



An Undergraduate On Infotech Solution's Telemedicine Platform

By

Adila Rahman Mim

Student ID: 1720042

Summer, 2021

Supervisor:
MD. ASIF BIN KHALED
Lecturer

Department of Computer Science & Engineering
Independent University, Bangladesh

September 9, 2021

Dissertation submitted in partial fulfillment for the degree of Bachelor of
Science in Computer Science

Department of Computer Science & Engineering

Independent University, Bangladesh

Attestation

This is to certify that the report is completed by me, Adila Rahman Mim (ID:1720042), submitted in partial fulfillment of the requirement for the Degree of Computer Science and Engineering from Independent University, Bangladesh (IUB). It has been completed under the guidance of Md. Asif Bin Khaled. I also certify that all my work is genuine which I have learned during my Internship. All the sources of information used in this project and report has been duly acknowledged in it.

Signature

Date

Write Your Name Here

Name

Acknowledgement

I'd like to start by thanking Almighty Allah for His blessings and for providing me with the capacity to work hard and the chance to complete this report. I'd like to express my gratitude to my respected professor Asif Bin Khaled, Lecturer, Department of Computer Science Engineering, Independent University of Bangladesh, for his constant assistance and advice, which enabled me to successfully complete my project and report. I'd also like to express my gratitude to everyone who provided me with information, guidance, and suggestions in the preparation of this report. I'd like to express my gratitude to the Department of Computer Science and Engineering at Independent University Bangladesh for assisting me in gaining valuable knowledge and skills during my Bachelor's degree in CSE. I would like to give my immense thanks to Mr. Muhammad Pasha Biddut, our CTO, for his invaluable assistance and mentorship throughout the internship. Last but not least, I'd want to express my gratitude to all of my colleagues who welcomed me into their ranks and continued to assist me as I completed my project and report; it would not have been possible without them.

Letter of Transmittal

August, 2021

Md. Asif Bin Khaled

Lecturer

Department of Computer Science and Engineering

Independent University, Bangladesh (IUB)

Bashundhara R/A, Dhaka 1229, Bangladesh

Subject: Report submission of the internship

Dear Sir,

With due respect, I would like to submit my internship report for completing my Bachelor of Computer Science and Engineering degree. This report is based on my experience in Infotech Solutions BD, which began on 1st of July, 2021. I was welcomed warmly into work and Mr. Pasha Biddut, the Chief Technical Officer (CTO) was so very kind to guide me during my internship. I was assigned to their new project, a multi-national telemedicine system where I was working as a full stack developer with a team of great individuals. The objective of the internship is to study and gain knowledge, experience as well as to improve our abilities and get a taste of the corporate world, which I believe I have accomplished by working here. I'd also like to express my gratitude to you, Sir, for your unwavering support and advice, which enabled me to complete the project. I hope this report is informative and meets your expectations. I've done my best and I'm hoping that my report will meet the required expectations.

Sincerely,

Adila Rahman Mim

1720042

Evaluation Committee

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Supervisor

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Internal Examiner

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Convener

Abstract

With the coming of Corona Virus, the concept of telemedicine platforms have gained a lot of popularity. Many such platforms have opened since then and our company has also taken upon themselves to create a multi-national telemedicine platform that will aid all bengalis world wide. Upon research we have found that people living in rural areas of Bangladesh do not receive proper doctor's consultations. Sometimes they even need to travel to Dhaka for just a mere consultation. Our approach is to solve this problem and provide better assistance and easier reach to world class doctors. When i say world class, i mean it because we are going to recruit international bengali doctors as well as the most reputed doctors in Bangladesh.

This report describes my work and my experience with Infotech Solutions BD. Initially, my work here in Infotech Solutions was to research and work with the UI/UX designers the design, layout of the system and to make sure the system is user friendly to all. Then my colleagues and I were put to work building the admin panel of the system. The admin panel handles the user requests, balance requests from agents and oversees activities of all the stakeholders in the system. I had created the Employee module and Sales agent module dashboard, used the MVC module to connect the front end with back ends. For front end, used bootstrap to make life easier, performed CRUD functionalities. Furthermore, due to Covid-19, the research work involved doing surveys of people in different economic classes and their outlook and expectation towards telemedicine.

