

Internship as a Young Professional under the Application
Team of
Business Automation Ltd.

by

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A thesis submitted to the Department of Computer Science
and Engineering
in partial fulfillment of the requirements for the degree of
B.Sc. in Computer Science

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Declaration

It is hereby declared that

1. The thesis submitted is my own original work while completing degree at Brac University.
2. The thesis does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The thesis does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I have acknowledged all main sources of help.

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Ethics Statement

Hereby, I, Nazmus Sakib Saad conciously assure that the following is fulfilled for the report titled Internship at Business Automation Ltd.

1. The contents of this paper are unique work of the writers' and it has not been published before.
2. All sources are appropriately mentioned (correct citation). Text that is literally copied must be identified as such by using quote marks and providing suitable reference.
3. The author actively participated and put in effort leading to the article and any public responsibility related to it's content will be accepted.

Violations of the Ethical Statement standards may have serious repercussions. I agree with the preceding declarations and certify that this submission adheres to BRAC University's rules.

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Chapter 1

Introduction

1.1 About Internship

Internships are typically thought of as opportunities for students as well as for fresh graduates to get used to working in a practical environment; and being able to apply what they've learned in the classroom to real-world situations in a certain field. Students are given the opportunity to gain practical experience in their field of study. This substantially aids the student in making the transition from their academic environment to the working world. Furthermore, the firms will have a better knowledge of their new intern and will be able to place in the position that is most suited for him or her. An internship opportunity increases a student's knowledge of the practical working world, which increases the value of the intern's CV, resulting in better employment possibilities in the long run. Internships are becoming increasingly prevalent, and some students would rather do an internship than completing a thesis paper. The students of BRAC University are required to either do an internship or write a research paper on the field of their study. Though fewer students consider to do internships, those who do are given adequate support from the institution and urged to get as much knowledge and information as possible from the organization. Students can select any internship opportunity as long as it is connected to their degree. To be eligible for an internship, students are required to complete a minimum 72 credits and the internship has to last at least 6 months at any reputable organization. As a final-year student at BRAC University, I believed that an internship would be a better option for me than working on a research thesis paper. Therefore, I had applied as an academic intern at Business Automation Ltd and they invited me for an interview. I was selected as a young professional to work with the application team, allowing me to begin my 6-month academic internship on 1 July, 2021. Business Automation Ltd. is considered as a pioneering ITES company of Bangladesh with not only local but also global footprints. It has crossed 300 clients and has been in the software business for over 22 years.

1.2 About this Report

As this internship is a prerequisite for completing my bachelor's degree, my evaluation will be done on the basis of this report by BRAC University. I've written about the work-environment and custom of my workplace in this report. I've also written about my experiences at Business Automation Ltd. and what I've learnt.

1.3 Objective

This report's goal is to give the following information to its readers:

1.3.1 Aim

The purpose of this report is to highlight my professional experience and knowledge.

1.3.2 Specific Goals

The following are the particular goals of the report:

1. Provide a detailed description of the company
2. Describe the atmosphere in which employees operate
3. To present all the services of Business Automation Ltd. to its clients
4. To demonstrate what I have learned during my internship
5. To document all of my efforts on the tasks that have been allocated to me

1.4 Methodology

The following report focuses on my internship at Business Automation Ltd and the lessons I gained there. Most of the information and facts are based on my own personal experiences and some information was also taken from the company's websites. The majority of the data was acquired from a variety of sources:

1.4.1 Primary Data

1. My practical work experience
2. Colleagues and team leader's discussions and teachings
3. Weekly and monthly meetings and presentations

1.4.2 Secondary Data

1. Official website of Business Automation Ltd
2. Documents relating to a number of finished projects

Chapter 2

Company Profile

2.1 Overview

Business Automation Ltd. is considered a pioneering Information Technology Enabled Services company in Bangladesh, with not only local but also global footprints. It has crossed 300 clients and has been in the ICT business in Bangladesh for over 22 years. Business Automation offers custom software development, service-oriented framework, mobile app development, systems engineering, and other services [1]. The company's priority is to mobilize the people involved, their abilities, and technology to assist organizations in enhancing their performance. Furthermore, because of its profound understanding of several business verticals and enormous resources, it seeks to transform cost restrictions into competitive industry advantages. Business Automation Ltd. is situated at BDBL Bhaban-2, Level-9, Kawranbazar, Dhaka.

2.2 Vision and Mission

The company has been operating with the following vision:

1. To enable enterprises to provide a better customer experience using technology, process and people.
2. To unleash innovative ideas to identify unique business needs
3. To design, implement, and deliver transformative customer experiences. [2]

Its mission is to be the first pick for both customers and employees.

2.3 The company's portfolio of services

In Bangladesh, the company has been a leader in several fields of IT services, such as web development, customised software, web application packaging with e-learning service, e-Governance solution, data archiving and document management, content creation, and so on. The following services are provided:

- E-License and Process flow Management
- One Stop Services (OSS)

- Customer Relationship Management System (CRM)
- Customer Flow Management System
- Mobile App Development
- Integration with Stakeholder Through API Connectivity
- Web Portal Website development
- Monitoring dashboard system development
- Help Desk and call centre support on 24/7
- Maintenance Technical Support Service
- SMS oriented services
- Offering Information and Communication Technology based training
- Digitization work for any Government and Private Organization [3]

2.4 Products

For both public and private sector clients, Business Automation deploys resources with specific knowledge of each activity to give the best solutions available. As a result, each project receives a customized solution that accurately reflects the client's objectives and priorities, dramatically increasing service delivery and performance. They are dedicated to transferring knowledge and skills to the valued clients while providing the highest possible value through their engagements. They have their own range of products that includes the following items:

2.4.1 Queue Pro

Queue Pro is a software solution that handles the line effectively at a point of gathering. The procedure is quite simple. It starts with a person walking into a customer care center. Then, the consumer can select the service he or she wants to avail by simply tapping the alternatives on the touch screen display. Before issuing a token, the system will calculate the number of individuals in the queue and their expected service time. This has service has the following features:

- It has a touch screen for browsing services
- Multi-lingual support (ASCII and Unicode form)
- At the moment of issuing the token, allow for a single or multiple selection of services
- Supports multiple services management
- Generates tokens with time, branch, token number, range of specified services, and so on

- The Kiosk shows flash promotional and compliance messages while idle
- It produces audio warnings and presents the data on the centralized dashboard
- Categorizes the customers with prioritizing the services
- Customizable software [4]

2.4.2 One Stop Service Platform

The One-Stop Service Platform (OSSP) is a computerized one-stop service delivery system that automates forms and programs with adaptive workflow while also improving security and confidentiality and monitoring logs. It is an efficient and effective technology that incorporates a boatload of new features while also increasing security and dependability [5]. Features:

- OSSPID
- Insight (Dashboard)
- Report Engine
- Work Flow Engine
- Online Payment
- Stakeholder Integration
- Secured Document
- Block chain
- Meeting Management
- Training System
- Notifications

2.4.3 Insight DB

2.4.3 Insight DB A dashboard is a graphical user interface. It provides concrete information about key performance indicators along with other important aspects of a specific goal or business process in a minimalist style. It is comparable to a progress report. It provides all of the news and information on a single page, so any user can stay up to date on everything at a look. Insight DB, designed and developed by Business Automation, is a simple and effective dashboard engine for identifying data from numerous systems used by enterprises to perform daily operations [6]. Features:

