Report of Internship at
IMMO Information Technology Pvt Ltd

Completed by
Shruti Dalvi | 1904

For the course
MCA Semester VI
Goa Business School, Goa University

Under the guidance of

Mr. Nimish Shikerkar
(COO & Director, IMMO Information Technology Pvt Ltd)

&

Mr. Ismail Shaikh
(Senior HR Executive, IMMO Information Technology Pvt Ltd)

With

Mr. Sudesh Mehta
(CEO, IMMO Information Technology Pvt Ltd)

IMMO Information Technology

27th May 2022

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Shruti Sanjay Dalvi**, student of Master of Computer Applications (MCA) of Goa University, Goa, is currently undergoing her semester VI internship with our organization from 17th January 2022, which will end on 30th June 2022.

During her tenure to date, she has met the expectations of her Team leader and was found to be sincere.

This certificate was issued on her request for project report submission at Goa University.

The final internship certificate will be issued on completing her internship tenure.

For IMMO Information Technology Private Limited.

Mr. Nimish Shikerkar
Director/COO

IMMO INFORMATION TECHNOLOGY PRIVATE LIMITED * PANAJI GOA

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Phone:8459649505
http://www.immoinfotech.com

GOA BUSINESS SCHOOL

Certificate of Evaluation

This is to certify that Miss Shruti S. Dalvi has been evaluated for the project work titled "Report of Internship done at IMMO Information Technology Pvt Ltd." undertaken at IMMO Information Technology Pvt Ltd., Merces Goa, in partial fulfillment for the award of the degree in Master of Computer Applications.

_____ _____

Internal Examiner External Examiner

Date:

Place: Goa University

_____

Dean, Goa Business School,
Goa University

ACKNOWLEDGEMENT

First and foremost, I would like to thank the Goa Business School, Goa University, for giving me the opportunity to carry out an internship and acquire real-world industrial experience.

I thank Mr. Ramdas Karmali and Mr. Mr. Jarret Stevan Anthony Fernandes and all the faculty of MCA, Goa University for their constant encouragement and support during the project work.

I would like to thank IMMO Information Technology Pvt Ltd for allowing me to do this internship and considering me capable to work on such projects.

I would like to express my gratitude to Mr. Sudesh Mehta(CEO, Immo Information Technology) and Mr. Nimish Shikerkarr(COO, Immo Information Technology) for giving me this opportunity and for all the guidance provided to me during the internship.

I would like to extend my gratitude to Mr. Ismail Shaikh(Senior HR Executive, Immo Information Technology) for helping me out when in need.

I am also grateful to Mr. Satvesh Karmali, Mr. Mayur Metri and the members of my team especially for all the help, time, patience, support and encouragement during my internship period.

I would also like to thank Mr. Dattaprasad Chodankar, Mr. Amey Kuvelkar, Mr. Nitendra Priolkar, Mr. Ashik Parab, and the whole IMMO family for providing us the resources and guidance.

I would like to express my special gratitude and thanks to IMMO Information Technology employees for giving me such attention and time.

Finally, I would like to thank my family and friends who guided me in all aspects.

Table of Contents

Introduction

This internship report describes the several tasks/assignments carried out during a 6 months, full time Internship period which commenced on the 17th January 2022 at IMMO Information Technology Pvt Ltd in accordance with the curriculum of the VI semester Industrial Training of the MCA programme, Goa University, Goa.

In the following chapters a small description of the company, the technologies studied and tools used during the internship, and also other mini-tasks that are carried out during the internship are described. This report highlights my learning experience and my contributions to the organization as an intern. However, considering company data security policies, I won't be able to give details of the work I've contributed to.

Finally, I shall conclude by sharing my experience and how it has helped me to grow both professionally and personally.

Company Profile

IMMO Information Technology (IIT) Pvt. Ltd is a dynamic IT products development company based in Panjim, Goa. The company was established as a start-up in 2005 and since then it has been providing offshore software development and related services to the parent company IAZI Zurich, one of the leading Real Estate Consulting Companies in Switzerland (www.iazi.ch) that provides advice and statistical analyses to institutional investors (banks, insurance companies, pension funds, etc.). Among our clients we have Credit Suisse, UBS, BKB, CLER, Swiss National Bank, ABN AMRO Bank, Ernst & Young, Basler Versicherungen, Generali, etc.

IMMO Website : http://immoinfotech.com/

IAZI Website: http://www.iazicifi.ch/

Some of the services and products provided by IMMO

● HEDO online valuation
The valuation of properties is done based on various factors like the locality, dimensions, details of the building, parking spaces, luxury details, etc.

● Location report
Given location address, shows the accuracy level and gives Micro-level ratings ● Nearest Neighbors Given a valid address, and other factors like the level of comparison, property type, and number of comparable properties, it generates a report

● Maps
Shows results based on a given address/area concerning population, taxes, market, the nearby area, noise, etc.

● Offered Rent
Given an address and its properties/characteristics like its type, living surface, number of rooms, built year, etc, it gives the monthly rent of that place

● Rent Calculator
Helps calculating the approximate rent of a particular type of property in any location

● Swiss Property Benchmark
Performance Analyze and real estate benchmark for Real-estate investors.

