

Internship at IMMO Information Technology Pvt Ltd

An Internship Report for

Course code and Course Title: CSA 652 - Industry Internship/Software project

Credits: 16

Submitted in partial fulfilment of Masters Degree

Masters of Computer Application

by

Savio Silveira

Seat Number: 2225

ABC ID: 166-177-043-610

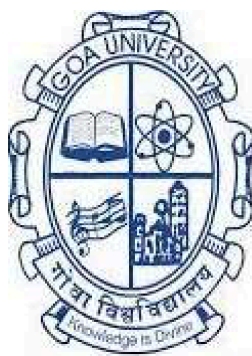
PRN: 201902462

Under the Mentorship of

Mr. Ramrao Wagh

Goa Business School

Discipline of Computer Science & Technology



Goa University

Date: 05 June 2024

Examined by:

Seal of the School

DECLARATION BY STUDENT

I hereby declare that the data presented in this Internship report entitled, “**Report of Internship at IMMO Information Technology Pvt Ltd**” is based on the results of investigations carried out by me at IMMO Information Technology Pvt Ltd, under the mentorship of Mr. Ramrao Wagh and the same have not been submitted elsewhere for the award of a degree or diploma by me. Further, I understand that Goa University or its authorities will not be responsible for the correctness of observations / experimental or other findings given the internship report. I hereby authorize the University authorities to upload this dissertation on the dissertation repository or anywhere else as the UGC regulations demand and make it available to any one as needed.

Signature and Name of Student

Seat no:

Date:

Place: Goa University

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OFFER LETTER



05th January 2024

Savio Silveira,
BS-4 Filomena Complex,
Moloca, Mercers, Tiswadi - Goa,
Mob - 9637196041

Sub: Offer for Trainee as part of Internship for Semester VI - MCA

Dear Savio,

We take pleasure in inviting you to join IMMO Information Technology team as a **Trainee Software Developer - Intern, as part of Internship for Semester VI – MCA at Mercers, Goa.**

WORK TIMINGS, LEAVES AND REMUNERATION:

- **Training Period:** From 08th January 2024 to 30th June 2024.
- **Working hours:** When working from office the timings will be 9:00 am to 6:00 pm (1:00 pm to 2:00 pm Lunch break). While working from home the timings will be 12:00 pm to 9:00 pm. (1:30 pm to 2:00 pm Lunch break & 04.30 pm to 05.00 pm tea break).
- **Leaves:** 06 leaves during the period. Public holidays as decided for the year.
- **Working days:** 5 days week (Saturday & Sunday Off). 01st Saturday of the month is a training Saturday.
- You will be governed by the timings and the hours of work applicable to the establishment wherein you are posted, and you may be called upon work, as required.
- Your remuneration for the period would be ₹ 15,000/- (Rupees Fifteen Thousand Only) per month from 08th January 2024.

At the end of the training period you may be offered a position in the company only on successful completion of the tasks assigned to you during training period and your suitability as per the ongoing projects that time, subject to management decision. Management may also decide to extend or terminate your tenure based on your training assessments.

We once again welcome you at IMMO Information Technology and look forward to your contributions in growing the business with the team here.

Best Wishes,

Nimish Shikerkar
COO/Director



I have read the offer letter and I am happy to accept training at IMMO Information Technology. I will be joining Mercers office on 08th January 2024 and look forward to being a part of the IMMO Information Technology Team.

(Savio Silveira) (Sign)

CMM Commercial Complex, 1st Floor, Survey No. 21/10 Renovadi, Mercers Tiswadi, Goa 403005

Phone: 8459649505

<http://www.immoinfotech.com>

INTERNSHIP CERTIFICATE



30th April 2024

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Savio Silveria**, student of Master of Computer Application (MCA) of Goa University, Goa, is currently undergoing his semester IV internship with our organization from 08th January 2024, which will end on 30th June 2024.

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

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

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

For IMMO Information Technology Private Limited.

A handwritten signature in blue ink, appearing to read 'Nimish Shikerkar', is written over a horizontal line.