- Multi- Source Dashboards: The user can combine plenty of various data sources and queries as they would like for their visualization.
- Object minimize option

- Micro service application
- Guiding decision-makers through a complicated, multi-source data world
- Supports NoSQL database, google Sheet
- Single window for multiple data sources
- Works on a variety of devices (TV, Mobile, Computer)

2.5 Services

Business Automation Ltd. offers clients with modern IT solutions and programs that allow them to integrate the technologies that can help their organizations grow significantly in the long run. They provide Information Technology architectural solutions and support, as well as interoperability and security services, by combining cloud and traditional technologies, as well as a mix of business, technical, and industry experience. Business Automation Ltd. provides access to modern technologies and established methods throughout the software life cycle, from customer interaction to technology installation to service delivery. They provide the following services [7]:

2.5.1 Government to Business e-services

The government-to-business e-Service platform is a One-Stop Service Platform that ensures security, confidentiality, and audit records are maintained. It is a very handy framework that adds a number of new capabilities as well as additional layers of reliability and dependability. Because of its simplicity of use and accessibility, it is now being adopted in BIDA, BEZA, and BEPZA. This platform ensures that the client's data is secure. This platform includes a wide range of features that can be modified to the needs of the clients. It keeps costs down as a centralized approach while also enabling an end-to-end registration process with data transparency, confidentiality, and non-repudiation [7].

2.5.2 Customer Flow Management Solution

Customers are considered as the most vital aspect of any business. Managing the client flow while maintaining service quality is not a simple task. Business Automation Ltd. 's revisionary product, Queue-Pro has developed a strong reputation and command in the field of customer flow management systems. It's a well-designed and well-organized queue management system that ensures a disciplined and directed user experience [7].

2.5.3 MIS Software Solution

A management information system (MIS) is an automated database management system that can handle various kinds of data and information and deal with financial reports and statistics. It is configured to generate daily operating reports for each member of the company's management team. The system is also able to create

an on-demand report for unique needs within a short time. The major goal of this system is to provide managers with an overview of their employees' work, and senior executives can monitor the organization's progress as the comprehensive system information is displayed as a chart. [7].

2.5.4 Data Analytics Data Warehousing

This software begins by determining the data requirements or how the data is organized. Some characteristics can be used to separate data. Features might be numerical or grouped into groups. The second stage is gathering information from the company's prior and current databases. This will be accomplished using the software. After the data has been collected, it will be structured in such a way that it can be analysed. A spreadsheet or other sort of software that can accept statistical data can be used for the evaluation. After the data has been cleansed and reviewed, the software will check for duplication, errors, and incompleteness. This procedure facilitates the rectification of any errors in the data before it is delivered to a data analyst for study. It also includes a data warehouse, which effectively consolidates information from multiple sources within your firm into a single comprehensive database [7].

2.5.5 System Integration

Business Automation Ltd.'s services also include system Integration. They can make it easier to connect all of a system's physical and virtual components. Physical components might include everything from machine systems to computer gear to inventories, while virtual components can include information stored in databases, software, and apps, they can also combine these two parts to make the workplace smoother [7].

2.5.6 Software Development

Business Automation Ltd. aims to help any company analyse and improve their business operations in the near and distant future. They assist your business process stakeholders and experts in the field through the execution of business process engineering and re-engineering. The first is involved with developing new processes, whereas the latter is concerned with improving current ones. By concentrating on process modelling and process optimization, their consulting services will help you decrease costs and cycle times [7].

2.5.7 Solution Customization

A simple change in a corporate strategy might sometimes modify the necessity for present software solutions. There is no need to purchase new software because they can adjust your present solution to meet the needs of your organization. Customized Solutions are highly personalized programs designed to address a company's specific business difficulties, such as a strategic shift or significant reorganization. Business Automation Ltd. believes that they can provide the best solution customized based on the business structure [7].

2.5.8 ERP solutions

An Enterprise Resource Planning system offers a comprehensive and kept updated picture of critical business processes by utilizing databases managed by a database management system. The system tracks cash, raw materials, manufacturing capacity, and the status of company responsibilities such as orders, purchase orders, and payroll. The company provides, implements, and develops the Integrated Management Process Automation System for National Universities. They also supply the Rural Services Foundation with online enterprise resource planning (ERP) solutions (RSF). ACME Pesticides Limited's Enterprise Resources Planning Software (ERP) was designed, developed, and deployed by them [7].

2.5.9 Training

Training has been offered by Business Automation Ltd. for a variety of projects. Workshops and personnel training facilities are part of their training program. Their team of trainers is committed to provide the greatest knowledge transfer sessions for their valued customers [7].

2.5.10 Solution Support

Engineers, not salespeople, make up the solution support staff, so the individual who answers your phone or responds to your email is the one who can help you. They take pride in their basic values, which include being open and honest with clients at all times, and treating everyone who interacts with Solution Support with respect. Business Automation Ltd always recommends goods and services that are truly appropriate for the organization, and all of our solutions have been thoroughly tested [7] .

2.6 Research and Development Services

Business automation invests a limited amount of work and time in research related to IoT, AI, microservices, technology, and device solutions. The research and development team's work philosophy is centred on continual study, invention, and the application of new ideas. To produce new goods or new ways of doing things, the research undergoes intensive R D processes such as refining, enhancement, and testing. The following projects are currently being worked on by the team:

- Micro-service
- Artificial intelligence
- IoT Based solution
- Digital Eye Vision
- Smart Gardening
- Smart Weighing Device
- Smart Locker

- Home Automation System .[8]

2.7 Clients

Business Automation Ltd. have established relationships with numerous clients in all industries including government, bank, Hospital, telecom others in the local and international market. [9]

Government Clients

- BEZA
- BIDA
- Ministry of Religious Affairs
- BHTPA
- BTCL

Banking, Financial Service and Insurance

- BRAC Bank
- CITY Bank
- Janata Bank
- Dutch Bangla Bank
- Delta BRAC Housing Finance Corporation Ltd. and many more

Supply Chain Management and Others

- British American Tobacco
- Renata Limited
- Bashundhara Group
- Partex Group
- Rahimafrooz Group and many more

Hospital and Health Organizations

- Sajida Foundation
- Square Hospitals
- Ibrahim Cardiac Hospital and Research Institute
- United Hospital and many more

Telecom Utility

- BTRC
- Grameenphone
- Banglalink
- Robi

2.8 Awards

Business Automation Ltd. is proud of its work and its people. Every honour and recognition they have achieved is the result of their exceptional team's passion and dedication. They have received the following recognitions :

- e-Asia 2017 Award in Open Digital Government Award category
- 7 Best IT Project Awards (BASIS Soft-Expo 2004, 2005, 2007, 2008, 2009, 2010)
- Best IT Project (Bangladesh Computer Society, 2005)
- e-Content ICT Development Award 2010 (Hajj Management System)
- South Asian mBillionth Award 2010 (BExpress in category of mBusiness) [10]

2.9 Operational Locations

- Kawran Bazar, STP-1 (Operation HQ)
- Mirpur DOHS (Development Office)
- Ashkona (Call Centre)
- Hi-Tech Park (Assembling Unit Website: <https://www.batworld.com> Email: sales@batworld.com)

Chapter 3

Training Phase

3.1 Overview

Being allowed to work as an intern in a company is a huge step forward in both academic and professional life. In today's job market, where competition is intense, having work experience is a major asset. It also assists students in successfully transferring from school to job once they have completed their studies. I had joined Business Automation Ltd. as an academic intern working under the application team. This internship is a graduation requirement for BRAC University, and it is also a fantastic opportunity for me to learn new skills and get significant experience while here. My supervisor has helped me at various stages of my internship. I've provided several screenshots throughout the report; but, due to confidentiality considerations, I won't be able to upload some portions of the panels I work on.

