool used (Development tools - H/w, S/w) : Python Programming language, Pyspark, Microsoft Azure

Objectives of the project : The objective of this project is to leverage advanced machine learning techniques to identify and analyze gaps in various domains, such as educational performance, healthcare outcomes, financial markets, and operational efficiencies.

Major Learning Outcomes : 1) Advanced Machine Learning Proficiency:

a) Gain hands-on experience with advanced machine learning techniques such as anomaly detection, clustering, and predictive analytics.

2) Data Management Skills:

a) Acquire skills in data collection and preprocessing, ensuring data quality and consistency across diverse datasets.

b) Learn to aggregate and manage large volumes of data from various domains including education, healthcare, finance, and operations.

3) Gap Detection and Analysis:

a) Understand how to identify and analyze gaps using machine learning models.

b) Develop the ability to interpret patterns and discrepancies indicative of underlying issues in different domains.

4) Visualization and Communication:

a) Gain proficiency in creating intuitive visualizations that effectively communicate findings and insights to stakeholders.

b) Develop skills in interpreting and presenting data in a manner that facilitates decision-making.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The work culture is excellent, offering flexible timing and abundant learning opportunities.

Academic courses relevant to the project : NA

PS-II Station : UST Global, Infiniy Labs , Thiruvananthapuram

Faculty

Name: Sindhu S

Student

Name: AGRAWAL PRATHAMESH BIPIN(2019B1A30999G)

Student Write-up

PS-II Project Title: Expression Evaluation Engine

Short Summary of work done during PS-II : To build a rule based engine that will dynamically filter the incoming CAN data from vehicles based on the given rules and give out alerts.

Tool used (Development tools - H/w, S/w) : C++, Virtual Machine

Objectives of the project : To build a rule based engine that will dynamically filter the incoming CAN data from vehicles based on the given rules and give out alerts.

Major Learning Outcomes : Learnt how to develop a DSL from scratch.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Decent

Academic courses relevant to the project : None for me

PS-II Station : UST Global, Infiniy Labs , Thiruvananthapuram

Faculty

Name: Sindhu S

Student

Name: PRANAV ARVIND BHILE(2019B5A70818G)

Student Write-up

PS-II Project Title: Multiple Projects

Short Summary of work done during PS-II : Coded the solutions in a very readable format.

Tool used (Development tools - H/w, S/w) : python

Objectives of the project : comparing schema using GenAI

Major Learning Outcomes : Python

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : The working conditions are a bit hard.

Academic courses relevant to the project : OOP

PS-II Station : UST Global, Infiniy Labs , Thiruvananthapuram

Faculty

Name: Sindhu S

Student

Name: YASH SHIVHARE(2022H1240093P)

Student Write-up

PS-II Project Title: FPGA based Design for Q-Table based Reinforcement Learning Accelerators

Short Summary of work done during PS-II : This project aims to develop an efficient hardware accelerator for Q-table based reinforcement learning (RL) algorithms using FPGA technology. The primary objectives are to enhance the performance of RL tasks, reduce power consumption, and enable real-time decision-making

Tool used (Development tools - H/w, S/w) : Xilinx Vivado

Objectives of the project : To develop and implement an efficient FPGA-based hardware accelerator for Q-table based reinforcement learning algorithms to improve the performance of RL tasks, reduce power consumption, and enable real-time decision-making.

Major Learning Outcomes : Learn to use hardware description languages (HDLs) such as VHDL or Verilog for implementing digital circuits.

Explore methods for accelerating computations using FPGA, including parallel processing, pipelining, and resource sharing.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : During my internship, I experienced a good working environment that significantly contributed to my professional development. The leadership was supportive and approachable, encouraging open communication and feedback.

Academic courses relevant to the project : VLSI Design

PS-II Station : UST Global, Infiniy Labs , Thiruvananthapuram

Faculty

Name: Sindhu S

Student

Name: SOUBHIK ROUT(2022H1240095P)

Student Write-up

PS-II Project Title: Image Recognition using CNN and its Implementation on FPGA

Short Summary of work done during PS-II : In my project, I developed an image recognition system using Convolutional Neural Networks (CNNs) and implemented it on a Field Programmable Gate Array (FPGA). The project began with training a CNN model using Python and Google Colab, utilizing the MNIST dataset. The CNN architecture included convolutional layers, pooling layers, tanh activation functions, and a softmax layer for classification. I focused on optimizing the model through hyperparameter tuning and data augmentation to ensure high accuracy. Once the CNN model was trained, I translated its key components into Verilog for FPGA implementation. The convolution layer was implemented with efficient sliding window computations and parallel processing to maximize throughput. I developed the tanh activation function in Verilog, ensuring it was optimized for hardware execution. The softmax function was implemented to handle exponential calculations and normalization in a hardware-friendly manner. Additionally, I created pooling layers that supported both max and average pooling operations, optimized for FPGA resources. The final phase involved integrating these Verilog components into a cohesive system on the FPGA using Vivado. This required careful resource management and optimization to ensure the CNN could run efficiently on the hardware. The integrated system was rigorously tested with the MNIST dataset to evaluate performance metrics such as processing speed, accuracy, and power consumption. This project provided me with deep insights into CNN architectures and hands-on experience in Verilog programming and FPGA design.

Tool used (Development tools - H/w, S/w) : Google Colab , Vivado

Objectives of the project : Design and Train a CNN Model for Image Recognition using Python on Google Colab, Develop Verilog Implementations of CNN Components and Finally Integrate CNN Components into an FPGA for Real-Time Image Recognition.

Major Learning Outcomes : 1)Deep Understanding of CNN Architectures:

Gained comprehensive knowledge about the structure and functionality of Convolutional Neural Networks (CNNs), including the roles of different layers such as convolutional, pooling, and fully connected layers. This understanding is crucial for designing and optimizing CNN models for various image recognition tasks.

2)Proficiency in Deep Learning Frameworks:

Developed proficiency in using popular deep learning frameworks like TensorFlow . This includes skills in model design, training, and optimization, as well as implementing advanced techniques such as hyperparameter tuning, data augmentation, and regularization to improve model performance.

3)Verilog Programming and FPGA Design:

Acquired significant expertise in Verilog programming, focusing on translating high-level CNN models into hardware descriptions. This involved understanding the principles of digital design, hardware optimization techniques, and the specific challenges of implementing complex neural network components in Verilog.

4)Real-Time Image Processing on FPGA:

Learned the process of integrating various CNN components into a unified system on an FPGA. This includes using High-Level Synthesis (HLS) tools, managing data flow and synchronization, and optimizing for parallel processing to achieve real-time image recognition capabilities.

5)Performance Evaluation and Benchmarking:

Gained skills in evaluating the performance of hardware implementations of CNNs. This involves measuring key metrics such as processing speed, accuracy, and power consumption, and comparing these metrics to traditional CPU/GPU implementations. Understanding these metrics is essential for assessing the efficiency and practicality of FPGA-based solutions.

6)Resource Management and Optimization:

Developed an understanding of how to balance computational efficiency with resource constraints on an FPGA. This includes techniques for optimizing resource utilization, such as minimizing the use of logic elements and memory, and employing parallel processing to enhance throughput.

7)Application of FPGA Technology in Various Domains:

Explored the potential applications of FPGA-based image recognition systems in different fields, including autonomous vehicles, healthcare, security, and industrial automation. This broadened understanding of how FPGA technology can be applied to solve real-world problems, highlighting its versatility and impact.

8) Collaboration and Project Management:

Improved skills in managing a complex project that involves both software and hardware components. This includes planning and coordinating different phases of the project, troubleshooting issues, and collaborating with others to achieve the project objectives.

Details of Papers/patents : 1) R. Xiao, J. Shi and C. Zhang, "FPGA Implementation of CNN for Handwritten Digit Recognition," 2020 IEEE 4th Information Technology, Networking, Electronic and Automation Control Conference (ITNEC), Chongqing, China, 2020.

2) P. Yan and Z. Xiang, "Acceleration and optimization of artificial intelligence CNN image recognition based on FPGA," 2022 IEEE 6th Information Technology and Mechatronics Engineering Conference (ITOEC), Chongqing, China, 2022.

3) O. Choudhari, M. Chopade, S. Chopde, S. Dabhadkar and V. Ingale, "HARDWARE ACCELERATOR: IMPLEMENTATION OF CNN ON FPGA FOR DIGIT RECOGNITION," 2020 24th International Symposium on VLSI Design and Test (VDAT), Bhubaneswar, India.

Brief Description of working environment, expectations from the company : During my project, I had the privilege of working in an exceptionally supportive and stimulating environment. The collaborative culture fostered innovation and significantly contributed to my professional growth.

My mentor was instrumental in guiding me through the complexities of FPGA design and CNN implementation. Their continuous support, expertise, and practical insights were invaluable. The mentor's approach to problem-solving and their willingness to provide detailed feedback helped me navigate challenges effectively and enhanced my technical proficiency in both software and hardware domains.

The manager's role was equally pivotal. Their constant encouragement and positive reinforcement created a motivating work environment. The manager's leadership style emphasized the importance of exploring new ideas and innovative solutions. They recognized and appreciated my efforts, which boosted my confidence and enthusiasm. Regular feedback

sessions and check-ins ensured the project remained on track and met its objectives, while also providing a platform for me to discuss any issues and receive constructive advice.

Expectations from the company included access to essential resources such as FPGA development boards and software tools like Vivado. The company was prompt in providing these resources, ensuring that my work progressed smoothly. Furthermore, the company's commitment to continuous learning and professional development was evident through access to training materials and workshops, which further supported my growth.

Overall, the combination of a supportive mentor and an encouraging manager, along with the company's provision of necessary resources and focus on development, created an ideal working environment. This experience enabled me to successfully develop an FPGA-based CNN image recognition system, significantly enriching my skills and preparing me for future challenges in AI and hardware design.

Academic courses relevant to the project : VISI Architecture ,Machine Learning

PS-II Station : UST Global, Infiniy Labs , Thiruvananthapuram

Faculty

Name: Sindhu S

Student

Name: ASHISH TANWAR(2022H1400091P)

Student Write-up

PS-II Project Title: Transformer based model for time series forecasting

Short Summary of work done during PS-II : i have made a transformer based LLM that will forecast the time series data

Tool used (Development tools - H/w, S/w) : S/w

Objectives of the project : To develop a model that will forecast univariate and multivariate time series data

Major Learning Outcomes : I have forecast the data using Lag Llama model for both univariate and multivariate time deried data

Details of Papers/patents : Lag-Llama: Towards Foundation Models for Probabilistic Time Series Forecasting

Brief Description of working environment, expectations from the company : work environment is good not so much involvement in the project

Academic courses relevant to the project : none

PS-II Station : Vankal Agri Solutions Pvt. Ltd. , Jaipur

Faculty

Name: Samir Kale

Student

Name: KSHITIJ NANDWANA(2019B2A11046P)

Student Write-up

PS-II Project Title: Banking and analytics intern

Short Summary of work done during PS-II : During my internship at Vankal Agri Solutions Pvt. Ltd., I engaged in a variety of tasks aimed at enhancing financial inclusion and agricultural sustainability in rural areas. I worked on business correspondence under RMGB, where I supported financial inclusion initiatives by managing customer onboarding, conducting training sessions for new Business Correspondents (BCs), and analyzing lead generation strategies. I collaborated with BRKGB to promote social security schemes and agricultural loans, focusing on increasing loan penetration among farmers. I also took part in a new project with Saurashtra Gramin Bank to expand financial services and improve data management systems. In the later part of my internship, I initiated work with banks like BRKGB and SBI, focusing on developing comprehensive reports and managing field operations. I also contributed to the application process for Ellaquai Dehati Bank as a corporate BC, ensuring effective implementation and monitoring of financial services. Throughout the internship, I developed skills in project management, data analysis, customer engagement, and bank collaborations, which significantly contributed to the company's mission of rural development through financial inclusion and agricultural support.

Tool used (Development tools - H/w, S/w) : Excel, Tableau

Objectives of the project : To enhance financial inclusion by supporting rural banking operations and providing comprehensive data analysis for Vankal Agri Solutions. Focus on optimizing business correspondent activities, improving loan penetration, and facilitating effective collaboration with partner banks.

Major Learning Outcomes : 1. Financial Inclusion Strategies: Developed a deep understanding of promoting financial inclusion in rural areas.

2. Data Analysis Skills: Enhanced proficiency in analyzing financial data for better decision-making.

3. Project Management: Improved skills in managing multiple projects and coordinating with stakeholders.

4. Bank Collaborations: Learned effective collaboration with banks like RMGB, BRKGB, and SBI.

5. Customer Engagement: Enhanced ability to engage with rural customers and address their financial needs.

Details of Papers/patents : N.A.

Brief Description of working environment, expectations from the company : At Vankal Agri Solutions Pvt. Ltd., the working environment is dynamic and collaborative, fostering a culture of learning and innovation. The company values proactive engagement and expects interns to contribute meaningfully to projects. There is a strong emphasis on teamwork, effective communication, and the application of analytical skills. The supportive environment encourages professional growth, while the company expects dedication, adaptability, and a commitment to its mission of enhancing financial inclusion and agricultural sustainability in rural areas.

Academic courses relevant to the project : None

PS-II Station : Vegapay , Bengaluru

Faculty

Name: Uma Nagarajan

Student

Name: NIKUNJ MEHADIA(2019B3A70343P)

Student Write-up

PS-II Project Title: Event Manager

Short Summary of work done during PS-II : Developed an event manager using temporal for logging all the inter service communication in the company

Tool used (Development tools - H/w, S/w) : Java, Temporal, Spring

Objectives of the project : Prepare an event manager for orchestrating all the inter communication events occurring across the company.

Major Learning Outcomes : Backend Development, Apache Kafka

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : A very lenient and free environment, encouraging new ideas.

Academic courses relevant to the project : Computer networks, Data structure & algorithm

PS-II Station : Vegapay , Gurugram

Faculty

Name: Uma Nagarajan

Student

Name: MEHTA URVISH KAUSHAL(2020A7PS1727G)

Student Write-up

PS-II Project Title: Credit Card Management System

Short Summary of work done during PS-II : Actively participated in day to day development and bug fixes happening in the company. Also developed and tested some features as prototypes and proof of concepts.

Tool used (Development tools - H/w, S/w) : Java, Spring, Mongo, Posgresql

Objectives of the project : Develop a system to support end to end credit card transactions for banks.

Major Learning Outcomes : Java, Spring, System Design

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment is pretty fast paced with development cycles being really short. It provides a great opportunity to learn.

Academic courses relevant to the project : DSA

PS-II Station : Vehant Technologies Pvt. Ltd. , Noida

Faculty

Name: Harish Kumar Aggarwal

Student

Name: AYUSHA NAYAK .(2019B3A30369P)

Student Write-up

PS-II Project Title: Detection of Camera Tampering in Surveillance Cameras

Short Summary of work done during PS-II : I was involved in the project from the ideation phase till testing and optimization. I developed a program in Python and C++ to detect different classes of camera tampering. The methodology involved an extensive review of existing literature, followed by the implementation of specific algorithms tailored to detect each form of tampering. Rigorous testing was conducted using diverse datasets, including live feeds and manufactured videos, to ensure the robustness and reliability of the detection algorithms. In the end, the code was successfully integrated into the DeepStream platform and employed on site.

Tool used (Development tools - H/w, S/w) : Python, C++, OpenCV

Objectives of the project : To detect different classes of camera tampering in surveillance cameras with good accuracy

Major Learning Outcomes : Got a very thorough understanding as well as hands on experience of image processing concepts and development of algorithms for the detection of camera features in ML domain.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment was very stimulating in terms of challenging me to go out of my comfort zone and ensure deliverables on deadline. At first it was a bit daunting, but gradually I got to learn a lot of technical and organisational skills while managing the work. The team was quite supportive in terms of helping me out during difficulties.

Academic courses relevant to the project : Computer Programming, Digital Image Processing

PS-II Station : VenueMonk Technologies Pvt. Ltd. , Gurugram

Faculty

Name: Pradheep Kumar K

Student

Name: MOHAMMAD ALI(2020A3PS2206H)

Student Write-up

PS-II Project Title: Automating Essential Reports: Enhancing Efficiency at Venuemonk Technologies

Short Summary of work done during PS-II : Manual generation of crucial reports from daily emails consumes excessive time and resources. Lack of real-time updates and analysis impedes informed decision-making by management. Absence of comprehensive reporting systems for agent call activities and login/logout events. Challenges in performance monitoring, resource optimization, and compliance enforcement. Using Nodejs, mongodb, cron-api and google apps script I contributed to developing a dialer report (i.e service used by sales division to make calls to customers) for agent calls and a login/logout report for agents. These reports offer insights into agent performance, call activities, and login/logout activities, enhancing operational efficiency and security within the company.

Tool used (Development tools - H/w, S/w) : 1]MongoDb 2]RabbitMq 3]NodeJs 4]AWS 5]Google Apps Script

Objectives of the project : Need to automate report generation processes and develop robust reporting systems to enhance efficiency, accuracy, and accountability within backend operations.

Major Learning Outcomes : Learned how to do backend development and got an opportunity to work on various softwares like RabbitMq and AWS.
Also got an experience with MongoDB and NodeJs framework.

Details of Papers/patents : No as such.

Brief Description of working environment, expectations from the company : The company is an early stage start-up so the work load is pretty much heavy but you will get to learn a lot of development. Tech stack used is MERN. The company expects you to be well versed in MERN.

Academic courses relevant to the project : SDPD,FDSA,OS,OOPS

PS-II Station : Viacom - DV Ad-Operations , Mumbai

Faculty

Name: Sandeep Kayastha

Student

Name: ARNAV DANI .(2019B2A10871P)

Student Write-up

PS-II Project Title: Ad-Operations

Short Summary of work done during PS-II : Our team's work is to see the operations of advertisements regarding the small-medium businesses. In our start of the internship we were taught about the softwares used in Ad-management and revenue which were Molocco, Vairo, DeltaX and Google Ad Manager. After that as JioCinema had started FOC campaigns, our job

was to setup this free campaigns and review them by analyzing the data gathered on our backend softwares. Other than that our work was to update daily report of SMB sports campaign. My other task was to gather lead reports on the leads that we send to all of our clients that were generated by lead-gen process. After IPL, next mega event on JioCinema was Olympics, so our next task was to bring revenue and clients for Olympics 2024. Hence, we gathered as many companies as we can related sports products and accessories and also we targeted top 20 cities and all the companies that were in those cities in the top 10 ad revenue industries. Our last task was sales pitching to the top clients and contract negotiation with them so that our managers can create customized packages for these top clients based on their marketing budget and targeting locations and audience reach.

Tool used (Development tools - H/w, S/w) : Excel, Google Ad manager, Molocco, Powerpoint, Team work and communication

Objectives of the project : There were many different assignments that we were given. Some of the objectives of the assignments were as follows: 1. Campaign setup, review and extension for IPL 2024. 2. Daily updating of SMB(small - medium businesses) sports campaign report. 3. Lead reports from agencies and lead calling for quality check, these leads were gathered using lead-gen method on JioCinema during IPL. 4. Gathering information on all sports and sports accessories companies for Olympics revenue generation. 5. Sales pitching and contract negotiation to the top clients for advertisement revenue.

Major Learning Outcomes : Competitive analysis and market trends

Learning technical terms used in Ad management and their significance to analyze the performance of an ad.

Strategies for digital marketing and planning.

Digital analytics and insights.

Sports sponsorship and partnerships.

Learning software like Molocco, GoogleAd Manager and Microsoft Excel.

Sales pitching and contract negotiation.

Data analysis and data interpretation.

Campaign strategy and market research.

Client communication and team collaboration.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The environment of the company was very encouraging and motivating. My every team member and manager was very helpful and were easy to approach whenever I was in need for any advice regarding my work.

Academic courses relevant to the project : POE, Mass Communication

PS-II Station : Viacom - DV Ad-Operations , Mumbai

Faculty

Name: Sandeep Kayastha

Student

Name: VINAYAK S.(2020A4PS0681P)

Student Write-up

PS-II Project Title: Ad Operations

Short Summary of work done during PS-II : Maintained and presented daily reports, prepared and suggested optimisations

Tool used (Development tools - H/w, S/w) : Excel, Moloco, GAM

Objectives of the project : Daily reporting

Major Learning Outcomes : Excel , Ad pipeline, efficient inventory management

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Relatively peaceful work environment, not stressful apart from peak times, IPL etc , understanding team members

Academic courses relevant to the project : NA

PS-II Station : Viacom - DV Ad-Operations , Mumbai

Faculty

Name: Sandeep Kayastha

Student

Name: ARJUN JEEWAN(2020A7PS1701G)

Student Write-up

PS-II Project Title: AltiusHub App - Frontend

Short Summary of work done during PS-II : During my internship at AltiusHub as a Software Engineering Intern, I worked on a Notifications Management System to enhance user interaction with notification preferences. My main responsibilities included designing and implementing state management for user-selected notifications using TypeScript and React. This involved defining robust data structures and interfaces to ensure type safety and clarity. Throughout the internship, I gained valuable experience in advanced TypeScript, React, and state management. I improved

my problem-solving abilities and learned to collaborate effectively with team members, which enhanced both my technical and soft skills. This experience significantly contributed to my growth as a software engineer, preparing me for future challenges in the field.

Tool used (Development tools - H/w, S/w) : Typescript, React, Jira, Yup, Material UI, Redux

Objectives of the project : Building key modules for the AltiusHub App for serialization and track and trace in the pharmaceutical industry

Major Learning Outcomes : SDE Experience, Frontend Development, Typescript, React

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Competitive working environment with real time product building experience.

Academic courses relevant to the project : Object Oriented Programming, Data Structures and Algorithms, Design and Analysis of Algorithms

PS-II Station : Viacom - DV Ad-Sales , Mumbai

Faculty

Name: Sandeep Kayastha

Student

Name: VAIBHAV SHUKLA(2019B2A41549H)

Student Write-up

PS-II Project Title: REVENUE MANAGEMENT AND SALES

Short Summary of work done during PS-II : Responsible for supporting my mentor in his end-to-end deals with his set of clients. End to End management of Bigg Boss Deals & pitches from prospecting to ideation to pitches to closures & now the execution of BB OTT deals. Collaborating with internal operations i.e. CS, strategy and Ad ops. Accountable for assisting my mentor in sales, post sales, execution, delivery performance across Jio Cinema offerings. Managing the trackers for the team to ensure a healthy reporting mechanism.

Tool used (Development tools - H/w, S/w) : Power BI, Excel, PPT

Objectives of the project : The objective of your project would likely revolve around driving revenue growth

Major Learning Outcomes : Media planning, campaign monitoring, programmatic advertising.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The working environment at Viacom18 Media Pvt Ltd is dynamic and collaborative, fostering a culture of innovation and continuous learning. It was a supportive atmosphere where teamwork and creativity thrive, allowing me to contribute effectively to the company's goals and objectives.

Academic courses relevant to the project : N/A

PS-II Station : Viacom - DV Ad-Sales , Mumbai

Faculty

Name: Sandeep Kayastha

Student

Name: GAURAV VIJIT NAIR(2020A4PS1870G)

Student Write-up

PS-II Project Title: Revenue Management

Short Summary of work done during PS-II : I worked in the sales team with the objective of revenue management. My major task was handling the numbers which were the revenue brought in by the team along using excel and it's tools. Several tasks such as voiro report preparation, competition tracking , tracking the clients etc were done

Tool used (Development tools - H/w, S/w) : MS Excel, MS Powerpoint

Objectives of the project : To streamline and enhance the revenue streams

Major Learning Outcomes : Learning about the sales division, learning about MS Excel and MS Powerpoint

Details of Papers/patents : No Papers

Brief Description of working environment, expectations from the company : The working environment is extremely open and friendly with a lot of room to showcase and explore your ideas. The company encourages to show your creativity and gives you the freedom to explore them.