Keywords— telemedicine, system

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Chapter 1

Introduction

1.1 Background of the Work

People of Bangladesh are on the era of digitalization and adopting new technologies and systems. We have gotten extremely reliant on the internet in our daily lives as a result of the pandemic. Taking advantage of this opportunity, every company is attempting to provide the greatest services possible on the internet. On the internet, we are seeing an explosion of e-services and marketplaces.[1] [2]. This is the time to introduce telehealth services to the people of Bangladesh. Infotech Solutions is developing a telemedicine platform. Patients will be able to consult doctors at their ease through our web platform. To consult with a doctor from the comfort of your own home, all they would need is an internet connection and a laptop or phone. From further studies we have seen that rural areas of Bangladesh needs telehealth more than ever. Having the access of thousands of good doctors will help them get better soon and they won't need to travel for their needs. This is what Infotech Solutions want to offer and is creating this platform.

1.2 Objectives

The goal for establishing this facility is to create an understanding within the people of Bangladesh that they can receive the best healthcare services wherever they are.[2]. Our system is equipped with various options to make sure the patients are receiving the best of the best. They can choose their preferred doctors, wherever the location might be. Patients can make online appointments for video consultations with their chosen doctors, upload their test reports, and based on the doctor's analysis, send online prescriptions to their patients with their online signatures using the telemedicine software. If they are registered patients, all of their past test records will be saved in their profile to enable the doctor in making a suitable decision. The website is designed with good concepts of UI/UX in mind. The User Interface is designed to give the website a premium yet user friendly look. The concepts of User Experience are also taken into account

while designing to give its user a good experience. Payment for a doctor's consultation can be made through an online payment gateway (SSL Commerce) or a digital banking app or through our Sales Agent.

1.3 Scopes

I have been assigned on handling two of the modules in the admin panel:

1. Sales Agent management:

- View Request: The admin will be able to view requests sent from various sales agent.
- Add Sales Agent: The admin will add sales agent by selecting Country; Bangladesh/Malaysia/Saudi Arabia/ United Arab Emirates and then proceed on filling up their Name, Username, Email and Phone number along with password.
- View Sales Agent: The admin can view all the sales agents from selected country and states.
- Transactions: Admin can print, view and download the transactions made by individual Sales Agent from any date of the month or year.
- Reports: Admin and view, download and print Sales report of every individual Agent.

2. Employee management:

- Add Employee: Admin can add employees by selecting Country; Bangladesh/Malaysia/Saudi Arabia/ United Arab Emirates and Employee Type; Calling Agent or Accountant. Then proceed on filling on their names and password.
- View Employees: The admin can view all the employees in the selected country of any Employee type selected.

Chapter 2

Literature Review

2.1 Relationship with Undergraduate Studies

I learned treating data as an object and the concept of modular code structure which made codes shorter and more efficient. The concept of using functions and class was very helpful and was widely used in my project. All these were taught in CSE 213, Object-oriented Programming course. The usage of database was key in my project, I learnt the basics of a database and how it works, database languages, Rich Picture, ER Model, Converting ERD-Relations, Introduction to Normalization and Structured Query Language in CSE 303, Database Management. This was a basic core course which focused on teaching us how to plan and design a project. In this course all these knowledges were useful while I designed and planned the project along with my team members. Knowledges of MySQL, PHP and use of local server were the focus of my project, I was glad that I knew the basics. The concept of Used Case Diagram, Used Case Scenario, SDLCs and how to adopt each one of them to the project, everything was taught in our System Analysis and Design, never realised why we were made to understand such diagrams but this came in handy while reading and understanding the planning of our project during my internship. Languages that are highly in demand in the industry, such as HTML, CSS, JavaScript, jQuery, Node.js, Express.js, and MongoDB were all taught in CSE 309, Web Application and Internet. This is the course where the development of web applications was taught. It covered very important technologies that are I was able to built the front end of our project based on solely what I Learned in this course.

2.2 Related works

For centuries, we have seen when a patient is unwell and needs to seek doctor consultation.[2]. The patient needs to visit a doctor. There were two options within their reach. One, go to the doctor's home (if you are related to them). Two, rush to a clinic near by and wait in queue when you will be called and you can then talk to the doctor. This waiting period may take

hours depending on the hospital, rush hour, availability of the doctor and their nurses.

Nothing much has changed since then. The only difference is now doctors often have their own private chamber and you have the opportunity to call hospitals beforehand to book your sit. Yet, patients still wait hours for their turn as most clinics are flooded with pharmaceutical salesman, they burge in too between the patient slots. The whole process is simply tiring. As Bangladeshis, we know what it means to go to the doctor. An entire day will be lost.