3.2 Getting Familiar with the Workplace

Before starting the work, I was told to learn a few fundamental concepts and techniques. As I was a part of the application team, I was instructed to learn and have a complete overview of the Software Development Life Cycle. As our team was mainly working on the Requirement Collection Analysis, Feasibility Study, Prototype Design, and Testing of Software Development Life Cycle. Mr. Ashrafuzzaman, my industrial supervisor, has always guided me and helped me resolve any issues I've had.

3.3 User Acceptance Testing (UAT)

Before I actually started User Acceptance Testing, I was guided by my seniors about the whole process and how it works. I learnt the basics first and how each function worked in the UAT site. I was assigned to do user acceptance testing on two services of Business Automation Ltd. that are Enterprise Business Solution (EBS) and One Stop Service Platform for Bangladesh Hi-Tech Park Authority (BHTPA).

3.3.1 UAT on Enterprise Business Solutions (EBS)

The Enterprise Business Solution (EBS) was developed to assist businesses in deploying their whole workforce. Customer Relationship Management (CRM), Enterprise Resource Planning (ERP), and Supply Chain Management (SCM) with data analytics are the components of Enterprise Business Solution (EBS). Business Automation Ltd launched Enterprise Business Solution (EBS) as its endeavour to develop its Enterprise System, with the goal of creating a long-term business organization that can empower enterprises to improve customer experiences through technology, process, and people. I have added the screenshots of the UAT site of EBS.

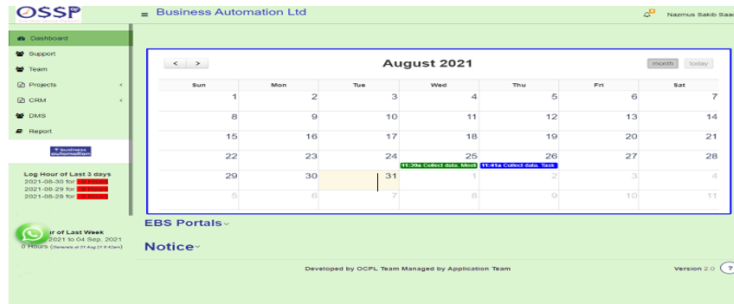


Figure 3.1: Dashboard of the UAT site of EBS

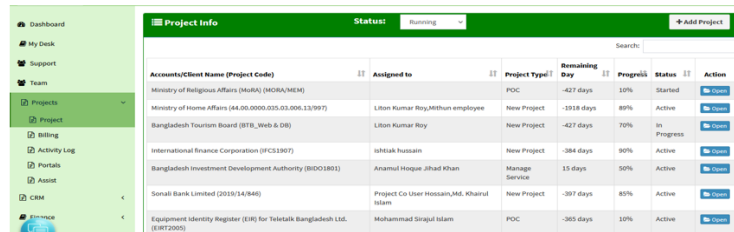


Figure 3.2: Dashboard of the UAT site of EBS

There are several options under the project. I was mainly instructed to check if the functionalities of adding project, project billing, and activity logs worked properly or not. Here is another screenshot that includes the view of the project activity log. While adding a new project, I had to check whether all the fields were taking data according to the requirement. If there was any error such as invalid data type, I had to report to my team leader so that the error could be fixed and the live server could function properly.

I had to check whether the project billing option worked properly or not under the type of billing status such as open, submitted, deposited and collected. It was a regular task to keep track of the functionalities of the UAT site so that the actual live site does not show any errors while it is used by our clients and clients of our clients.

Name	: New test for project billing dates.	Home Phone	: +880
Billing Address	: Ideal School Colony , MOTUJHEEL ,DHAKA , Dhaka 1000	Accounts Type	: Investor
Primary Email Address	: . Bangladesh	Industry Type	: Communications
Created at:	: 3 weeks ago	Annual Revenue	: 700000
Created by:	: Anamul Hossain Jhadi	No. of Employees	: 10
		Business Sector(BBS Code)	: Information and Communication
		Principal Account	: New Test of Inventory
		Assigned to	: Nazmus Sakib Saad
		Updated at:	: 3 weeks ago
		Updated by:	: Anamul Hossain Jhadi

[Back](#)
[Edit](#)

Documents
[Add New](#)

Description	ST	Action
New Test Nazmus Sakib Saad 2021-08-21		Edit

Showing 1 to 1 of 1 entries

Previous [1](#) Next

Contacts Info
[Add Contact](#)

Name	ST	Designation	ST	Mobile No	ST	Email	ST	Office Phone	ST	Action
mostestingbiling										Open
mostestingbiling02										Open
mostestingbiling03										Open

Showing 1 to 3 of 3 entries

Previous [1](#) Next

Leads Info
[Add](#)

Meeting Info
[Add Meeting](#)

Task Info
[Add Task](#)

Subject	: Collection of Data	Assigned Name	: Nazmus Sakib Saad
Start Date And Time	: 22-Jul-2021 10:52:00	End Date And Time	: 14-Sep-2021 10:52:00
Status	: Done	Description	:
Created at:	: 2 minutes ago	Updated at:	: 2 minutes ago
Created by:	: Nazmus Sakib Saad	Updated by:	: Nazmus Sakib Saad

[Edit](#)

Call Log Info
[Add Call Log](#)

Project Info

Caption	ST	Project Type	ST	Remaining Days	ST	Progress	ST	Status	ST	Action
New test for project billing dates, (EC@21)		New Project		31		28%		Active		Open

Showing 1 to 1 of 1 entries

Previous [1](#) Next

Figure 3.3: Client billing functionalities

3.3.2 UAT on Bangladesh Hi-Tech Park Authority (BHTPA)

The Bangladesh Hi-Tech Park Authority (BHTPA) is constructing hi-tech developed parks, software technology parks, and information technology training and incubation centres throughout the country to lure financiers to assist the ICT sector in expanding. The following services were offered on the BHTPA website:

- Project Registration
- Space Allotment
- Land Allotment
- Project Clearance
- Visa Assistance
- Visa Recommendation
- Work Permit
- Local Sales Permit
- Local Purchase Limit
- Project Registration Renewal
- Land Billing

- Space Billing

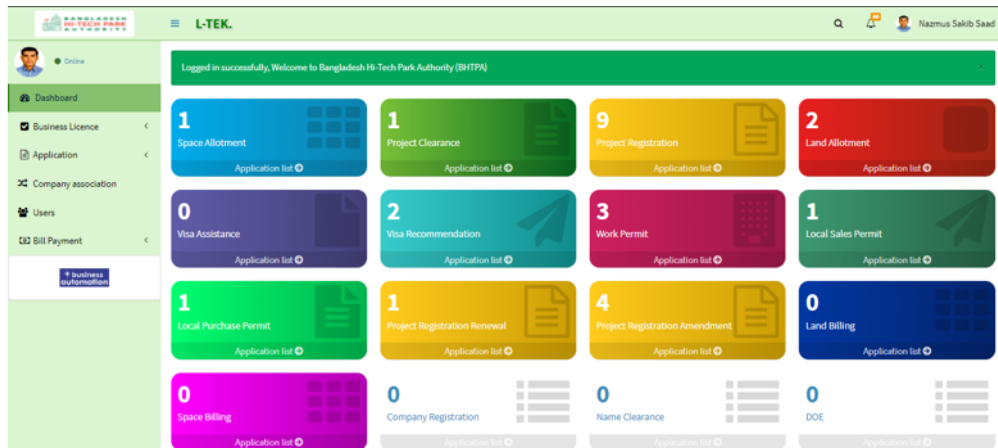


Figure 3.4: UAT site view of the BHTPA

I was instructed to check whether these applications were working properly from the user side as well from the admin side. This site also includes the payment function, generates certificates of project registration, renewal, clearance and amendment. I had to regularly check whether the site was able to generate these certificates on a regular basis. If there was any error, I had to inform the development team so that they can solve the issue as soon as possible and so the live site could work properly.