Academic courses relevant to the project : CP, Engineering Optimisation

PS-II Station : Viacom - DV Ad-Sales , Mumbai

Faculty

Name: Sandeep Kayastha

Student

Name: PARIKH SHAURYA MEHUL .(2020A4PS1877P)

Student Write-up

PS-II Project Title: Revenue Management strategies & Practices – a focus on jiocinema

Short Summary of work done during PS-II : Optimizing ad placements across JioCinema and television channels to align with viewer demographics and content preferences. Nurturing strategic agency relationships to secure enduring, high-value advertising deals. Embracing AI and ML-powered tools to automate workflows and enhance data analytics in advertising operations. Introducing flexible pricing models tailored to meet diverse advertiser needs and preferences. Understanding diverse consumer preferences and behaviors within the Alcobev and BFSI sectors. Adapting to drivers of digital spending growth, such as demographic shifts and premiumization trends. Navigating category-specific digital regulations to ensure compliance and maintain consumer trust. Utilizing pivot table analysis for dissecting large datasets and extracting actionable advertising insights. Importance of agility and adaptability in digital advertising strategies across sectors. Strategic implications for optimizing advertising investments and driving sustainable growth in India's digital media landscape.

Tool used (Development tools - H/w, S/w) : PowerBi, Power Query, Excel

Objectives of the project : The overall objective of the project is to conduct a comprehensive analysis and evaluation of the Advertisement Sales and Revenue Management strategies at JioCinema (JC)

Major Learning Outcomes :

One of the major learnings from my internship at Viacom18 Media Private Limited, particularly within the Advertisement Sales and Revenue Management Team at JioCinema (JC), was the intricate dynamics of digital advertising strategies and their impact on revenue generation. Here are the key learnings:

Understanding Digital Advertising Dynamics: I gained a deep understanding of how digital advertising operates within the context of a major media platform like JioCinema. This included insights into ad placement strategies, audience targeting methods, and the metrics used to measure advertisement effectiveness.

Importance of Data Analytics: I learned how crucial data analytics is in optimizing revenue generation. By analyzing metrics such as revenue per hour, per-minute playtime rates, and advertisement performance metrics, I gained insights into trends and patterns that influence revenue streams.

Strategic Decision-Making: Through project work focused on benchmarking JC against traditional television platforms and exploring new revenue opportunities, I learned how strategic decisions are made based on data-driven insights. This involved identifying market trends, assessing competitor strategies, and recommending actionable steps to enhance JC's revenue generation capabilities.

Relationship Management: Managing relationships with advertising agencies was another significant learning aspect. I gained insights into negotiating long-term deals, understanding agency perspectives, and implementing strategies to strengthen partnerships, which are critical for maximizing advertising revenue.

Impact of Market Dynamics: Finally, I learned to navigate the complexities of the digital advertising market, including its dynamic nature, regulatory frameworks, and evolving consumer behaviors. This understanding is crucial for adapting strategies and staying competitive in the fast-paced media industry.

Overall, my internship provided invaluable hands-on experience and insights into the strategic aspects of digital advertising and revenue management, equipping me with practical skills and knowledge that are essential for a career in media and marketing.

Details of Papers/patents : Nones

Brief Description of working environment, expectations from the company : At Viacom18, they expect you to bring your creativity, dedication, and innovative spirit to help us lead the way in media and entertainment. They value teamwork, integrity, and a customer-centric approach in everything they do. Commitment to excellence and passion for delivering exceptional experiences are key to being successful.

Academic courses relevant to the project : Effective Public Speaking, TRW, Copywriting, Report & Wrote for media

PS-II Station : Viacom - Performance Marketing , Mumbai

Faculty

Name: Sandeep Kayastha

Student

Name: PRATHAM OZA .(2020A7PS1679P)

Student Write-up

PS-II Project Title: Driving SVOD Performance of JioCinema

Short Summary of work done during PS-II : As part of the Performance Marketing Team at Digital Ventures, JioCinema, I have been deeply involved in the launch and marketing of the JioCinema Premium service at an introductory price of INR 29 per month. My role encompassed a range of tasks including the daily management of campaign and channel trackers in collaboration with Havas Media Agency, which enabled rapid, data-driven adjustments. I extensively used analytics tools such as AppsFlyer, MixPanel, and Google Analytics, along with Google & Meta Ads Managers to dissect product performance and optimize subscription

strategies. This role required me to craft compelling ad copies for over 100 titles on JioCinema, significantly boosting our ad strength on Google Ads Manager. Additionally, I honed my skills in SEO for the sports and entertainment sectors using Semrush, Google Search Console, and Keyword Planner, ensuring optimal online visibility and user engagement. Strategically, I managed Google and Meta web campaigns across PMAX, GDN, VAC, and DemandGen channels, adapting financial allocations and bid strategies daily for maximum effectiveness. Utilizing DV360, I also assessed the digital reach of new shows, helping to shape our advertising strategy across YouTube CTV, mobile, and display networks, tailored to various Indian cities. This experience not only enhanced my technical and analytical skills but also deepened my understanding of strategic marketing in a highly competitive digital environment

Tool used (Development tools - H/w, S/w) : AppsFlyer, MixPanel, Google Analytics, Google Ads Manager, Meta Ads Manager, Semrush, Google Search Console, Google Keyword Planner, DV360, Google Sheets, MS Excel, Whimsical, Figma, CleverTap

Objectives of the project : - Increasing Subscriptions of JioCinema and cutting down Cost-Per-Subscriber (CPS)

Major Learning Outcomes : Campaign Management and Tracking: Learned how to administer day-on-day tracking at both the channel and campaign levels, which helps in monitoring performance and making data-driven decisions quickly.

Product Analytics Proficiency: Developed expertise in utilizing analytics and advertising tools such as AppsFlyer, MixPanel, Google Analytics, Google Ads Manager, and Meta Ads Manager to analyze the performance of JioCinema's subscription services.

Creative Content Creation: Gained experience in creating effective text ad-copies for over 100 titles on JioCinema to enhance ad strength and engagement on Google Ads Manager.

SEO Optimization Skills: Acquired skills in search engine optimization for sports and entertainment content using tools like Semrush, Google Search Console, and Google Keyword Planner. Learned how to assess and improve website visibility and user engagement through targeted SEO strategies.

Strategic Advertising and Financial Planning: Enhanced abilities in strategizing Google and Meta web campaigns on various channels like PMAX, GDN, VAC, and DemandGen. Developed skills in adjusting finances daily and applying unique bid strategies for optimized campaign performance.

Advanced Tool Utilization for Impact Analysis: Learned to use DoubleClick Bid Manager (DV360) to measure and analyze the digital impact of new shows, enabling targeted advertising across YouTube CTV, mobile, and display ads in different cities across India.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : I am particularly pleased with the freedom given to employees. The dress code is relaxed, timings are flexible, and there is no question raised about taking leaves. The office location in Parel is very lavish and clean, bringing good vibes to day-to-day work. However, a con I've noticed is that work hours can extend during some occasions, and there is a necessity to work on weekends. Although I haven't experienced this personally as an intern, I've seen full-time employees doing so.

I find Viacom18 to be a giant, growing MNC that is on its way to capturing the entire Indian OTT market. Everyone has treated me fairly and guided me through all the twists and turns. I am particularly happy to have a wonderful team and an experienced mentor.

Academic courses relevant to the project : None

PS-II Station : Viacom 18 Pvt Ltd - Sports SMB , Mumbai

Faculty

Name: Sandeep Kayastha

Student

Name: YASHRAJ KANITKAR(2020A5PS2546H)

Student Write-up

PS-II Project Title: CONDUCTING RESEARCH AND ANALYSIS FOR STRATEGIC OPPORTUNITIES TO PURSUE AND MARKET POSITION ANALYSIS FOR CIPLA.

Short Summary of work done during PS-II : The tasks undertaken encompass company profiling, market landscaping, portfolio analysis, respiratory disease education, and various secondary research activities. ****Company Profiling**** involved understanding companies in the CAR-T segment, capturing details like headquarters, founding year, focus areas, recent projects, products, and future plans. Cipla aimed to partner with CAR-T companies such as Cytiva, Medtherapy, and Verve Therapeutics to expand into this segment, which was part of broader market landscaping for stem cell treatments. ****Market Landscaping**** included evaluating Regrow Biosciences, a pioneer in autologous stem cell therapy, and analyzing the market and competitors. A comparative study between Alkem's StemOne and Regrow's Cartigrow for osteoarthritis revealed the market's disorganization. Additionally, Cipla explored the biosimilar market, examining trends like the rise in biosimilar approvals, Humira's performance post-patent expiry, and the number of biologics with biosimilars. ****Portfolio Analysis**** helped Cipla assess its position in the Indian market across therapy segments using IQVIA data. Excel pivot tables were utilized to analyze CAGR, market share, and revenue contribution, comparing Cipla's current and past rankings across diseases. A similar analysis was conducted for the global respiratory market, focusing on market share, rank, CAGR, units sold, and sales ratios for respiratory products and inhalers. ****Respiratory Diseases Education**** involved presenting key information about COPD, asthma, pulmonary arterial hypertension, cystic fibrosis, and interstitial lung disease to Cipla employees from diverse backgrounds. The sessions covered disease details, pathogenesis, diagnosis, treatments, costs, and inhaler types. ****Secondary Research and Miscellaneous Tasks**** included searching for executive email IDs, analyzing sales data, tracking drug statuses, understanding market sizes, aiding in presentations, and updating financial data. Research tools and software like Google, Global Data, IPD Analytics, VCC Edge, MS Word, Excel, and PowerPoint were employed across these tasks.

Tool used (Development tools - H/w, S/w) : Excel, powerpoint , google, global data, IPD analytics , VCCEdge

Objectives of the project : CONDUCTING RESEARCH AND ANALYSIS FOR STRATEGIC OPPORTUNITIES TO PURSUE AND MARKET POSITION ANALYSIS FOR CIPLA

Major Learning Outcomes : Company profiling, market analysis, presentation,

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Work environment is calm, generally the employees are helpful, however sometimes expectations from the managers may fluctuate. Some days can have less work, and some days maybe intense.

Academic courses relevant to the project : All pharmacy courses and finance courses(for excel)

PS-II Station : Viacom DV AVOD - Digital Publishing , Mumbai

Faculty

Name: Sandeep Kayastha

Student

Name: HARSH PRAVIN DABHADE(2019B5A30196G)

Student Write-up

PS-II Project Title: Interactivity and Operations

Short Summary of work done during PS-II : Interactivity team at JioCinema goes with the motto of "Do More with Content". I was in charge of Data Analytics for the Interactivity assets (Entertainment), handling CMS for the same and operationalizing the Live Events.

Tool used (Development tools - H/w, S/w) : MixPanel, CMS, SuperSet, Excel, PowerBI

Objectives of the project : To gauge user engagement, derive insights and operationalise interactivity assets for JioCinema

Major Learning Outcomes : Cohort and Viewership Based Analysis, User journey through an app, OTT Landscape, Operationalizing Projects

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : It is ideal for someone who wants to work in the creative industry. Working hours are slightly off the usual 9-5. You may be asked to work on weekend (which is usually the case). However it is specifically dependent on the team. Media industry demands presence on weekends as well as weekdays.

Academic courses relevant to the project : -

PS-II Station : Viacom DV AVOD Marketing , Mumbai

Faculty

Name: Sandeep Kayastha

Student

Name: KULKARNI SOHAM MANISH .(2019B1A11002P)

Student Write-up

PS-II Project Title: Retention Marketing at JioCinema

Short Summary of work done during PS-II : Maintained extensive dashboards for marquee properties such as IPL (Indian Premier League), WPL (Women's Premier League), CCL (Celebrity Cricket League), SVOD Users (Behaviour of Subscribed Users), and Subscription Patterns. These dashboards were critical to examine various health metrics for these business units, and were frequently used to make key decisions. Regularly conducted in-depth campaign-level analysis of the various types of 'copies' and 'creatives' used in Push Notification campaigns by considering various parameters such as tonality, language targeting, user affinity, user properties such as age, location, etc. Presented actionable insights to stakeholders at regular intervals that significantly increased campaign efficiency, driving user retention and engagement on the platform. Worked extensively on the internal tracking dashboard and daily mailer for the Retention Team by refining and adding important retention metrics, to better understand and influence user behaviour on the platform. Created several case studies to study and quantify the impact of various experiments being done to improve user retention. Gained expertise in publishing and executing push notification campaigns to large base sizes on the JioCinema app across 5 months. Also worked on a variety of recurring ad-hoc tasks such as writing copies for push notifications, selecting content to be promoted to users, and managing data requirements for other business units.

Tool used (Development tools - H/w, S/w) : CleverTap (Customer Lifecycle Management Tool), Mixpanel (Product Analytics Tool)

Objectives of the project : As an intern in the Retention Marketing Team, I handled end-to-end execution of Push Notification campaigns sent directly to users on the JioCinema App. I was also tasked with maintaining metrics trackers for several different projects, to derive data-driven insights from historical campaign performance to improve retention strategy, and to select content to be promoted to users based on consumption and audience affinity metrics.

Major Learning Outcomes : Major Learning Outcomes are as follows -

Learned all about the concepts of User Retention and Customer Lifecycle Management, developed an understanding of several related KPIs. Gained in-depth knowledge of the inner workings of the OTT, Media and Marketing Industries in India, and the workflows of the various teams involved in each step of creating content, marketing it, and publishing it. Gained expertise in handling end-to-end execution, strategy and analysis of Push Notification systems and metrics. Understood and analyzed various important product metrics and concepts.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Friendly and welcoming work environment at Viacom18. Team manager and members were highly supportive and cooperative throughout the internship tenure, and facilitated a very smooth learning experience. For my team, it was expected that all team members (including interns) should be reachable on weekends, and I would often receive at least 2-3 hours of work on several weekends. During IPL, it was the norm for work to exceed beyond midnight.

Academic courses relevant to the project : No relevant courses, as this was a marketing internship

PS-II Station : Viacom DV AVOD Marketing , Mumbai

Faculty

Name: Sandeep Kayastha

Student

Name: AMAY PATIL(2020A3PS0322P)

Student Write-up

PS-II Project Title: Retention Marketing

Short Summary of work done during PS-II : Data of different projects was tracked and then analysed to make data driven decisions in order for the Marketing team to perform smoothly

Tool used (Development tools - H/w, S/w) : Software Analytical Tools - Mixpanel,CleverTap and Office Tools like Excel,Word,Powerpoint

Objectives of the project : Tracking of data in order to analyse and make data driven decisions for marketing purposes

Major Learning Outcomes : An overall exposure to Marketing as a domain

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment is healthy with proactive people who are always ready to offer help
Work culture in terms of commitment to your work in units of time could be tested depending on team to team.

Expectations: Expect a decent learning experience and a wonderful opportunity for anyone who is seeking a future path in sales or marketing

Academic courses relevant to the project : NA

PS-II Station : Viacom DV Sales Planning , Mumbai

Faculty

Name: Sandeep Kayastha

Student

Name: DEV RUPESH MEHTA(2019B1A41084G)

Student Write-up

PS-II Project Title: Business Intelligence, Analytics, Growth and Innovations

Short Summary of work done during PS-II : Ultimate objective of all tasks was ad-revenue maximization. Part of the work was addressing inventory requests by forecasting maximum reach delivery which involved basic mathematical modelling. Competitive benchmarking was done constantly to identify opportunities and pain points. Business Analytics- creating narratives using available data trackers and tools post data analysis. Demand-Supply analysis to identify revenue capitalization opportunities. Automation to increase efficiency. Dashboarding for visualization.

Tool used (Development tools - H/w, S/w) : Google Ad-Manager, Mixpanel, MS Excel, MS Powerpoint, etc.

Objectives of the project : Revenue Maximization, Generate data driven insights

Major Learning Outcomes : Methodology for data-driven decision making, Forecasting, Data Analysis, Dashboarding

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Viacom18 fosters a friendly and collaborative atmosphere where people are approachable and mentors are supportive. It offers a great learning experience within a productive environment, making it an ideal place for professional growth. You need to be self-driven in order to take the most out of the experience.

Academic courses relevant to the project : Engineering optimization, Probability and Statistics, Labwork-Excel, AI for Robotics-Python

PS-II Station : Viacom DV Sales Planning , Mumbai

Faculty

Name: Sandeep Kayastha

Student

Name: RITIEN MOHAN(2020A1PS1052P)

Student Write-up

PS-II Project Title: Content Engagement and Revenue Optimisation

Short Summary of work done during PS-II : During my internship, I had the opportunity to work on multiple projects primarily focused on strategy and sales. My main responsibilities involved analyzing large datasets related to Jio Cinema's clients, show performance metrics, and revenue figures. Using this data, I created comprehensive Excel and Power BI dashboards that provided valuable insights to the higher management, facilitating informed decision-making. Additionally, I developed automated solutions for these dashboards to ensure a seamless transition once my internship ended, significantly improving efficiency and accuracy in reporting and analysis. I also regularly monitored and checked daily revenue reports to ensure their accuracy and provide insights into financial performance. Furthermore, I supported the sales team by compiling and maintaining extensive client lists, which helped identify potential clients and enhance customer acquisition efforts. My role also involved conducting thorough market research to stay abreast of industry trends and the competitive landscape, and providing strategic recommendations based on my findings. Overall, my internship was a highly positive experience that allowed me to gain a deeper understanding of the media industry and the critical role data and strategic planning play in driving business success. This experience not only enhanced my analytical skills but also provided me with practical experience in data-driven decision-making and process automation.

Tool used (Development tools - H/w, S/w) : Mixpanel, Voiro, Salesforce, PowerBI, Excel, Powerpoint

Objectives of the project : 1) Create multiple Trackers to track and analyse how the shows on Jio Cinema are performing 2) Create inferences and share revenue optimisation strategies 3) Automate the Tracker

Major Learning Outcomes : 1) Proficiency on Excel, PowerBI
2) Learning new software like Mixpanel, and Salesforce
3) Cross-Functional Learning - interacting with multiple teams
4) Understanding the media Industry

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : My internship at Viacom18 provided a dynamic and engaging working environment that fostered both professional and personal growth. The company had a collaborative culture where teamwork and cross-functional learning were highly encouraged. Working alongside different departments allowed me to gain a holistic understanding of the media industry and its various facets.

Expectations from the company were clear and well-communicated. Viacom18 valued proactive and innovative thinking, expecting interns to contribute fresh perspectives and demonstrate strong problem-solving skills. The projects I was involved in required meticulous data analysis and strategic planning, pushing me to develop a keen eye for detail and a robust analytical approach. The working hours were reasonable, offering a good balance between productivity and personal time. This flexibility contributed to a positive work-life balance, which was greatly appreciated. The supportive atmosphere and open communication channels with supervisors and colleagues created a conducive environment for learning and development.

Overall, my experience at Viacom18 was incredibly positive. The exposure to various projects, the emphasis on cross-functional collaboration, and the opportunity to work in a vibrant industry were invaluable. This internship not only enhanced my technical skills in data analysis and dashboard creation but also provided me with a deeper understanding of strategic roles in the media sector. It was a fulfilling experience that significantly contributed to my professional growth.

Academic courses relevant to the project : Business Communication, Financial Management, Probability and Statistics

PS-II Station : Viacom DV Sales Planning , Mumbai

Faculty

Name: Sandeep Kayastha

Student

Name: TUSHANKAA VASKAR BARAI(2020A1PS1996G)

Student Write-up

PS-II Project Title: Digital Lisencing and Partnerships

Short Summary of work done during PS-II : During my PS-II internship at Viacom18, I delved into the realm of digital content management and performance analysis, which significantly broadened my professional horizons. I focused on evaluating revenue performance across YouTube CMS platforms (Prism, Colors, Voot, MTV), using lifetime data to uncover growth opportunities. One of my key achievements was developing a dynamic dashboard in Excel and Mixpanel. This tool allowed me to monitor metrics like watch time, revenue, and views across diverse geographies (India, Worldwide, US, UK, Canada, Germany), empowering me to make informed strategic decisions. Another aspect of my internship involved analyzing trending content using YouTube, Google Trends, and BARC data. This allowed me to enhance user recommendations and engagement, which was both challenging and rewarding. Additionally, I conducted competitor analysis in YouTube publishing, providing actionable insights to enhance Viacom18's performance while respecting organizational constraints. These experiences were instrumental in refining my skills in digital marketing, data analytics, and media management. They deepened my understanding of data-driven decision-making and strategic planning in the dynamic media industry, laying a strong foundation for my future career aspirations.

Tool used (Development tools - H/w, S/w) : YouTube CMS, MS Excel, MixPanel, Facebook Business Suite

Objectives of the project : Weekly Tracker Dashboard for YT and FB, Trending Content Dashboard, Competition Analysis and Strategic Recommendations, Revenue Analysis

Major Learning Outcomes : -

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at Viacom18 during my internship was dynamic and collaborative, fostering a culture of innovation and growth. The company emphasized a data-driven approach to decision-making, which was evident in the tools and methodologies used for content management and performance analysis. Teams were encouraged to explore new ideas and solutions, fostering an entrepreneurial spirit among employees. Regular team meetings and brainstorming sessions facilitated knowledge sharing and collaboration across departments.

Expectations from the company were aligned with delivering impactful results through insightful data analysis and strategic recommendations. There was an emphasis on understanding and improving content performance across different platforms, including YouTube and other digital channels. The company valued creativity in problem-solving and encouraged interns to contribute fresh perspectives to ongoing projects.

Overall, Viacom18 provided a supportive and stimulating environment where learning and growth were prioritized. The company's expectations revolved around leveraging data to enhance business strategies, contributing to the company's overall success in the competitive media and entertainment industry.

Academic courses relevant to the project : NA

PS-II Station : Viacom DV Sales Planning , Mumbai

Faculty

Name: Sandeep Kayastha

Student

Name: ROHIT PATEL(2020A4PS1990G)

Student Write-up

PS-II Project Title: Project Intern

Short Summary of work done during PS-II : The role supports the Senior Program Manager in developing campus entrepreneurship ecosystems. Key responsibilities include launching WE Programs, coordinating with institutes and partners, and enhancing student engagement through regular reports. A significant focus is on creating investor-ready pitch decks, preparing financial sheets, and evaluating pitches for profitability and investment potential. Additionally, the role involves organizing workshops and events, promoting activities on social media, and identifying partnership opportunities to support institutions and ventures.

Tool used (Development tools - H/w, S/w) : Excel, MS Powerpoint, Wix Studio

Objectives of the project : Develop Entrepreneurship Ecosystem: Foster a vibrant entrepreneurship culture on campuses by supporting and nurturing startup ventures. Successful Program Launch: Ensure the effective launch and ongoing success of WE Programs across the region by coordinating with relevant stakeholders. Stakeholder Engagement: Enhance engagement with students, faculty, institutes, incubators, mentors, investors, and state partners to build a supportive network. Pitch Deck Development: Create comprehensive, investor-ready pitch decks and financial sheets for practice ventures to facilitate investment opportunities. Investment Evaluation: Assess the profitability and investment potential of pitches, providing constructive feedback to refine business ideas. Organize Workshops and Events: Plan and execute workshops, challenges, and events to provide practical learning experiences for entrepreneurs. Promote Programs and Achievements: Use social media and other platforms to

promote programs, recognize high performers, and increase visibility and participation. Partnership Formation: Identify and establish partnerships with organizations that can support the growth and success of institutional programs and ventures. Continuous Improvement: Collect feedback, track progress, and implement improvements to ensure the effectiveness and impact of the programs.

Major Learning Outcomes : Entrepreneurship Ecosystem Development: Understanding the dynamics of creating and sustaining a thriving entrepreneurship ecosystem on campuses.

Program Management Skills: Gaining experience in planning, implementing, and coordinating large-scale programs with multiple stakeholders.

Pitch Deck Creation: Developing skills in creating compelling, investor-ready pitch decks and financial sheets.

Investment Evaluation: Learning to evaluate pitches for profitability and investment potential.

Stakeholder Coordination: Enhancing abilities in working with diverse groups, including institutes, incubators, state partners, and the entrepreneur community.

Effective Communication: Improving skills in preparing and sending reports, as well as promoting events and achievements through social media.

Event Organization: Acquiring experience in organizing and coordinating workshops, challenges, and other events.