Due to Covid-19, mankind was forced to come to a solution on how to treat non-Covid patients without them mixing with other patients at the hospital. Thus, telemedicine was invented. Since then, it has gained a lot of popularity world wide.

And why won't it? It provides such a great alternative rather than going to the hospital waiting for hours just to consult with a doctor for 10 minutes. The popularity has spread to Bangladesh as well.

Even though the concept of Telemedicine is fairly new in Bangladesh. Many companies has already launched their services and are already up and running. Presently, there are 15 tele-health service providers that has gained public acknowledgement. Some of them are similar to ours such as, Sebaghar, HelloDoc, Praava Health and Daktarhai. They also provide doctor consultation and prescriptions. Our platform has weighted that down and has created a system that aids the patient a step more. We have sales agents that takes care of the payment of every patient if they do not want to step out of their home, they have to just call a sales agent close by and the sales agent will recharge the amount to the patient's account, patients can also opt to buy scratchcards beforehand and recharge later on their own before a consultation. Furthermore, we are catering for bengalis that live abroad, rural areas and so forth. We also have arranged international money exchange system as well.

Chapter 3

Project Management & Financing

3.1 Work Breakdown Structure

WBS stands for Work Breakdown Framework, and it is a hierarchical structure that shows how a project is broken down into smaller chunks. We created a work breakdown structure (WBS) for our project to ensure that our efforts are coordinated. WBS provides a visual representation of all scopes, hazards, communication points, responsibilities, and expenses, as well as ensuring that important deliverables are not overlooked. It is the best tool for team brainstorming and cooperation. The top-down strategy was adopted in our WBS.

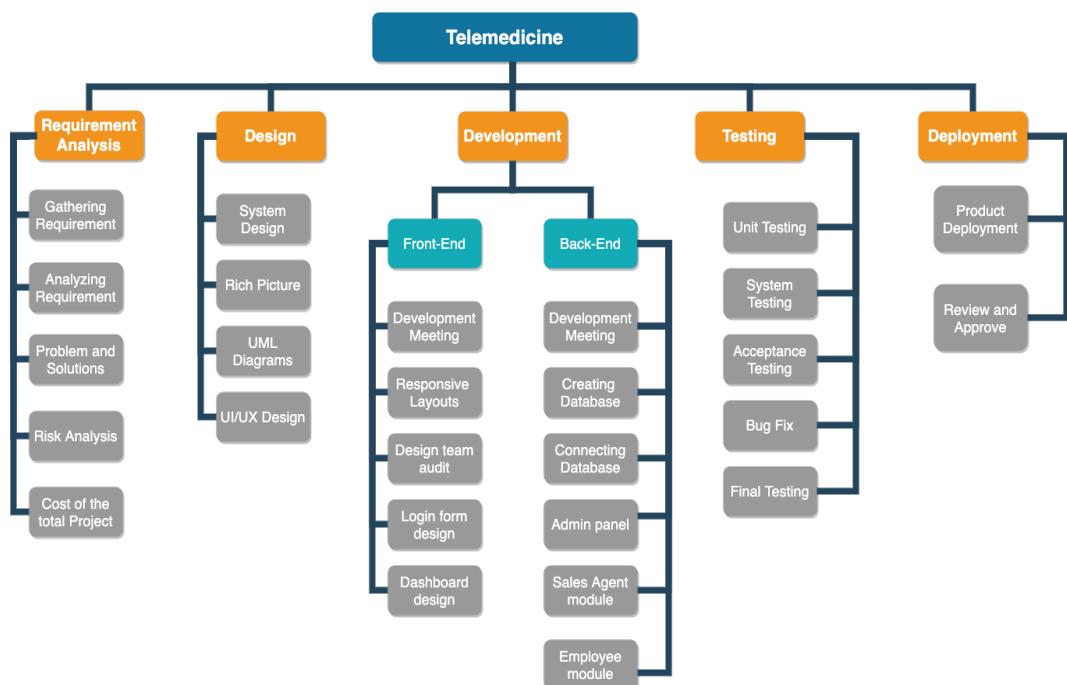


Figure 3.1: WBS

3.2 Process wise Time Distribution

We have created a table based on our WBS to show what percentage of work should be accomplished in a given period of time. The project's completion time was projected to be 60 days. The complete task is broken down into five key tasks. The following are the five key tasks:

Activity	Days
Requirement Analysis	10
Design	5
Development	30
Testing	10
Deployment	5
Total	60

Table 3.1: Process wise Time Distribution

3.3 Gantt Chart

We have used the gantt chart to plan all the work that needs to be done.

