



Islamic University of Technology

and

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An IT and Digital Company

Red.Digital Limited

SWE 4790 Internship Report

Internship Period:

16 May, 2022 - 16 September, 2022

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BSc in Software Engineering Program

Department of Computer Science and Engineering

Islamic University of Technology

This internship report has been submitted in order to satisfy the requirements for the course SWE 4790 Internship in the Bachelor of Science in Software Engineering Programme.

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1 Introduction

The Islamic University of Technology's BSc in Software Engineering program includes a 9.0 credit, in-depth internship module where students are placed in software industries for three to five months to gain industrial experience. I gained knowledge of the real working environment, which was highly relevant to my course work, in accordance with the goals of the internship program. I'm really thrilled to have the opportunity to work in this field because I want to understand how the software industry develops products used by clients by meeting functional and other requirements.

As a software developer intern at Red.Digital Ltd, I was assigned to the RPA Team. My job was to contribute to the development of RPA solutions and deliver them to our client Robi or to Red.Digital's other departments. Additionally, I assisted in building Django-built web application code that was version controlled. My knowledge and confidence have both increased as a result of this experience, and I've better prepared myself for the difficulties ahead.

During my internship, I dealt with a variety of technical and non-technical problems. Because my team mates were constantly supportive, getting through these were not too difficult. The extensive experience I gained enabled me to properly utilize and learn aspects like teamwork in group projects.

As a result, the internship gave me the chance to broaden my knowledge and identify my strengths and shortcomings, both of which will be useful for my future job. My internship inside the bachelor's program was approved by The Islamic University of Technology, which will help my career going forward.

1.1 Background

I started working with Red.Digital Limited on May 16, 2022. I was allocated to the IT Platform's e-commerce division and joined the RPA Team after a week. I also got to know a few teammates and coworkers from other teams and departments. After that, I attended a couple briefings regarding our work and my role in it.

1.2 Objective

There are four primary objectives for the internship program.

1. To educate students by giving them early exposure to the industry.
2. To enable students to put their academic knowledge into practice and obtain practical knowledge from a company
3. To equip students with the skills they need to act responsibly in a corporate setting
4. To stay current with relevant technology and skills required in the industry, and, if necessary, to re-evaluate the university's curriculum to match what is required in the industry.

1.3 Scope

The following is included in the report:

- The requirements of the internship program
- Details about the organization where I was employed
- Details about the team and my involvement with them
- Details about my contributions to the organization
- Details about what I gained from the program

2 Company Overview

My BSc in Software Engineering required that I work for a software company after completing my sixth semester at Islamic University of Technology. I submitted applications to work in a number of software firms. Then Red.Digital Limited sent me an offer letter, and I accepted.

2.1 About

Red.Digital Limited is a wholly owned subsidiary of Robi Axiata Limited that provides IT and digital solutions. By providing cutting-edge, locally developed, cost-effective IT applications, Cloud DC, and IoT solutions, among others, Red.Digital Limited hopes to assist the Government of Bangladesh in achieving its digital ambitions for the nation.

2.2 History

They were once part of Robi Axiata, Bangladesh's second-largest mobile network operator's DevOps branch. They split off in 2019 and now provide IT services to customers besides Robi Axiata. Since that time, they have kept on offering top-notch services to Bangladesh's IT sector.

2.3 Mission and Vision

Red.Digital Limited is dedicated to establish dynamic changes with quality products and services. Their efforts involve establishing a high level of customer benefits with unquestionable methods and ethical approaches.

Red.Digital Limited envisions to extend their business beyond the boundary.