Partnership Development: Identifying and fostering partnerships to support institutional and venture growth.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The working environment is dynamic and collaborative, focused on fostering innovation and entrepreneurship within academic institutions. You will work closely with the Senior Program Manager, WF Institute Members, and a diverse range of stakeholders, including engineering and management institutes, incubators, state startup mission partners, mentors, and investors. The atmosphere is fast-paced, with a strong emphasis on teamwork, proactive problem-solving, and effective communication.

Expectations from the company include a high level of commitment to the program's success and active engagement in all aspects of project management. You are expected to be organized and detail-oriented, capable of managing multiple tasks and deadlines efficiently. Regular interaction

with faculty, students, and partner organizations requires excellent interpersonal and communication skills.

Creativity in developing promotional materials and leveraging social media for event promotion and engagement is valued. Additionally, you are expected to bring analytical skills to the table, especially in creating investor-ready pitch decks, preparing financial sheets, and evaluating pitches for investment potential.

The company values continuous learning and professional development, encouraging employees to stay updated with industry trends and best practices. Flexibility and adaptability are crucial, as the role involves a mix of remote and on-site work, depending on project requirements. Overall, the company expects you to contribute to building a robust entrepreneurship ecosystem by fostering partnerships, supporting ventures, and driving successful program outcomes.

Academic courses relevant to the project : Entrepreneurship and Innovation(New Venture Creation): Covers the fundamentals of starting and managing new ventures, fostering innovation, and understanding the startup ecosystem.

Program and Project Management(Operations and Manufacturing Management):

PS-II Station : VINJEY Software Systems Pvt. Ltd. , Bengaluru

Faculty

Name: Satya Sudhakar Yedlapalli

Student

Name: SALINI S V(2022H1400068G)

Student Write-up

PS-II Project Title: IMPLEMENTATION OF FIXED POINT FFT ON RISC V

Short Summary of work done during PS-II : The project involved the implementation of a fixed-point Fast Fourier Transform (FFT) algorithm on the RISC-V architecture, undertaken as part of my internship. The primary objective was to leverage the fixed-point arithmetic capabilities of the RISC-V microcontroller to perform efficient FFT computations, which are critical in various digital signal processing (DSP) applications. The project involved coding the FFT algorithm in RISC-V assembly language, optimizing the performance using specific hardware features. This internship provided valuable hands-on experience in embedded systems programming and performance optimization, contributing to the growing body of knowledge on the practical applications of RISC-V architecture.

Tool used (Development tools - H/w, S/w) : Visual studio code, Espressif IDE, ESP32 C6

Objectives of the project : The primary objective was to leverage the fixed-point arithmetic capabilities of the RISC-V microcontroller to perform efficient FFT computations, which are critical in various digital signal processing (DSP) applications.

Major Learning Outcomes : RISC V ISA, ASSEMBLY LANGUAGE PROGRAMMING, OPTIMIZATION TECHNIQUES.

Details of Papers/patents : Nil

Brief Description of working environment, expectations from the company : A positive environment fosters productivity, collaboration, and employee well-being, often characterized by open communication, support for work-life balance, and opportunities for professional growth. That kind of environment is there in the company.

There is clear communication between the staff and thereby make the learning process smooth and clear. And the compensation they provide for the interns is fair.

Academic courses relevant to the project : Computer Architecture

PS-II Station : VISA , Bengaluru

Faculty

Name: Vimal S P

Student

Name: TUSHAR KABRA(2019B3AA0528G)

Student Write-up

PS-II Project Title: Data Engineer

Short Summary of work done during PS-II : Applied a bayesian model for prediction of time series related to various financial parameters

Tool used (Development tools - H/w, S/w) : Hive Spark python

Objectives of the project : Running Bayesian Models to predict counterfactuals of certain metrics such as Payment volume for a place where an event or a concert had occurred.

Major Learning Outcomes : Learnt on how apply Bayesian models to real world data.
Improved existing stats knowledge

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Very friendly environment. Extremely good learning resources. Udemy and other learning platforms are free. Work is less and at times slight slow but overall a pretty good experience.

Academic courses relevant to the project : Econometrics

PS-II Station : VISA , Bengaluru

Faculty

Name: Vimal S P

Student

Name: ADVAIT NARESH JISHNANI(2020A7PS0972G)

Student Write-up

PS-II Project Title: MLOps Dashboard Framework

Short Summary of work done during PS-II : I was responsible of developing an automated pipeline for the MLOps Dashboard. My code monitored all the ML models in the NA region and was able to populate the result into a data source. The dashboard then automatically refreshed and displayed the key metrics to the stakeholders. The pipeline was in such a way that it was automatically triggered when the model ran. Minimised the human intervention and optimized the entire process by upto 80%

Tool used (Development tools - H/w, S/w) : Tableau, Airflow, Pyspark, Hadoop, Hive, GitHub and Jira

Objectives of the project : To develop a framework for automatically populating the MLOps Dashboard. Develop an automated pipeline to monitor the ML models automatically without human intervention. Present it in the form of a dashboard so that the stakeholders can have a better understanding of the ml models running in Visa.

Major Learning Outcomes : Tableau, Airflow, Pyspark, Hadoop, Hive, GitHub and Jira

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Visa had a very collaborative work environment. Because of the flat hierarchy everyone was treated with respect. We could approach whoever we wanted for advice and they were happy to help us.

Academic courses relevant to the project : Data visualization, Data Structures, OOPs, DBMS.

PS-II Station : VISA , Bengaluru

Faculty

Name: Vimal S P

Student

Name: GURBAAZ SINGH GILL(2020A7PS1228G)

Student Write-up

PS-II Project Title: Event Analytics

Short Summary of work done during PS-II : Wrote an automated pipeline to get the event transaction data analysis for events happening around the world, and impact it creates in Visa's business. A number of prediction models, and data balancing algorithms were used for this project.

Tool used (Development tools - H/w, S/w) : Python, Hive, Hadoop, Airflow, ML Models

Objectives of the project : Create a CoE for all the Event Data Analysis happening around the globe in an automated manner

Major Learning Outcomes : Key Learnings

A. Soft Skills

- Communication: We improved our communication skills by presenting our work to different audiences, such as mentors, managers, peers, and business stakeholders. We also learned how to write clear and concise reports and documentation for our projects.
- Profile Building: We learned how to showcase our achievements, skills, and passions to potential employers, clients, and collaborators. We also learned how to network effectively and build relationships with people in our field.
- Collaboration: We enhanced our collaboration skills by working in teams with diverse backgrounds, perspectives, and roles. We learned how to coordinate our tasks, share feedback, resolve conflicts, and leverage each other's strengths.
- Creativity: We developed our creativity skills by exploring new ideas, methods, and tools for solving challenging problems. We learned how to think outside the box, experiment with different approaches, and adapt to changing requirements and feedback.
- Critical thinking: We sharpened our critical thinking skills by analyzing data, evaluating models, and interpreting results. We learned how to apply logic, reasoning, and evidence to support our decisions and recommendations.

B. Technical Skills

We enhanced our technical skills by using various tools and techniques for machine learning and data analysis. We learned how to use:

- Many Machine Learning and Predictive Models
- Hive and Hadoop, platforms for storing and processing large-scale data.
- NumPy and Pandas libraries for numerical computing and data analysis in Python, performing statistical tests, and handling missing values.
- Spark, a framework for distributed computing, and how to implement data pipelines, such as loading, processing, and exporting data.
- SQL, a language for querying and manipulating data, and how to optimize queries for performance and scalability.
- Git, a version control system, and how to collaborate with other developers using GitHub.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Working environment is great and well balanced

Academic courses relevant to the project : Database Systems, Machine Learning, Probability and Statistics

PS-II Station : Visit Health Private Limited , Noida

Faculty

Name: Ashish Narang

Student

Name: ADITYA KHANDELWAL(2020A8PS2217H)

Student Write-up

PS-II Project Title: Backend Development at Visit Health

Short Summary of work done during PS-II : During my internship at Visit Health Pvt Ltd, I played a pivotal role in enhancing the platform's functionality and efficiency through the development and optimization of various backend APIs. My key responsibilities included creating and refining APIs such as `getPartnersForAPackage`, `getMappedPartners`, and `getClonedPackages`. I executed complex SQL queries to retrieve and manipulate data, implemented pagination for efficient data display, and managed asynchronous operations to optimize system performance. One of my significant tasks was developing middleware to enforce

business rules and permissions, which improved the security and integrity of the system. I also worked on features like case splitting, telemedicine functionality, and calculating daily case completion percentages, which involved detailed data analysis and workflow automation. Collaboration was a crucial part of my role; I engaged in discussions with team members to refine workflows, troubleshoot issues, and ensure seamless feature implementation. This hands-on experience enhanced my skills in API development, SQL querying, and data handling, as well as my understanding of workflow optimization and user-centric design principles. Overall, my internship provided me with invaluable insights into backend development within the healthcare technology sector, significantly advancing my technical and professional skills. My contributions directly impacted the organization's ability to deliver high-quality healthcare services, positioning Visit Health as a leader in healthcare innovation.

Tool used (Development tools - H/w, S/w) : DataGrip, Postman, VS Code, GitHub

Objectives of the project : The primary objective of my project at Visit Health Pvt Ltd was to enhance the functionality and efficiency of the Visit Health platform through the development and optimization of key APIs. This involved improving data management processes, streamlining workflow automation, and enhancing user experience with features like pagination. Additionally, the project aimed to support business operations by providing comprehensive data insights and fostering collaboration with team members and stakeholders. Through this hands-on work, I sought to gain practical experience in API development, SQL querying, data handling, and workflow optimization.

Major Learning Outcomes : During my internship at Visit Health Pvt Ltd, I achieved several major learning outcomes:

1. ****API Development Proficiency:**** Gained hands-on experience in developing and optimizing RESTful APIs using Node.js, improving my understanding of backend development and data handling.
2. ****Advanced SQL Skills:**** Enhanced my ability to write and optimize complex SQL queries for efficient data retrieval and manipulation, which was crucial for features like extracting lab test names and calculating case completion percentages.

3. **Workflow Optimization:** Learned to streamline and automate workflows, which improved system efficiency and reduced manual intervention, particularly in handling cloned packages and telemedicine features.
4. **Asynchronous Programming:** Improved my understanding and application of asynchronous operations in JavaScript, using techniques like Promise.all to manage multiple concurrent processes effectively.
5. **Collaboration and Communication:** Engaged in collaborative discussions with team members to refine workflows and troubleshoot issues, honing my teamwork and communication skills.
6. **Middleware Implementation:** Developed and implemented middleware to enforce business rules and permissions, enhancing the security and integrity of the system.
7. **User-Centric Design:** Emphasized the importance of user experience by refining features based on feedback and performance metrics, ensuring the platform met user needs effectively.
8. **Problem-Solving Skills:** Tackled and resolved various technical challenges, such as data consistency issues and database schema modifications, which improved my problem-solving abilities and adaptability.

Overall, this internship provided me with a comprehensive understanding of backend development within the healthcare technology domain, significantly advancing my technical and professional skills.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at Visit Health Pvt Ltd was dynamic and collaborative, fostering both professional growth and innovation. The company promoted an open culture where ideas were freely exchanged, and teamwork was highly encouraged. This atmosphere facilitated continuous learning and adaptation to new challenges, aligning perfectly with the fast-paced nature of the healthcare technology sector.

As an intern, I was integrated into the backend development team and entrusted with significant responsibilities, reflecting the company's expectation for interns to contribute meaningfully to ongoing projects. My tasks included developing and optimizing critical APIs, executing complex SQL queries, and enhancing data processing and workflow automation. I was expected to deliver high-quality code, adhere to project deadlines, and continuously improve the platform's functionality.

The company valued effective communication and collaboration, expecting me to engage actively in team discussions, provide and receive constructive feedback, and work closely with colleagues to refine workflows and troubleshoot issues. Regular meetings with supervisors and team members helped me stay aligned with project goals and receive guidance on complex tasks. Visit Health also emphasized the importance of a user-centric approach, expecting me to consider user needs and feedback while developing features. This focus on user experience was pivotal in ensuring that the platform met high standards of functionality and ease of use. Overall, the company provided a supportive yet challenging environment that encouraged me to leverage my skills, learn from experienced professionals, and make significant contributions to the platform's development and efficiency.

Academic courses relevant to the project : OOPS

**PS-II Station : VMS (Vakil Mehta Seth) Consultants Private Limited ,
Mumbai**

Faculty

Name: Pavan Kumar Potdar

Student

Name: RAJASHREE SURESH BHOJ(2022H1430012H)

Student Write-up

PS-II Project Title: TASKS COVERED DURING THE INTERNSHIP

Short Summary of work done during PS-II : Initially studied the required codes then analysed and designed skew Minor bridge with 33degree skew angle; The substructure was designed and required analysis model were also prepared.

Tool used (Development tools - H/w, S/w) : Staad pro, Midas-Civil, ADSEC, Excel, Word.

Objectives of the project : 1. To understand the practical application of the skew minor bridge design. 2. To study the Indian Standard codes and Indian Road Congress codes which will be required for the design. 3. To analyse and Design minor box type skew bridge using Midas-Civil. 4. Conceptual study of Optimization of Retaining Wall. 5. To study the Design of Pier carrying equal spans. 6. To learn to collaborate with other designers and draftsmen throughout the design process.

Major Learning Outcomes : Analyzed the technical schedule provided by the client

- Identifying potential discrepancies or errors in alignment design, existing structures etc.
- Optimizing alignments and mitigating survey errors to reduce project costs.
- Understood the practical application of the skew minor bridge design.
- Studied the Indian Standard codes and Indian Road Congress codes which will be required for the design.
- Analyzed and Design minor box type skew bridge using Midas-Civil.
- Conceptual study of Optimization of Retaining Wall.
- Studied the Design of Pier carrying equal spans.
- Learnt to collaborate with other designers and draftsmen throughout the design process.

Details of Papers/patents : The projects specific work

Brief Description of working environment, expectations from the company : The working environment was very friendly and the doubts were cleared by the senior immediately and all the possible reference sheets were shared for study and the concepts were explained very well.

Academic courses relevant to the project : Substructure Design, super structure design (bridge engineering)

**PS-II Station : VMS (Vakil Mehta Seth) Consultants Private Limited ,
Mumbai**

Faculty

Name: Pavan Kumar Potdar

Student

Name: DHVANIL TRUSHAR PATEL(2022H1430049P)

Student Write-up

PS-II Project Title: DESIGN AND ANALYSIS OF RESIDENTIAL BUILDING

Short Summary of work done during PS-II : Manual calculations of design and analysis of different elements. Analysis of G+41 Building. Design of different steel structures including truss ,dome ,Pergola and canopy

Tool used (Development tools - H/w, S/w) : Etabs ,Staad Pro ,Excel

Objectives of the project : Design and Analysis of tall buildings

Major Learning Outcomes : Practical understanding of design. Analysis of structures using various softwares and manual calculations

Details of Papers/patents : NO PAPERS/PATENTS

Brief Description of working environment, expectations from the company :

I was grateful to have a good team leader who helped me a lot.

Academic courses relevant to the project : Advanced Steel Structures, Design of multi storey Structures

**PS-II Station : VMS (Vakil Mehta Seth) Consultants Private Limited ,
Mumbai**

Faculty

Name: Pavan Kumar Potdar

Student

Name: RAVAL RAJ JIGESH(2022H1430051P)

Student Write-up

PS-II Project Title: DESIGN OF TALL BILDING STRUCTURE

Short Summary of work done during PS-II : Acquired a comprehensive understanding of engineering principles, software proficiency (AutoCAD, Revit, ETABS, SAFE, STAAD), and adherence to building codes and safety standards during my structural design internship. Enhanced collaboration and communication skills by integrating structural considerations into project designs and working effectively within a team.

Tool used (Development tools - H/w, S/w) : SAFE , STAAD PRO , E TABS

Objectives of the project : DESIGN AND ANALYSIS OF TALL BUILDINGS

Major Learning Outcomes : ANALYSIS OF STRUCTURE BY SOFTWARE AND MANUAL METHODS (IS CODE)

Details of Papers/patents : NO PAPER AND PATENTS

Brief Description of working environment, expectations from the company : From a learning perspective, VMS Consultants exceeds expectations. The company's employees are incredibly supportive, readily offering assistance and patiently guiding individuals through both fundamental and intricate concepts. Initially, I joined the company with the expectation of a conducive learning environment, and I wasn't disappointed. However, as time progressed, I noticed a shift in perspective. Instead of being seen solely as an intern, I found myself entrusted with tasks as if I were a full-fledged employee. This transition, while unexpected, underscored the company's faith in my abilities and provided valuable hands-on experience beyond traditional internship roles.

Academic courses relevant to the project : DESIGN OF RCC STRUCTURE

**PS-II Station : VMS (Vakil Mehta Seth) Consultants Private Limited ,
Mumbai**

Faculty

Name: Pavan Kumar Potdar

Student

Name: BHALODIYA NEEL NARESHBHAI(2022H1430057P)

Student Write-up

PS-II Project Title: Construction of G+12 Storey Building in Pushpak Nagar, Navi Mumbai

Short Summary of work done during PS-II : During my internship at the construction site of a G+12 storey building, I was actively involved in various phases of the project, gaining hands-on experience and enhancing my engineering skills. My primary responsibilities included assisting with site inspections, ensuring compliance with design specifications, and monitoring the quality of construction materials. I began by understanding the project plans and structural drawings, which provided me with a solid foundation in interpreting architectural and engineering designs. On-site, I closely monitored the construction of the raft foundation and basement, ensuring the correct placement of reinforcement bars and proper concrete pouring techniques. I also participated in the slump test and cube test to verify the workability and strength of concrete. My role extended to overseeing the erection of columns, beams, and slabs. I used a total station for precise marking and a level tube for transferring points, ensuring structural alignment according to the project plans. I was also involved in implementing and monitoring safety protocols to maintain a secure working environment. Additionally, I contributed to the documentation process, maintaining daily logs and inspection reports, which are crucial for project tracking and quality assurance. Regular interactions with senior engineers and contractors enriched my understanding of project management and coordination. This internship provided a comprehensive exposure to high-rise construction, blending theoretical knowledge with practical application, and significantly advancing my capabilities in civil engineering.

Tool used (Development tools - H/w, S/w) : Total Station, Level Tube (Auto Level), Concrete Slump Cone, Compression Testing Machine, Rebar Locator, Concrete Vibrator, Safety Equipment, RMC plant, Concrete pump

Objectives of the project : Structural Integrity and Safety, Compliance with Building Codes and Regulations, Efficient and Sustainable Design, Quality Construction, Cost Control and Budget Adherence, Timely Completion, Functionality and Usability, Aesthetic Appeal, Safety During Construction, Innovation and Technology, Client Satisfaction, Future-Proofing

Major Learning Outcomes :

- 1) Project Planning and Management
- 2) Regulatory Compliance and Standards
- 3) Structural Design and Analysis
- 4) Material Selection and Testing

- 5) Construction Techniques and Methods
- 6) Safety Practices
- 7) Quality Assurance and Control
- 8) Sustainability and Environmental Considerations
- 9) Effective Communication and Coordination
- 10) Risk Management
- 11) Cost Management
- 12) Technological Integration
- 13) Client and Stakeholder Satisfaction
- 14) Problem-Solving Skills
- 15) Documentation and Reporting

Details of Papers/patents : This project involves the construction of a high-rise residential building comprising 12 floors above ground (G+12) and a basement dedicated to parking. The building is designed to provide modern residential units with various amenities, adhering to Indian construction standards and regulations.

Objectives:

1. Structural Integrity and Safety: Ensure the building's structural stability and safety for its occupants.
2. Compliance: Adhere to all relevant Indian building codes and standards.
3. Quality Construction: Achieve high-quality construction through meticulous planning and execution.
4. Cost Efficiency: Complete the project within the allocated budget.
5. Timely Completion: Finish the project within the stipulated timeline.
6. Sustainability: Incorporate sustainable practices and materials.

Scope of Work:

1. Site Preparation: Soil testing, clearing, and grading.
2. Foundation Work: Construction of a raft foundation and basement.
3. Superstructure: Erection of columns, beams, slabs, and walls.
4. Finishing: Internal and external finishes, including flooring, plastering, and painting.
5. Utilities: Installation of electrical, plumbing, and HVAC systems.
6. Landscaping: Development of surrounding areas.

Key Project Phases:

1. Planning and Design:

Site analysis and soil investigation.

Architectural and structural design.

Obtaining necessary permits and approvals.

2. Foundation and Basement Construction:

Excavation and shoring.

Laying of raft foundation and construction of basement walls.

3. Superstructure Construction:

Erection of columns, beams, and slabs.

Construction of walls and floors.

4. Mechanical, Electrical, and Plumbing (MEP):

Installation of MEP systems.

Integration of fire safety systems.

5. Finishing Work:

Plastering, painting, and flooring.

Installation of fixtures and fittings.

6. Testing and Commissioning:

Structural testing and inspections.

Commissioning of MEP systems.

7. Handover:

Final inspections.

Handover to the client.

Key Team Members:

1. Project Manager: Overall project oversight, scheduling, and coordination.

2. Structural Engineer: Design and ensure the structural integrity of the building.

3. Architect: Design the building layout and aesthetics.

4. Site Engineer: Supervise on-site construction activities.

5. MEP Engineer: Design and oversee the installation of mechanical, electrical, and plumbing systems.

6. Quality Control Engineer: Ensure construction quality and adherence to standards.

7. Safety Officer: Implement and monitor safety protocols.

Materials and Equipment:

1. Concrete: For foundations, columns, beams, and slabs.

2. Steel: For reinforcement and structural framework.

3. Brick/Block: For wall construction.

4. Formwork: For shaping concrete structures.
5. Construction Equipment: Excavators, cranes, concrete mixers, etc.
6. Finishing Materials: Paint, tiles, plumbing fixtures, electrical fittings.

Quality Assurance and Quality Control (QA/QC):

1. Material Testing: Conduct tests on concrete, steel, and other materials to ensure they meet required standards.
2. Workmanship: Regular inspections to ensure high-quality workmanship.
3. Compliance Checks: Ensure all construction activities comply with Indian standards (IS codes).

Challenges and Mitigation Strategies:

1. Site Constraints: Limited space for material storage and movement. Mitigation: Efficient site layout planning and just-in-time delivery of materials.
2. Weather Conditions: Adverse weather affecting construction. Mitigation: Scheduling critical activities during favorable weather and using weather-resistant materials.
3. Logistical Issues: Delays in material supply. Mitigation: Establish reliable supply chains and maintain buffer stock.
4. Safety Hazards: Potential risks to workers. Mitigation: Implement stringent safety protocols and regular training.

Budget and Cost Control:

1. Cost Estimation: Detailed budget planning covering all aspects of construction.
2. Budget Monitoring: Regularly track expenses against the budget.
3. Cost Optimization: Identify and implement cost-saving measures without compromising quality.

Timeline:

1. Planning and Approvals: 3 months.
2. Foundation and Basement: 4 months.
3. Superstructure: 8 months.
4. MEP Installations: 4 months.
5. Finishing Work: 4 months.
6. Testing and Commissioning: 2 months.
7. Handover: 1 month.

Total Project Duration: Approximately 26 months.

Sustainability Practices:

1. Energy Efficiency: Use energy-efficient HVAC systems and lighting.
2. Water Management: Implement rainwater harvesting and efficient plumbing fixtures.
3. Waste Management: Recycle construction waste and minimize landfill use.

4. Green Building Materials: Use sustainable and locally sourced materials.

Conclusion:

Through careful planning, adherence to standards, and innovative problem-solving, the project aims to deliver a high-quality, safe, and aesthetically pleasing building within the stipulated timeline and budget.

Brief Description of working environment, expectations from the company : Working Environment:

The construction site of the high-rise residential building (G+12 storey) offers a dynamic and challenging working environment. The site is a hub of activity, with various teams coordinating to ensure the smooth progress of the project. As an intern, I'm part of a multidisciplinary team comprising experienced engineers, architects, contractors, and laborers. The environment is fast-paced, requiring quick thinking and adaptability to evolving situations.

Safety is a top priority, with strict protocols in place to protect all personnel. Regular safety drills and training sessions are conducted to maintain a safe working environment. The site is equipped with modern construction equipment and technology, providing a hands-on learning experience with industry-standard tools.