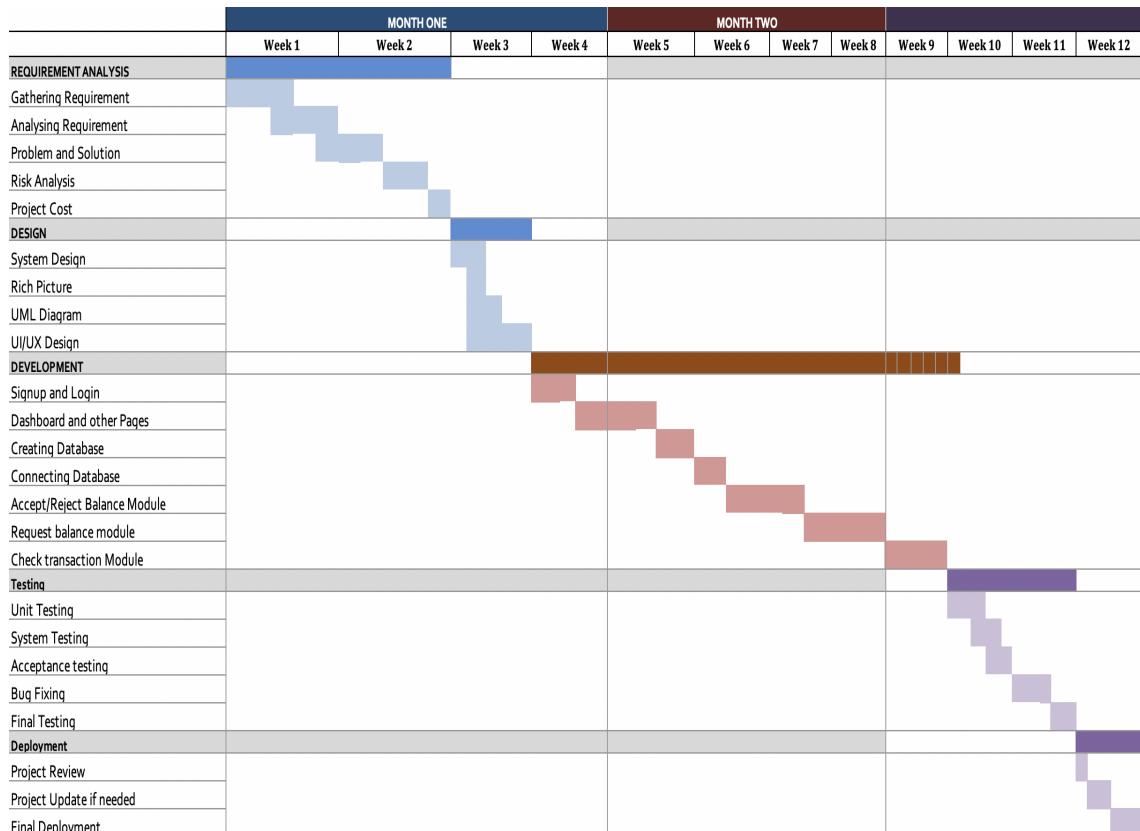


Figure 3.2: Gantt Chart

3.4 Activity wise Resource Allocation

Resource allocation is the process of allocating available resources in a cost-effective manner. The following data was obtained from the company, and we can see how this can assist a corporation in determining which items to fund in the plan and at what amount of funding, as well as which to leave unfunded.

Team Member	Pax	Approximate Salary
Project Head (Senior full Stack Developer)	1	25,000
UI/UX Designer	1	17,000
Senior System Analyst	1	20,000
Business Analyst	1	20,000
Marketing Team	3	35,000
Trainee Full Stack Developer	5	25,000

Table 3.2: Activity Wise Resource Allocation of Web Portal development team

Name	Purchasing Company	Description	Price in BDT
Hosting	Digital Ocean	128 GB SSD, 4GB RAM, 3 CORE CPU	25,000/Year
Domain	Whois.com	Name.com	850/-

Table 3.3: Activity Wise Resource Allocation of Domain And Hosting

3.5 Estimated Costing

The cost of a project is determined by a variety of criteria, including the project's size, functions, design, and any additional features requested by the client. We have an estimated costing table below that includes all of the costs. BDT currency was anticipated to be the overall cost.