Mr. Nimish Shikerkar
Director/COO



CMM Commercial Complex, 1st Floor, Survey No. 21/10 Renovadi, Mercers, Tiswadi, Goa 403005
Phone: 8459649505, <http://www.immoinfotech.com>

COMPLETION CERTIFICATE

This is to certify that the internship report “**Report of Internship at IMMO Information Technology Pvt Ltd**” is a bonafide work carried out by **Mr. Savio Silveira** under my mentorship in partial fulfilment of the requirements for the award of the degree of Masters of computer Application in the Discipline of Computer science and Technology at the Goa Business School, Goa University.

Signature and Name of Mentor

Date:

Signature of Dean of School/HoD

School/Department Stamp

Date:

Place: 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. Ramrao Wagh 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(HR Manager, Immo Information Technology) for helping me out when in need.

I am also grateful to Mr. Satvesh Karmali(Team Lead, Service Team, Immo Information Technology),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.

EXECUTIVE SUMMARY

Starting 08 January 2024 I began my internship at IMMO information technology pvt ltd.

Diving into Software development and testing focusing on technologies like C#, .NET, SQL, Redis/Redis-Stack, Jmeter. The company's innovative approach, dedication towards product development and constant support towards my learning phase was a great help in my professional growth in an excellent learning environment.

Organization overview :

Established in 2005, IMMO InfoTech emerged with the aim of providing IT services to IAZI (www.iazi.ch), its parent company. It didn't take them long to expand their expertise from real estate to specialized IT services, meticulously designed to meet the specific needs of businesses operating in a competitive digital world.

Task Handled :

During the tenure of my internship, I got opportunities to handle a wide variety of tasks which ranged from Legacy code maintenance, service migration, implementing new features in existing projects, API testing, writing APIs, doing research of different tools that can be added to the projects for improving code quality.

Learning Outcomes :

The internship at IMMO information technology pvt ltd. was instrumental in enhancing my technical and professional abilities, during this internship i became proficient in various programming languages and technologies notably Dotnet, Redis alongside skills in Git, and other technologies like GreyLog, Jmeter
My problem solving skills were sharpened through hands on experiences with technologies

ABOUT THE ORGANIZATION

Established in 2005, IMMO InfoTech emerged with the aim of providing IT services to IAZI (www.iazi.ch), its parent company. It didn't take them long to expand their expertise from real estate to specialized IT services, meticulously designed to meet the specific needs of businesses operating in a competitive digital world.

The team at IMMO InfoTech comprises software experts who have been delivering specialized IT services for over a decade. With more than seventy software engineers, their team is highly diverse and possesses comprehensive knowledge in software development. They position themselves as the one-stop solution for all software development requirements, stepping forward as partners in fostering digital innovation.

As a team of software experts, they empower enterprises with custom software solutions, meticulously tailored to their specific requirements. They assist clients in going beyond off-the-shelf software solutions, accelerating business processes. Improving operational efficiencies, reducing time to market, and establishing program/PLM processes are among the facets covered by their software services.

Website: <https://immoinfotech.com>

Industries: Information Technology and Services

Company size: 70+ employees

Headquarters: Switzerland.

Operating Center: Merces, Goa

Type: Privately Held

Founded: 2005

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.

- **Ecocheck**

Get an assessment of the energy efficiency and renovation planning of your property with just a few details

TEAMS AT IMMO INFORMATION TECHNOLOGY

The Team of IMMO INFORMATION TECHNOLOGY is further divided into teams as followed

- **Management Team**
- **REPM5 Team**
- **Web Team**
- **Testing Team**
- **Dashboard Team**
- **Maps_PRO Team**
- **Service Team**
- **Mobile Team**
- **Data Scientist Team**
- **AI Team**
- **Design Team**
- **SPB Team**
- **Data Crawler Team**
- **System Team**

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

TASKS HANDLED

1 - REPM5 Service Migration :

Migrate some endpoints from old service to new service technologies to enhance business functionality. The services were to be migrated to .NET6

My Responsibilities :

- Creating controllers.
- Request and response model.
- Mapping service.
- Testing the response.
- Comparing both output from new service to old service

Tools and technologies used :

- Visual studio code
- .NET 6

2 - Time logging :

Adding Elapsed time column to a database table to store difference between request time and response time, in milliseconds.