2.4 Location

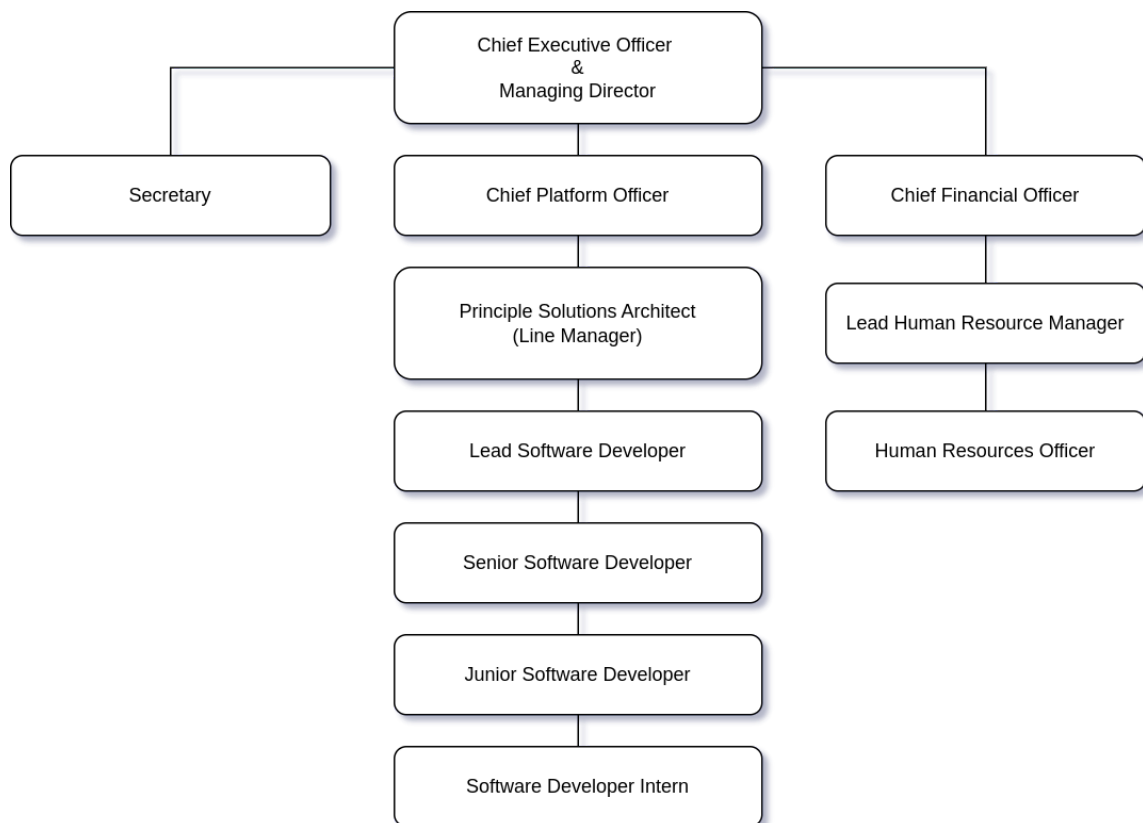
Corporate Office:

57 & 57/A, Uday Tower (15th Floor), Gulshan 1, Gulshan Avenue, 1212 Dhaka, Bangladesh

Registered Office:

Ward: 03, Holding: B - 2, Bangabandhu Hi Tech City, Kaliakair, Gazipur, Dhaka - 1751, Bangladesh

2.5 Organogram



This is the company Organogram. The CEO and Managing Director are the same individual. Directly under him are the Secretary, Chief Financial Officer, and Chief Platform Officer. The CPO has four Principle Solutions Architects who serve as the department's line managers for the rest of the staff. Each team in their department is headed by a Lead Software Developer. The Senior and Junior Software Developers of each team are listed after that. Us, The Software Developer Interns are the last. Depending on the task, I either reported to the principal solutions architect or a senior software developer.

2.6 Products and Clients

Red.Digital Limited is a service-based company. Here is a list of services with descriptions:

- **Data Center Solutions** - Their state-of-the-art modular data center solutions make it possible to safeguard mission-critical data while upholding the highest standards of safety and dependability.
- **Cloud & DevOps** - They offer their clients cloud & DevOps consultancy, which aids in automating and standardizing procedures, improving operational effectiveness, and improving deployment quality.
- **IT Security Services** - They are able to install the encryptions and protocols that the client requires by using their extensive threat audits to pinpoint the most important vulnerabilities in the infrastructure of the client.
- **AI & Machine Learning** - They offer software development services for AI and machine learning to assist organizations in gaining insights and enabling automation throughout any organization.
- **Custom Software Development** - Their talented technical staff has a clear focus on creating software solutions that cater to customers.
- **App Development** - Utilizing the most recent technologies, their web and mobile app developers create unique B2B and B2C apps. Concept to code and development to deployment are provided by this service.
- **RPA & Automation** - By minimizing human labor and using RPA to automate recurring and high-volume transactional operations, they assist firms in concentrating on their core capabilities.