● HedoLight

HedoLight is more like a plugin that customers can use with their sites, and use to get the approximate prices of properties

● REPM

Portfolio management services like analysis, strategies, and standards for properties, entire portfolios.

Service Team

Tools to transfer and exchange information between clients, partners as well as within the company are very essential to ensure smooth and safe communication and to enhance operational efficiency. However, many businesses do not have a single, comprehensive platform that can be used to store and transfer data, which leads to the use of multiple applications that function in different ways, which in turn can complicate communication and hence affect productivity.

IMMO Information Technology web services enable smooth and safe communication, be it internal or external. With the barrier of OS, platform and language removed, businesses can communicate better.

To ensure all these, we take care of the following:
- Unique Security Model
- Authentication service
- Service hosting framework
- Migration of existing services

I was assigned to the Service Team for training purposes and got an opportunity to learn and contribute to Web-based Dotnet Services.

DOTNET Framework Service

APIs are resources that represent functionality a client wants to invoke - typically modeled as Web APIs. To test these APIs or demonstrate to the clients or within the company, we have developed a dotnet framework web-based application that uses swagger for API documentation. Swagger allows you to describe the structure of your APIs so that machines can read them. By reading your API's structure, we can automatically build beautiful and interactive API documentation. We can also automatically generate client libraries for the API in many languages and explore other possibilities like automated testing. Swagger does this by asking the API to return a YAML or JSON that contains a detailed description of the entire API.

Authentication:

JWT Authentication

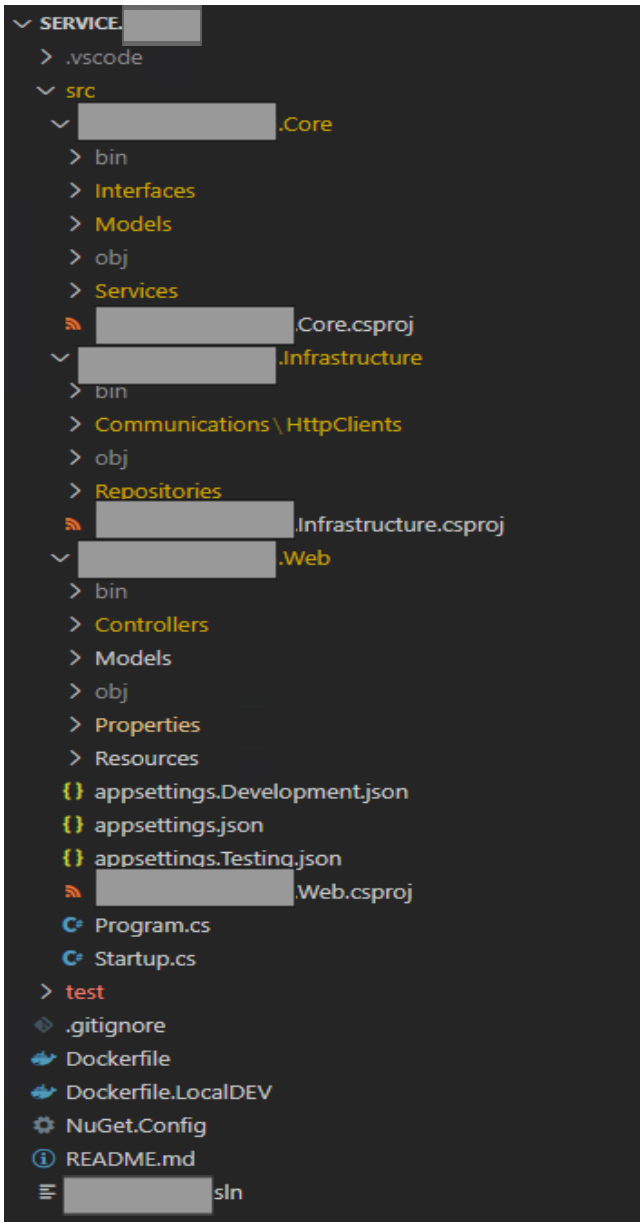
JWT is an open-standard, token-based security technique, where the token is used to identify authorized users. As it is digitally signed, the information is verified and trusted. It is compact and self-contained because it holds the user information itself, and it can be sent via URL, post request, or HTTP header.

How it works is:

- The client logs in with the credentials, in return the server generates a JWT token and returns a response.
- Now, the client sends a copy of the token to see if it's valid or not.
- After validation, the server responds with a status message.

Architecture

IMMO follows a specific architecture in designing the web-based service in the company so that it's easy to understand and to update the project in future.It is given a lot of importance in the company. Classes that might change at the same time and for the same reason should be grouped into components. The business rule components are more stable and should know nothing about the more volatile infrastructure components, which deal with the UI, database, web, frameworks, and other details. The boundary between component layers is maintained by using interface adapters that translate the data between the layers and keep the dependencies pointing in the direction of the more stable inner components.



Tools and technologies used

- Visual Studio Code
- .NET 6

Contribution towards the project :

I was assigned a n endpoint to be created in the Service.Appmaps project similar to that in the Service.Address project.

Endpoint : v1/validateLocation

My responsibilities were a follow :

- Creating controller, request and response model.
- Mapping service.
- Testing the response.