DATEDIFF (ms, @RequestTimeStamp, @ResponseTimeStamp);

My Responsibilities :

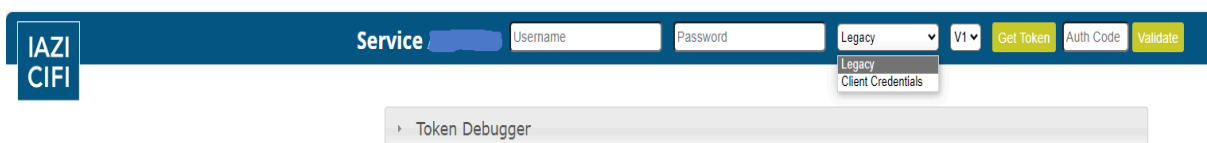
- Adding column to the database Log table.
- Modifying ServiceLog SP to calculate the time difference using DATEDIFF.

Tools and technologies used :

- Visual studio code
- MSSQL
- Remote desktop

3 - Swagger improvements

Adding IdentityServer client_credential based auth option for swagger.



```

case 3:
$.ajax({
  type: "POST",
  headers: { "Content-Type": "application/x-www-form-urlencoded; charset=UTF-8" },
  data: {
    client_id: $('#input_username').val(),
    client_secret: $('#input_password').val(),
    grant_type: 'client_credentials',
    scope: 'openid'
  },

  url: authConnectTokenUrl,

  error: function (err) {
    key = "";
    var apiKeyAuth = new window.SwaggerClient.ApiKeyAuthorization("Authorization", "Bearer " + key, "header");
    window.swaggerUi.api.clientAuthorizations.add("key", apiKeyAuth);
    changeBtnColor('orange');
  },
  success: function (data) {
    if (data != null && data != "")
      key = data["access_token"];
    if (key != "") {
      var apiKeyAuth = new window.SwaggerClient.ApiKeyAuthorization("Authorization", "Bearer " + key, "header");
      window.swaggerUi.api.clientAuthorizations.add("key", apiKeyAuth);
      editor_encoded.setValue(key);
    }
    if (key == null) {
      changeBtnColor('orange');
    }
    else {
      changeBtnColor('green');
    }
  }
});
break;

```

My Responsibilities :

- Adding UI drop down element to allow to switch auth option.
- Implementing the login functionality using javascript/JQuery (ajax).

Tools and technologies used :

- Visual Studio 2013
- HTML5
- Javascript / JQuery

4 - Depreciating old REPM5 endpoints

Add a deprecated message in XML documentation (Swagger).

Use Attribute [Obsolete("message")] to mark endpoints as obsolete in swagger.

Comment on the function body.

return NotFound(); - 404 status.

```

/// <summary>
/// [redacted] is deprecated, Please refer the new .net 6 service. ← 1
/// </summary>
/// <param name="culture">Culture</param>
/// <returns></returns>
[Authorize]
[HttpPost]
[Obsolete("[redacted] is deprecated, Please refer the new .net 6 service.") ← 2]
[Route("v1/[redacted]")]
[SwaggerOperation(Tags = new[] { "[redacted]" })]
public async Task<IHttpActionResult> [redacted]([FromBody] [redacted], string culture = "de-CH")
{
    //try
    //{
    //    string errorMessage = "";
    //    if (!IsAuthorized(out errorMessage)) return ResponseMessage(Request.CreateResponse(HttpStatusCode.Unauthorized, errorMessage));
    //}
    //catch (Exception ex)
    //{
    //    return ErrorAsync(ex, this.Request.RequestUri.ToString());
    //}

    object result = [redacted](culture);
    return Ok(result);
}

return NotFound(); ← 4
}

```

My Responsibilities :

- Checking all the endpoints which are done/completed and pushed to production.

Tools and technologies used :

- Visual Studio 2013
- .NET

5 - API endpoints testing using postman

Provided Postman Collection to add default value to each endpoint and Test all API endpoints using postman to ensure they are working as expected.