Also included is a list of their clients:

- **Robi**
- **Trust Axiata Pay**
- **Ranada Prasad Shaha University**
- **Biopharma Limited**
- **Comilla City Corporation**
- **Uthshargo**
- **Latif Travels**
- **Biotech Concern**
- **Nesco**

2.7 Tools and Technologies

Red.Digital Limited has different teams working on different technology-related initiatives. Thus, the way in which technology is used differs from project to project and from team to team. I am only familiar with the technology utilized by the RPA team because I was a member of that team. The following is a description of the tools and technologies:

2.7.1 Tools

- **UIPath**
- **Microsoft Power Automate**
- **Automation Anywhere**
- **Robocorp Control Room**
- **Selenium**
- **SAP**

2.7.2 Frameworks

- Javascript
- Django
- Django Rest framework
- Robot framework
- Our own RPA framework (Name Undisclosed)

2.7.3 Languages

- Python
- PHP
- Java
- C#

3 Company Culture

3.1 Working Environment and Protocols

The workplace at Reddot Digital Limited is excellent. There is an open floor plan with many workstations where staff can sit and complete their tasks. There is enough for about 8 employees per desk. There are no set seating configurations, and the absence of walls and the open design promote greater staff interaction.

They work at set hours (8 hours a day for full-time employees). Each employee's reporting time may vary because they are very flexible, but they are still obligated to work the required number of hours. Additionally, they are now using a hybrid working model. This implies that one could work from home occasionally while going into the office other times. The specifics of this arrangement will differ depending on the employee.

The majority of teams also hold daily Scrum meetings at a predetermined time. Additionally, they are extremely willing to participate in this Scrum meeting online if necessary.

3.2 Collaboration with Colleagues

Everyone who works there is incredibly friendly, making it quite simple to approach practically anyone for assistance. Friendliness is kept while maintaining professionalism. This makes it simple to ask anyone for assistance, regardless of how senior they are. The most common ways to handle communication lines are through Microsoft Teams or WhatsApp.

3.3 Events

The business hosts a few social gatherings like the **Annual Retreat** and **Summer Fruit Festival**. Additionally, they host occasions like the Annual **Town Hall** Meeting to honor accomplishments.

3.4 Internee policy

Compared to other full-time positions, they have a slightly distinct intern policy. A senior employee will be designated as the intern's line manager. All of their work will be under the line manager's supervision. If necessary, they might be put on a team under the direction of their line manager.

4 Company Workflow

Red.Digital operates as a service provider. The majority of the development is done in a team-oriented manner here. The relevant team leads and their teams receive projects, and it is the responsibility of that team to develop the project. The working team occasionally includes temporary team members.

The RPA team finds it to be remarkably similar. Initially, either a client asks for an RPA solution or we attempt to automate a time-consuming and boring process within our own organization.

There are a few things to undertake after a project is on board to ensure its success:

Information Gathering

Meetings between the client and the RPA team are held to discuss the task to be automated, and multiple meetings are held till the entire process is well understood.

Production and Testing

Using the information acquired from the meetings, the RPA team develops a preliminary RPA solution. The solution is then thoroughly checked for errors and exceptions.

Examination & Publish

The Team Lead and Principal Solutions Architect then examine the automation solution before sending it to the client. The solution is then configured and launched on the client's workstation, or by the RPA team via cloud.

5 Team Involvement

Red.Digital Limited often only accepted a small number of interns, but this time they decided to try something new and accepted a large group. There were 12–14 interns total, and we were split into two groups: e-commerce and HRMS. I was initially assigned to e-commerce but was switched to the RPA team during the second week.

5.1 Team Overview

The RPA team was just starting off; it was established in February of this year. It had six members when I began in May, and two senior software developers joined in during the later stages of my internship. My learning phase started straight away, and I was assigned a number of online courses to finish as well as YouTube videos to watch and put into practice within three weeks. Later, using the new technology I had learned, I was required to perform an assessment project and I succeeded in completing it within time

5.2 Responsibilities & Influence

The RPA team had already made a commitment to developing RPA solutions using their own framework, but there were some issues. My line manager assigned me to conduct research and development on a few different frameworks to determine whether or not switching to a new framework was feasible. And I would meet with the team to discuss the benefits and drawbacks of the new framework after each session of my research and development on said frameworks.