Expectations from the Company:

Learning and Development: The company expects interns to actively engage in the learning process, acquiring practical skills and knowledge related to high-rise construction. This includes understanding structural design, material testing, and quality control procedures.

Proactive Involvement: Interns are expected to be proactive in their approach, taking initiative in tasks assigned, and seeking opportunities to contribute to various aspects of the project.

Team Collaboration: Effective communication and teamwork are crucial. Interns should work collaboratively with different teams, contributing to a harmonious and productive working environment.

Adherence to Standards: Maintaining high standards of workmanship and compliance with Indian building codes and safety regulations is essential. Interns are expected to follow these standards meticulously.

Problem-Solving Skills: The company values interns who demonstrate strong problem-solving abilities, addressing on-site challenges with innovative and practical solutions.

Documentation: Interns should assist in maintaining accurate and detailed project documentation, including daily logs, inspection reports, and material records.

Overall, the company expects interns to be enthusiastic, diligent, and committed to contributing to the successful completion of the high-rise building project. This experience is designed to prepare interns for future roles in the construction industry by providing a comprehensive, hands-on learning environment.

Academic courses relevant to the project : 1. Structural Engineering

2. Construction Management
3. Concrete Technology
4. Geotechnical Engineering
5. Building Materials and Construction
6. Reinforced Concrete Structures
7. Steel Structures
8. Surveying and Geomatics
9. Environmental Engineering

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PS-II Station : Voicegain (Resolvity Inc.) , Texas

Faculty

Name: MONALI TUSHAR MAVANI

Student

Name: RISHABH SINGHAL .(2019B1A30876P)

Student Write-up

PS-II Project Title: CI/CD Frontend Development

Short Summary of work done during PS-II : At Voicegain, I focused on fixing bugs and adding new features using ReactJS, enhancing our software's reliability and functionality. I collaborated with various teams to turn ideas into functional components, improving the user experience.

Tool used (Development tools - H/w, S/w) : ReactJS, Typescript, Redux, NodeJS, MUI, SCSS

Objectives of the project : frontend development projects within CI/CD pipeline, focusing on bug fixing, software improvements and feature development.

Major Learning Outcomes : The internship provided a great opportunity to enhance my development skills and deepen my knowledge of specific tech stacks.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment was quite relaxed, with minimal pressure from the organization and the flexibility to work at your own pace, especially in the beginning. The team was generally helpful and provided guidance whenever needed, fostering a supportive atmosphere. There were also good opportunities for peer-to-peer learning. Since the PS-2 was remote, I can't comment on the office environment.

Academic courses relevant to the project : C, Operating Systems, Object Oriented Programming

PS-II Station : Volvo Eicher , Gurugram

Faculty

Name: Glynn John

Student

Name: PRAKHAR SHARMA(2022H1060097G)

Student Write-up

PS-II Project Title: Blue Book for Haulage Site Support

Short Summary of work done during PS-II : I visited various sites and engaged with customers, dealers, and representatives to understand their requirements and expectations from our company. My goal was to identify any loopholes or communication barriers that needed resolution. To ensure uniformity and standardize all processes, I took on the task of developing a comprehensive Bluebook. This guide would enable the company to implement procedures efficiently across all operations. My efforts were supported by the invaluable contributions of my site support team and mentors, who provided crucial guidance and insights into the workings of the corporate world. Their collective expertise helped me make informed decisions and successfully create a tool that would streamline our operations and improve overall performance.

Tool used (Development tools - H/w, S/w) : MS word and Excel

Objectives of the project : To provide a uniformity and standardized the process within the organization.

Major Learning Outcomes : The Bluebook for haulage site support aims to standardize safety, enhance operational efficiency, ensure regulatory compliance, promote environmental responsibility, and optimize cost management in haulage operations.

Details of Papers/patents : NO

Brief Description of working environment, expectations from the company :

The company offers a positive working environment where all team members and executives are approachable, and interdepartmental communication is excellent. While the project I worked on mainly involved understanding existing processes, which was not particularly challenging, it still contributed to my overall knowledge. In the aftermarket department, the focus was primarily on

monitoring processes and compiling reports from various regions.it remains a great place to settle down. The supportive atmosphere and the willingness of colleagues to collaborate and share their expertise make it a conducive place for professional growth. Overall, despite some areas for improvement, the company is a good place to build a stable and rewarding career.

Academic courses relevant to the project : In our workplace, we haven't been able to apply much academic knowledge or utilize technical tools. Our focus has primarily been on implementing quality improvements and some aspects of product management. The company's main emphasis is on maintaining str

PS-II Station : Volvo Eicher , Gurugram

Faculty

Name: Glynn John

Student

Name: REEYA KUMARI SHARMA(2022H1410058G)

Student Write-up

PS-II Project Title: 1. Study about EV vehicle (new technology). 2. Development of Virtual Reality Driver Training Module for Tipper Drivers

Short Summary of work done during PS-II : During my Practice School-2 internship at Volvo Eicher, I gained hands-on experience in various aspects of automotive engineering. This included exposure to vehicle design, manufacturing processes, quality control, and supply chain management. I contributed to projects focused on improving vehicle performance, fuel efficiency, and safety standards. Collaborating with cross-functional teams, I learned about industry best

practices, conducted data analysis, and proposed innovative solutions. Additionally, I participated in workshops, training sessions, and site visits, enhancing my technical skills and understanding of the automotive industry's dynamics. Overall, my internship at Volvo Eicher was a valuable learning experience that prepared me for a career in the automotive sector.

Tool used (Development tools - H/w, S/w) : No specific tool used.

Objectives of the project : 1. The project aims to evaluate the latest technological advancements in electric vehicles (EVs), including innovations in battery technology, charging infrastructure, and vehicle design. It seeks to assess the environmental impact of EV adoption, focusing on reductions in greenhouse gas emissions and decreased reliance on fossil fuels. Additionally, the study will identify current market trends, consumer adoption rates, and potential challenges hindering widespread EV adoption. By providing insights into these areas, the project aims to support future growth and inform policy recommendations, ultimately contributing to the broader adoption and success of electric vehicles in the transportation sector. 2. Develop a comprehensive Virtual Reality (VR) training module for tipper drivers, enhancing their driving skills, safety awareness, and operational efficiency. Simulate real-world scenarios to provide hands-on experience in a controlled environment, reducing accidents and improving response to hazardous situations. Ensure adaptability to diverse training needs and technological advancements.

Major Learning Outcomes : The "Study about EV Vehicle" project would likely yield insights into electric vehicle technology, including advancements in battery technology, charging infrastructure development, and the environmental impact of EV adoption. It could also shed light on energy efficiency, range optimization, government policies, market trends, and the integration of renewable energy sources.

On the other hand, the "Development of Virtual Reality Driver Training Module for Tipper Drivers" project could lead to improved driver safety, enhanced operational skills, and better hazard response among tipper truck drivers. The VR module's development could demonstrate the efficacy of simulation-based training in preparing drivers for real-world scenarios, thereby reducing accidents and improving overall efficiency in tipper truck operations.

Details of Papers/patents : Nil

Brief Description of working environment, expectations from the company : Volvo Eicher's working environment fosters a culture of innovation, collaboration, and excellence in the automotive industry. Expectations revolve around delivering cutting-edge solutions, pushing boundaries in technology and sustainability, and upholding the highest standards of quality and safety. Teamwork is emphasized, with opportunities for cross-functional collaboration and professional growth. Employees are encouraged to think creatively, problem-solve effectively, and contribute to the company's vision of driving progress and shaping the future of transportation. The atmosphere is dynamic yet supportive, with a focus on continuous learning, development, and a shared commitment to delivering exceptional products and services.

Academic courses relevant to the project : Your project is practical or industry-focused and may not align directly with traditional academic courses, but it offers valuable hands-on experience.

PS-II Station : Volvo Eicher , Gurugram

Faculty

Name: Glynn John

Student

Name: TELLAKULA ESWAR(2022H1410102H)

Student Write-up

PS-II Project Title: Bolt Failure Analysis

Short Summary of work done during PS-II : calculated bolt head and thread friction used in BoltCalc Software for Failure analysis

Tool used (Development tools - H/w, S/w) : boltcalc Software & Bolt rig Hardware

Objectives of the project : COF Catalog Of Bolts

Major Learning Outcomes : how coefficient of friction effects the loosening of the bolts and the importance of coefficient of friction in head and thread of bolt. Importance of Bolted joints in automobile industry.

Details of Papers/patents : patent has been rejected will be filled again after corrections

Brief Description of working environment, expectations from the company : Volvo Eicher Commercial Vehicles (VECV) offers a vibrant and collaborative working environment, blending the strengths of both Volvo Group and Eicher Motors. This partnership creates a culture that emphasizes innovation, excellence, and sustainability in the commercial vehicle industry. Employees can expect a professional setting that prioritizes continuous learning and development, with various opportunities for skill enhancement through training programs, workshops, and hands-on experiences.

The work environment at VECV is rooted in values of safety, quality, and diversity. The company promotes an inclusive atmosphere where individuals from diverse backgrounds are respected and valued. This inclusivity fosters a sense of belonging and encourages diverse perspectives, which are crucial for innovation and problem-solving.

Expectations from employees at VECV include a proactive attitude, strong problem-solving skills, and a commitment to high standards of work. Effective communication and teamwork are essential, as the company values collaborative efforts to achieve its goals. Employees are also expected to uphold ethical standards and contribute to a culture of integrity and respect.

In return, VECV provides a supportive work environment with competitive compensation and benefits. The company values work-life balance and offers various programs to support employee well-being. Working at VECV means being part of a forward-thinking organization that is dedicated to quality, innovation, and sustainability. It offers ample opportunities for career growth and personal development, making it an ideal workplace for those looking to make a significant impact in the commercial vehicle industry.

Academic courses relevant to the project : fracture mechanics and finite element analysis

PS-II Station : Volvo Eicher , Gurugram

Faculty

Name: Glynn John

Student

Name: PATREKAR PRASANNA DEEPAK(2022H1410104H)

Student Write-up

PS-II Project Title: Front Underrun Protection Device analysis

Short Summary of work done during PS-II : Leaned about crash & safety for commercial vehicles, and analysis in CAE. Got to know about various analysis done in CAE. Also got an opportunity for training for one of the tools while in the PS period. FEA concepts cleared and applied in real case scenarios.

Tool used (Development tools - H/w, S/w) : Hypermesh, LS Dyna, Radioss

Objectives of the project : Analysis of the FUPD according to standards

Major Learning Outcomes : Understanding of crash & safety for commercial vehicles, and analysis in CAE

Details of Papers/patents : No

Brief Description of working environment, expectations from the company : Good working environment. Nice exposure to cooperate culture.

Academic courses relevant to the project : FEA

PS-II Station : Volvo Eicher , Gurugram

Faculty

Name: Glynn John

Student

Name: SARTHAK TIWARI(2022H1410140P)

Student Write-up

PS-II Project Title: Identification of culprit vendor, FS-2 time reduction of model 2059XP

Short Summary of work done during PS-II : two projects allotted. One was to identify the culprit vendor. Second was to reduce the Free service time from 8-10hrs to 2-3 hours.

Tool used (Development tools - H/w, S/w) : MS EXCEL, DBM SAP

Objectives of the project : To improve the quality & efficiency of dealer

Major Learning Outcomes : MS excel, after market process

Details of Papers/patents : no paper published

Brief Description of working environment, expectations from the company : working environment is positive, people are supportive, got every help that i required for the completion of project.

Academic courses relevant to the project : No relevance from my field, i am working in after market but my masters was in mechanical design.

PS-II Station : Volvo Eicher , Gurugram

Faculty

Name: Glynn John

Student

Name: ANIMESH PANDEY(2022H1420187P)

Student Write-up

PS-II Project Title: e- Shoppe Benchmarking

Short Summary of work done during PS-II : During my PS-II at VE Commercial Vehicles Ltd, I undertook a project focused on benchmarking the e-retail portal of Eicher Trucks and Buses against those within the industry and across other sectors. The aim was to identify key areas for improvement to enhance the functionality, operations, and user experience of Eicher's platform. I conducted a detailed analysis covering business metrics such as sales and marketing, business models, and portal features like user interface, product categorization, search functionality, and checkout processes of competitors' portals. Based on the findings, I provided actionable recommendations for Eicher's portal, prioritizing suggestions based on urgency and impact. The recommendations focused on enhancing product visibility, improving navigation, and streamlining

the purchase process. Additionally, I proposed strategies for increasing business opportunities by incorporating new business models, enhancing marketing and product strategies, and identifying market trends for developing a business roadmap.

Tool used (Development tools - H/w, S/w) : MS Excel, PowerPoint and e- Commerce Platform Tools

Objectives of the project : Benchmarking Eicher e-Shoppe's online retail platform to identify areas for improvement and derive actionable insights from both within the industry and across other sectors.

Major Learning Outcomes :

1. Understanding of competitive benchmarking processes
2. Insights into e-commerce strategies for the automotive sector
3. Improved analytical and research skills
4. Exposure to industry standards and best practices in e-retail

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at VE Commercial Vehicles Ltd is collaborative and dynamic, fostering a culture of innovation and continuous learning. The company expects interns to take ownership of their projects, work independently, and deliver high-quality outputs. Regular interactions with mentors and team members are encouraged to ensure alignment with project goals. The supportive and inclusive atmosphere enables interns to contribute effectively and gain valuable industry insights. The organization values proactive problem-solving and encourages interns to suggest improvements and innovations, reflecting the company's commitment to excellence and growth.

Academic courses relevant to the project : Supply Chain Management

PS-II Station : Volvo Eicher , Gurugram

Faculty

Name: Glynn John

Student

Name: SATISH KUMAR SONI(2022H1420198P)

Student Write-up

PS-II Project Title: Parts Benchmarking

Short Summary of work done during PS-II : Data Collection on ETB, TML & ALL Parts & Pricing, Building Benchmarking report and Preparation of Competitive Index Report & Insights

Tool used (Development tools - H/w, S/w) : Excel, SQL, KNIME, Power BI

Objectives of the project : Building a Competitive Index Report on Eicher Parts & Models

Major Learning Outcomes : Data Analysis (Advanced Excel, SQL, Power BI), Presentation Skills, On-Ground Survey and Data Collection

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Supportive & Collaborative Team with in-depth knowledge of the domain and clear instructions for the project given

Academic courses relevant to the project : Operations Research

PS-II Station : Wabtec , Bengaluru

Faculty

Name: Srinivas Kota

Student

Name: SAWAIKER SHUBHAM RAJARAM(2022H1030005G)

Student Write-up

PS-II Project Title: Implementing WebSocket Technology & Optimizing Bitmap Image fetching

Short Summary of work done during PS-II : First, we integrated Websocket technology to achieve real-time bidirectional communication between clients & servers. Second, I optimized bitmap image fetching by implementing a targeted retrieval approach.

Tool used (Development tools - H/w, S/w) : Java, Springboot

Objectives of the project : Transitioning from TCP/IP to WebSocket technology for enhanced real-time communication in web applications. Implement a targeted image retrieval system that fetches bitmap images specifically for the relevant railroad, minimizing data retrieval and avoiding name conflicts.

Major Learning Outcomes : Software development

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : I experienced a dynamic and collaborative working environment that prioritized innovation, inclusivity, and

continuous learning. The open office layout fostered communication and teamwork, while flexible working hours and remote work options provided the balance necessary for personal and professional growth.

Academic courses relevant to the project : OOPS

PS-II Station : Wabtec , Bengaluru

Faculty

Name: Srinivas Kota

Student

Name: SAKSHI SINGH TANWAR(2022H1030020G)

Student Write-up

PS-II Project Title: CAD Data Validation Tool

Short Summary of work done during PS-II : Initially, I thoroughly examined the BOS server code, identifying its workflow and input-output processes through debugging techniques. After documenting its pros and cons, I concluded that it was unsuitable for our needs. Next, I investigated a C++ application but lacked the necessary license. Using RAD Studio, I executed the application and found it inadequate as it only used the "Milepost" column. The workflow involved loading SubDivision data, establishing a database connection, and analyzing data to sort tracks, signals, and switches based on the Milepost. This process ensured efficient data processing and accurate analysis but was limited in parameter usage, making it unsuitable for our project. Despite its simplicity and efficiency, I proposed using its sorting technique while fetching the required columns, though it might be less cost-efficient. The third tool, TrackEditor, met our

requirements. I developed custom logic to match milepost, prefix, suffix, and track names between the database and XML files, displaying results on the user interface. This logic was applied to signals, switches, and tracks. To enhance clarity, I implemented a color-coded scheme: unmatched rows had a red background and yellow foreground, matched rows had a green background and yellow foreground, and rows with specific unmatched values had a yellow background and black foreground. Additionally, I created a comprehensive guide titled "How to Use the TrackEditor Tool," facilitating smoother adoption and enhancing productivity across the department. This meticulous approach ensured efficient use of existing resources, saving time and reducing costs while effectively meeting our project requirements.

Tool used (Development tools - H/w, S/w) : Visual Studio, Rad Studio, Powershell.

Objectives of the project : Objective: The objective is to develop a robust comparison tool that seamlessly integrates data from two disparate sources: a CAD database server and a .opk/XML file. By implementing this tool, we aim to preemptively identify any discrepancies between the datasets before their transmission to the designated server. This proactive approach is essential as rectifying inconsistencies post-transmission is a time-consuming endeavor, requiring meticulous scrutiny of each row and column. The envisioned interface will facilitate the comparison process, enhancing both accuracy and efficiency within the system. By enabling users to swiftly detect disparities between datasets, this tool will streamline data validation procedures and mitigate the risk of errors propagating throughout the system. Ultimately, the implementation of this comparison tool promises to optimize data management processes and elevate the overall performance of the system.

Major Learning Outcomes : Understanding the use OOP concepts in various kind of application. Working of application from Front end to BackEnd.

Details of Papers/patents : No papers

Brief Description of working environment, expectations from the company : Working environment is positive, reasonable working hours.

Academic courses relevant to the project : Object Oriented programming, Operating Systems.

PS-II Station : Wabtec , Bengaluru

Faculty

Name: Srinivas Kota

Student

Name: BHARGAV NAGARAJ B(2022H1030027G)

Student Write-up

PS-II Project Title: Interoperable Electronic Train Management System

Short Summary of work done during PS-II : My Practice School experience so far with Wabtec Corporation has been highly rewarding, providing me with a strong foundation in Software Automation and testing and also NLP. Through my contributions to the I-ETMS application, I was able to design and test certain functional modules such as Recording Module, Energy Management Module, Summary Consist Module and Power up Module by ensuring component reliability through comprehensive testing. The Development of an AI Driven Testing Tool helped me gain knowledge in the field of Generative AI and also widened my view on adopting AI based solutions in our day to day life. I am grateful for the guidance and support of the talented team, and I am confident that the skills and experiences gained during this internship will greatly benefit my future career as a Software Engineer.

Tool used (Development tools - H/w, S/w) : Python Scripting, Jenkins, Version Control Systems, Issue Tracking system, IBM Jazz, NLP, Python, Eclipse, Jenkins, IBM CLM, RQM, TestRail

Objectives of the project : When given a Level 2 Requirement we have to write Python Scripts to automate functions

Major Learning Outcomes : Learning Python Scripting and STLC to contribute effectively to the project are also emphasized. The completion of assigned tasks, such as writing scripts to automate the Level-2 Requirements and writing test cases for the L2R's and testing them as well. Learnt NLP in order to develop AI tool based Automation project.

Details of Papers/patents : Project is still in the Phase of POC

Brief Description of working environment, expectations from the company : The working environment at the company was exceptional, offering new challenges every day that kept the work engaging and stimulating. The collaborative atmosphere fostered creativity and innovation, encouraging team members to share ideas and work together to solve complex problems. This dynamic environment not only enhanced my problem-solving skills but also helped me adapt quickly to changing project requirements.

The learning curve was steep but highly rewarding, supported by excellent mentoring from experienced professionals. They provided invaluable guidance and feedback, which significantly contributed to my personal and professional growth.

One of the key expectations from the company was to deliver high-quality work within stipulated deadlines. I consistently met these expectations, successfully delivering functional scripting tasks on time. This involved understanding project requirements, writing efficient code, and thoroughly testing it to ensure optimal performance. The emphasis on timely delivery and quality work helped me develop a strong sense of responsibility and time management skills.

Overall, the supportive working environment, combined with the opportunity to tackle diverse challenges and the strong emphasis on continuous learning and timely delivery, made this experience highly enriching and fulfilling.

Academic courses relevant to the project : Cloud Computing, Algorithms Design

PS-II Station : Wabtec , Bengaluru

Faculty

Name: Srinivas Kota

Student

Name: GAURAV GHOSH(2022H1030103P)

Student Write-up

PS-II Project Title: Trip optimizer loco pilot assistance

Short Summary of work done during PS-II : To create a windows application connecting with the servers of TO in order to provide real time assistance and speed profiles for train locomotive drivers in order save fuel costs.

Tool used (Development tools - H/w, S/w) : Visual studio,

Objectives of the project : Building a application to share real time assistance to loco-pilots

Major Learning Outcomes : How to build single codebase multi-os applications

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment during my internship was remarkably cordial, helpful, and friendly. Colleagues and supervisors were always approachable, fostering a collaborative atmosphere where questions and discussions were encouraged.

Academic courses relevant to the project : SOFTWARE ENGINEERING AND MANAGEMENT

PS-II Station : Wabtec , Bengaluru

Faculty

Name: Srinivas Kota

Student

Name: MOHIT DHAMEJANI(2022H1120273P)

Student Write-up

PS-II Project Title: Automation of Trip Optimizer product BOM Sanity Tests & Trip Summary Analysis Tool Development

Short Summary of work done during PS-II : During my internship, I contributed to the development of a comprehensive framework for automating sanity testing processes. This involved creating a front-end UI for data input and back-end scripts for automation, reducing human intervention and saving time. Initially, I focused on automating the BOM Sanity Test process for the CMU and HPEAP platforms using Python scripts. Later, this automation was extended to include the WTMC and EM-1900 platforms. I also worked on the Trip Summary Analysis Tool, developing the UI using C# and adding new features for stats calculation. This tool automated the process of comparing RTC log file message details with software files, significantly reducing manual effort. The tool allowed users to upload an RTC log and MP file of their choice and perform validations as per the requirements file. It provided accurate comparisons between RTC messages data and manually derived data, reflected in the final excel file generated by the tool. The addition of stats for trip summary calculation and files for C# code further enhanced the tool's functionality. Overall, my work contributed to a more efficient, accurate, and user-friendly method for comparing and analysing trip summary details, positively impacting the validation team

experience and increasing efficiency and effectiveness. Through this project, I learned the importance of automation in testing processes and gained hands-on experience in Python and C# programming, UI development, and data analysis. In addition to the technical skills, I also learned about the corporate culture and improved my soft skills such as teamwork, communication, and problem-solving. This internship provided me with a valuable opportunity to apply my academic knowledge in a real-world setting and grow both professionally and personally.

Tool used (Development tools - H/w, S/w) : IDE: Pycharm,Python IDLE, Visual Studio Professional. Version Control: Gitlab,Git, Github, perforce. Languages: Python,C#. Tools: Putty,Remote Desktop, WinSCP, Gitlab, Chrome, Locomotive tool Box, Perforce P4v. Platforms: CMU,HPEAP,WTMC,EM-1900. Selenium.

Objectives of the project : The primary objective was to develop the TO BOM Sanity Automation Tool to streamline the sanity testing process for various platforms and to completely automate TO BOM Sanity tests, reducing human effort, minimizing errors, and decreasing testing time. This tool aimed to automate the entire process, providing a seamless testing experience for each build upgrade and a hassle-free software experience for customers. The project later extended to include enhancements to the Trip Summary Analysis Tool, adding new features and statistics to enhance its functionality and usability. A significant objective was to develop a tool to effectively compare RTC Log file message details with those generated from software files, automating the process of analyzing trip data, thereby reducing manual effort and increasing accuracy. The project also aimed to add around 300 stats for trip summary calculation and include C# files for stats. These objectives collectively aimed to improve the efficiency and accuracy of software testing processes.