The screenshot shows the Postman interface with a collection named 'Service' and a test run titled 'Service - Run results'. The test run was executed on Feb 06, 2024 at 17:53:12. The results table shows 15 tests passed, 0 failed, and 0 skipped. The table columns are Source, Environment, Iterations, Duration, All tests, and Avg. Resp. Time. The test results for 'GET' requests are shown below the table, indicating 'PASS' status and 'Status code is 200'.

Source	Environment	Iterations	Duration	All tests	Avg. Resp. Time
Runner	EcoCheck	1	32s 624ms	15	1988 ms

All Tests: Passed (15) Failed (0) Skipped (0)

Iteration 1

GET [redacted] 200 OK 1095 ms 1.461 KB

GET [redacted] 200 OK 6594 ms 199.11 KB

Tools and technologies used :

- Postman

6 - Shared Library update

Minor shared library update on project. This library has essential/common packages that are required to run the application. eg. custom dapper ORM, swagger, redis client etc etc

Tools and technologies used :

- Visual Studio Code
- .NET

7 - Implement redirection from legacy to new service for missing models

The following models must be available in legacy:

1. v2/rcch
2. v3/eech
3. v2/cpch/multifamilyhouse
4. v2/cpch/house

Create Endpoint, Request/Response models for each endpoint and call new service using HttpClient in ServiceCallClient.

Tools and technologies used :

- Visual Studio 13
- .NET

8 - Adapt V4 service for natural hazards.

Integrate the attributes water, landSlide, avalanche and rockFall from <table> into the existing v4/naturalhazard/info service response.

My Responsibilities :

- Modify Stored procedure & Left join to get data based on common ID.
- Modify response model in service to allow new data.

Tools and technologies used :

- Visual Studio Code
- .NET 8

9 - Converting code written in python to C#

My Responsibilities :

- Converting functions written in python to C#.

Tools and technologies used :

- Visual Studio Code
- Python
- C#

10 - Implement Address Search endpoint.

Implement Endpoint that uses redis-stack FT.SEARCH functionality to Fuzzy search address on specific index. Uses Fuzzy Wuzzy (Fuzzy Sharp) to match the best score and return the result.

Basic ex: FT.SEARCH <index> “@<tag>: %Thugauerstrasse%”

Then match the input string to the redis search result. using fuzzySharp algorithm.

Tools and technologies used :

- Visual Studio Code
- .NET 8
- Redis Insight, CLI

11 - Python script.

Create a python script to test the endpoint. Input is provided in excel, read the row from excel and call http request and store the response in excel.