Work Distribution	Costing
UI/UX Developer	45,000
System Analyst	60,000
Development team	15,0000
Business Analyst	60,000
Marketing Team	10,5000
Domain and Hosting	25,850
Digital Marketing	25,000
Offline Marketing	15,000
Doctor & Agent Accusation	15,000
TOTAL	5,10,850

Table 3.4: Estimated Costing

Chapter 4

Methodology

A system development life cycle (SDLC) is a project management strategy that defines the various stages of a project from beginning to end. Clear roles and responsibilities are specified and goals that are meant to be completed after each phase of the SDLC, such as planning, creating, developing, testing, and deployment.

For SDLC, there are several methodologies and models to choose from, including:

- Agile
- Lean
- Waterfall
- Iterative
- Spiral
- DevOps.

Each of these models is unique in some way, but they all serve the same purpose of organizing a project and assisting the project team in working more effectively and efficiently.

4.1 Our Approach

For our telemedicine project, we are using the Agile Model. The tasks in agile are divided in small phases which helped us to handle different modules differently and deliver fast, best features of every module in the project.

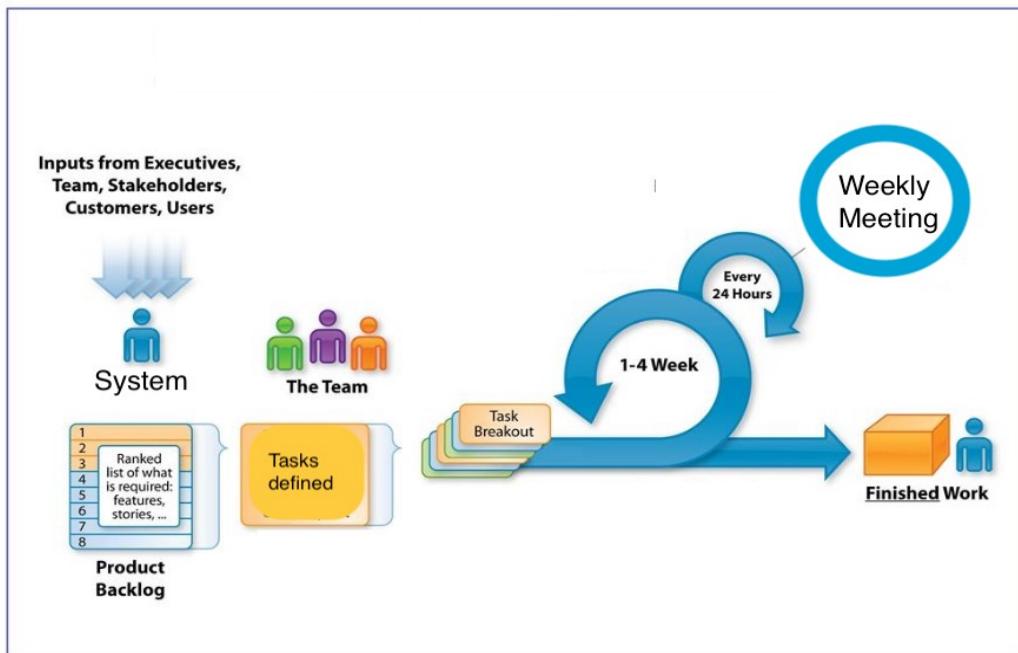


Figure 4.1: Rich picture of Agile methodology followed by the company

Agile model is best suitable as it follows a combination of iterative and incremental approach which helps the project to adapt to changes rapidly. Especially when changes need to be made after each testing period. As we constantly keep on checking for errors and weekly meetings were held to keep an update of the work done and needed to be done or problems to be solved. This model was best suited. Implementing each phase is easier.

Chapter 5

Body of the Project

5.1 Work Description

At the beginning of the project, I was assigned to work with the graphic designers to come up with a mockup of the system. Once the design was ready and approved, the whole developer team went into executing the system. I was asked to handle a part of the admin panel. It was the system management of Sales agents and Employee. The company follows the CodeIgniter framework which I haven't used or had known before so i was given some demo sessions on how it functions. Later on, i had implemented the pages using the MVC model (company rules). Our progress was checked every three days by the head developer.