Service Migration

We migrate all the existing projects to new technologies to enhance business functionality. The services were to be migrated to .NET 6.

Tools and technologies used

- Visual studio code
- .NET 6
- Docker

1. REPM migration from .NET 4.5 to .NET 6
   Contribution towards the project
   I was assigned the following endpoints for migration.

    1. v1/getProperty.
    2. v1/getBuildingKeyData.
    3. v1/getDiagnose.
    4. v1/getRisk.
    5. v1/logs.
    6. v1/transferModelInAnalyst.
    7. v1/setBuildingParameters.
    8. v1/setBCasaUsageInConf.
    9. v1/getSelections.
    10. v1/getDocuManager.
    11. v1/getDocuDimensions.
    12. v1/deleteDocuDimensions.
    13. v1/getMappingGroups.
    14. v1/getImportMappingDetails.
    15. v1/getNextSortForDocType.
    16. v1/saveDocuDimensions.
    17. v1/getDocuManagerData.
    18. v1/getRoleTypeDetails.
    19. v1/updateRoleTypeDetails.
    20. v1/updatePersonDetails.
    21. v1/getPersonDetails.
    22. v1/getRoleGridData.
    23. v1/getPersonDropdownData.
    24. v1/getRoleTypeList.
    25. v1/getQCBuildingCount.

26. v1/getHouseOverviewData.
27. v1/getRentMirrorComboData.
28. v1/getContractData.
29. v1/getRentData.
30. v1/getGeneralSurfVolData.
31. v1/getPersonListData.
32. v1/getCategoryObjectType.
33. v1/getSurfaceText.
34. v1/saveContractData.
35. v1/deleteContractData.
36. v1/saveRentData.
37. v1/deleteRentData.
38. v1/saveSurfaceVolumesData.
39. v1/getHouseComboData.
40. v1/getHouseGeneralData.
41. v1/getHouseVolumelDataList.
42. v1/getHouseSurfaceAndVolumeData.
43. v1/internalValidateDetails.
44. v1/macroFullTreeRead.
45. v1/ratings.
46. v1/updateADRSData.
47. v1/saveHouseVolumeData.
48. v1/deleteHouseVolumeData.
49. v1/getQSPortfolioData.
50. v1/checkLomaCopyButtonVisibility.
51. v1/copyLomaDataToADRS.
52. v1/getHouseObjectData.
53. v1/getBSCGridData.
54. v1/reportBSCRatingPDF.
55. v1/reportBSCRating.
56. v1/getBSCRatingPairAndBuildingData.

My responsibilities were a follow :

- To check for the logic and write code in .NET 6.
- Check for the stored procedures.
- Compare the responses of old and new services.

2. Service migration from .NET Core 3.1 to .NET 6

   Contribution towards the project

   I was assigned to migrate the following services to .Net 6.

   - Service.Micro
   - Service.Benchmark

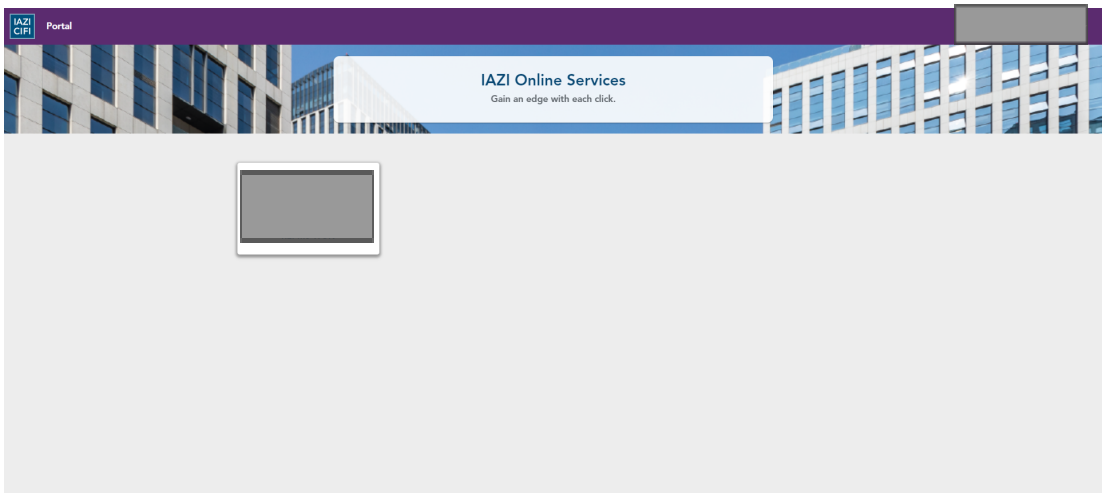
   My responsibilities were a follow :

   - To change the versions to .Net 6.
   - Debug the project and check the service.

Testing

1. REPM 5

REPM stands for Real Estate Portfolio Management that is designed to calculate the price of a property or flat, calculate home loan.It has various tools and modulus under it.



Contribution towards project :
I was assigned some of the modeles to be tested, check for UI and do comparison tests..