☆ PR-Ka-S-202108-SL-0002	Applicant	Project Registration	Applicant Name:TestingNSS, Company Name:L-TEK., Park name:Bangabandhu Hi-Tech City, Kaliakoir, Industry Category:company1, Email:sakibnazmus@hotmail.com, Phone:+88031245678978,	Discard	1 day ago	View
☆ PR-Ka-S-202108-SL-0004	Applicant	Project Registration	Applicant Name:TestingNSS, Company Name:L-TEK., Park name:Bangabandhu Hi-Tech City, Kaliakoir, Industry Category:company1, Email:sakibnazmus@hotmail.com, Phone:+88031245678978,	Approve	1 day ago	View
☆ PR-Ka-S-202108-SL-0003	Applicant	Project Registration	Applicant Name:SaadTheTester, Company Name:L-TEK., Park name:Bangabandhu Hi-Tech City, Kaliakoir, Industry Category:company1, Email:nss.oss08@gmail.com, Phone:+	Approve	1 day ago	View
☆ PR-Ka-S-202108-SL-0001	Applicant	Project Registration	Applicant Name:NasProjectTesting, Company Name:L-TEK., Park name:Bangabandhu Hi-Tech City, Kaliakoir, Industry Category:company1, Email:nazmusakibsaad@gmail.com, Phone:+8801758713399,	Approve	1 week ago	View
☆ PR-Ka-O-202108-L-0001	Applicant	Project Registration	Applicant Name:Nazmus Sakib Saad, Company Name:L-TEK., Park name:Bangabandhu Hi-Tech City, Kaliakoir, Industry Category:Lime., Email:nss.oss08@gmail.com, Phone:+8801758713399,	Approve	1 week ago	View
☆ PR-Ka-R-202108-L-0001	Applicant	Project Registration	Applicant Name:Nazmus Sakib Saad, Company Name:L-TEK., Park name:Bangabandhu Hi-Tech City, Kaliakoir, Industry Category:Processing fish, meat, food., Email:nss.oss08@gmail.com, Phone:+8801758713399,	Approve	6 days ago	View

Figure 3.5: View of the project registration application window from the applicant

List Favorite Search			Project Registration Amendment		
Show 10 entries			Search:		
Tracking No.	Current desk	Process type	Reference data	Status	Modified Action
☆ PRA-Ka-202108-0007	Applicant	Project Registration Amendment	Applicant Name:TestingNSS, Company Name:L-TEK., Park name:Bangabandhu Hi-Tech City, Kaliakoir, Industry Category:company1, Email:sakibnazmus@hotmail.com, Phone:+88031245678978,	Shortfall	1 day ago Edit
☆ PRA-Ka-202108-0006	Applicant	Project Registration Amendment	Applicant Name:TestingNSS, Company Name:L-TEK., Park name:Bangabandhu Hi-Tech City, Kaliakoir, Industry Category:company1, Email:sakibnazmus@hotmail.com, Phone:+88031245678978,	Request for Payment	1 day ago View
☆ PRA-Ka-202108-0005	Applicant	Project Registration Amendment	Applicant Name:NssProjectTesting, Company Name:L-TEK., Park name:Bangabandhu Hi-Tech City, Kaliakoir, Industry Category:company1, Email:nazmusakibsaad@gmail.com, Phone:+8801758713399,	Approve	1 day ago View
☆ PRA-Ka-202108-0004	Applicant	Project Registration Amendment	Applicant Name:NssProjectTesting, Company Name:L-TEK., Park name:Bangabandhu Hi-Tech City, Kaliakoir, Industry Category:company1, Email:nazmusakibsaad@gmail.com, Phone:+8801758713399,	Draft	1 day ago Edit
Showing 1 to 4 of 4 entries			Previous 1 Next		

Figure 3.6: View of the project amendment application window from the applicant side

Application list for (Project Registration Renewal) + New Application					
List Favorite Search			Project Registration Renewal		
Show 10 entries			Search:		
Tracking No.	Current desk	Process type	Reference data	Status	Modified Action
☆ PRR-Ka-202108-L-0005	Applicant	Project Registration Renewal	Company Name:L-TEK., Park name:Bangabandhu Hi-Tech City, Kaliakoir, Email:nss.osp08@gmail.com, Phone,	Approve	1 day ago View
Showing 1 to 1 of 1 entries			Previous 1 Next		

Figure 3.7: Applicant Side View of the project registration renewal application window

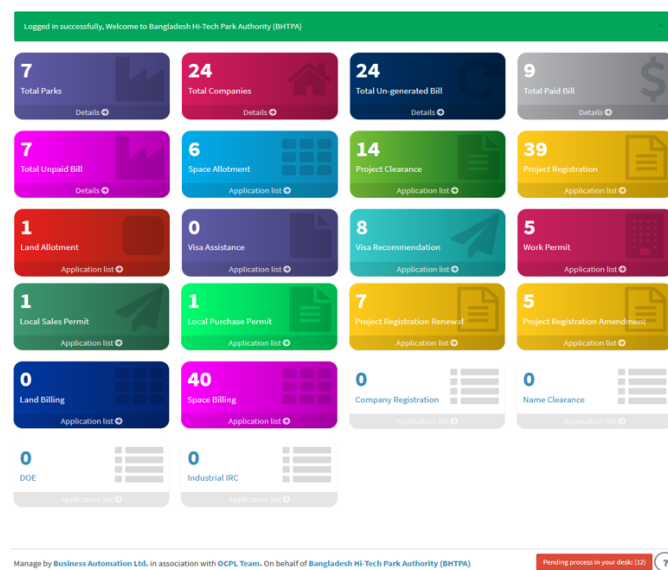


Figure 3.8: Approval Desk Side (Admin) view of BHTPA

I had to check whether all the functions were working properly from the admin side and they were able to accept, reject, shortfall or request for payment for the applications.

Below is a figure displaying the payment service view for applications. I had to check whether the applicant was able to make payment through Bank, Cards and Other services such as Bkash, Rocket etc.