5.2 System Analysis

5.2.1 Six Element Analysis

	Human	Non Computer Hardware	Computer Hardware	Software	Database	Communication
Add Employee	Admin	Pen, Paper	Computer	Web Browser	My SQL	Internet
View Employee	Admin	Paper	Computer	Web Browser	My SQL	Internet
View Sales Agent Request	Admin	Paper	Computer	Web Browser	My SQL	Internet
Add Sales Agent	Admin	Paper	Computer	Web Browser	My SQL	Internet
View Sales Agent	Admin	Paper	Computer	Web Browser	My SQL	Internet
Transactions	Admin	Paper	Computer	Web Browser	My SQL	Internet

Table 5.1: Six element Analysis

5.2.2 Feasibility Analysis

A feasibility study determines if a proposed plan or project is feasible. A feasibility study examines a project's viability in order to assess whether it is likely to succeed. The analysis will also identify any potential concerns or problems that may occur as a result of moving forward with the project. There were five analysis done before the start of the project.

1. Technical Feasibility: Here we have assessed on the technical resources available to the organization. It helps organizations determine whether the technical resources meet capacity and whether the technical team is capable of converting the ideas into working systems. We have checked if the available applications in the systems, facility to operate, resources with technical ability, etc. are sufficient for the project or we need to add more.
2. Economic Feasibility: This evaluation is by far the most important. Before the start of any project a company needs to understand if the project can be funded by the company or they need further assistance. This analysis determined the project's viability, cost, and benefits before allocating financial resources. It also boosts project credibility by assisting decision-makers in determining the proposed project's positive economic advantages to the business.
3. Legal Feasibility: This assessment looks into if any component of the proposed project violates any regulations, such as zoning rules, data protection legislation, or social media laws. Infotech Solutions BD investigated if our project and its added facilities will violate any law of Bangladesh, UAE, Malaysia, Saudi Arabia.
4. Operational Feasibility: Undergoing this assessment, we have found that people do not like waiting for hours in a hospital and also the journey to it is very hectic. Our system can solve these problems and provide a more hassle free. Nowadays, people have faith and are comfortable talking to the doctor online and downloading the prescription at their own pace.
5. Scheduling Feasibility: The project timetable was planned even before starting the project itself. We all had deadlines to follow, the company was strict about it. This helped in accomplishing all the tasks and completing the project. Infotech Solutions Bd is aiming to launch this project in October 2021 to the Bangladesh, Malaysia and UAE market.

5.2.3 Problem Solution Analysis

This was my first time working in a corporate office environment as an intern in such a big project. I had faced several small difficulties which was easily solved with the help of my co-workers. For example;

- writing SQL queries for the form.

- MVC model: The whole team had to follow a specific model so that our work matched. I wasn't able to load the an entire section of a sub-module. It was solved by simply using the proper path directory (view file).
- Abundant repeated data: As our project is preparing to launch in 3 different countries, data were collected from several software companies outside Bangladesh where there were a lot of repeated data, false data. It was solved by matching the data with a verified email address to confirm clearance.

5.2.4 Effect and Constraints Analysis

Our platform is built to provide patients to avail their preferred doctors at their available time wherever they are. The system is made sure to be user friendly as we are targeting the people of urban areas as well. With all of these facilities at hand yet we cannot disagree that telemedicine concept is fairly new to the people of Bangladesh. There are some who will still find the traditional concept more appealing and worth the hassle. In the future, we want to introduce international doctors to the list so that Bengalis don't have to travel overseas to get consultation from a doctor.