Major Learning Outcomes : Technical Skills:- Gained hands-on experience in Python and C# programming, UI development, and data analysis. Developed a comprehensive framework for automating sanity testing processes and a trip summary analysis tool for comparing RTC log file message details with software files.

Understanding of Automation:- Learned the importance of automation in testing processes. Successfully automated the BOM Sanity Test process for various platforms and the process of analyzing trip data, significantly reducing manual effort and increasing accuracy.

Project Management:- Learned to manage and prioritize tasks effectively in a real-world project environment. Successfully extended the project scope to include enhancements to the Trip Summary Analysis Tool and added new features and statistics.

Corporate Culture:- Gained insights into the workings of a corporate environment. Learned to work in a team, communicate effectively, and solve problems in a professional setting.

Personal Development:- Improved soft skills such as teamwork, communication, and problem-solving. The internship provided a valuable opportunity to apply academic knowledge in a real-world setting and grow both professionally and personally.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The working environment during my internship was highly collaborative and dynamic. The team was diverse and inclusive, fostering a culture of mutual respect and open communication. The workspace was well-structured, promoting productivity and innovation.

The company provided ample opportunities for learning and growth. Regular meetings and tech talks and sessions were conducted to ensure everyone was aligned with the project goals. The management was supportive, providing guidance and constructive feedback that helped me improve my skills and knowledge.

The company expected high-quality work and adherence to deadlines. They valued initiative, problem-solving skills, and the ability to work effectively in a team. There was a strong emphasis on continuous learning and adapting to new technologies and methodologies.

The company also expected ethical conduct and professionalism. Respect for colleagues, integrity, and responsibility were highly valued. Overall, the company provided a conducive environment for professional growth and personal development, setting high standards and expectations that motivated me to strive for excellence.

Academic courses relevant to the project : Software Architectures, Software Engineering and Management, Software Testing Method, Object Oriented Analysis and Design.

PS-II Station : Wabtec , Bengaluru

Faculty

Name: Srinivas Kota

Student

Name: AMIT DHIR(2022H1410106H)

Student Write-up

PS-II Project Title: Traction Motor Boot Failure Analysis

Short Summary of work done during PS-II : In Locomotive, Traction motors are powered by electricity and generate the power to rotate the wheels of the train. To avoid the heating during the traction process. Blower provided in the locomotive to cool down the TM by supplying the adequate amount of air. For supplying blower to TM, component called TM Boot located between the traction motor blower and drive motor. As per Field team, failures recorded in the TM Boot. In this project, Failure Analysis must be done by using statistical approach. Different analysis has been performed like Weibull Analysis, Monte Carlo Analysis (Risk Assessment), chi square test, analysis for seasonal variation and miles travelled by loco without boot replacement. Prepared Problem definition tree based on failures photos shared by the Field Team. After discussion with reliability team regarding all possible cause of failures. An appropriate solution has been suggested to the field team i.e to change the TM Boot - 3 & 4 after miles of distance covered by Loco and Rest TM Boot – 1,2,5 & 6 used till its failure because no failure has been observed.

Tool used (Development tools - H/w, S/w) : Reliasoft Weibull++ : For Weibull analysis, Monte Carlo Simulation, Minitab, NX siemens, Ansys, MS Excel

Objectives of the project : Perform detail analysis of all the failures reported by Field Team (In terms of failure type, boot age in miles and years, TM boot number etc). Perform statistical

analysis for boot failure. Finding all the possible root cause of the failure. Prepare problem definition tree. Propose solution to the reliability team.

Major Learning Outcomes : I learnt about the TM air duct boots, their assembly procedure, manufacturing process and what different tests(Dynamic displacements. thermal test, tensile test, compression test, aging test etc) have done on the TM boot as per Purchase Specification so that Boot is feasible to install in the locomotive for cooling of Traction motors.

I learnt how to do risk assessment (Failures forecasting) by using monte carlo simulation, chi square test on minitab, “Now Risk” analysis, Weibull analysis. Apart from this other statistical approach learnt i.e., checking of seasonal variation, plotting of aging of TM Boot.

Preparation of Problem Definition Tree.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : 1. Role & Responsibilities

You'll work on projects relevant to your area of study.

Collaborate with team members and contribute actively.

Learn about the company's products, services, and processes.

2. Professionalism and Work Ethic

Punctuality and regular attendance are essential.

Maintain a positive attitude and adapt to the company culture.

Communicate effectively with colleagues and supervisors.

3. Learning & Growth

Set clear goals with your manager.

Seek feedback and learn from your experiences.

Attend training sessions and workshops if available.

Academic courses relevant to the project : Reliability and Quality Management, Heating & Cooling of building

PS-II Station : Wadhvani AI , Delhi

Faculty

Name: K Venkatasubramanian

Student

Name: RAJAN SAHU .(2019B4A70572P)

Student Write-up

PS-II Project Title: Integrating Multimodal Large Language Models for Conversational Chat Agents in Medical History Taking and Diagnosis

Short Summary of work done during PS-II : The project aimed to improve medical history taking and preliminary diagnosis by integrating multimodal large language models (LLMs) within a multi-agent system inspired by operating system principles. A novel framework was developed to leverage specialized agents that interpret text, voice, and visual data, facilitating comprehensive patient interactions. Central to the project was the implementation of the Colbert mechanism for contextual symptom extraction. This mechanism used a repository of symptoms and corresponding questions to prefill attributes based on a single sentence, ensuring accurate and efficient data collection while avoiding hallucinations. The project also focused on optimizing language model prompts and integrating DSPy modules for specific tasks within the multi-agent framework. The system's performance was evaluated using a synthetic dataset of medical scenarios, with metrics such as precision, recall, and false negative rates. The results demonstrated the framework's ability to enhance the scalability and flexibility of clinical decision support systems, providing an intuitive and effective tool for healthcare professionals. Overall, the integration of the Colbert mechanism and multimodal LLMs significantly improved the accuracy and efficiency of medical diagnostics. This work positioned the organization at the forefront of AI-driven healthcare solutions, showcasing the potential for future collaborations and advancements in the field. The project's innovative approach combined advanced AI techniques

with operating system principles, offering a robust and human-centric system for medical dialogues and preliminary diagnoses.

Tool used (Development tools - H/w, S/w) : Ollama, DSPy, PyTorch - for Backend. Front end was handled by a co-intern mainly comprised of React. Also used MongoDB for database and handling multiple clients

Objectives of the project : The objective of the project was to integrate multimodal large language models (LLMs) within a multi-agent system inspired by operating system principles to enhance medical history taking and diagnosis. The aim was to leverage specialized agents that interpret various inputs (text, voice, and visual) to facilitate comprehensive patient interactions, thereby improving the accuracy and efficiency of clinical decision support systems.

Major Learning Outcomes : Developed a multi-agent framework that used multimodal LLMs for medical history taking and preliminary diagnosis. Implemented contextual symptom extraction and optimized language model prompts. Created a communication protocol for agent interactions and integrated DSPy modules for task-specific functions. Gained expertise in integrating LLMs within a multi-agent framework, understood operating system principles applied to AI, and improved skills in developing and evaluating complex AI systems for healthcare applications. Additionally, learned how to effectively manage and coordinate multiple specialized agents to enhance the system's overall performance and scalability.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The work environment was flexible and completely remote, yet the company's strong culture ensured high productivity and seamless collaboration. The team was highly skilled, providing ample opportunities for interns to contribute significantly to the project. I personally led major developments, focusing on deep learning architectures and protocol designs, which allowed me to drive key aspects of the project and gain valuable experience.

Academic courses relevant to the project : Deep Learning, Machine Learning, Artificial Intelligence, Operating Systems, Database Systems

PS-II Station : Wadhvani AI , Delhi

Faculty

Name: K Venkatasubramanian

Student

Name: DHRUVA RAJA(2019B4AA0693G)

Student Write-up

PS-II Project Title: Multi Modal LLM's in Telemedicine

Short Summary of work done during PS-II : During the internship, two significant projects aimed at enhancing patient data collection and healthcare efficiency were undertaken. The first project developed a comprehensive platform leveraging Large Language Models (LLMs) to streamline symptom collection, provide accurate diagnoses, and offer real-time teleconsultation assistance via a multimodal medical chatbot capable of processing text, images, and reports, and supporting video calls with built-in transcription. The second project designed an automated workflow for extracting symptom details from patient text inputs, pre-filling patient questionnaires to save time for both patients and healthcare providers. These projects demonstrated the effective application of advanced technologies in optimizing healthcare processes, enhancing the accuracy and speed of medical consultations, and improving overall efficiency and quality of patient care.

Tool used (Development tools - H/w, S/w) : DSPy, Langchain, React, FastAPI

Objectives of the project : The creation of a Medical Chatbot with Multimodal capabilities as well as a platform for doctor patient teleconsultation

Major Learning Outcomes : Learnt about various Large Language Models, their workings and usage for carrying out multi agent conversations in order to extract medical information from a patient. Also learnt web development to develop a platform to host the chatbot with other functionalities for a patient and a doctor.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Good working environment in general

Academic courses relevant to the project : Machine Learning

PS-II Station : Wadhvani AI , Delhi

Faculty

Name: K Venkatasubramanian

Student

Name: SHIVAM VIKRAM CHADHA(2019B4AA0704G)

Student Write-up

PS-II Project Title: Deep Feature Synthesis for Tabular Data

Short Summary of work done during PS-II : I focused on enhancing machine learning model performance using Deep Feature Synthesis (DFS) for tabular data. Tabular data, commonly stored in CSV files, is characterized by its structured format with columns representing features and rows representing samples. The project aimed to automate feature engineering, which is

often repetitive and prone to human error, by leveraging DFS. This method expands the feature space by creating complex features from existing ones using relationships within the data, thereby improving model accuracy and explainability. I implemented a DFS pipeline using the Featuretools library, customized to fit various datasets. I trained tree-based models like Random Forests and CatBoost, as well as deep learning models like Multi-Layer Perceptrons (MLPs), on these newly generated features. The models were evaluated through cross-validation using metrics such as accuracy, precision, recall, and F1 score, along with assessments of model complexity. Additionally, I explored kernel-inspired embeddings to project data into higher dimensions, facilitating better separability and enhanced learning by neural networks. The embeddings, derived from random forest kernels, were integrated into the pipeline and tested across multiple datasets to gauge their effectiveness. The culmination of this work involved developing a generalized, scalable pipeline for applying DFS and kernel embeddings to various datasets, aiming to streamline feature engineering and improve model performance in real-world applications.

Tool used (Development tools - H/w, S/w) : Hardware: GCP ; Software: Python

Objectives of the project : Use Deep Feature Synthesis to improve performance of ML/DL models on Tabular Data

Major Learning Outcomes : The major learning outcomes of this project include understanding the automation of feature engineering through Deep Feature Synthesis (DFS), evaluating the performance and explainability improvements in machine learning models using DFS-generated features, and developing a generalized pipeline for applying DFS across diverse tabular datasets. Additionally, the project explores the integration of kernel embeddings to further enhance model performance.

Details of Papers/patents : N.A

Brief Description of working environment, expectations from the company : At Wadhvani AI, I was expected to work independently, follow provided instructions, and encourage to develop my own ideas. My role focused on automated feature engineering for tabular data. The company provided a structured yet flexible environment to explore new approaches. Collaboration, access

to real-world datasets and significant computational resources were essential for developing my skills and implementing solution to real-world problems.

The company provided strong mentorship and resources. I had significant autonomy in my projects, allowing me to experiment and refine my methods. This independence was supported by senior team members who offered valuable guidance and feedback. The emphasis on projects that benefit society aligned with my personal and professional goals.

Academic courses relevant to the project : Probability and Statistics, Machine Learning, Foundations of Data Science, Applied Statistical Methods, OOP, Functional Analysis

PS-II Station : Wadhvani AI , Delhi

Faculty

Name: K Venkatasubramanian

Student

Name: MANAN UPPADHYAY(2020A3PS1749G)

Student Write-up

PS-II Project Title: Fine-tuning LLMs for domain specific tasks

Short Summary of work done during PS-II : During my internship, I focused on fine-tuning Large Language Models (LLMs) for domain-specific tasks, enhancing their performance in specialized fields. Initially, I worked with pre-trained models like GPT-4, which have a broad understanding of language due to extensive training on diverse datasets. My task was to adapt these models for specific domains, ensuring they could accurately handle specialized functions. To begin, I collected and preprocessed domain-specific data, which included cleaning, annotating,

and sometimes augmenting the dataset to cover a variety of scenarios. This preparation was crucial for teaching the model the nuances and jargon unique to the target field. Next, I fine-tuned the LLMs on this tailored dataset. This process involved adjusting the model's weights based on the new, specialized data, effectively teaching it to prioritize domain-relevant information and context. The training was resource-efficient, as it required significantly fewer resources than the initial model training phase. I then evaluated the fine-tuned models using domain-specific benchmarks and real-world tasks to ensure they met performance expectations. Based on the results, I iterated on the fine-tuning process, making necessary adjustments to improve accuracy and relevance. In summary, my work during the internship involved customizing LLMs to excel in specific domains, ensuring they provided more precise and contextually appropriate outputs for specialized tasks.

Tool used (Development tools - H/w, S/w) : pytorch, huggingface, pandas (python libraries)

Objectives of the project : Creating a domain specific base model that could be used for downstream tasks like chatbot, summarization etc.

Major Learning Outcomes : Fine-tuning LLMs for specific domains and evaluating LLMs for question answering. Retrieval Augmented generation and agents.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : During my internship, I worked in a dynamic and collaborative environment that fostered both learning and professional growth. The company emphasized innovation and encouraged interns to contribute actively to ongoing projects. My team consisted of experienced data scientists and machine learning engineers who provided mentorship and guidance throughout the internship.

The workspace was equipped with state-of-the-art technology and resources, including access to high-performance computing clusters essential for fine-tuning large language models. Regular team meetings and brainstorming sessions were held to discuss project progress, share insights, and troubleshoot challenges collectively. The company also organized workshops and training sessions to enhance our technical skills and understanding of cutting-edge AI developments.

Expectations from the company were clearly communicated from the outset. I was expected to demonstrate a strong understanding of machine learning principles and a keen interest in natural

language processing. My responsibilities included collecting and preprocessing domain-specific data, fine-tuning pre-trained LLMs, and evaluating their performance. The company valued meticulousness in data handling, innovation in model optimization, and thoroughness in performance evaluation.

Academic courses relevant to the project : Machine Learning, Foundations of data science, Artificial intelligence, Natural Language processing

PS-II Station : Wakefit Technologies , Bengaluru

Faculty

Name: Akanksha Bharadwaj

Student

Name: DEBRAJ DHAR(2022H1120269P)

Student Write-up

PS-II Project Title: Software Developer Intern

Short Summary of work done during PS-II : Developed variant selection for the products in the NextJS revamped application, Created wallet page from scratch including the UI and API docs, Integrated post purchase survey window for customers with feedback rating and cashback, implemented auto OTP reading features for users on their mobile devices

Tool used (Development tools - H/w, S/w) : S/W - VSCode, JIRA/Confluence/Bitbucket, ReactJS, NextJS, Javascript/Typescript, Redux/Jotai, Tailwind/PostCSS, strapi CMS, trpc client

Objectives of the project : To develop features for the website according to the business requirement

Major Learning Outcomes : ReactJS, NextJS, Javascript/Typescript, Jotai/Redux, Tailwind/PostCSS, Django, Strapi CMS, GraphQL, trpc client

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : A great company to work for with flexible timings and highly talented individuals. Expectations from the company is to meet the task deadlines and if you can invest into learning then you'll be welcomed into different PODs.

Overall, healthy working environment with lots of learning opportunities.

Academic courses relevant to the project : Object Oriented Design and Analysis, Software Architecture, Software Engineering and Management.

PS-II Station : Wakefit Technologies , Bengaluru

Faculty

Name: Akanksha Bharadwaj

Student

Name: SANJHI PANDEY(2022H1120295P)

Student Write-up

PS-II Project Title: Backend Developer in Django

Short Summary of work done during PS-II : Started out with just basic knowledge of backend development. But with the help of tasks given and mentorship and remarks I have worked on bug resolving, building APIs and running efficient queries for a system that serves a large customer base.

Tool used (Development tools - H/w, S/w) : Django, Python, MySQL

Objectives of the project : Work on backend tasks to fix and improve customer and user experience at wakefit

Major Learning Outcomes : Became well versed with development practises at the organisation and was able to deliver the required task in a short span of time. Helped in automation as well

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Helpful and ample amount of opportunities to learn and grow.

Academic courses relevant to the project : Software architectures, object oriented design and development, data warehousing

PS-II Station : Walmart Global Technology Services , Bengaluru

Faculty

Name: Akshaya G

Student

Name: SHRUTI GANGWAR.(2019B2A10920P)

Student Write-up

PS-II Project Title: Contextual Help, Order Tracking Widget, CPO, Migration of Tech Debts

Short Summary of work done during PS-II : During my PS-II internship at Walmart, I engaged in several key projects that enhanced both my technical skills and Walmart's operational efficiency. Initially, I fulfilled the business requirement of updating the feedback page for Medallia in Mexico, optimizing it for better customer insights. I then worked on reducing the Cost Per Order (CPO) by developing the Contextual Help feature, which provides personalized information to customers, aiming to decrease customer service calls and associated costs. Another significant project was building an order status tracking widget, which allows users to navigate and view detailed information about their orders, enhancing the overall shopping experience. I also implemented header-based routing changes for the Help Centre on the CA side, improving user navigation and support accessibility. In addition to these development tasks, I set up a new Walmart repository, collaborating with the help team to ensure proper access and configuration. I also analyzed repositories from various teams to gather best practices and improve our development processes. Furthermore, I addressed technical debts, focusing on translation analysis and import/export functionalities, thereby enhancing system performance and reliability. Overall, my work contributed to reducing operational costs, improving customer satisfaction, and streamlining Walmart's digital operations. Through these projects, I gained hands-on experience with technologies like Next.js, GraphQL, Spring, and Azure, while also developing skills in project management, problem-solving, collaboration, and technical documentation.

Tool used (Development tools - H/w, S/w) : HTML, CSS, NextJs, GraphQL

Objectives of the project : Address high costs associated with customer calls per order (CPO) through innovative solutions and process improvements.

Major Learning Outcomes : During my internship at Walmart, I gained significant technical proficiency, working hands-on with Next.js, GraphQL, Spring, Azure, and Hermes. I developed and honed my project management skills, effectively balancing multiple projects and meeting deadlines. My problem-solving abilities were enhanced as I identified and resolved technical debts

and optimized processes to reduce operational costs. I improved my collaboration and communication skills by working closely with various teams, ensuring smooth coordination. Additionally, I learned to create comprehensive technical documentation and conduct user training sessions. My experience with deploying projects to staging and production environments, and monitoring their performance post-deployment, further enriched my learning. Lastly, I understood the critical importance of enhancing customer experience through features like Contextual Help and order status tracking, which are essential for reducing customer inquiries and building trust.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment at Walmart during my PS-II internship was dynamic, collaborative, and supportive, fostering both personal and professional growth. The team culture emphasized open communication and knowledge sharing, which allowed me to integrate quickly and contribute effectively to various projects. My colleagues and supervisors were approachable and always willing to provide guidance, making it easy to seek help and clarify doubts whenever needed.

The company had high expectations regarding the quality and efficiency of work. I was expected to deliver robust, scalable solutions while adhering to industry best practices and Walmart's internal standards. This included writing clean, maintainable code, conducting thorough testing, and documenting my work comprehensively. Additionally, Walmart emphasized the importance of understanding the business impact of our technical solutions, which encouraged me to think beyond just the code and consider how my work would enhance customer experience and operational efficiency.

Regular team meetings and updates ensured that everyone was aligned with the project goals and timelines. I was also given the autonomy to manage my tasks, which helped me develop time management and prioritization skills. The company valued continuous learning and provided access to resources and training sessions, allowing me to expand my technical expertise.

Overall, Walmart's working environment was conducive to learning and innovation, with a clear focus on collaboration, quality, and customer-centric solutions. The experience not only helped me grow technically but also instilled in me a deeper understanding of how to drive business value through technology.

Academic courses relevant to the project : NA

PS-II Station : Walmart Global Technology Services , Bengaluru

Faculty

Name: Akshaya G

Student

Name: ARKISHMAN GHOSH(2020A7PS2077H)

Student Write-up

PS-II Project Title: Fraud Detection Using Machine Learning Algorithms

Short Summary of work done during PS-II : Worked on large volumes of data related to returns in online retail. The first task was to understand the structure of the data and detect any underlying patterns which can be used to build models in a smarter way than simply feeding the data to the model for the training process. Since the work was related to large volumes of data, we wanted to understand how to scale the data with data engineering tools and some optimization through data extraction queries. With this data, we tried to understand the business logic for the fraud detection model. On the basis of that understanding, we worked on the feature extraction process for the model. We worked different architectures for the model through an iterative process where we compared the results which fit the use case in the best possible way. Once the model was ready, we worked on putting the models in production. For this, we worked on training scripts which can act as scheduled jobs for model re-training. Along with the training script, we worked on a backend service to deploy the trained models, so that an endpoint can be triggered in order to test the data on these models.

Tool used (Development tools - H/w, S/w) : VS Code, Python, GCP, BigQuery, Internal tools

Objectives of the project : The goal of the project was to create and implement an effective fraud detection system for online retail that employs machine learning (ML) techniques.

Major Learning Outcomes : Machine Learning algorithms, Data Engineering and Extraction, Deployment of ML models

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Great learning environment, people are friendly and happy to help. You get to work on large volumes of data and interesting use cases in different aspects of supply chain.

Academic courses relevant to the project : Foundations of Data Science, Machine Learning

PS-II Station : Walmart Global Technology Services , Bengaluru

Faculty

Name: Akshaya G

Student

Name: TUSHAR JANGHEL(2022H1030040G)

Student Write-up

PS-II Project Title: Create a comprehensive interactive & user friendly website which documents best agile methodologies tailored for Walmart engineering teams.

Short Summary of work done during PS-II : Developed a user-friendly website: Designed and implemented the front-end using React, CSS, and HTML to ensure a responsive and engaging user interface. Interactive Documentation: Created detailed documentation on best agile methodologies and software engineering practices to educate and guide engineering teams. Self-Assessment Tool: Integrated interactive self-assessment features to help teams evaluate their adherence to agile practices and identify areas for improvement. Engineering Health Dashboard: Integrated dashboards that visualizes various health metrics for engineering teams, providing insights into team performance and areas needing attention. Organizational Metrics: Implemented features to track and display key metrics for different organizations within Walmart, facilitating data-driven decision-making and continuous improvement.

Tool used (Development tools - H/w, S/w) : React js, Express js, HTML, CSS

Objectives of the project : 1) Create a website from scratch. 2) Add documentations and other interactive features. 3) Integrate many interactive features and some metrics & dashboards.

Major Learning Outcomes : How to plan & design the project etc. Learnt how to work, collaborate as a team on a project. How to overcome or resolve blockers (if any) etc.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The company is associate friendly, people working in the company are great. People share their knowledge & help inexperienced associates/interns if they are stuck somewhere. Overall the work culture & environment is on the positive side.

Academic courses relevant to the project : NA

PS-II Station : Walmart Global Technology Services , Bengaluru

Faculty

Name: Akshaya G

Student

Name: SHANTANU SHIMPI(2022H1030093H)

Student Write-up

PS-II Project Title: Knowledge portal

Short Summary of work done during PS-II : Developed and End to end chatbot which takes the query and give top 5 research papers from walmarts databse , worked on front end , creating rag , service registry, SSP, prompt tuning, testing , deployment

Tool used (Development tools - H/w, S/w) : React, Python,Gpt,jmeter

Objectives of the project : The project aims to develop a cutting-edge chat application with advanced AI capabilities, focusing on leveraging the Retrieval-Augmented Generation (RAG) API. The primary objective is to create a seamless platform for natural language interactions, enabling users to engage in meaningful conversations while accessing relevant information from a vast dataset of research papers and documents. By harnessing the power of the RAG API, the project endeavors to enhance user experiences by providing accurate and contextually appropriate responses to user queries.