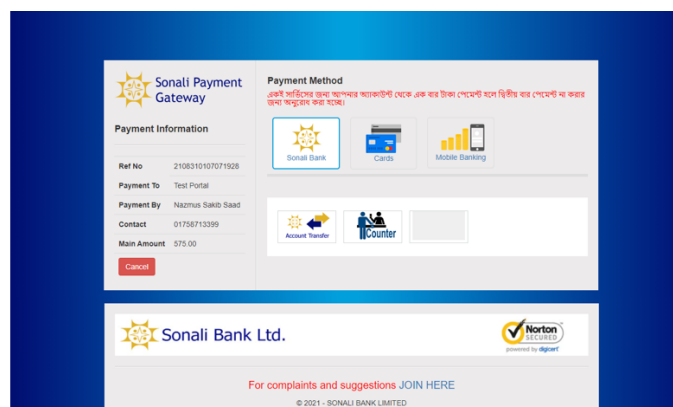


Figure 3.9: Payment service view for applications

3.4 Research Documentation

The process of uncovering new information through the invention of new concepts or the improvement of present knowledge and theories, which leads to new unexplored understanding, is known as research. The goal of research is to discover what is

known, what is unknown, and what can be invented. [11] A document, in general, is a record of an event or thing that is kept so that the data is not lost. Documents are often written, but they can also be generated using visuals and music. A document usually adheres to a set of norms based on previous or related papers or specified criteria.

3.4.1 Top-Down Approach in Management Information System

A management information system (MIS) is a significant source of data for every organization. An approach to MIS development provides some important facts for organizations that impact each strategy.[12] The top-down approach, also known as autocratic leadership, is a management method that is directed by a company's upper management. The entire system is broken down into a number of subsystems, which are further divided into a number of additional subsystems in a top-down approach. The characteristics of Top-Down Approach are the following:

- Command Control
- Management in a hierarchical structure
- Top-level decision-making, input of a very few people
- The flow of information is just one way

I was told to read numerous papers, critically analyse them, and document my Top-Down Approach findings.

3.4.2 Energy Security Index

The uninterrupted availability of energy sources at a suitable cost is referred to as energy security. There are several aspects to energy security: both long-term and short-term. The Energy Security Risk Index is a first-of-its-kind energy risk indicator which analyses quantitative data, historical trend information, and government estimates to identify policies and other variables that contribute favourably or adversely to worldwide energy security. [13] I was instructed to create numerous excel documents including all of the matrices necessary to calculate the energy security index score of nations such as Bangladesh, India, Pakistan, Malaysia, Indonesia, China, and Singapore.

3.4.3 Key Performance Indicators

KPI is an abbreviation for Key Performance Indicator. A Key Performance Indicator (KPI) is a measurable statistic that demonstrates how successfully a company meets its primary business objectives. KPIs are not simply goals; they are a means of demonstrating what you want to achieve and when you want to achieve it, as well as analysing and monitoring employee performance. They serve as a tool for accomplishing corporate objectives, assessing business performance and nutrition, and exploring new business opportunities. [14] KPIs are characterized by being:

- Measurable

- Attainable
- Relevant
- Important

My supervisor instructed me to conduct research on which KPIs are appropriate for the company and which KPIs will help to increase employee performance while also supporting the company in accomplishing its major business objectives.

To have an effective performance evaluation, I suggested that the company have a standard framework for evaluating employees where the performance standards will be set, the goals will be well discussed, proper guidelines will be given, and policies will be implemented to ensure that the employees are happy and in good shape. Furthermore, I suggested that incorporating a 360-degree feedback system would be very effective in evaluating because it allows employees to receive a variety of feedback from various perspectives that they can work on to improve their abilities and skill set, allowing the company to grow and achieve its goals.



Figure 3.10: 360 Degree Feedback Review System

Moreover, I had suggested some team engagements tips that could be implemented to improve the overall quality of the team.

3.4.4 User Manuals

User Manual provides all of the information required for the user to fully utilize the information system. This handbook describes the system's operations and capabilities, as well as contingencies and other operational activities, along with step-by-step methods for system access and use. I was assigned to write User Manuals for all the services that Bangladesh Hi-Tech Park Authority served so that the applicants could easily fill up the information required to submit an application.



Figure 3.11: User manual

The user manual was written in simple language so that an applicant could easily read it and solve any confusions he might face during applying for a service.

3.4.5 Video Tutorials

Video manuals, as opposed to traditional manuals, allow one to learn by "watching" and "listening" since the entire technique is presented in the video along with the instructions. Some procedures are difficult to convey only by text, photographs, and examples. However, by watching videos with different characteristics such as clear narration, subtitles, and highlighting of crucial aspects in addition to the process, it is easier for the employees to carry out their responsibilities [15]. I was asked to create a video tutorial on "How to Issue a Support Ticket Within the Company," in which I highlighted all of the factors required so that any person in the organization could simply issue a ticket while considering the work at hand. As per company's policy I am not able to add the video in my report but I am adding a snapshot of the window of support ticket.

Figure 3.12: View of the support ticket window.

Moreover, I was instructed to create another video manual on how a company employee can get into the website of "Panditmama" (<https://panditmama.com/>) create an account, enroll himself in the course, and attend exams for the completion of the evaluation process set by the company. As per the company's policy, I am not able to add the video to my report, but I am adding a snapshot of the window view from the company's employee side.