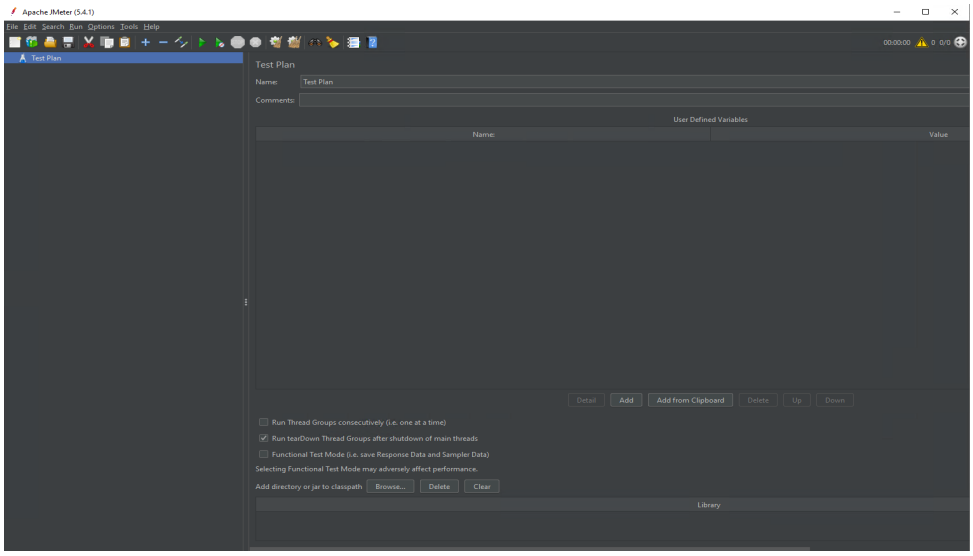
My responsibilities were as follow :

- Compare the results before and after chenages.
- Navigate to features and check for UI.
- Calculate and check the summations.

2. Performance testing using JMeter

Performance testing is one of the most critical phases of any product launch to verify and validate the product performance. It refers to testing a program or software under some specific workload and monitoring how it responds. It checks if the application performs as expected under that load, or if it does something unexpected.

JMeter
The **Apache JMeter** application is open source software, a 100% pure Java application designed to load test functional behavior and measure performance. It was originally designed for testing Web Applications but has since expanded to other test functions.



Contribution towards project :
I was assigned to test macro service with some specific parameters.

My responsibilities were as follow :

- Check for minimum and maximum time a request takes.

3. Model release testing

Contribution towards project :
I was assigned a comparison testing task using 3 different tools.

- Model R
- WebAppHedo
- WCF tool

My responsibilities were as follow :
Testing using each tool and comparing if prices are matching.

4. Configuration testing

Testing of IAZI tools in order to check if the automated creation of users works as expected.

Contribution towards project :
Test the iazi tools and document the status;

My responsibilities were as follow :

- Login using my credentials to check for configuration of the user.
- Check UI
- Check email-password set up.
- And document the test result.

Tools and technologies used

- Visual studio code
- .NET 6

Model Production

Production is done quarterly to update calculations in DLL's. DLL refers to Dynamic Link Library, it is a file containing instructions that other programs can call upon to do certain things.