	A	B	C	D	E	F	G	H	I
1	Id	Street	Zip	Town		Matched Case	lvlId	level	score
2	1	Kleinhaus 60	4943	Oeschenbach		Kleinhaus 60 4943 Oeschenbach	6	ADDRESS	100
3	2	Versoix, quai de 17	1290	Versoix		Quai de Versoix 17 1290 Versoix	8	ADDRESS	100
4	3	Terbinerstrasse	3930	Visp		Terbinerstrasse 3930 Visp	6	STREET	100
5	4	Village, rue du	1996	Brignon (Nendaz)		Rue du Village 1996 Brignon (Nendaz)	6	STREET	99
6	5	Sous-la-Rive 97	2743	Eschert					
7	6	Lullin, chemin 17	1256	Troinex		Chemin Lullin 17 1256 Troinex	6	ADDRESS	98


```

121 def main():
122     print_ascii_banner()
123     (max_workers, testInFilename, access_token) = cmd_line_args()
124
125     if access_token is None:
126         access_token = connectToken()
127         if access_token is None:
128             exit()
129
130     test_data = read_file(testInFilename)
131     results = []
132     total_rows = len(test_data)
133     progress_bar = tqdm(total=total_rows, desc='Processing', unit='row')
134     with ThreadPoolExecutor(max_workers=max_workers) as executor:
135         futures = []
136         for i, row in test_data.iterrows():
137             future = executor.submit(callFuzzymatchApi, row, access_token)
138             future.add_done_callback(lambda p: progress_bar.update(1))
139             futures.append(future)
140
141     results = [future.result() for future in futures]
142
143     wait(futures)
144     progress_bar.close()
145
146     with lock:
147         print("\n\nWriting results to file...\n\n")
148         write_results_to_file(testInFilename, results)
149
150 if __name__ == "__main__":

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
 PS D:\fuzzymatch> python fuzzy.py -f test.xlsx --access-token 0E8348A26B2C74ED35A842B5A3E4727E2E44FCF7652C2DF7FBAC703CD4680B-1

FuzzyMatch

Processing: 100%

Writing results to file...

.....X..... DoneX.....

Tools and technologies used :

- Visual Studio Code
- Python

11 - SP Error Logging

We need to ensure all endpoints insert error logs in case any error happens.
For DB we use Dapper along with a custom method in the shared library.

Here is the idea. EXEC [DB_NAME].SP_NAME @input @output

SP return output (returnCode and returnMessage) based on logic.
based on that throw `TechnicalErrorException` in application

Tools and technologies used :

- Visual Studio Code
- .NET 8
- SQL Server
- GreyLog

12 - Address AV2.0 refactoring

Refactor validate endpoint, Implement new SP's for address , street and macro level (zip town), Also implement redis gwr & fuzzymatch endpoint call.

It's ongoing task

Tools and technologies used :

- Visual Studio
- .NET
- SQL Server

13 - Jmeter testing for Av2.0

Check v2/validate & v5/validate performance/load testing with old Av service.

Thread - 5, 10, 20

Loop - 1000

Use different cases to check for all code coverage and av performance

Tools and technologies used :

- RDP
- Jmeter

LEARNINGS

Tools & Technologies

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 integrates with other Atlassian software like Jira, HipChat, Confluence, and Bamboo.

Visual Studio Code



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. 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 2013



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).

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.

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.

Swagger



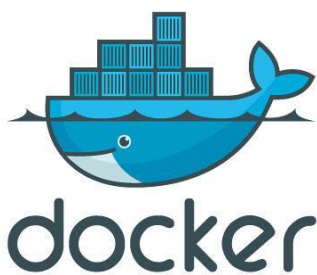
Swagger is an Open Source set of rules, specifications and tools for developing and describing RESTful APIs. The Swagger framework allows developers to create interactive, machine and human-readable API documentation.

API specifications typically include information such as supported operations, parameters and outputs, authorization requirements, available endpoints

and licenses needed. Swagger can generate this information automatically from the source code by asking the API to return a documentation file from its annotations.

Swagger helps users build, document, test and consume RESTful web services. It can be used with both a top-down and bottom-up API development approach. In the top-down, or design-first, method, Swagger can be used to design an API before any code is written. In the bottom-up, or code-first method, Swagger takes the code written for an API and generates the documentation.