5.3 System Design

5.3.1 Rich Picture

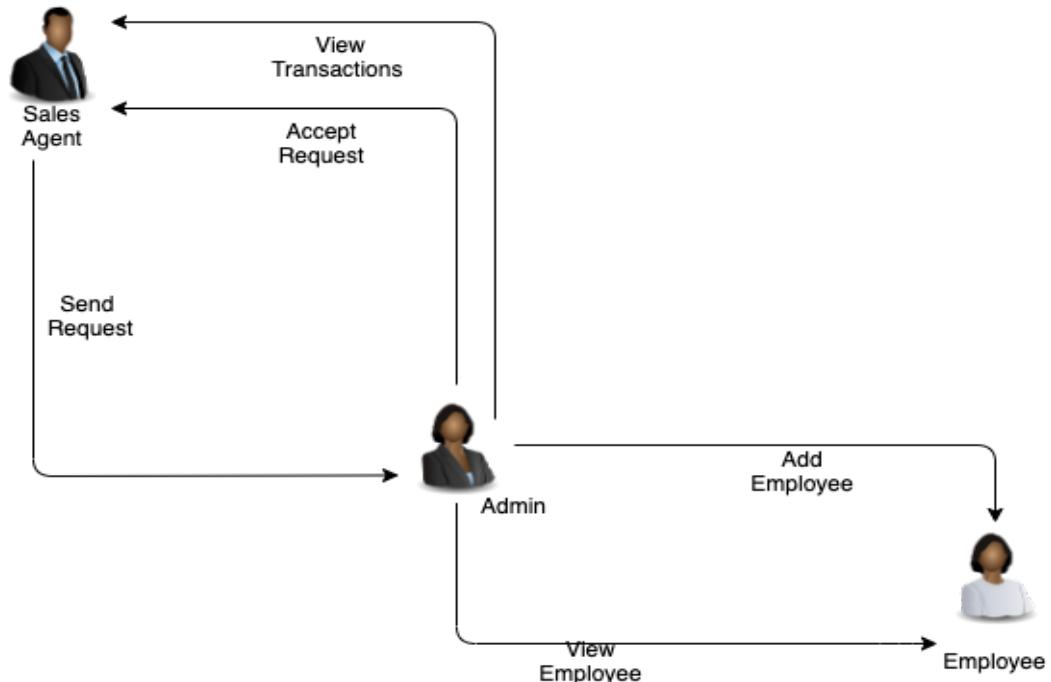


Figure 5.1: Rich Picture of designated work

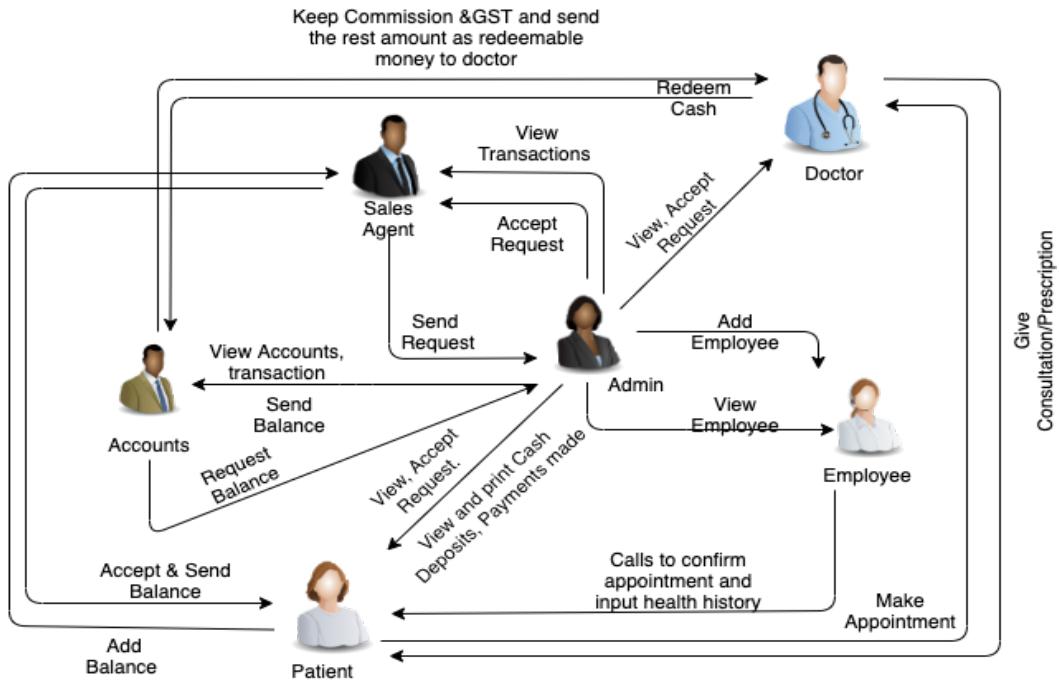


Figure 5.2: Rich Picture of the entire system

5.3.2 UML Diagrams

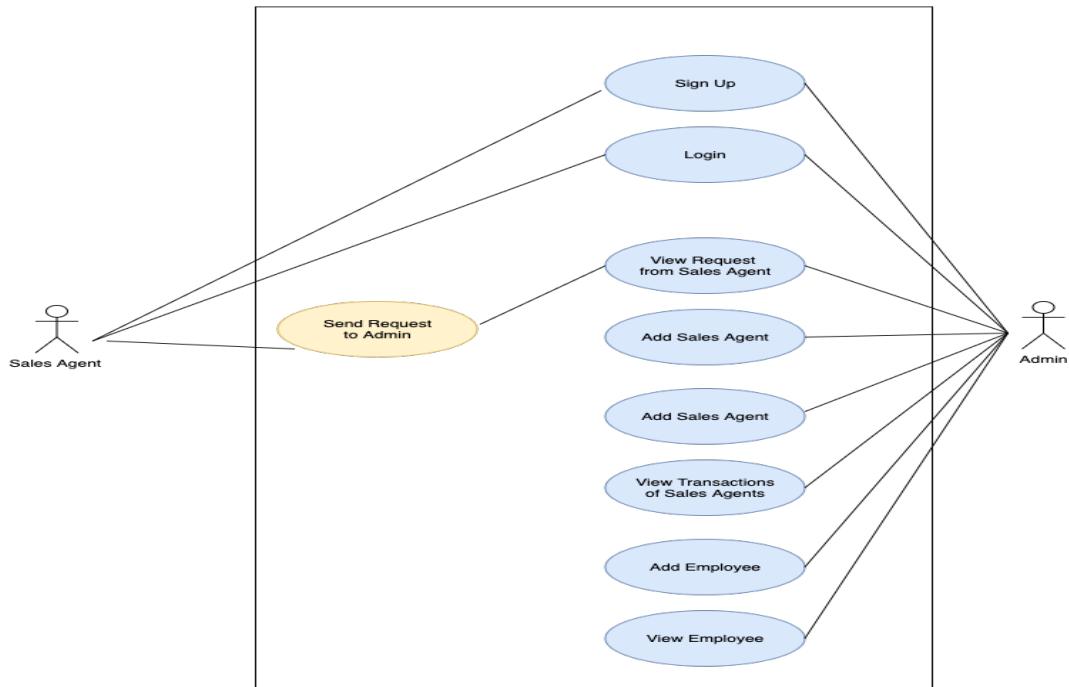


Figure 5.3: Use Case Diagram

5.3.3 Functional and Non-Functional Requirements

Functional Requirement:

Function: Admin must be able to add Employee
Input: Add details (Select Country, User type, and input name and password.)
Process: Fill up the details
Output: Added
Precondition: User must have a computer or mobile phone with internet access
Postcondition: Details can be seen by the system admin.

Table 5.2: Functional Requirement

Function: Admin must be able to View Employee
Input: Click button
Process: Select Country and User Type to view
Output: All the employee under that country is shown
Precondition: User must have a computer or mobile phone with internet access
Postcondition: Details can be seen by the system admin.

Table 5.3: Functional Requirement

Function: Admin must be able to View Sales Agent Request
Input: Click in View Request
Process: Load the request page
Output: All Sales Agent request is shown
Precondition: User must have a computer or mobile phone with internet access
Postcondition: Details can be seen by the system admin.

Table 5.4: Functional Requirement

Function: Admin must be able to Add Sales Agent
Input: Add details (Country, State, Username, etc.)
Process: Fill up the details
Output: Sales Agent is added
Precondition: User must have a computer or mobile phone with internet access
Postcondition: Details can be seen by the system admin.

Table 5.5: Functional Requirement

Function: Admin must be able to View Sales Agent
Input: Select options
Process: Select Country and State