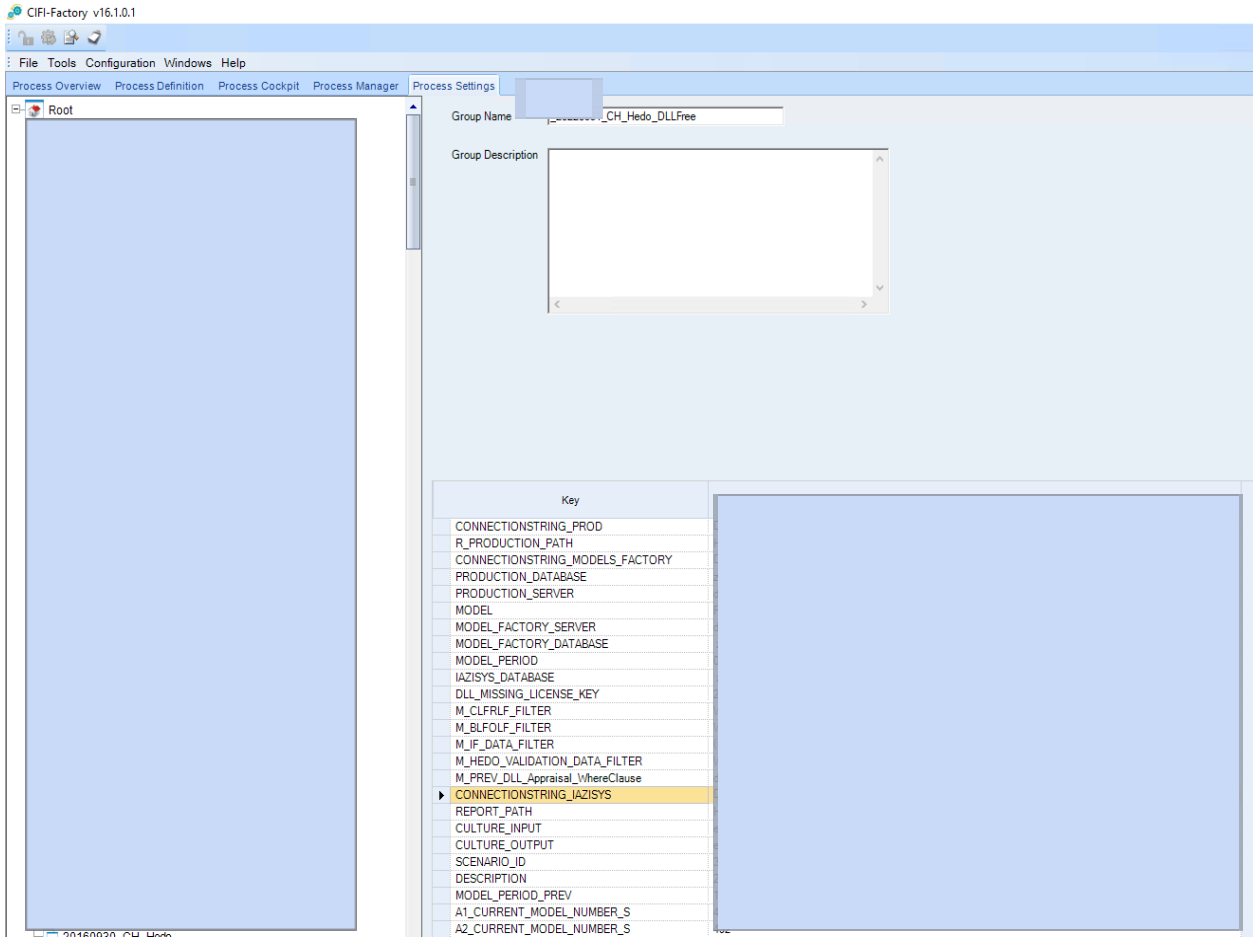
1. Configuring CIFI factory

It's an internal tool used for model production.

Contribution towards project :

Steps for configuration Creating new user

- Production folder.
- Export process.
- Import process.
- Update setting.



2. Austria Price Model Production Configuration

Contribution towards project :

- Update settings for june 2022 production.

3. Switzerland Price Model Production production

Contribution towards project :

- Run process for march 2022 production.
- Verify results after running them.

Other Tasks

1. WebAppHedo

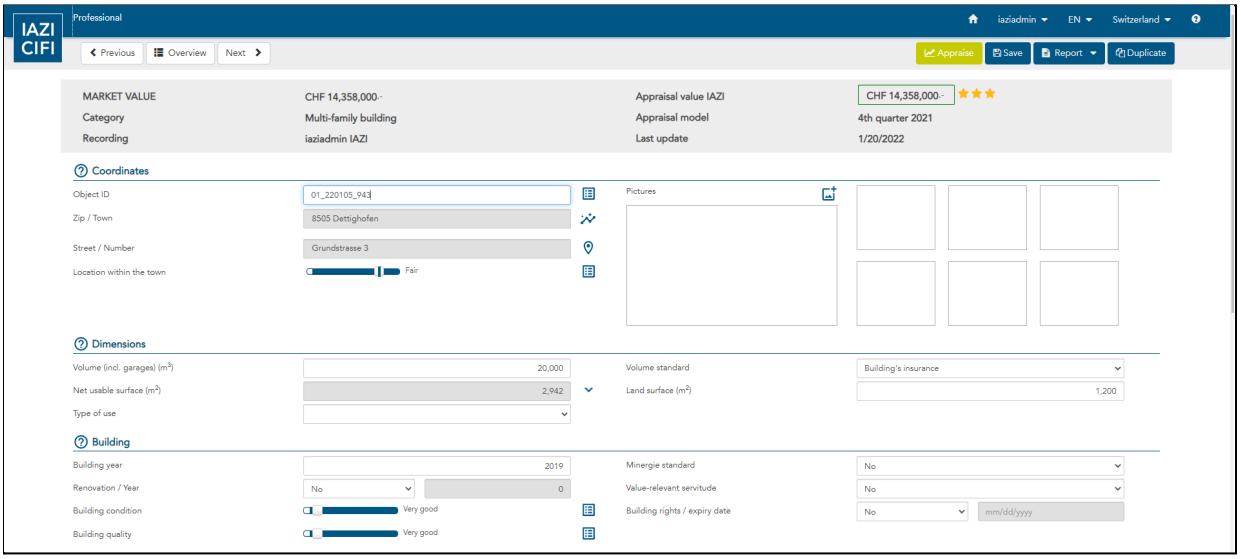
It's a tool for online evaluation wherein one can obtain the market value.

Contribution towards project :

- I was asked to appraise till I got 3 star ratings.

My responsibilities were as follow :

- Change a single parameter at a time.
- Check for appraisal.
- Reset the parameters until the error is gone.