Major Learning Outcomes : LLM, GPT, React , API , RAG

Details of Papers/patents : NAH

Brief Description of working environment, expectations from the company : The work environment is very friendly , exceptions was very high as i was going to such prestigious company and the work and culture lived up to the expectation , i learned a lot .

Academic courses relevant to the project : Advanced DBMS , Machine learning , cloud computing

PS-II Station : Wayfair Global Technology Pvt. Ltd. , Bengaluru

Faculty

Name: Pradheep Kumar K

Student

Name: VENKAT ROHITH PAMARTI(2020A7PS0100H)

Student Write-up

PS-II Project Title: Smart Query Processor

Short Summary of work done during PS-II : The project involves developing a chatbot designed to assist developers with queries related to Wayfair services. The chatbot will provide support by answering questions about Wayfair APIs, offering code examples and snippets, guiding on best practices for integration, and providing troubleshooting assistance. It will also link to relevant documentation and keep developers updated with the latest information. The chatbot aims to enhance developer productivity by providing quick and accurate responses, thus streamlining the process of integrating and using Wayfair's services. Key technologies involved may include natural language processing (NLP) for understanding developer queries, integration with Wayfair's API for real-time information, and a user-friendly interface for seamless interaction.

Tool used (Development tools - H/w, S/w) : -

Objectives of the project : Create a chatbot to answer developer queries relating to Wayfair services.

Major Learning Outcomes : Natural Language Processing (NLP), API Integration, Chatbot Development

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : It's a good place to work.

Academic courses relevant to the project : NLP, Software Development

PS-II Station : Wayfair Global Technology Pvt. Ltd. , Bengaluru

Faculty

Name: Pradheep Kumar K

Student

Name: SRIRAM SRIVATSAN(2020A7PS0273H)

Student Write-up

PS-II Project Title: Product Decoupling Strategy

Short Summary of work done during PS-II : Extended the GraphQL endpoints in Java, Replace the corresponding SQL queries by not directly calling the database instead calling the extended endpoints

Tool used (Development tools - H/w, S/w) : Java, GraphQL, PHP

Objectives of the project : We were asked to decouple the monolith into microservices

Major Learning Outcomes : Decoupling our monolithic architecture into microservices has yielded profound learning outcomes across our organization. It has significantly enhanced our system's resilience and fault tolerance by isolating functionalities into smaller, independently deployable services

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Working environment is quite good. They are quite flexible with the timings. Work from office is for 3 days and 2 days work from home

Academic courses relevant to the project : OOPS, DBMS, SE

PS-II Station : Wayfair Global Technology Pvt. Ltd. , Bengaluru

Faculty

Name: Pradheep Kumar K

Student

Name: AMOGH MOSES(2020A7PS1199H)

Student Write-up

PS-II Project Title: Deprecating UPO Consumer

Short Summary of work done during PS-II : I had to deprecate a legacy service in Python and migrate all its functionalities to another service.

Tool used (Development tools - H/w, S/w) : Python, Java, Spring Boot, Kafka, Docker, Unleash, Google cloud spanner

Objectives of the project : Deprecate a legacy service in Python and migrate all its functionalities to another service.

Major Learning Outcomes : Mainly technical stuff like Spring Boot, Kafka, Docker.

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Working environment was very good. The team with which I worked was extremely helpful and supportive.

Academic courses relevant to the project : OOP, DSA, DBMS

PS-II Station : Western Digital (SANDISK) , Bengaluru

Faculty

Name: Manoj Subhash Kakade

Student

Name: KEDAR NANDKHEDKAR(2020A3PS0481H)

Student Write-up

PS-II Project Title: Firmware Validation of Solid-State Drive

Short Summary of work done during PS-II : Developing test scripts to verify the firmware flow and validating the features provided within the drive. Acquired knowledge on working of NAND memory and techniques needed to store and read data from the electrons captured within the NAND cell.

Tool used (Development tools - H/w, S/w) : GitHub, WingIDE, Jira

Objectives of the project : Developing test scripts to verify the firmware flow in SSD and identify potential issues in firmware.

Major Learning Outcomes : Got to know working of SSD and different ways to validate the firmware flow.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Friendly and supportive environment, team members are helpful and provide guidance through any problem faced. Company promotes creative and curious attitude, and motivates to learn concepts beyond scope of regular work.

Academic courses relevant to the project : CS F111, Micro electronic circuits

PS-II Station : Western Digital (SANDISK) , Bengaluru

Faculty

Name: Manoj Subhash Kakade

Student

Name: KHUSHI P S(2020A3PS1089G)

Student Write-up

PS-II Project Title: ASIC Design Verification of DMA controller

Short Summary of work done during PS-II : Did assignments on Verilog and python as a part of training. Helped verify DMA controller block as a part of a company project.

Tool used (Development tools - H/w, S/w) : Linux, GVIM

Objectives of the project : To perform ASIC Design Verification of DMA controller

Major Learning Outcomes : Understood the process of ASIC Design Verification

Details of Papers/patents : N.A

Brief Description of working environment, expectations from the company : Did assignments on Verilog and python as a part of training. Helped verify DMA controller block as a part of a company project.

Academic courses relevant to the project : Digital design, computer architecture

PS-II Station : Western Digital (SANDISK) , Bengaluru

Faculty

Name: Manoj Subhash Kakade

Student

Name: PARASHAR PRANJAL RAJIV(2020A7PS1695G)

Student Write-up

PS-II Project Title: Efficient Data Pipeline management

Short Summary of work done during PS-II : The work was based around data pipelines. This involves data transfer from cloud based data lakes to intermediate data bases. The entire process of transferring data which is in massive volumes is what my task lied around. I used various micro services and softwares for this task. The main task lies in the domain of data engineering.

Tool used (Development tools - H/w, S/w) : Splunk, inhouse etl tools, postgres

Objectives of the project : To handle big data efficiently

Major Learning Outcomes : Data pipelines, airflow, DAGs, Docker, Kubernetes

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : The working environment is very nice. I have a really supportive mentor and a great manager. I had a very smooth onboarding process by the HRs. Whenever I had doubts, I was given the assistance I needed. The work culture was very stress free and relaxed.

Academic courses relevant to the project : DBMS

PS-II Station : Western Digital (SANDISK) , Bengaluru

Faculty

Name: Manoj Subhash Kakade

Student

Name: HARISH YUVARAJ G P(2020AAPS1735H)

Student Write-up

PS-II Project Title: System Design and Validation of SSD

Short Summary of work done during PS-II : Was part of system design of consumer SSD, Tasks assigned during the internship were related to system design and validation

Tool used (Development tools - H/w, S/w) : Python,DCPA

Objectives of the project : Validation of SSD

Major Learning Outcomes : Got exposure to product development cycle of SSD

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The work environment is very good. Working for the company gives good exposure to SSD develop lifecycle.

Academic courses relevant to the project : All CDC'S, Comp Arch and OS was useful

PS-II Station : Western Digital (SANDISK) , Bengaluru

Faculty

Name: Manoj Subhash Kakade

Student

Name: SOUMYARANJAN PADIHARI(2022H1230116G)

Student Write-up

PS-II Project Title: DESIGN AND VERIFICATION OF A TEMPERATURE SENSOR CONTROLLER

Short Summary of work done during PS-II : Initially, I was assigned to learn the basics of different tools and Linux. Then slowly I was assigned a task of doing some RDC, CDC, and Lint checks on different projects. Then I was assigned a project where, I had to write the verilog code for a controller such that a 3rd party IP can be integrated to our design. Then I did LINT and CDC checks on the code and improved the quality of the code. Finally, I wrote basic few testcases for the controller. And the controller was passing all the testcases.

Tool used (Development tools - H/w, S/w) : Linux, GVIM, LINT tool, CDC tool

Objectives of the project : Objective of the project was to design the controller. The design should be done such that it should pass all the checks like LINT and CDC.

Major Learning Outcomes : I learnt

1. How to write the Verilog code for a controller

2. The code should follow industrial guidelines.
3. The code should pass LINT, CDC and RDC checks.
4. How designs should be made.
5. How to use different tools.

Details of Papers/patents : N.A.

Brief Description of working environment, expectations from the company : The environment was quite friendly and energetic. The timings are flexible. My manager was very supportive throughout my internship. He assigned different experts from different domains to provide me the required knowledge to work in the industry. Company expects all the interns to contribute in the live project. All the helps were provided to my whenever needed.

Academic courses relevant to the project : VLSI Design, VLSI architecture

PS-II Station : Western Digital (SANDISK) , Bengaluru

Faculty

Name: Manoj Subhash Kakade

Student

Name: RISHABH S KUMAR(2022H1230243P)

Student Write-up

PS-II Project Title: Development of innovative software based tool to do the designing of OP AMPS

Short Summary of work done during PS-II : The development of an automation tool for the design and optimization of Operational Transconductance Amplifiers. Conventional method involves lot of time. The python tool ease out this process and will bring out the best possible solution to the specifications that we give for our OTAs. The python tool uses the gm/id methodology to characterize the mosfet and this provides an effective solution to find the aspect ratios of our mosfet components. The python tool is fed with a initial seed value of aspect ratios and then it will undergo multiple simulations and adjustments in input values after each iteration. Finally it gives an optimal solution that will be meeting with our specifications.

Tool used (Development tools - H/w, S/w) : Cadence ,Python

Objectives of the project : To find the optimal sizes and values of components to meet the specs of OTAs

Major Learning Outcomes : Puthon Coding,caden virtuoso,Skill Programming

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment in Sandisk is quite good. It provides quite flexible work timings and I feel that Sandisk provides a good work life balance. Every employee is really motivating and totally supportive. Even while encountering doubts everyone is totally supportive and dedicate time to help you. In essence I feel that Sandisk is a place that fosters creativity collaboration and professional growth.

Academic courses relevant to the project : Analog IC design,VLSI design

PS-II Station : Western Digital (SANDISK) , Bengaluru

Faculty

Name: Manoj Subhash Kakade

Student

Name: KUPPALA NAVYA(2022H1400125H)

Student Write-up

PS-II Project Title: Device Validation of Client based NVMe SSD's.

Short Summary of work done during PS-II : Developed a framework for primary derive testing of NVMe drives.

Tool used (Development tools - H/w, S/w) : Python, in-house tools.

Objectives of the project : Post Silicon Validation

Major Learning Outcomes : Testing Framework, PCIe and NVMe specs.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Supportive team and smooth on-boarding by the HR's. Stress free environment to work with.

Academic courses relevant to the project : Embedded Systems, OS

PS-II Station : Western Digital (SANDISK) , Bengaluru

Faculty

Name: Manoj Subhash Kakade

Student

Name: RAHUL PRASAD(2022H1400163P)

Student Write-up

PS-II Project Title: Cyclomatic Complexity Analyzer

Short Summary of work done during PS-II : A Cyclomatic Analyzer was made to work on codebase within the BU specifically, giving out accurate metrics on each run. After identifying the metric, insights via visual aids were also given to help restructure code and make it more reliable. This project was necessary as modern codebases run into thousands of source file and spanning millions of lines. Most of the code would be reused and this raised a concern regarding code maintainability

Tool used (Development tools - H/w, S/w) : Python, Graphviz, Git, GitHub

Objectives of the project : Help in Informed decision making, while restructuring complex methods/functions

Major Learning Outcomes : End to End Design, System Design, System Testing and Stressing

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : BU provided ample support to work on the project. Mentor was assigned, who guided us over the whole project. The Senior Executives were approachable and made the work environment very friendly. Mentor allocated sufficient time for meetings related with the project, made sure the Design plan was followed and milestones achieved.

Academic courses relevant to the project : NA

PS-II Station : Whatfix Private Limited , Bengaluru

Faculty

Name: Sidharth Mishra

Student

Name: SAMYAK JAIN(2019B1A41485H)

Student Write-up

PS-II Project Title: Product Management

Short Summary of work done during PS-II : Over the course of my six-month internship at Whatfix, I have been involved in various aspects of improving and refining the Whatfix Studio platform. My primary focus has been on enhancing user experience, refining analytics capabilities, and addressing specific client feedback through iterative development cycles.

Tool used (Development tools - H/w, S/w) : Jira, Figma, Looker

Objectives of the project : To work on the Whatfix Studio

Major Learning Outcomes : Problem Solving skills, stakeholder management

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Working environment is friendly and helpful. I hope to grow as a Product Manager in the company

Academic courses relevant to the project : N/A

PS-II Station : Whatfix Private Limited , Bengaluru

Faculty

Name: Sidharth Mishra

Student

Name: NAMAN LUTHRA(2020A7PS1682P)

Student Write-up

PS-II Project Title: Enhancing Automation and Product Capabilities for the Hub Application

Short Summary of work done during PS-II : 1. Conducting a comprehensive review of the existing Hub application, its technical architecture, and development processes. 2. Designing and implementing a robust end-to-end testing framework to improve code quality, enable continuous integration, and streamline the deployment pipeline. 3. Developing advanced analytics and reporting capabilities to provide deeper insights into user behavior, application performance, and business metrics. 4. Optimizing the user experience of the Hub through iterative design improvements, usability studies, and the incorporation of emerging interaction modalities.

Tool used (Development tools - H/w, S/w) : 1. Programming Languages: Java, JavaScript 2. Frameworks and Libraries: Spring Boot, React, Nodejs 3. Databases: Cassandra, Redis, Elasticsearch 4. Testing and CI/CD: Playwright, Jenkins, Docker, Kubernetes 5. Project Management: Jira, Confluence, Git

Objectives of the project : The primary objective of this project was to enhance the automation and product capabilities of the Hub application, a core component of the organization's software suite. The scope of the work included: Improving the automation and end-to-end testing capabilities for the Hub application, with a focus on expanding test coverage, reducing manual testing effort, and improving the overall testing efficiency. Enhancing the product capabilities of the Hub application by implementing support for multi-monitor setups and developing new analytics and reporting features to provide deeper insights into application usage and performance. Iteratively identifying opportunities for continuous improvement across the testing and product development lifecycle, and implementing solutions to address these areas. Evaluating the impact of the implemented improvements on development velocity, software quality, and user experience, and documenting the learnings. The overarching goal was to drive ongoing enhancements to the Hub application, ensuring it remained reliable, scalable, and adaptable to user needs, while also improving the efficiency and productivity of the development and testing processes.

Major Learning Outcomes :

1. Deeper understanding of enterprise software development practices and challenges
2. Expertise in testing automation and continuous integration/deployment
3. Insights into data-driven product development and decision-making
4. User-centric design and experience optimization techniques
5. Effective stakeholder management and communication skills

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The project was carried out in a collaborative, professional work environment at the organization's headquarters. The company's engineering, product, and design staff, fostered a productive and supportive atmosphere. The organization had high expectations for the quality of the deliverables, adherence to agile best practices, and the team's ability to adapt to the enterprise software development lifecycle. Overall, the working relationship with the company was excellent, with team committed to the successful enhancement of the mission-critical Hub application.

Academic courses relevant to the project : 1. DSA - Data Structures and Algorithms

2. DBS - Database Systems
 3. OOPS - Object-Oriented Programming Systems
 4. CN - Computer Networks
-

PS-II Station : Whirlpool , Pune

Faculty

Name: Amar Singh

Student

Name: DAHALE SWARA SHYAM(2022H1060217P)

Student Write-up

PS-II Project Title: Product Design and Development of components of French Door Bottom Mount Refrigerator

Short Summary of work done during PS-II : Understand the Design practices Creating project proposal Ideal development plan Functional Decomposition Understanding the business case Failure mode effect analysis for the redesigned component. Cost and Quality project execution methodology. Creo (CAD Task) and Windchill. Team Work, Engineering aspects for product development, communication, Project management and presentation skills. Working on cost projects to save upto 10% on component costs. New product development process and existing product development process.

Tool used (Development tools - H/w, S/w) : Creo (CAD Task), Ansys and Windchill.

Objectives of the project : Assignment 1 : Re-designing the freezer basket for cost optimization for FDBM platform. Assignment 2 : CAD tasks using creo. Assignment 3 : Customer Service calls study for FDBM product and finding the opportunity for quality improvement. Assignment 4: Pre study for Cost Workshop for commonization of parts. Assignment 5 : Literature optimization for cost reduction. Assignment 6 : Re-designing the component for cost optimization for FDBM platform. Assignment 7 : New product development for quadro platform. Assignment 8 : Defining the test specifications for the upcoming project related to four door refrigerator. Assignment 9 : Teardown workshop in CAA lab.

Major Learning Outcomes : Achieved \$ 500,000 total cost saving for literature optimization project.

Optimized the technique to study SIR calls by which time was saved.

Suggested cost ideas for \$ 200,000 in FDBM platform.

Currently working with new ongoing Make in India project for four door refrigerator.

Details of Papers/patents : No patents

Brief Description of working environment, expectations from the company : The working environment in company is very positive. There are more opportunities to learn.

They provide hands on experience to the interns. As well as the mentorship and guidance is provided in very systematic manner. They start from the basic to advance approach.

Academic courses relevant to the project : FEM, Design of machine element, Product Design, Manufacturing Process

PS-II Station : Whirlpool , Pune

Faculty

Name: Amar Singh

Student

Name: SWARNAPUDI BHAVYASRI(2022H1410135P)

Student Write-up

PS-II Project Title: Door handle protector material characterization in LS dyna

Short Summary of work done during PS-II : Preparing a dedicated material card to the specimen and correlation of experimental and simulation results.

Tool used (Development tools - H/w, S/w) : Hypermesh

Objectives of the project : To build a simulation capability of a door handle protector during front inclined impact test

Major Learning Outcomes : Hypermesh and hyperview software

Details of Papers/patents : Tappi 839 standards

Brief Description of working environment, expectations from the company : Flexible timings and good work culture

Academic courses relevant to the project : Fem

PS-II Station : Whirlpool , Pune

Faculty

Name: Amar Singh

Student

Name: SHIPRA(2022H1410147P)

Student Write-up

PS-II Project Title: Console to chassis interface-quality improvement

Short Summary of work done during PS-II : Development of concept selection matrix to reduce/eliminate tilting of console on wall oven unit Shortlisting of concepts applicable for all product categories Development of CAD models for the shortlisted concepts to understand the part modifications to be done Complexity analysis of each of the proposed concepts, along with the risk associated Further shortlisting of concepts and analysis of feasibility and effectiveness in addressing the root cause, which includes (a) VR analysis of the concepts to understand the ease of assembly (b) Simulation on ANSYS to understand the tilting behaviour for each of the concepts and it's comparison with the current design

Tool used (Development tools - H/w, S/w) : Cero parametric 10, windchill

Objectives of the project : Console rocks fore-aft on the unit in all the units, tilting more severe in combo variants Aim is to reduce/eliminate tilting of console by making suitable changes in parts Maintain product level craftsmanship CPMs like door to console Gap, flushness & Side alignment

Major Learning Outcomes : 1)Learnt about the design of console assembly for built-in wall ovens and the impact of part interfaces on the overall design
2)Learnt about the CAD Modelling tools and processes for different components
3)Learnt about various stages of product development process and quality improvement, considering design and cost constraints
4)Learnt the importance of DFM and DFA

Got acquainted with various tools used for product life cycle management

5)Learnt about the importance of various tools used for virtual validation and analysis of structures

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : Working environment at Whirlpool is nice. people are helpful, friendly and collaborative, and open to new joiners. the company provides ample opportunities to learn and room to understand and then execute.

Academic courses relevant to the project : Product design, finite element methods, mechanics,

PS-II Station : Whirlpool , Pune

Faculty

Name: Amar Singh

Student

Name: CHELLVAMURTHY S(2022H1410149P)

Student Write-up

PS-II Project Title: Double Door Refrigerator fan change and Multi -Air flow optimisation

Short Summary of work done during PS-II : Created the SBD model meshed it .solved using fluent.comapred the CFM with replacement of fan

Tool used (Development tools - H/w, S/w) : Ansys Fluent

Objectives of the project : Reducing the lead cost , Reducing the deterioration of energy performance

Major Learning Outcomes : Understanding the industrial CFD, gaining knowledge in Ansys space claim nd fluent

Details of Papers/patents : No

Brief Description of working environment, expectations from the company : Nice good place to learn

Academic courses relevant to the project : Little bit

PS-II Station : Whirlpool , Pune

Faculty

Name: Amar Singh

Student

Name: KAUSHIK KRISHNA J(2022H1410157P)

Student Write-up

PS-II Project Title: Safe carry of EPS free packaging

Short Summary of work done during PS-II : I had to develop a simulation strategy to co-relate the slippage experienced by series of for packaging of horizontal washing machines when carried using carton clamps. The packagings re wrapped using EPS free packaging.

Tool used (Development tools - H/w, S/w) : LS Dyna, Hypermesh.

Objectives of the project : To determine the slippage of EPS free packaging while clamping

Major Learning Outcomes : LS Dyna, Hypermesh, team work, explicit simulation

Details of Papers/patents : Nil

Brief Description of working environment, expectations from the company : Whirlpool has a great working environment with supportive managers. Each intern will be assigned a mentor, where they will be guided in their respective projects. Colleagues are friendly and approachable at any time.

Academic courses relevant to the project : Finite element method, advanced finite element method, M3chanics of materials, fracture mechanics, mechanics of solids, machine design.

PS-II Station : William O Neil India Pvt Ltd., , Bengaluru

Faculty

Name: Ambatipudi Vamsidhar

Student

Name: KHUSHI GUPTA(2019B4A40836H)

Student Write-up

PS-II Project Title: Factor Analysis

Short Summary of work done during PS-II : Writing code for several factors with respect to historical stock market data

Tool used (Development tools - H/w, S/w) : Python

Objectives of the project : Writing code for several factors with respect to historical stock market data

Major Learning Outcomes : Python, Equity & Derivatives Research

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Flexible work and a supportive team.

Academic courses relevant to the project : -

PS-II Station : William O Neil India Pvt Ltd., , Bengaluru

Faculty

Name: Ambatipudi Vamsidhar

Student

Name: ABHILASH CHATTERJEE(2022H1540805P)

Student Write-up

PS-II Project Title: Equity research

Short Summary of work done during PS-II : I have been working on equity research analyst team in the financial/semiconductor/software/consumer sector where the primary tasks include technical analysis of stocks and indices using the O Neil methodology, analyzing, and preparing pre-earnings and post earnings results reports of different companies, preparing Developed and Emerging market summaries and news report, tracking significant announcements and financial calendar events of different firms and Investment cases for potential long options. For information accumulation and preparation purposes, through study of company's investor reports and quarterly/yearly annexures are required. Also, we have been given the training for accessing Bloomberg terminal for analysing consensus estimates and company specific broker reports. We have been given stock charts for annotation and analysis to identify long/short options based on indicators and technicals.

Tool used (Development tools - H/w, S/w) : Software (Bloomberg, MS office)

Objectives of the project : Preparing equity research reports for stocks, technical action analysis of stock movements, sector based and geography based reports, tracking down earnings of stocks, etc

Major Learning Outcomes : Got to know the financial techniques and metrics for stock analysis, market research techniques, preparing independent research reports

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Overall supportive cohort, except few. There are multiple sectors like mining/financial/software/consumer etc. where analysts track the performance of relevant stocks as well as company news/earnings/events. Stocks which seem to appear bullish, and breaking out are added to investor's focus list after pitching it to the US team via the investment report. The company's

working procedure is kind of similar to a newspaper/news reporting company. Some daily economic summary reports are published which are prepared by analysts. Management expects high quality investment thesis/cases from our end with detailed research and financial analysis, covering the crux of the business model of the stock.

Academic courses relevant to the project : Corporate finance, Financial modeling and valuation, Stock action analysis, Equity analysis.

PS-II Station : William O Neil India Pvt Ltd., , Bengaluru

Faculty

Name: Ambatipudi Vamsidhar

Student

Name: PRERIT KUMAR SINGH(2022H1540813P)

Student Write-up

PS-II Project Title: Equity Research

Short Summary of work done during PS-II : The work included various tasks. The major ones included preparing investment cases which were to be pitched to the investors. Other tasks included stock chart annotations, creating reports on market performance of markets in different countries, and preparing preview and review reports for the quarterly performances of the companies.