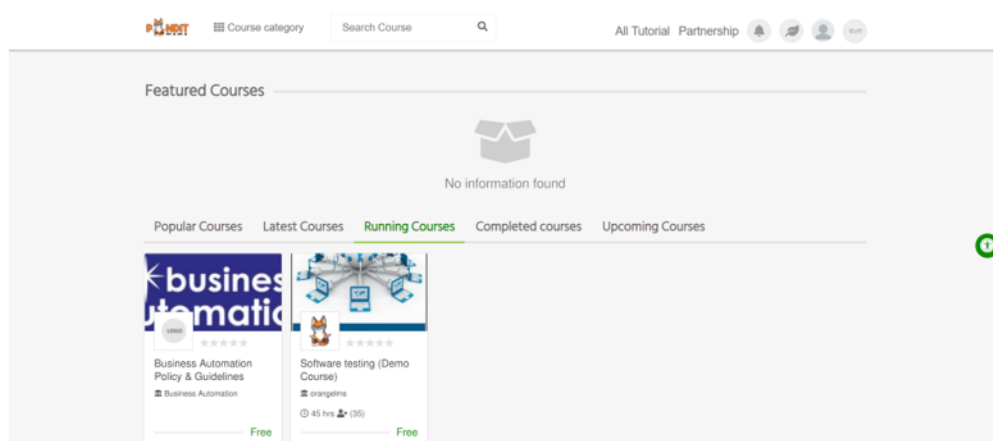


Figure 3.13: View of the panditmama website from the employee side

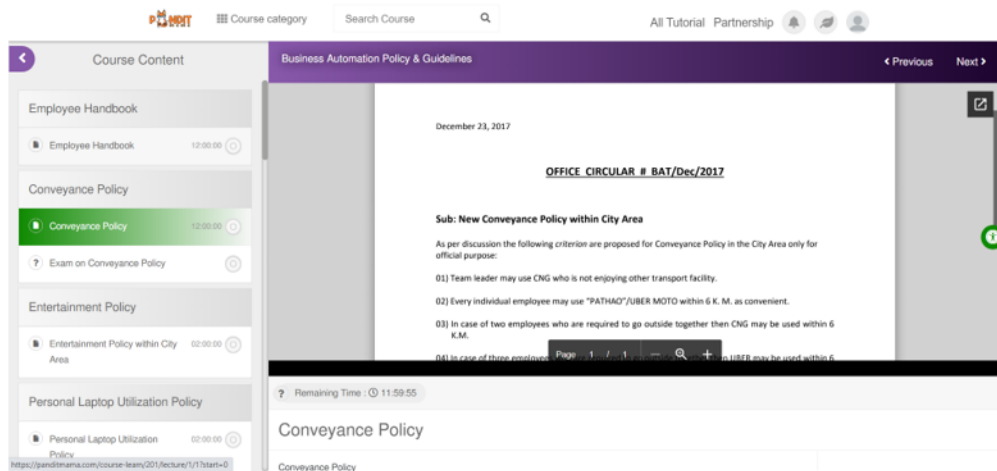


Figure 3.14: View of the contents on panditmama website from the employee side

3.5 Writing Test Cases in Manual Testing

A test case is similar to a test scenario in that it analyses functionality through a sequence of activities or events to verify the desired outcome. They apply to any software application and can be manually tested. A test case is a collection of test steps, test modules, preconditions, and postconditions designed for a specific test scenario to validate any need [16]. The test cases were done to compare expected and actual results to determine whether system software is working as expected by the customer. I had the opportunity to write test cases for both the BIDA and BHTPA websites to ensure that they were fully functional.

3.5.1 Test Cases of Bangladesh Investment Development Authority (BIDA)

I wrote test cases for the Bangladesh Investment Development Authority (BIDA) to see if the system's many features work as expected and to ensure that it meets all applicable standards, rules, and client needs. I have written a total of 989 test cases for the site which falls under 4 test case scenarios. Among the 989 test cases, 355 test cases had passed and the other 634 test cases resulted in failure.

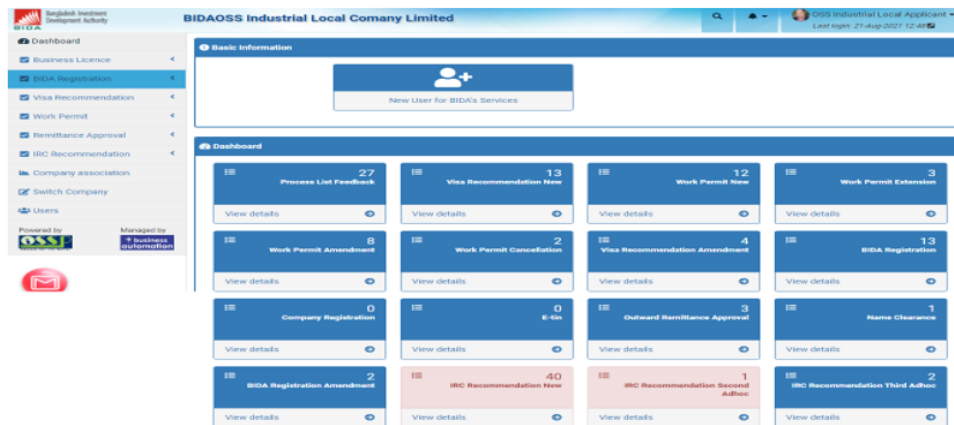


Figure 3.15: View of BIDA website

1	Project Name	:	BIDA OSS		
2	Project Manager	:			
3	Project ID	:			
4	Tester	:	Nazmus Sakib Saad		
5	Version	:	1		
6					
7					
8					
9	Total scenarios	:	4		
10	Total Test case	:	989		
11					
12	Total Passed test case	:	355		
13	Total Failed test case	:	634		
14	Total skipped test case	:	0		
15	Total Blocked test case	:	0		
16	Total	:			
17					

Figure 3.16: Summary of Test Cases (BIDA)

3.5.2 Test Cases of Bangladesh Hi-Tech Park Authority (BHTPA)

I wrote test cases for the Bangladesh Hi-Tech Park Authority (BHTPA) to see if the system's many features work as expected and to ensure that it meets all applicable standards, rules, and client needs. I have written a total of 2435 test cases for the site which falls under 10 test case scenarios. Among the 2435 test cases, 870 test cases had passed and the other 1565 test cases resulted in failure.



Figure 3.17: View of BHTPA website

1	Project Name	:	BHTPA OSS		
2	Project Manager	:			
3	Project ID	:			
4	Tester	:	Nazmus Sakib Saad		
5	Version	:	1		
6					
7					
8					
9	Total scenarios	:			
10	Total Test case	:	2435		
11					
12	Total Passed test case	:	870		
13	Total Failed test case	:	1565		
14	Total skipped test case	:	0		
15	Total Blocked test case	:	0		
16	Total	:			
17					

Figure 3.18: Summary of Test Cases (BHTPA)

3.6 Designing workflow of Bangladesh Investment Development Authority and Supplier Management System

A workflow is a series of tasks that handle a collection of data. Workflow is a very essential method in any type of business or industry as it helps to run a process systematically and more efficiently. Workflows are the routes that illustrate how something proceeds from unfinished to accomplished [17]. I was told to design work flows of BIDA and Supplier Management System according to the requirements, which are given below:

AO = Administrative Officer DS=Deputy Secretary
 ADL S=Additional Secretary JS=Joint Secretary

Process Flow

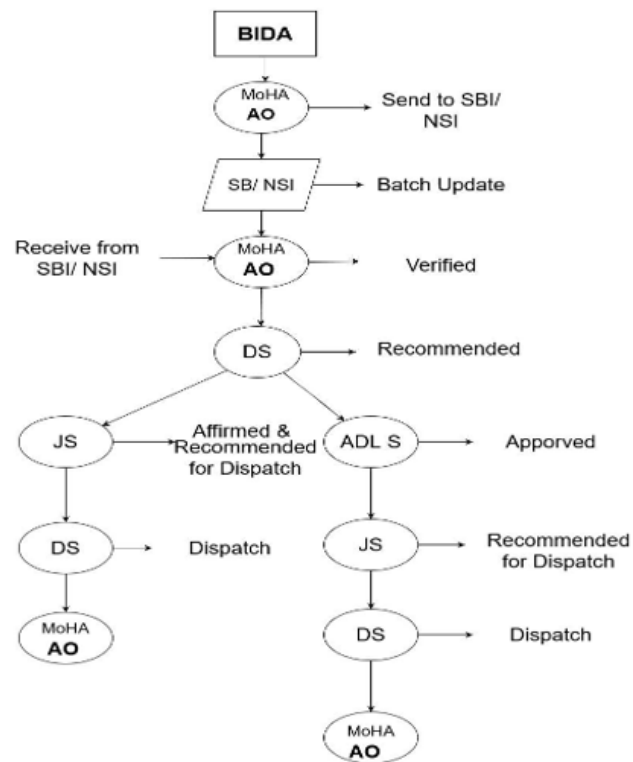


Figure 3.19: Process flow of BIDA

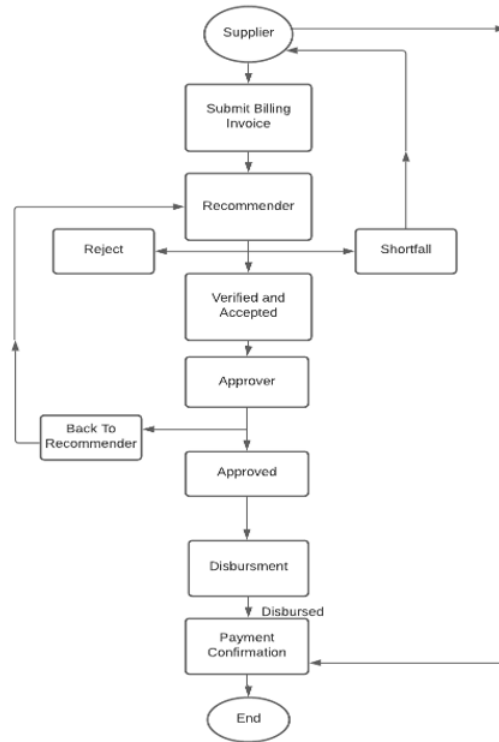


Figure 3.20: Process flow of Supplier Management System

3.7 API Testing

API testing is a software testing method that comprises directly evaluating application programming interfaces (APIs) as well as testing them as part of integration testing to determine whether applications satisfy functionality, reliability, performance, and security criteria [18]. I was taught to do the API testing on JSON to check whether the response is proper or whether there is an error. I have attached the snapshots as well, but some parts of the snapshots are blurred due to privacy. I checked whether a token is generated properly or not. The following snapshot shows that the response was successful.