2. Postman collection

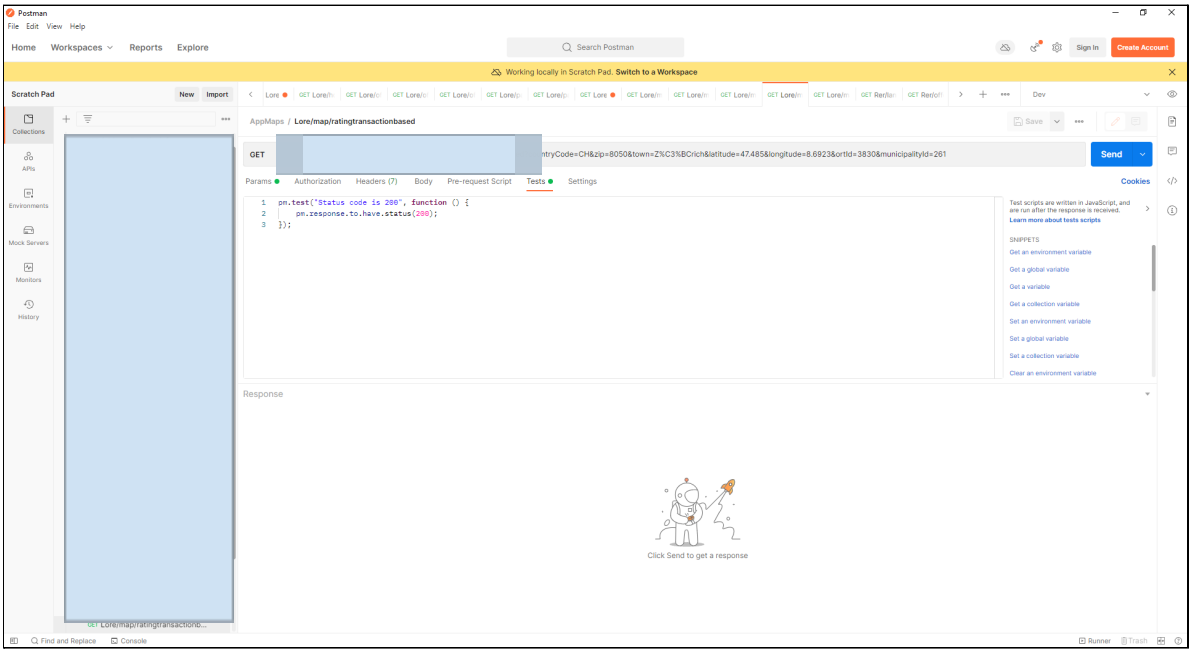
Postman Collections are a group of saved requests. Every request you send in Postman appears under the History tab of the sidebar.

Contribution towards project :

I was assigned to create requests and add tests for service.appmaps .

My responsibilities are as follow:

- Create requests for the mentioned endpoints.
- Add tests for each request.
- Export the project.

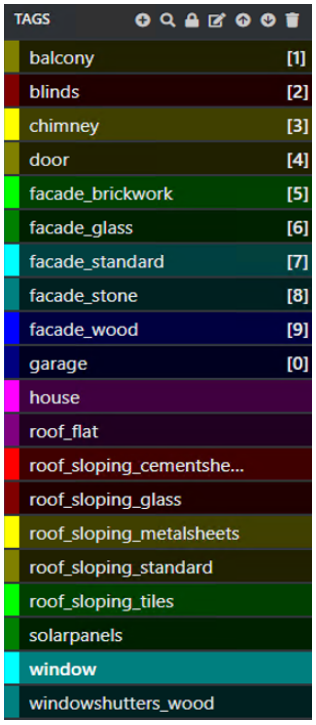


3. Image labeling

Images are labeled using the VoTT tool each object in the image has labeling.

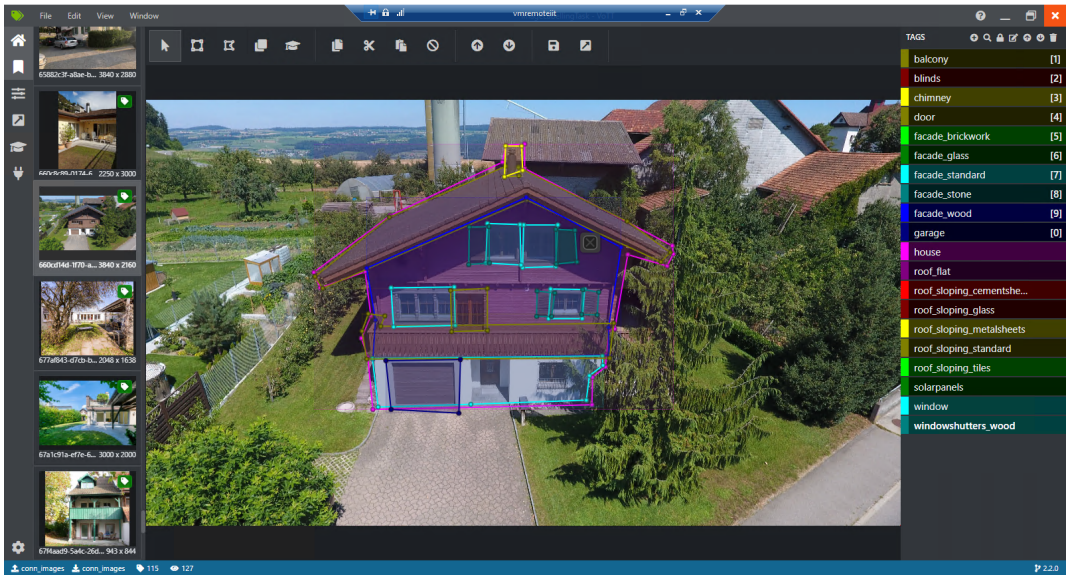
Contribution towards project :

- I was assigned set of images to be labeled.
- Labeled around 700 images.
- Tags are as follow:



My responsibilities are as follow :

- Label the houses as per the mentioned tags.
- Label only the images that are clearly visible.
- Deleting the images that are duplicate or not clear.
- Label each object of the house and finally label the whole house.