And because I was one of the only two people on the team with prior experience using the new framework, I believe I had a significant impact on the team by assisting and occasionally providing guidance. I also contributed to the migration of the currently in use solutions.

6 Learning

6.1 Technical Learning

Languages

- **Python** is a high-level, general-purpose programming language. Code readability is prioritized in its design philosophy, which makes heavy use of indentation. Python is dynamically-typed and garbage-collected. It supports a variety of paradigms for programming, including functional, object-oriented, and structured programming.
- **C#** is a general-purpose, multi-paradigm programming language. Programming paradigms like imperative, declarative, functional, generic, object-oriented (class-based), static typing, strong typing, lexically scoped, and component-oriented are all supported by C#.

Frameworks

- **Django** is a high-level Python web framework that promotes quick development and streamlined, practical design. It was created by seasoned programmers and handles a lot of the hassle associated with web development, freeing you up to concentrate on building your app without having to invent the wheel. It is open source and free.
- **Django REST framework** is a potent and adaptable toolkit for creating Web APIs.
- **Robot Framework** is a generic open source automation framework. It can be utilized for robotic process automation and test automation (RPA).

Tools

- **UiPath** is a robotic process automation tool for large-scale end-to-end automation. It offers firms ways to automate everyday office tasks for quicker business change. It employs a range of techniques to automate laborious procedures.
- **Microsoft Power Automate** is a service that enables you to build automatic workflows for synchronizing files, receiving notifications, gathering statistics, and more between your favorite apps and services.
- **Automation Anywhere** is a popular RPA vendor that provides sophisticated and user-friendly RPA capabilities to automate business activities that are now

performed by humans. An end-to-end automated business task control is part of the web-based management system called AA.

- **Robocorp cloud** is a practical approach to organize, deploy, and track your robot workforce across your company from a single, central cloud command center. Gain complete control over how bot code and data fit your infosec needs.
- **Selenium** is an open-source tool that automates web browsers. It offers a single interface that enables you to create test scripts in a number of different programming languages, including Ruby, Java, NodeJS, PHP, Perl, Python, and C#.

6.2 Soft Skill Learning

There were other major takeaways from the experience. These consist of:

- **Communication** It was necessary to explain technical details clearly to others. This can be a software bug or a technical problem.
- **Problem Solving** On a daily basis, difficulties had to be solved. Many mistakes and problems will be discovered by a software, which I must then resolve within a certain amount of time.
- **Punctuality and Time Management** Several meetings a day were held. Additionally, tasks had to be completed by the deadline.

7 Contribution

My contributions to Reddot Digital Limited throughout the internship are noted below:

7.1 R&D on Frameworks & Automation Tools

As previously mentioned, the RPA team was having problems with their own RPA framework, and plans to switch to a new framework were being discussed. Research and development on fresh, practical options was assigned to me and one junior software developer. I did research and studied the details of robot framework throughout this time. There were two approaches to building a solution using robot framework, and I presented both to the team and had meetings as needed. I was also involved in using new automation tools to implement the solutions once made using the framework to check if migrating from framework to tool was viable or not. The RPA team has adopted a hybrid style of working as a result of my observations. For clients who don't

want to deal with setting up the robot's environment, there are cloud-based tools, and for those that do, there are local robots built using robot framework.

7.2 Demonstrating the New Framework

I used the new framework to build a web scraper robot to show its usability and utility. Before running, the robot would crawl through a website and gather all the required data. The RPA team was persuaded by this demo and the scrapper's easily readable source code to think about switching

7.3 Migration to New Framework

I work with the team to adapt the solutions created with the previous framework to the new one. The procedure is still ongoing and may not be finished for several more months. Since the new framework is being used to complete all new projects at this time, my expertise is unquestionably helpful.

8 Conclusion

The friendliness and openness of the staff members there only served to enhance this internship's already fantastic experience.

I did pick up a lot of knowledge that academics could overlook. I've learned to be more consistent in my productivity thanks to the ongoing meetings and deadlines.

The projects I worked on before to this internship were typically two or three people. I had the chance to work with much bigger teams here, and I got to see how they organized their workload and communication channels. In addition, I've learnt how to handle criticism well and how to adjust my performance.

Finally, I want to thank Reddot Digital Limited once again for giving me this fantastic chance.