Docker



Docker is an open platform for developing, shipping, and running applications. Docker enables you to separate your applications from your infrastructure so you can deliver software quickly. With Docker, you can manage your infrastructure in the same ways you manage your applications. By taking advantage of Docker's methodologies for shipping, testing, and deploying code, you can significantly reduce the delay between writing code and running it in production.

Languages & frameworks

.NET Framework

.NET is a developer platform made up of tools, programming languages, and libraries for building many different types of applications.

There are various implementations of .NET. Each implementation allows .NET code to execute in different places—Linux, macOS, Windows, iOS, Android, and many more.

.NET Framework is the original implementation of .NET. It supports running websites, services, desktop apps, and more on Windows.

.NET is a cross-platform implementation for running websites, services, and console apps on Windows, Linux, and macOS. .NET is open source on GitHub. .NET was previously called .NET Core.

C#

C# is a general-purpose high-level programming language supporting multiple paradigms. C# encompasses static typing, strong typing, lexically scoped, imperative, declarative, functional, generic, object-oriented (class-based), and component-oriented programming disciplines.

As of November 2023, the most recent stable version of the language is C# 12.0, which was released in 2023 in .NET 8.0.

Python

Python is a versatile and powerful programming language that is widely used for various tasks such as web development, data analysis, scientific computing, and automation. It has a clear and readable syntax, making it a great choice for both beginners and experienced developers.

Redis-Stack

Redis Stack was created to allow developers to build real-time applications with a backend data platform that can reliably process requests in milliseconds or less. Redis Stack does this by taking the original Redis OSS as the core and enhancing it with modern data models, data processing tools, and continuing to fight complexity at every turn. Ultimately, the goal of Redis Stack is to build a real-time data platform that continues to fulfill the philosophy of Redis OSS: simplicity, performance, and reliability.

Redis Stack unifies and simplifies the developer experience of Redis by offering all the cutting-edge features provided by the leading Redis features. Redis Stack bundles the following features into Redis: JSON, Search and Query, Time Series, and Probabilistic

CHALLENGES

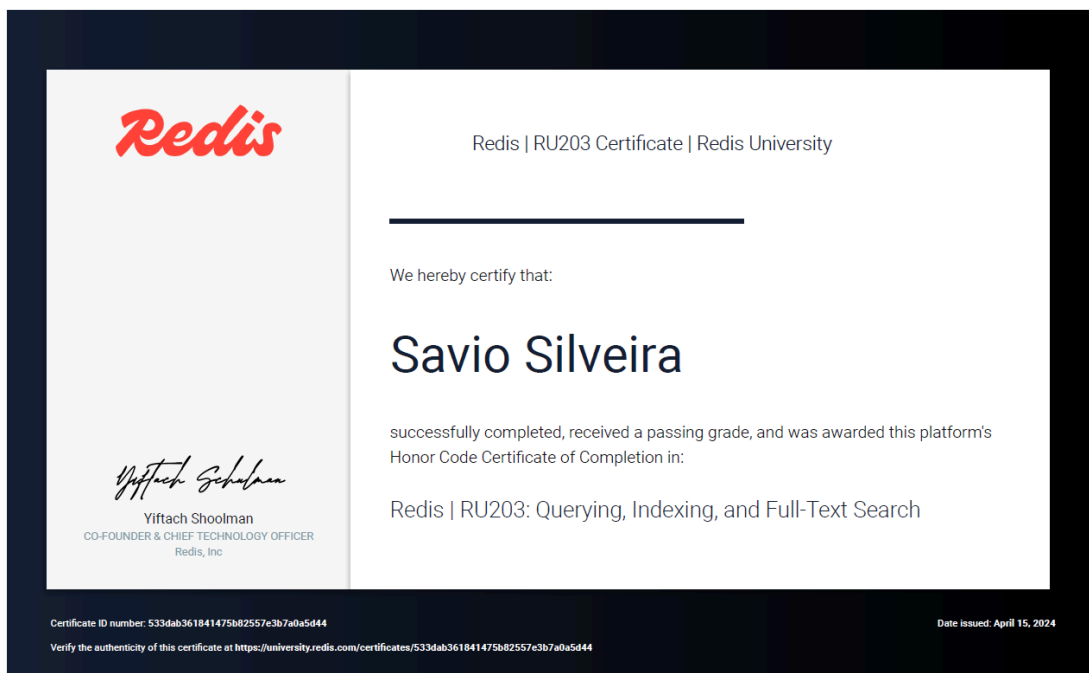
During my internship at IMMO Information Technology, I discovered a significant gap between the knowledge acquired from my curriculum and the skill set required to thrive in the job market. Upon joining the internship, I was assigned to the Service team, which utilized technologies such as .NET, C#, and Identity Server. These technologies were entirely new to me, and it took considerable time to familiarize myself with them, as they were not covered in my MCA curriculum.

Additionally, although I learned about Database Management Systems (DBMS) during my MCA, I had no practical experience with how Stored Procedures (SP) are actually used in applications. Furthermore, I had never worked with technologies such as Redis or FT.Search before. Debugging was another area in which I lacked experience, having never used debugging tools during my academic studies. Also, as I did not take the software testing general elective subject, testing was a completely new area for me, including Unit Testing, Integration Testing, and Performance Testing.

These experiences highlighted the gap between academic learning and practical application, emphasizing the importance of gaining hands-on experience with industry-standard tools and technologies.

SELF LEARNING

1. <https://learn.microsoft.com/en-us/dotnet/api/>
2. <https://dotnettutorials.net/>
3. <https://www.sqlservertutorial.net/>
4. <https://university.redis.com/>



REFERENCE