Tools and Technologies Used

BitBucket

Bitbucket is a web-based version control repository hosting service owned by Atlassian, for source code and development projects that use either Mercurial (since launch) or Git revision control systems. Bitbucket offers both commercial plans and free accounts. It offers free accounts with an unlimited number of private repositories (which can have up to five users in the case of free accounts). Bitbucket integrates with other Atlassian software like Jira, HipChat, Confluence, and Bamboo.

Visual Studio Code

Visual Studio Code is a source code editor developed by Microsoft for Windows, Linux, and macOS It includes support for debugging, embedded Git control and GitHub, syntax highlighting, intelligent code completion, snippets, and code refactoring. It is highly customizable, allowing users to change the theme, keyboard shortcuts, preferences, and install extensions that add additional functionality. The source code is free and open-source and released under the permissive MIT License The compiled binaries are freeware and free for private or commercial use.

Visual Studio 2017

Microsoft Visual Studio is an integrated development environment (IDE) from Microsoft. It is used to develop computer programs and websites, web apps, web services, and mobile apps. Visual Studio uses Microsoft software development platforms such as Windows API, Windows Forms, Windows Presentation Foundation, Windows Store, and Microsoft Silverlight. It can produce both native code and managed code.

SQL Server 2014 Management Studio

It is a software application first launched with Microsoft SQL Server 2005 that is used for configuring, managing, and administering all components within Microsoft SQL Server. The tool includes both script editors and graphical tools which work with objects and features of the server.

Remote Desktop Connection

Remote Desktop Connection is one of the components of Microsoft Windows that allows a user to take control of a remote computer or virtual machine over a network connection. RDS is Microsoft's implementation of thin client, where Windows software, and the entire desktop of the computer running RDS, are made accessible to a remote client machine that supports Remote Desktop Protocol (RDP). With RDS, only software user interfaces are transferred to the client system. All input from the client system is transmitted to the server, where software execution takes place. This is in contrast to application streaming systems, like Microsoft App-V, in which computer programs are streamed to the client on-demand and executed on the client machine.

Snagit

Snagit is screen capture and screen recording software for Windows and macOS. It was created and developed by TechSmith and was first launched in 1990. Snagit is available in English, French, German, Japanese, Portuguese and Spanish versions.

Apache JMeter

Apache JMeter is a testing tool used for analyzing and measuring the performance of different software services and products. It is a pure Java open source software used for testing Web Application or FTP application. It is used to execute performance testing, load testing and functional testing of web applications.

Postman

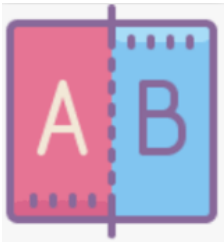
The Postman testing tool is a complete API development platform with various built-in tools that support every stage of the API lifecycle. Postman tool allows you to design, mock, debug, automated testing, document, monitor and publish the APIs - everything from one place.

Vott

Vott Tool is a free and open source electron app for image annotation and labeling developed by Microsoft. The software is written in the TypeScript programming language and used for building end to end object detection models from image and video assets for computer vision algorithms.

Microsoft Excel

Microsoft Excel enables users to format, organize and calculate data in a spreadsheet. By organizing data using software like Excel, data analysts and other users can make information easier to view as data is added or changed.



JSON Compare

JSON Compare helps to Compare and find diff in JSON data. It also provides a different view which helps to find differences in your JSON data. It helps to Compare and find proper differences in JSON Code, JSON files.

Atlasian/ Pedia

Documentation, tutorials and procedure, information, and all the data related to the company are stored here.

Framework & languages used

.NET Framework
.Net core
C#
SQL Server

Internship Timeline

January 2022

Week 1

- Introduction to company and system training.
- Introduction to WebAppHedo tool.
- Learning C#.

Week 2

- Learning SQL Server.
- Introduction to the team.
- REPM-5 testing.
- Explored Lore.Web project.

February 2022

Week 3

- Understanding Transaction Manager.
- REPM-5 testing.
- Explored Lore.Web project.
- Revised SQL Server and C#.

Week 4

- Learning C# : Repository Pattern.
- Learning SQL Server.
- Model Production Training
- Understanding CIFI Factory tool.

Week 5

- Model Production Training : Understanding code.
- Revising SQL.
- Service Migration

Week 6

- Revising SQL and C#.
- Implemented getSelections endpoint to service.REPM5.
- Implemented setBCasaUsageYearInConf endpoint to service.REPM5.
- Implemented setBuildingParameters endpoint to service.REPM5.
- Implemented getQCBuildingCount endpoint to service.REPM5.
- Implemented transferModelInAnalyst endpoint to service.REPM5.
- Revised SQL and C#.