Tool used (Development tools - H/w, S/w) : Company software for the stock chart analysis, MS word, MS excel

Objectives of the project : To find the growth drivers of the screened stocks, analyze the historical financial performance and create detailed investment cases to be pitched to the investors

Major Learning Outcomes : Stock chart analysis, research flow for a detailed report on any company

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment is good.vipin

Academic courses relevant to the project : Introduction to investment banking, Financial modelling

PS-II Station : William O Neil India Pvt Ltd., , Bengaluru

Faculty

Name: Ambatipudi Vamsidhar

Student

Name: SANJEEV S(2022H1540837P)

Student Write-up

PS-II Project Title: Equity Research

Short Summary of work done during PS-II : During my time here, I rotated through three different sectors: Healthcare, Consumer Cyclical, and Computer Software, where I am currently working. I developed investment cases for over 10 different stocks across these sectors, incorporating the latest company filings, including earnings releases, annual reports, and investor presentations. I screened stocks by analyzing charts and reviewing fundamental data and prepared daily reports on market conditions, focusing on both developed markets, such as the U.S. and Europe, and emerging markets. This experience has greatly enhanced my understanding of the market and the firms for which I create investment cases.

Tool used (Development tools - H/w, S/w) : S/W

Objectives of the project : To screen and find stocks for investment by using O'Neil methodology.

Major Learning Outcomes : I learned to use the O'Neil methodology to identify investment opportunities. I developed the ability to write compelling investment cases, highlighting the key growth drivers of specific firms. Additionally, I acquired skills in reading charts, identifying patterns, and determining entry points for investments.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : My entire internship was conducted remotely, allowing me to work from home.

Expectations:

Track Stocks: Monitor stocks for the assigned sector.

Stock Ideas: Identify potential investment opportunities.

Investment Cases: Develop investment cases highlighting key growth drivers, explaining why to invest in specific stocks.

Market Reports: Prepare reports on market conditions.

Academic courses relevant to the project : Basic Finance, Valuation

PS-II Station : William O Neil India Pvt Ltd., , Bengaluru

Faculty

Name: Ambatipudi Vamsidhar

Student

Name: PARUL SHRIVASTAVA(2022H1540845P)

Student Write-up

PS-II Project Title: Equity research

Short Summary of work done during PS-II : My role as an equity research intern has been insightful and demanding, pushing me beyond my comfort zone and unexpectedly contributing to my professional development. Working in various sectors, such as consumer, retail, healthcare, energy, and hardware, has improved my analytical abilities and expanded my perspective on the market environment. Putting together an investment thesis for securities was one of the most crucial learning experiences. At first, I thought combining many facts into a logical and compelling argument would be impossible. However, under my mentor's guidance, I mastered deconstructing complicated data into valuable insights. I learned from this experience how important it is to provide investment propositions with precision, clarity, and storytelling. Writing the previews and reviews of earnings was another crucial step. These assignments required a thorough analysis of financial accounts, market trends, and performance indicators for the business. I became proficient at determining the main factors influencing stock performance and forecasting future trends as a result of this. This rigorous analytical approach helped me become a better researcher and forecaster.

Tool used (Development tools - H/w, S/w) : Bloomberg, MS-word, MS-excel

Objectives of the project : In Equity Research , the objectives of work typically involves conducting in-depth research, analyzing market trends, financial statements and industry data to write earnings reviews, global market commentary and provide actionable recommendations to clients.

Major Learning Outcomes : Working in various sectors, such as consumer, retail, healthcare, energy, and hardware, has improved my analytical abilities and expanded my perspective on the market environment.

Putting together an investment thesis for securities was one of the most crucial learning experiences. However, under my mentor's guidance, I mastered deconstructing complicated data into valuable insights. I learned from this experience how important it is to provide investment propositions with precision, clarity, and storytelling.

Writing the previews and reviews of earnings was another crucial step. These assignments required a thorough analysis of financial accounts, market trends, and performance indicators for the business.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : My knowledge of many industries has increased due to these varied mentoring experiences from different sector mentors, improving my analytical abilities and industry-specific expertise. My ability to approach equities research holistically has been strengthened by the insights.

Although I've progressed in my analysis, I still need to improve my communication abilities. I must communicate my findings concisely and persuasively to impact stakeholders' decisions and gain support for investment initiatives.

Academic courses relevant to the project : Financial modelling, Accounting, Financial derivatives

PS-II Station : WILP - ADAS , Artificial & Computation , Hyderabad

Faculty

Name: Rajiv Ranjan Gupta

Student

Name: VISHAL S(2018B1A10414H)

Student Write-up

PS-II Project Title: Building a mobile robot (Localization with IMU,GPS and LiDAR)

Short Summary of work done during PS-II : Developed a mobile robot using the Robot Operating System (ROS) that can localize itself and navigate autonomously. The robot integrates multiple sensors, including an IMU, GPS, and LiDAR, to achieve accurate localization and mapping. By employing sensor fusion techniques, IMU and GPS data were combined to enhance the robot's localization capabilities. For mapping and navigation, Simultaneous Localization and Mapping (SLAM) was implemented using LiDAR data to create real-time maps of the environment. The ROS navigation stack was utilized to develop robust path planning and navigation strategies, allowing the robot to move efficiently while avoiding obstacles. We also had a training week on Canoe Fundamentals by Vector Informatik India and got certificates for the same.

Tool used (Development tools - H/w, S/w) : ROS,C++,PYTHON,SOLIDWORKS

Objectives of the project : To build a mobile robot that can accurately localize itself and then navigate from current point A to goal point B autonomously, done with the help of sensors IMU,GPS and LiDAR.

Major Learning Outcomes : ROS Proficiency:

- Understood ROS architecture, tools, and package management.

Sensor Fusion:

- Integrated IMU, GPS, and LiDAR sensors, and applied sensor fusion techniques like Kalman filter for localization.

Localization and Mapping:

- Implemented SLAM for real-time map generation using LiDAR.

Navigation:

- Developed path planning and navigation strategies using the ROS navigation stack.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Working environment was good. Mentors were friendly and willing to help whenever needed.

Academic courses relevant to the project : NONE

PS-II Station : WILP - ADAS , Artificial & Computation , Hyderabad

Faculty

Name: Rajiv Ranjan Gupta

Student

Name: YASH AGARWAL(2020A4PS1111G)

Student Write-up

PS-II Project Title: Imu gps robot chassis

Short Summary of work done during PS-II : Wrote code for a PID controller, developed a rack and pinion mechanism and a robot chassis

Tool used (Development tools - H/w, S/w) : Solidworks, Ansys,

Objectives of the project : To develop a robot chassis

Major Learning Outcomes : Strength analysis and designing

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Very lenient

Academic courses relevant to the project : CAD

PS-II Station : WILP - AI for Education Innovation Lab , Hyderabad

Faculty

Name: Suparna Chakraborty

Student

Name: CHUNDURU ROHIT(2020A7PS0018G)

Student Write-up

PS-II Project Title: Integrated Educational Enhancement System using GenAI and RAG frameworks

Short Summary of work done during PS-II : Design of Front-end and Back-end for the model ,Collection of Data and Pipeling of data.

Tool used (Development tools - H/w, S/w) : Weaviate,Ollama,Unstructured.io,Image Bind and Windows Retreiver.

Objectives of the project : Using the current Gen AI tools to help both teachers and students in the educational field.

Major Learning Outcomes : Learned how to build AI products that help in the teaching field

Details of Papers/patents : 1.) Teachers traits Model:- Helps improve the capability of the currently available faculty and can be used in hiring new faculty.

2.) Multiple Variants Of Question Paper:- Provides Multiple Variants of a single Paper which can be used to decrease malpractices.

3.)AI chatbot :- Helps as a grading assistant for teachers and as a doubt clarifying assistant for students.

Brief Description of working environment, expectations from the company : It was strict and very professional expected to be on time and end on time. The deadlines can be flexible.

Academic courses relevant to the project : Machine Learning,Deep Learning and Artificial Intelligence

PS-II Station : WILP - Control systems,IC Engines, RSM , Hyderabad

Faculty

Name: Raghuraman RAGHURAMAN

Student

Name: MALLICK AMMAR AHMED ABSAR AHMED(2020A4PS1986G)

Student Write-up

PS-II Project Title: Simulation of a SI Engine on Amesim, Simulation of Exhaust emissions on MVEM Engine

Short Summary of work done during PS-II : My work done during the PS-II included simulating different engines on a simulating software called AMESIM. AMESIM is a 1-D software that represents models in the form of circuits and helps simplify the process of the simulation. I also worked on the repair of a Mercedes 2002 C class model.

Tool used (Development tools - H/w, S/w) : AMESIM

Objectives of the project : Objective of the project included developing a four stroke Spark Ignition engine to simulate the effects of the engine. An MVEM Engine model was also developed to simulate emission contents at different speeds and cycles. Along with this a third project was done where different ethanol blends were simulated in an SI engine to obtain the effects of the fuels blends at different percentages

Major Learning Outcomes : Understanding the development of an SI Engine at basic levels, along with understanding the advantages and disadvantages of different fuels used in an engine.

Details of Papers/patents : NIL

Brief Description of working environment, expectations from the company : The working environment was good and comfortable. We had access to various labs to complete our projects and the mentors were very approachable. The office used for work was also quite comfortable. We gave weekly updates on the project's progress, and the working expectations were also quite manageable.

Academic courses relevant to the project : IC Engines, thermodynamics

PS-II Station : WILP - Electric & hybrid vehicle , Hyderabad

Faculty

Name: Madhuri Bayya

Student

Name: PAPPU RITESH(2022H1230102G)

Student Write-up

PS-II Project Title: High Speed Circuits

Short Summary of work done during PS-II : I was working on various small blocks during my internship

Tool used (Development tools - H/w, S/w) : cadence

Objectives of the project : Need to design High Speed Serial Links

Major Learning Outcomes : Analog circuit design

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Company is good

Academic courses relevant to the project : Analog IC design

PS-II Station : WILP - IOT , Hyderabad

Faculty

Name: Prakruthi Hareesh

Student

Name: SIKARWAR RISHABH MANOJSINGH(2022H1230114G)

Student Write-up

PS-II Project Title: To find the potential causes of background noise while testing of GIS.

Short Summary of work done during PS-II : In the context of partial discharge (PD) testing of Gas-Insulated Switchgear (GIS), analyzing background noise is crucial for accurate diagnosis and maintenance. Background noise, originating from external electromagnetic interferences and internal sources within the GIS itself, can obscure genuine PD signals, leading to false positives or missed detections. Effective noise analysis involves identifying, quantifying, and mitigating these interferences to enhance signal-to-noise ratio (SNR). Techniques such as time-frequency domain analysis, noise gating, and advanced filtering algorithms are employed to distinguish between PD activities and background noise, ensuring reliable condition monitoring and assessment of the GIS components.

Tool used (Development tools - H/w, S/w) : Powerpoint, Zoho-projects

Objectives of the project : Analysis of background noise while testing of GIS.

Major Learning Outcomes : During my PS-II internship, I gained hands-on experience with electrical design, analysis, and renewable energy systems, enhancing my technical proficiency and problem-solving skills. Additionally, I developed strong project management and team collaboration abilities, essential for a successful engineering career.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment is dynamic and collaborative, fostering innovation and continuous learning. Team members are encouraged to share ideas openly and contribute to problem-solving processes. The workplace emphasizes flexibility, supporting a healthy work-life balance with options for remote work and flexible hours. It is equipped with modern technology and tools to enhance productivity and streamline workflows. Expectations from the company include a commitment to personal and professional growth through ongoing training and development opportunities. Employees are expected to take initiative, demonstrate strong problem-solving skills, and work effectively both independently and as part of a team. The company values integrity, accountability, and a positive attitude. Collaboration and effective communication are critical, as the organization thrives on teamwork and collective success. Adherence to company policies, meeting deadlines, and delivering high-quality work are fundamental expectations. Employees should be adaptable to change and proactive in identifying and addressing challenges. The company also expects a commitment to its mission and values, striving for excellence in every task.

Academic courses relevant to the project : Electrical Machines, Power-System, Power-Electronics

PS-II Station : WILP - IOT , Hyderabad

Faculty

Name: Prakruthi Hareesh

Student

Name: LOKESH KUMAR(2022H1230251P)

Student Write-up

PS-II Project Title: Background Noise in GIS while doing Partial Discharge Testing (PD).

Short Summary of work done during PS-II : During my PS-II (Practice School II) internship in the electrical domain, I undertook a variety of projects that expanded my knowledge and skills in electrical engineering. My primary responsibility was working on the design and analysis of electrical systems for industrial applications. This involved developing circuit designs using CAD software and performing simulations to test their efficiency and reliability. One of the key projects was optimizing the power distribution system for a manufacturing plant. I conducted load flow studies, short circuit analysis, and harmonics analysis to ensure the system met all safety and performance standards. I utilized tools such as MATLAB and ETAP for these analyses, allowing for precise and comprehensive evaluations. Additionally, I participated in the installation and maintenance of electrical equipment, including transformers, motors, and control systems. I worked closely with senior engineers to troubleshoot and resolve issues, ensuring minimal downtime and maximum efficiency. This hands-on experience was invaluable in understanding the practical challenges and solutions in the field. I also contributed to the development of a renewable energy project, which involved designing a solar power system for a remote location. This project required a deep understanding of photovoltaic systems, battery storage solutions, and energy management systems. Throughout the internship, I was actively involved in team meetings, project planning sessions, and technical presentations. I learned to communicate effectively with both technical and non-technical stakeholders, ensuring that project goals and timelines were met. Overall, the internship provided a comprehensive learning experience, reinforcing my theoretical knowledge with practical applications and preparing me for future roles in electrical engineering.

Tool used (Development tools - H/w, S/w) : H/W

Objectives of the project : Analysis of Background Noise Issues in GIS while doing Partial Discharge Testing (PD).

Major Learning Outcomes : During my PS-II internship, I gained hands-on experience with electrical design, analysis, and renewable energy systems, enhancing my technical proficiency and problem-solving skills. Additionally, I developed strong project management and team collaboration abilities, essential for a successful engineering career.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : The working environment is dynamic and collaborative, fostering innovation and continuous learning. Team members are encouraged to share ideas openly and contribute to problem-solving processes. The workplace emphasizes flexibility, supporting a healthy work-life balance with options for remote work and flexible hours. It is equipped with modern technology and tools to enhance productivity and streamline workflows.

Expectations from the company include a commitment to personal and professional growth through ongoing training and development opportunities. Employees are expected to take initiative, demonstrate strong problem-solving skills, and work effectively both independently and as part of a team. The company values integrity, accountability, and a positive attitude. Collaboration and effective communication are critical, as the organization thrives on teamwork and collective success. Adherence to company policies, meeting deadlines, and delivering high-quality work are fundamental expectations. Employees should be adaptable to change and proactive in identifying and addressing challenges. The company also expects a commitment to its mission and values, striving for excellence in every task.

Academic courses relevant to the project : No

PS-II Station : Xoxoday - Tech , Bengaluru

Faculty

Name: Pradheep Kumar K

Student

Name: AASHISH SACHDEVA .(2019B2A30736P)

Student Write-up

PS-II Project Title: Implementation of RBAC on CDP

Short Summary of work done during PS-II : New Login via SSO and Email: Implemented using Next.js, Next-Auth.js, and Keycloak for SSO and email-based authentication. Setup KrakenD (API Gateway): Deployed KrakenD with Keycloak integration for centralized API management and security. Admin UI and backend APIs to manage Keycloak users and roles: Developed frontend with Next.js and backend in Java to administer Keycloak users and roles via Keycloak's Admin API. Remove existing authentication system: Replaced legacy authentication with Keycloak-based authentication using Node.js, Koa.js, and Next.js. Automation Scripts for endpoints and users migration: Created Python scripts for automated migration of endpoints and user data, leveraging MySQL. Implement BYOK UI screens: Designed and implemented UI screens in Next.js for Bring Your Own Key (BYOK) functionality.

Tool used (Development tools - H/w, S/w) : Next.js, Node.js, MySQL, Java, Keycloak, KrakenD

Objectives of the project : Implement an RBAC system in Lemnisk to streamline access management, enhance security, enable PII display, and reduce dependency on internal teams. Develop a flexible BYOK solution for all Lemnisk customers to manage their own encryption keys, enhancing data security and ensuring compliance. Create an flexible SSO solution for Lemnisk

to provide seamless, secure user authentication, reduce security risks, and simplify access management for administrators.

Major Learning Outcomes : Integrating diverse technologies like Next.js, NextAuth.js, Keycloak, and KrakenD improved my ability to manage complex systems and enhanced my problem-solving skills.

Collaborating closely with teammates fostered effective communication and facilitated rapid knowledge transfer.

Handling end-to-end project tasks, from setup to implementation, increased my proficiency in full-stack development and automation.

Details of Papers/patents : N/A

Brief Description of working environment, expectations from the company : At Lemnisk, the environment is fast-paced and high-energy, characterized by rapid decision-making and handling intense workloads with tight deadlines. Creative problem-solving and experimentation are encouraged, fostering a culture of innovation and continuous improvement. Adaptability is crucial, as priorities can shift quickly, and roles often require wearing multiple hats. Flexible work hours are embraced to accommodate the urgent demands and ever-changing needs of the business.

Academic courses relevant to the project : OOP

PS-II Station : Yugabyte , Bengaluru

Faculty

Name: Raja Vadhana P

Student

Name: PAYIDETI NAGA VENKATA SAI ROHITA(2019B2A71125H)

Student Write-up

PS-II Project Title: Multiple feature enhancements in YBA

Short Summary of work done during PS-II : Worked on both the frontend and the backend for multiple feature enhancements in YBA [product]. Also developed the art of writing a design doc, code reviews etc all along the internship

Tool used (Development tools - H/w, S/w) : Git, Jenkins, VS code

Objectives of the project : Project: GCP Provider Basic Validation (quick): Validate GCP Provider configurations early to catch typos, misconfigurations, and insufficient permissions upfront, reducing troubleshooting time during and after resource provisioning. Project: Support Azure AD Workload Identity for Azure Providers: This project aims to implement workload identity for deploying YB-A instances on Azure, enhancing security by eliminating the need for credentials, reducing the risk of leaks, and removing the necessity for periodic credential rotation. Project: LDAP - YBA Universe Sync for RBAC: An API is exposed to perform the sync between the users and groups configured on the upstream LDAP Server and the universe. TechStack: Java play framework (web application framework), React JS (User Interface), Swagger (API documentation), Flyway (Edit existing relations in the Database), Phabricator (Code review tool), Jenkins (Testing)

Major Learning Outcomes : LDAP Server, AWS, GCP, Azure [Cloud Services], Prometheus Metrics, Python, Java [coding languages]

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Working environment is a completely team-dependent. YBA has a good environment ethics and easy-approachable teammates.

Academic courses relevant to the project : DBMS, DSA, OOP

PS-II Station : Yugabyte , Bengaluru

Faculty

Name: Raja Vadhana P

Student

Name: PRANAV BANSAL(2019B5A71093H)

Student Write-up

PS-II Project Title: Enhancing YBM: New Pricing Plans, Addition of Regions, and Cluster Management Improvements

Short Summary of work done during PS-II : During my six-month internship at Yugabyte, I contributed to three significant projects aimed at enhancing the YBM platform. The first project involved developing a proof of concept (POC) for new pricing plans, creating a user-friendly plan wizard with three billing options and customizable add-ons. This project integrated Stripe APIs for secure payment processing and implemented a feature restriction mechanism to ensure users could only access features included in their selected plans. The second project focused on adding new cloud regions to the YBM platform. This included enabling new regions in the AWS console, updating platform region mappings, and building and importing base and custom AMIs. Comprehensive testing ensured seamless integration and reliability of these new regions. The third project involved implementing a rolling restart feature for cluster management. This feature ensured high availability by restarting cluster nodes sequentially, preventing downtime. It required designing and implementing RESTful APIs, developing task management classes in Java, and

writing extensive unit and integration tests to validate functionality. Throughout these projects, I utilized a robust tech stack, including React, TypeScript, and Material-UI (MUI) for the frontend, and Java for the backend. Development tools like GitHub, VSCode, and JIRA Atlassian facilitated efficient coding, version control, and project management. These experiences provided me with a deep understanding of modern software development practices, from design and implementation to testing and deployment, while enhancing my technical skills and preparing me for a future in the tech industry.

Tool used (Development tools - H/w, S/w) : H/w: M1 Macbook, S/w: VSCode, Git & Github, JIRA, npm

Objectives of the project : The project aimed to significantly enhance the YBM platform in multiple key areas. Firstly, the proof of concept (POC) for new pricing plans focused on developing a user-friendly plan wizard that offers three billing options and customizable add-ons, ensuring users can tailor their subscriptions to their specific needs. This included implementing a feature restriction mechanism to allow access only to features included in their selected plan and integrating Stripe APIs for secure, hassle-free transactions. Additionally, expanding the platform's reach by adding new cloud regions involved comprehensive infrastructure and backend changes, ensuring new regions are seamlessly integrated and thoroughly tested. Lastly, the implementation of a rolling restart feature for cluster management aimed to maintain high availability during maintenance by restarting nodes sequentially. These efforts collectively sought to optimize subscription management, improve global coverage, enhance service reliability, and ultimately deliver a superior user experience on the YBM platform.

Major Learning Outcomes : Deepened understanding of Object-Oriented Programming (OOP) principles in Java.

Enhanced skills in designing and implementing RESTful APIs.

Improved proficiency in using React and TypeScript for frontend development.

Gained experience with Material-UI (MUI) for creating consistent and responsive user interfaces.

Developed expertise in writing comprehensive unit and integration tests using JUnit and Mockito.

Strengthened ability to manage concurrency and thread safety in Java applications.

Acquired practical knowledge of secure payment integration using Stripe APIs.

Learned effective use of version control with GitHub and collaboration tools like JIRA Atlassian.

Improved debugging and error-handling techniques.

Experienced real-world software development workflows and team collaboration.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : My internship at YugabyteDB Managed provided a dynamic and collaborative working environment. The company fosters a culture of innovation and continuous learning, creating a space where ideas flourish, and each team member is encouraged to contribute their unique perspectives. The collaborative spirit extends beyond departmental boundaries, promoting cross-functional teamwork.

I entered the internship with the expectation of gaining hands-on experience in software engineering while working on meaningful projects. Yugabyte not only met but exceeded these expectations by providing opportunities to contribute to a significant project focused on full stack development. The company's commitment to open-source values aligned with my desire for a learning-rich environment.

Yugabyte's emphasis on mentorship and knowledge sharing allowed me to learn from seasoned professionals, enhancing my skills in frontend development, data visualization, and collaborative coding practices. The expectation of delivering impactful results was met with challenges that stimulated problem-solving and innovation. Overall, the internship experience at YugabyteDB Managed not only met my expectations but provided a platform for personal and professional growth in a vibrant and forward-thinking atmosphere.

Academic courses relevant to the project : Software Engineering, OOP, DBMS

PS-II Station : Yugabyte , Bengaluru

Faculty

Name: Raja Vadhana P

Student

Name: SOUTIK MOHINTA(2019B5A71392H)

Student Write-up

PS-II Project Title: Geo-Partitioning of Colocated Tables Using Tablespaces & PG15 Migration

Short Summary of work done during PS-II : During PS, I had participated in two significant projects undertaken during the internship at Yugabyte. The first project involved introducing tablespaces and implicit tablegroups to enable geo-partitioning, geo-distribution, and geo-local data storage for colocated tables in YugabyteDB. This feature optimizes data access latencies, ensures compliance, and enhances resiliency against regional outages. The second project focused on migrating YugabyteDB from PostgreSQL 11 to 15, a complex task due to YugabyteDB's deep PostgreSQL integration. This upgrade incorporated new PostgreSQL features and improved security. Additionally, numerous PostgreSQL extensions were ported to version 15, maintaining functionality and leveraging new capabilities.