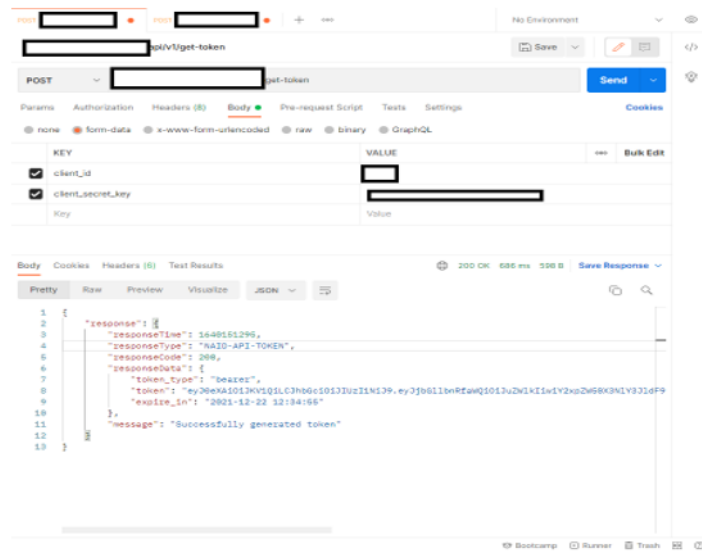


Figure 3.21: JSON Response (API)

Moreover, I tried to get the IMEI data, but the result was a failure as it showed there was an internal server error.

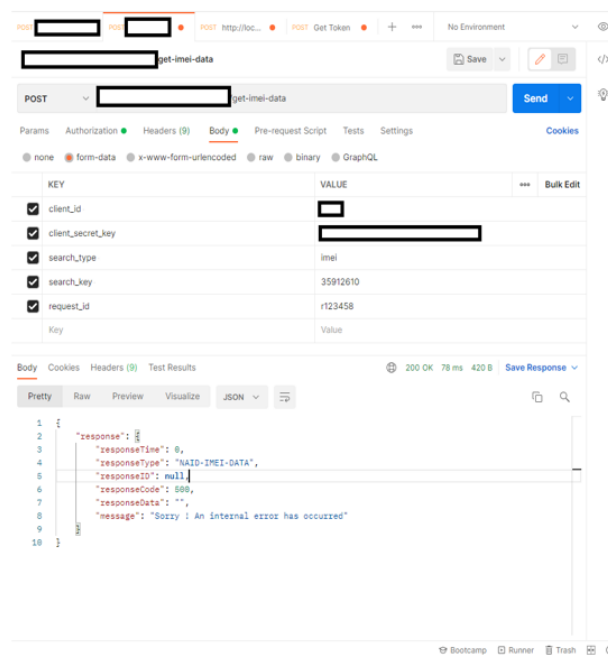


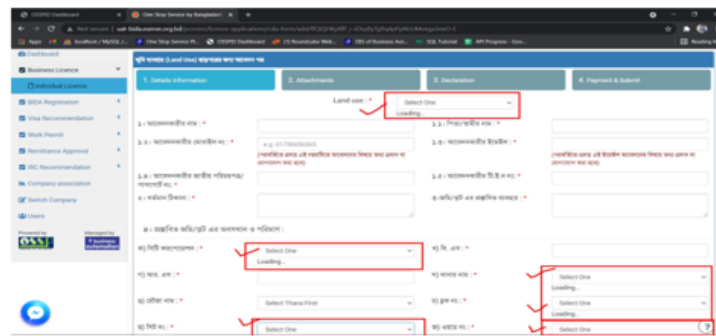
Figure 3.22: JSON Response (API)

3.8 Providing Testing Feedback

The transfer of evaluative or corrective information regarding an action, event, or process to the originating or controlling source is referred to as feedback [19]. I was instructed to fill out applications for all the services of BIDH which included NRB, Environmental Clearance, Land Use Clearance, Large and Special Project Permit, Building Construction Case, NESCO, DSCC, DNCC, Vat Registration, DPDC, and so on in BIDA to check whether all the fields were working properly or not and provide feedback in a DOC file, attaching snapshots of the problems where they appeared. The image below shows how I provided feedback in this regard.

CDA _ Land Use Clearance:

Selecting an option does not show up. It is only loading and loading.

The image is a screenshot of a web application titled "CDA _ Land Use Clearance". It shows a multi-step form with tabs for "1. Sample Information", "2. Attachments", "3. Declaration", and "4. Payment & Submit". The "3. Declaration" tab is active. The form contains several sections with text in Bengali. Red boxes and arrows highlight specific areas where feedback was provided. These include dropdown menus for "Land use", "Type of land use", "Type of land use", "Type of land use", and "Type of land use". Each dropdown menu shows "Select One" and "Loading...". There are also checkboxes for "I have read and understood the terms and conditions" and "I have read and understood the terms and conditions". The feedback text at the top states: "Selecting an option does not show up. It is only loading and loading."

Section "৪। প্রস্তাবিত জমি/প্লট এর অবস্থান ও পরিমাণ" field "ঘ) থানার নাম" Add a search box in this drop-down without making any changes, and the value will be sorted in order.

Section "৪। প্রস্তাবিত জমি/প্লট এর অবস্থান ও পরিমাণ" field "ঙ) মৌজা নাম" Add a search box in this drop-down without making any changes, and the value will be sorted in order.

Section "৪। প্রস্তাবিত জমি/প্লট এর অবস্থান ও পরিমাণ" field "জ) ওয়ার্ড নং" add search box in this drop down without change and value will be sorted order

Figure 3.23: Image of the Feedback provided

3.9 Database Response Testing

I was given access to the UAT-Database Server of the company to learn about how an application is processed, how it moves from one process to another, how a request works, and how we can get the corresponding JSON Response from the server. Moreover, whether a payment is successful or not can be learnt from the server side; we can also get the payment tracking ID and number and we can see in which table the data is being stored. The image below shows the view of the database server of UAT-BIDA.