March 2022

Week 7

- Implemented getDocuDimensions endpoint to service.REPM5.
- Implemented getDocumanagerData endpoint to service.REPM5.
- Implemented saveDocuDimensions endpoint to service.REPM5.
- Implemented deleteDocuDimensions endpoint to service.REPM5.
- Implemented getNextSortForDocuType endpoint to service.REPM5.

Week 8

- Implemented getMappingGroups endpoint to service.REPM5.
- Implemented getImportMappingDetails endpoint to service.REPM5.
- CIFI Factory configuration.

Week 9

- Austria Production configuration.
- Implemented getRoleTypeList endpoint to service.REPM5.
- Implemented getPersonDropdownDates endpoint to service.REPM5.
- Implemented getPersonsDetails endpoint to service.REPM5.
- Implemented getRoleTypeDetails endpoint to service.REPM5.
- Implemented updateRoleTypeDetails endpoint to service.REPM5.

Week 10

- Implemented getRentMirrorComboData endpoint to service.REPM5.
- Implemented getContractData endpoint to service.REPM5.
- Implemented getGeneralSurfVolDataendpoint to service.REPM5.
- Implemented getRentData endpoint to service.REPM5.
- Implemented getPersonDataList endpoint to service.REPM5.
- Implemented getCategoryObjectType endpoint to service.REPM5.
- Implemented getPersonListData endpoint to service.REPM5.
- Implemented getSurfaceText endpoint to service.REPM5.
- Implemented saveContractData endpoint to service.REPM5.
- Implemented deleteContractData endpoint to service.REPM5.

April 2022

Week 11

- Implemented saveRentData endpoint to service.REPM5.
- Implemented deleteRentData endpoint to service.REPM5.
- Implemented saveSurfVolData endpoint to service.REPM5.
- Implemented internalValidateDetails endpoint to service.REPM5.
- Implemented macroFullTreeRead endpoint to service.REPM5.
- Implemented ratings endpoint to service.REPM5.
- Implemented BSCGridData endpoint to service.REPM5.
- Testing IAZI tools.
- Testing WebAppHedo vs ModelR.

Week 12

- Testing WCF tool vs ModelR.
- Implemented checkLomaCopyButtonVisibility endpoint to service.REPM5.
- Implemented copyLomaDataToAdvs endpoint to service.REPM5.
- Model production.

Week 13

- Test production
- Adding a new model to the Model Factory project.

Week 14

- Understanding code for the Model Factory project.
- Working with CIFI Factory.
- Learning C#.
- Documenting Service Migration.
- Image labeling using VoTT tool.

Week 15

- Image labeling using VoTT tool.

May 2022

Week 16

- Image labeling using VoTT tool.

Week 17

- Image labeling using VoTT tool.

Week 18

- Image labeling using VoTT tool.
- Model production.
- Migrating service.Micro from .Net core to .Net 6.
- Migrating service.Benchmark from .Net core to .Net 6.
- Debugging Service.NearestNeighbour project.
- KT session.

Week 19

- Image labeling using VoTT tool.
- KT sessions.
- KnowBe4 training.
- Created requests in Postman Collection for service.AppMaps.
- Added tests for requests in Postman Collection for service.AppMaps

June 2022

Week 20

- Image labeling using VoTT tool.
- KT sessions.
- Performance testing service using JMeter.
- Implemented ValidateLocation endpoint for service.appMaps.
- Learning C# : Message Queue concept.

My Reflections/Experiences of Internship

My internship period of six months has been amazing which taught me a lot about the Information Technology industry. Last five months in this Company have been truly an amazing and great experience to work in such a well maintained, disciplined and reputed workspace. This was my step into Corporate Life. It was a completely new environment where I first encountered the transaction between student life and industry life with new roles and responsibilities. Initially it was hard adapting to a very new place but slowly I got settled very well.

I learned a lot in our years through college and university, but applying all of that into real world applications has been hugely beneficial and a morale booster. In my opinion, the best way to learn is by practicing things that we learnt theoretically. I am truly thankful for this opportunity.

We had so much to learn about the company itself, as to what kind of projects it deals with, who are the clients, what are the company traditions, etc. To help us understand the company more, and give an idea of what each team in the company does, every first Saturday of the month each team explains their work using presentations.

To conclude, this internship has inspired me to pursue a career in the field of software development technology and to excel in it. It was a great learning experience and I consider myself honored for being a part of IMMO Information Technology Pvt. Ltd.

Self Study

- https://www.tutorialspoint.com/csharp/csharp_reflection.ht
- https://www.tutorialsteacher.com/question-answer/csharp/operators
- https://www.w3schools.com/cs/cs_exercises.php
- https://dotnettutorials.net/lesson/repository-design-pattern-csharp/
- https://www.sqlshack.com/sql-server-stored-procedures-for-beginners/
- https://www.tutorialsteacher.com/online-test/csharp-test1
- https://www.w3schools.com/quiztest/quiztest.asp?qtest=SQL
- Completed course on Security Snapshots from KnowBe4.

References

- http://immoinfotech.com/
- https://learning.postman.com/docs/getting-started/creating-the-first-collection/#:~:text=Postman%20Collections%20are%20a%20group,particular%20request%20in%20your%20history.
- https://jsoncompare.org/
- https://en.wikipedia.org/wiki/Dynamic-link_library