Tool used (Development tools - H/w, S/w) : Continuous Integration/Continuous Deployment (CI/CD) Pipeline (Jenkins) PostgreSQL C/C++ Git (Version Control)

Objectives of the project : 1. Support Geo-partitioning of Colocated Tables and create commands to transfer them between regions, so that colocated tables which help in grouping multiple different types of tables into a single sharded tablet, which helps in reducing the size taken by smaller tables 2. Migration of Yugabyte from PG11 to PG15 to add more features to YugabyteDB.

Major Learning Outcomes : 1.Gained a deep understanding of distributed database architecture, including concepts like tablets, tablet peers, and sharding strategies.
2. Explored database internals, such as query planners, execution engines, and system catalog management.
3. Learned about collaborative development practices, including version control, continuous integration, and testing.

4. Developed problem-solving and critical thinking abilities by overcoming challenges during implementation.
5. Reinforced understanding of distributed systems concepts, such as consistency, availability, and partition tolerance (CAP theorem).
6. Learned about porting and extending PostgreSQL extensions, including versioning, upgrade paths, and maintaining compatibility across versions.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : As an intern at Yugabyte, I expected a challenging and rewarding learning experience, and the company exceeded my expectations. The projects I worked on allowed me to delve deep into the intricacies of distributed database systems, exposing me to cutting-edge technologies and architectural concepts. The company emphasizes freedom and allows students to undertake major projects without much guidance.

Academic courses relevant to the project : DBMS, Distributed Systems

PS-II Station : Yugabyte , Bengaluru

Faculty

Name: Raja Vadhana P

Student

Name: SWAPNIL SHIVAM .(2020A7PS0040P)

Student Write-up

PS-II Project Title: Migration of Yugabyte from PG11 to PG15

Short Summary of work done during PS-II : Initially, I was assigned to the CoreDB India team where I was involved in solving tickets as well as doing investigations for various features. Later I was assigned to the PG15 migration project, in which I had to work on porting postgres extensions to Yugabyte and stabilising the tests. This involved modifying tests to remove features unsupported by Yugabyte, and fixing the bugs if any test did throw unexpected behaviour on supported features. Also worked on the pg15-upgrade branch, which dealt with the online upgrade of the YugabyteDB cluster from PG11 to PG15 with minimal downtime.

Tool used (Development tools - H/w, S/w) : C/C++, Visual Studio Code, GDB, Phabricator, JIRA

Objectives of the project : YugabyteDB is based on upon PG11 which is now unsupported by the community. So it was decided to migrate to PG15 for newer features and security patched

Major Learning Outcomes : Learnt about how a migration effort works and the various considerations that need to be taken in case it's a product which needs high reliability and availability.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The company environment is very welcoming. Everyone is supportive and tries to help out whenever they can which helped us interns to grow. It's also very flexible and values work life balance, with many people working from home at their own timings.

Academic courses relevant to the project : Distributed Systems, C Programming, Computer Networks, Compiler Construction

PS-II Station : Yugabyte , Bengaluru

Faculty

Name: Raja Vadhana P

Student

Name: NAISHADH SHETH(2020A7PS0148G)

Student Write-up

PS-II Project Title: Yugabyte Cloud Admin

Short Summary of work done during PS-II : At Yugabyte, I worked as a FullStack Developer in the YBM (Yugabyte Managed Team). At the very start, we had a 2 week bootcamp which was for us to get familiar with the domains company operates in, the work they do etc. After that, I was given some resources to learn more about the TechStacks involved in my work. I was initially given only frontend tasks for about a couple of months as I knew frontend beforehand. I was given some bugs to fix and small tasks to do so that i could get familiar with the UI and it's layout. This carried on till around Early April. Then in the month of April i expressed my desire to explore even backend, to which my manager agreed. So then I was given some time to learn Django (as Cloud Admin's backend was written in Python) and after that, I was given a proper project of Cloud Admin feature enhancements which involved both Frontend and Backend. It lasted for about 1-1.5 months. After that, I was given a project on IP Allow List authentication which is my current ongoing project, and this might as well go on till the end.

Tool used (Development tools - H/w, S/w) : CSS, React JS, Javascript, Typescript, Tan Stack queries, Django, REST API

Objectives of the project : To develop new and improve existing Cloud Admin features

Major Learning Outcomes : Learnt both frontend as well as backend development. TechStacks include CSS, MUI, React JS, Javascript, Typescript, Tan Stack queries, Django, REST API

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : I can't really comment on the overall company environment but for my team (YBM)

Academic courses relevant to the project : NA

PS-II Station : Zeo Auto , Usa

Faculty

Name: Gaurav Nagpal

Student

Name: RAGHAV GUPTA(2019B4A30927H)

Student Write-up

PS-II Project Title: SEO, Market Research Analysis and Feasibility For Zeo

Short Summary of work done during PS-II : 1. Creating the new Zeo Auto FAQ page. And answered 300+ queries based on app and platform. 2. Market Research and in app and competition platform feature exploration and comparison. 3. Sending review mailers and automatizing the entire process of sending review mailer to new customers, 4. The PRD developer for new feature implementation on the platform 5. The integration feasibility of the platform with HubSpot.

Tool used (Development tools - H/w, S/w) : Hubspot, Appolo, Zapier, Zeo Route Planner

Objectives of the project : To enhance the Zeo platform with best of features necessary for market

Major Learning Outcomes : Market research and analysis

Details of Papers/patents : nil

Brief Description of working environment, expectations from the company : It was very welcoming and the team at Zeo was extremely helpful

Academic courses relevant to the project : nil

PS-II Station : Zeotap India Pvt. Ltd. , Bengaluru

Faculty

Name: Raja Vadhana P

Student

Name: KHASNIS HARSHIT HANMANTRAO(2019B4A70031G)

Student Write-up

PS-II Project Title: Backend Development at CDP

Short Summary of work done during PS-II : Designed and Developed production level code

Tool used (Development tools - H/w, S/w) : S/w - Java, Play, Spring, Vertx

Objectives of the project : Design and Develop production level code

Major Learning Outcomes : Java, Postgres, redis, rabbitMq

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Good

Academic courses relevant to the project : OOPS, Java, DSA, DBMS

PS-II Station : Zepto , Bengaluru

Faculty

Name: Arindam Roy

Student

Name: DAMLE YASH RAJENDRA(2019B2A40897G)

Student Write-up

PS-II Project Title: Customer Success Analyst

Short Summary of work done during PS-II : Cater to support requests of customers across USA and implement AI chatbots and voicebots

Tool used (Development tools - H/w, S/w) : Eltropy Platform, Twilio, Excel, Voiceflow

Objectives of the project : Cater to support requests of customers across USA and implement AI chatbots and voicebots

Major Learning Outcomes : Communication, AI implementation

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Good culture

Academic courses relevant to the project : -

**PS-II Station : Zeta - Project 1(Better World Technologies Pvt. Ltd.) ,
Mumbai**

Faculty

Name: Vijayalakshmi Anand

Student

Name: YASH VIMAL SARAVGI(2019B2A31530H)

Student Write-up

PS-II Project Title: SOFTWARE DEVELOPMENT INITIATIVES: ENHANCING EFFICIENCY

Short Summary of work done during PS-II : During my PS-II internship, I developed and enhanced tools to boost operational efficiency. Key projects included a VIP Monitoring and User

Diagnostic Tool for high-profile users like bank executives and influencers, and an automated email extraction tool to streamline data management. I created a categorization dashboard for the sales and marketing team, aiding in data visualization and decision-making. I initiated the development of a Customer Support ChatBot, gaining insights into AI applications. Additionally, I automated talent acquisition surveys and developed a Metabase dashboard to monitor code contributions. These projects improved my technical skills, project management, and problem-solving abilities, significantly enhancing organizational efficiency.

Tool used (Development tools - H/w, S/w) : HTML, CSS, JavaScript, Vue.js, Node.js, App Script, Metabase

Objectives of the project : The primary objective of the "Software Development Initiatives: Enhancing Efficiency" project is to develop and enhance various tools and applications aimed at improving operational efficiency. Key components of this project include the creation of a VIP Monitoring and User Diagnostic Tool tailored for high-profile users such as bank executives and influencers, an automated email extraction tool, and a categorization dashboard for the sales and marketing team. Additionally, the project encompasses the development of a Customer Support ChatBot currently in its initial phase, the automation of talent acquisition surveys for candidates and stakeholders, and the development of a Metabase dashboard to monitor code contribution statistics.

Major Learning Outcomes : Through the "Software Development Initiatives: Enhancing Efficiency" project, I gained valuable experience in software development, focusing on creating user-centric tools and improving operational efficiency through automation. Key learnings include developing technical skills, managing multiple projects, and enhancing collaboration and communication with stakeholders. I also acquired expertise in data visualization by creating interactive dashboards, gained foundational knowledge in AI through chatbot development, and improved problem-solving abilities.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment during my PS-II internship was dynamic, collaborative, and supportive. I was part of a diverse team of professionals who fostered a culture of innovation and continuous learning. The

company provided a well-structured framework for project development, encouraging both independence and teamwork. Regular meetings, brainstorming sessions, and feedback loops were integral to our workflow, ensuring that all team members were aligned with project goals and timelines.

Academic courses relevant to the project : Computer Programming, Object Oriented Programming, Operating Systems

PS-II Station : Zeta (Better World Technologies Pvt. Ltd.) , Bengaluru

Faculty

Name: Harish Kumar Aggarwal

Student

Name: MOHIT AGRAWAL(2019B4AA0918H)

Student Write-up

PS-II Project Title: Project1: Develop a ML model that can generate test cases for any user input html form. Project2: Develop a scalable backend system of Payment Simulator, Project3: Enhance the UI for one of the centre's, Project4: Upgrade the libraries of the repo to reso

Short Summary of work done during PS-II : During my internship, I worked on four projects: developing a scalable backend system for handling Rupay and Mastercard file transactions using Java and Spring Boot, enhancing the support center's interface with a transaction reversal button using Vue2, Vue3, and integrating APIs along with automating the maker-checker workflow via Camunda, upgrading libraries to resolve Snyk-identified vulnerabilities to ensure security

compliance and developed a ML model to generate test cases for any user input html forms. These projects collectively enhanced my technical skills in backend and frontend development, optimized system performance, streamlined user interactions, and fortified the codebase against security threats.

Tool used (Development tools - H/w, S/w) : IntelliJ, VSCode, Maven, Git, Camunda Modeler, Postman

Objectives of the project : Project1: Develop a ML model that can generate test cases for any user input html form. Project2: Develop a scalable backend system of Payment Simulator, Project3: Enhance the UI for one of the centre's, Project4: Upgrade the libraries of the repo to resolve the Snyk vulnerabilities.

Major Learning Outcomes : The major learning outcome from my internship was a comprehensive understanding of full-stack development, including both backend and frontend processes, as well as the critical importance of security compliance. I gained practical experience in designing scalable and efficient backend systems, creating user-friendly interfaces, and integrating automated workflows. Additionally, I learned how to identify and resolve security vulnerabilities, ensuring that the codebase remains robust and secure. This holistic experience enhanced my technical skills, problem-solving abilities, and adaptability, preparing me for future challenges in software development.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : The working environment during my internship was highly collaborative and dynamic, fostering both professional growth and innovation. I was part of a multidisciplinary team that emphasized open communication and continuous learning. The company provided access to a variety of modern tools and technologies, which enabled us to tackle complex projects effectively. Regular team meetings and brainstorming sessions ensured that everyone was aligned with the project goals and could contribute their ideas.

The company set clear expectations regarding deliverables and quality standards. They emphasized the importance of writing clean, maintainable code and following best practices in software development. I was encouraged to take initiative, seek feedback, and continuously

improve my skills. Mentorship and guidance were readily available, which greatly facilitated my learning process.

Academic courses relevant to the project : OOPs, Machine Learning, DSA, DBMS, OS

PS-II Station : Zeta (Better World Technologies Pvt. Ltd.) , Bengaluru

Faculty

Name: Harish Kumar Aggarwal

Student

Name: SWAYAM SIDHANT PAL(2020AAPS0327G)

Student Write-up

PS-II Project Title: Unnati Loan Management Application

Short Summary of work done during PS-II : During my internship tenure, I focused on refining the Galaxy Design Systems component library by addressing audit tickets identified by the design team. This library encompasses various web components like modals, buttons, and steppers, tailored for seamless integration into web applications. Concurrently, I contributed to the development of Unnati App, a new loan management system incorporating credit lines on the Unified Payments Interface (UPI). My responsibilities involved optimizing component functionality, enhancing accessibility, and implementing modern financial features within Sigma to deliver a user-centric and robust borrowing experience.

Tool used (Development tools - H/w, S/w) : Flutter, Android Studio, Vue.js, Webpack

Objectives of the project : Build a production application, which was demoed to the potential customer of the company

Major Learning Outcomes : I learned to work in a fast-paced development environment. Obviously, working on a live project helped me apply my learnings of app development.

Details of Papers/patents : None

Brief Description of working environment, expectations from the company : Nice company to start with in your career. There are lots of opportunities to learn and use them in upcoming and live projects. The people in most teams are quite supportive and helpful. Most of the time, there is proper balance in work and leisure.

Academic courses relevant to the project : OOPS, DSA

PS-II Station : Zluri , Bengaluru

Faculty

Name: Shreyas Suresh Rao

Student

Name: VAIBHAV KOSHTI(2022H1030049G)

Student Write-up

PS-II Project Title: Building a CSV Upload, Parser, API System and Automated API Regression Test Suite: A Full stack web development

Short Summary of work done during PS-II : Initially built a demo project to gain experience with the technologies used in the company. After that, I built many APIs and worked on various features. I also worked on bug fixes. Lastly, I built an automated regression test suite to test the APIs.

Tool used (Development tools - H/w, S/w) : React.js, Node.js, MongoDB, GitHub, PostgreSQL, and TypeScript.

Objectives of the project : The project aimed to address the problem statement by utilizing Node.js and React.js to build a system capable of uploading CSV files, parsing the data, and storing it appropriately in a MongoDB database. Additionally, the system provides functionalities such as viewing, editing, adding, and deleting transactions through APIs. Also later api regression test suite is build for testing apis automatically

Major Learning Outcomes : "Learned full-stack development and gained experience working collaboratively in a company environment

Details of Papers/patents : Null

Brief Description of working environment, expectations from the company : Very supportive team members.

Academic courses relevant to the project : Web development

PS-II Station : Zluri , Bengaluru

Faculty

Name: Shreyas Suresh Rao

Student

Name: S SHASHANK(2022H1030067H)

Student Write-up

PS-II Project Title: Data Processing Pipelines and Failure Alerting Mechanisms

Short Summary of work done during PS-II : This project focused on developing efficient data processing pipelines using Python and Prefect, integrating AWS S3 for data extraction and MongoDB for storage. Key objectives included designing extraction routines, implementing error handling mechanisms, and creating an error alerting system using Slack and MongoDB. The implemented solution enhanced operational efficiency, scalability, and reliability in data handling, reducing mean time to resolution (MTTR) and improving overall pipeline reliability.

Tool used (Development tools - H/w, S/w) : Python, MongoDB, Prefect, AWS S3

Objectives of the project : Develop efficient Python-based data pipelines integrating AWS S3 and MongoDB, ensuring reliability through error handling, while implementing error alerts for real-time notifications, thereby enhancing operational efficiency and enabling actionable insights from data.

Major Learning Outcomes :

1. Designing and implementing efficient data processing pipelines using Python and Prefect.
2. Integrating and managing data extraction from AWS S3 and storage in MongoDB.
3. Implementing error handling mechanisms to ensure data pipeline reliability.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : I get to work in a collaborative and dynamic working environment. I got the opportunity to gain hands-on experience with tools like SQL, Python, MongoDB and Postgres, and receive mentorship and training to enhance my technical skills. Additionally the organization focuses on work-life balance and employee well-being which is important for maintaining motivation and productivity. I look

forward to working on meaningful projects aligned with the company's goals and collaborating with diverse teams. Ultimately, I seek a company that supports professional development, values innovation, and fosters a positive, inclusive work environment.

Academic courses relevant to the project : Cloud Computing, Advanced Database Systems

PS-II Station : Zluri , Bengaluru

Faculty

Name: Shreyas Suresh Rao

Student

Name: PIYUSH PRIYADARSHI(2022H1030091H)

Student Write-up

PS-II Project Title: Zluri product development

Short Summary of work done during PS-II : Worked on mostly frontend tasks to fix frontend bugs and bring in UI improvements and new features

Tool used (Development tools - H/w, S/w) : VSCode, Git, Postman, Figma, React DevTools, Redux DevTools, Requestly

Objectives of the project : Work on maintaining and improving the Zluri SaaS management application

Major Learning Outcomes : React frontend development, CSS styling, Node backend development, Redux state management, Git version control and collaboration, testing APIs using Postman, using the browser network inspector to examine the information sent and received by the frontend, using React and Redux DevTools to see the component tree and the application state respectively

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Stressful but rewarding, colleagues are nice to work with and helpful. Expectations are that the work must be completed on time by any means necessary. No strict timings and possible to work from home two days a week.

Academic courses relevant to the project : BITS doesn't teach anything remotely related to software development

PS-II Station : Zomato Media Private Limited , Gurugram

Faculty

Name: Ashish Narang

Student

Name: ASTITVA SEHGAL(2019B5A70640G)

Student Write-up

PS-II Project Title: Data Storage Optimizations in Microservices

Short Summary of work done during PS-II : Aerobar service was using an external cache cluster. Semi-permanent data requests were increasing load on this cluster. A local cache layer was added (container wise), to reduce the load by 95% on the external cache. Location service had failures and inconsistent responses due to SQL databases not scaling well, these were migrated to NoSQL.

Tool used (Development tools - H/w, S/w) : Docker, AWS, DynamoDB, MySQL, Kafka, Golang, Redis, Ristretto (local cache)

Objectives of the project : Improving robustness and efficiency of services by improving data stores like caches, databases

Major Learning Outcomes : System design principles
Systems working at large scale, with large data and number of requests
Interaction of services with each other in overall system
Response time metrics, load balancing and failure prevention

Details of Papers/patents : N.A.

Brief Description of working environment, expectations from the company : Fast paced working environment with weekly/bi-weekly production releases.
Expected timely completion of work projects, and great software engineering skills, as well as good communication skills. Many things to learn and absorb.

Academic courses relevant to the project : Computer Networks, Data Structures and Algorithms, Operating Systems, Computer Programming

PS-II Station : Zomato Media Private Limited , Gurugram

Faculty

Name: Ashish Narang

Student

Name: PRATHAM BHATNAGAR(2020A7PS1222G)

Student Write-up

PS-II Project Title: Creation of ads in Zomato

Short Summary of work done during PS-II : Created new ad products in zomato, and created software for allowing merchants and sales people to raise various ads via app or web

Tool used (Development tools - H/w, S/w) : Golang, mongodb, kafka, redis

Objectives of the project : Simplifying creation of ads in zomato and create new products

Major Learning Outcomes : how to write jobs, consumers for various usecases, how to create RPCs for transactional flows and use kafka for async processes

Details of Papers/patents : -

Brief Description of working environment, expectations from the company : Will treat as FTE, learning curve is a bit steep, no time spent on training, will be expected to make changes on production in your 1st or 2nd week, a bit fast paced, good place for learning but can expect very long working hours

Academic courses relevant to the project : OOP, DBMS, OS, DSA

PS-II Station : Zomato Media Private Limited , Gurugram

Faculty

Name: Ashish Narang

Student

Name: SUSHIL NAYAK(2020AAPS0239G)

Student Write-up

PS-II Project Title: Internship in One Support Team at Zomato

Short Summary of work done during PS-II : I was part of the One Support Team at Zomato. We have primarily two stakeholders, our users as well as our support executives (agents). We had to build a system which serves the needs of both these sides. For this, I was part of the backend development team which worked using GoLang and PHP to build out entire chat as well as ticketing system. I implemented multiple features, bug fixes, validations and so on as part of my internship and gained a lot of hands on experience. Zomato also gave me a lot of freedom with respect to ownership of my tasks.

Tool used (Development tools - H/w, S/w) : GoLang, PHP, MySQL, MongoDB, AWS (SQS, S3, Code pipeline), Slack

Objectives of the project : To improve the technology behind the support infrastructure of Zomato, including the chat system as well as the ticketing system.

Major Learning Outcomes : Learnt a lot about the different technological processes in backend software development. Also learnt about code pipelining, deployment and general business principles in relation to development.

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : I didn't really like the working environment. Zomato gave me a lot of ownership of my tasks but this meant that the work hours were long as well as the general expectation of working at non working hours and so on is there. In the process I learnt a lot, but it wasn't a very conducive environment for extra curriculars and so on.

Academic courses relevant to the project : Operating Systems, DSA, Computer Networks, DBMS

PS-II Station : Zoplar - IT , Gurugram

Faculty

Name: Ashish Narang

Student

Name: DHRUV DEHLAN(2019B1A40814G)

Student Write-up

PS-II Project Title: Technological Innovations in Healthcare Procurement: A Comprehensive Study of Zoplar's Admin Panel, eQuote Platform and Website Dynamics

Short Summary of work done during PS-II : As a dedicated front-end developer within the Capability team at Zoplar, I play a pivotal role in shaping and enhancing our technological landscape. I interned here during my past semester where I was assigned the role of developing the company's website front-end. In my current role, I am entrusted with revamping the website with new functionality wherever necessary, ensuring a cutting-edge and user-friendly online presence. Additionally, my focus extends to the development of the Admin panel. The tech stack

used by the company for development is the MERN stack. This stack is a popular and powerful set of technologies used for building web applications and websites.

Tool used (Development tools - H/w, S/w) : HTML , CSS , Javascript , React.js , Node.js , Express.js , MongoDB , Git/GitHub

Objectives of the project : To develop website features and admin panel.

Major Learning Outcomes : Project Management , Problem Solving , Software Development , Product Management .

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : Work environment was good . Manager was very supportive . There was enough time to learn the technologies and build the product.

Academic courses relevant to the project : OOP , DBMS, OS

PS-II Station : Zyduslife , Ahmedabad

Faculty

Name: Bharathi R

Student

Name: VORA BHAVDIP HARESHBHAI(2022H1460218H)

Student Write-up

PS-II Project Title: Understanding and learning of parenteral product development

Short Summary of work done during PS-II : Thoroughly learn different studies from starting to end of generic version for parenteral dosage forms. Like, Stability, compatibility studies, filtration process optimization, lyophilization process development and optimisation.

Tool used (Development tools - H/w, S/w) : Homogeniser, PH meter, DO meter, autoclave, HSO detecting Wilco machine

Objectives of the project : Development of parenteral products for US market

Major Learning Outcomes : Learnt the through process development for generic version of parenteral dosage forms

Details of Papers/patents : NA

Brief Description of working environment, expectations from the company : It's F&D injectable department, where HOD assigning & mentoring the scientists. Where i am assisting the scientists during different studies & batch preparation.

Academic courses relevant to the project : Yes

innovate

achieve

lead



PRACTICE SCHOOL MILESTONES:

- Beginning – 1973
- Opened to all disciplines – 1975
- Inception of PS-I - 1976
- COPSIMS (Computer Operated Practice School Instruction Monitoring System) – 1985
- First PS station abroad – 1991
- PS for Higher Degree – 1992
- Double semester PS for Dual Degree students – 1992
- Combined PS-I operation for Pilani and Goa campuses – 2006
- Combined PS-II operation for Pilani and Goa campuses – 2007
- WEPSIMS (Web Enabled Practice School Instruction Monitoring System) – 2008
- Combined PS-I operation for Pilani, Goa and Hyderabad campuses – 2010
- Combined PS-II operation for Pilani, Goa and Hyderabad campuses – 2011
- BITS Pilani is currently offering scholarship of Rs. 1,10,000/- (for the entire duration of PS-II) to selected PS-II students with CGPA 6.00 and above at various research organizations.
- PSMS (Practice School Management System) – 2014
- Conceptualization of PS Chronicles - 2015
- Digital Content for Skill Set Gap - 2016
- Introduction of Subject Matter Expert (SME) for PS-I Projects - 2017
- Successful implementation of PS-I course in remote mode for 2940 + students during summer 2020 with detailed project identification prior to start of the course.



BITS Pilani

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Practice School Division
PS Chronicles