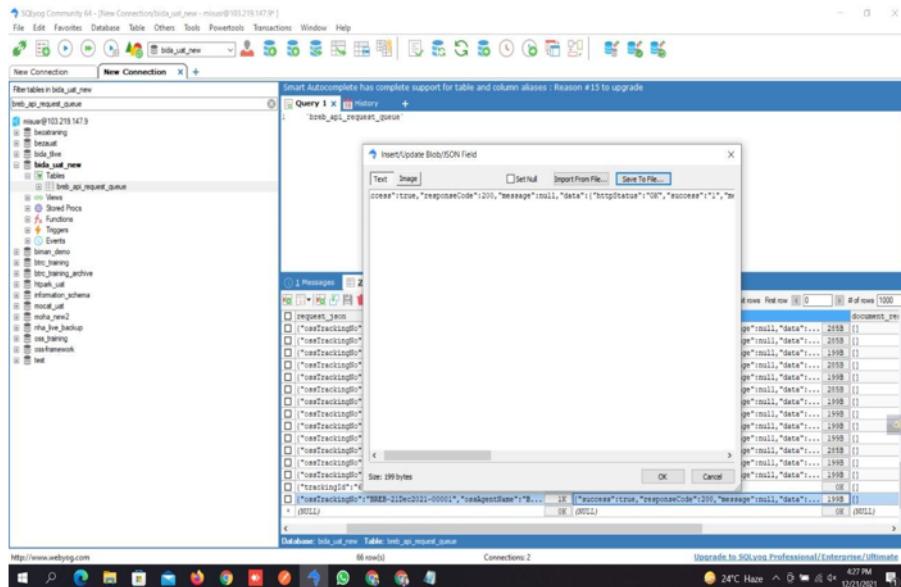


Figure 3.24: View of UAT-Database Server (BIDA)

3.10 Project Management

Project management entails the planning and organizing of a company's resources in order to complete a certain work, event, or duty. I had the opportunity to work with the HR team in this regard. I was the one from the application team assigned to collaborate with the HR team to do the evaluation of the employees for the Annual Confidential Report on the panditmama website. I was instructed to create manuals for the employees so that they could easily enrol themselves on the website. I managed the course and added the contents so that the employees could read them and attend the exam on the due date. Moreover, I had the chance to discuss with the developers the bugs and problems that prevailed on the website so that it could be fixed. The image below shows the view of Course Management window of Panditmama website.

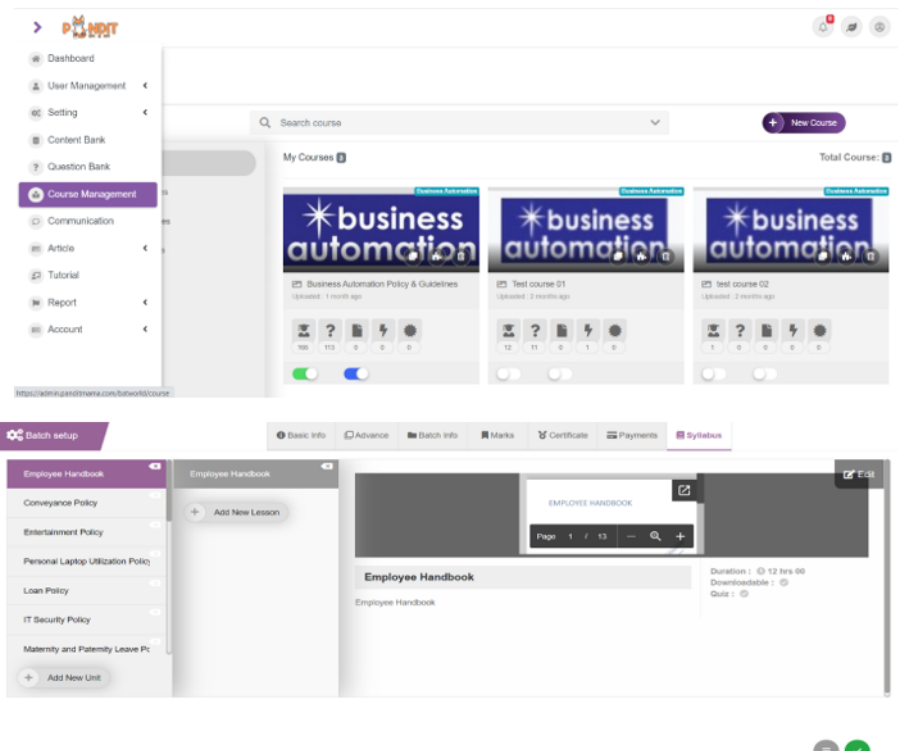


Figure 3.25: Course Management view of Panditmama

3.11 Tutorials and Assistance

My supervisor was my primary source of help and instruction, as he took the time to explain things and demonstrate how to accomplish the majority of the task correctly. Aside than that, I had internet connection, so I looked at a few different websites to get a general idea.

3.12 Communication and Meetings

As my internship began on July 1, 2021, during the lockdown, working from home during the epidemic was a completely different experience than I had expected. Our primary modes of communication were Zoom and WhatsApp. There were a variety of group chats depending on the job requirements. Each day began with a scrum meeting, during which everyone described their previous day's work and stated their daily work goal. Communication was not nearly as difficult as I had feared. Everyone was online throughout work hours (9 a.m. to 6 p.m.), so you could always get in touch with someone if you needed help. There was also a team meeting every Saturday, where different agendas were discussed and solved. I was able to join the office physically on July 17th. It was totally a different experience than working from. From my experience, I believe it is easier to work from the office than home as I was able to communicate more effectively face to face and get guidance from my superiors.

3.13 Work Environment

Working at Business Automation Limited has been a fascinating experience and a terrific learning opportunity for me. I met a few new people, some of whom I became acquainted with in a short period of time. No one puts down any suggestions, and everyone is really helpful. When I first started, I was not treated as an intern, but rather as a full-time employee. As a result, I was able to quickly integrate into their work culture.

Chapter 4

Conclusion

In my internship, I acquired a lot of important foundations in User Acceptance Testing, Manual Testing, Research and Documentation, API Testing, providing feedback, and project management. It's vital to plan ahead of time before starting the real test cases, and keeping a note of everything you perform is also a smart idea. Patience is required, and nothing should be rushed, as even the most basic and obvious mistakes are readily disregarded. To make it easier for me to examine an issue from many viewpoints, I've discovered that it's vital to consider the same topic in multiple distinct ways. It also came to my awareness that just because a feature worked the way it should doesn't mean it doesn't have a flaw. Therefore, never stop testing right after it has worked the way it should. I need to run more test cases and look for methods to break it. If anything is breakable, it can be improved and must be repaired. Before moving on to the more complicated components and features of User Acceptance Testing, Writing Test Cases, Research Documentation, API Testing, SQL Query, Database Testing and so on, I was exposed to very basic scenarios that were critical to comprehend. On July 1, 2021, I began this internship. It was a six-month contract that expired on December 31, 2021. As it is my final internship report, I have covered 6 months of my whole internship journey in the report and I have attached the internship completion certificate as well.

Internship Completion Certificate



REF/BA/HR/2021/039
December 31, 2021

TO WHOM IT MAY CONCERN

This is to certify that, **Mr. Nazmus Sakib Saad** accomplished his Internship under Application Team of Business Automation Ltd. He joined the Company on July 01, 2021 and was released from the services of the Company on December 31, 2021 at the close of business due to end of internship tenure.

We found Mr. Saad very dedicated to the work assigned. He is result oriented, professional and sincere. He carries excellent interpersonal skill and knowledge which helps to complete a lot of valuable business assignments.

We wish all the success in his future endeavors.

A. K. M. Ahsanul Kabir
Head of Accounts & Admin
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+8801755676710



Business Automation Ltd.

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