Output: All Sales Agents of the selected country and state will appear.
Precondition: User must have a computer or mobile phone with internet access
Postcondition: Details can be seen by the system admin.

Table 5.6: Functional Requirement

Function: Admin must be able to View Transactions
Input: Input details (ID, date, etc.)
Process: Input Agent ID, select date, click Search
Output: All transactions made by the agent will load.
Precondition: User must have a computer or mobile phone with internet access
Postcondition: Details can be seen by the system admin.

Table 5.7: Functional Requirement

Non-Functional Requirement:

1. Usability: The system is designed in such a way that anyone with basic education can use our system. We made sure the UI/UX meets with our targeted demography.
2. Maintainability: The maintenance of the system is very straightforward. Maintenance will take place after every 6 month, text for any lag and complaints from users. This will be sent to the development team to solve. This will ensure that our system runs smoothly.
3. Valid data: To provide correct services, the informations provided by the users need to be validated. We have a team of calling agents to call and confirm (double check) informations provided.
4. Performance: Performance of a site is directly related to the experience of the users. So providing smooth transition between each pages is key. We attempted to provide a smooth experience for visitors by optimizing the code and content, as well as setting the server to provide a good loading time and system traffic handling.
5. Scalability: The system can be accessed from multiple devices, such as, phones, tablets, computers, laptops.
6. Security: Privacy is strictly maintained.

5.4 Product Features

5.4.1 Input

The Homepage of admin:

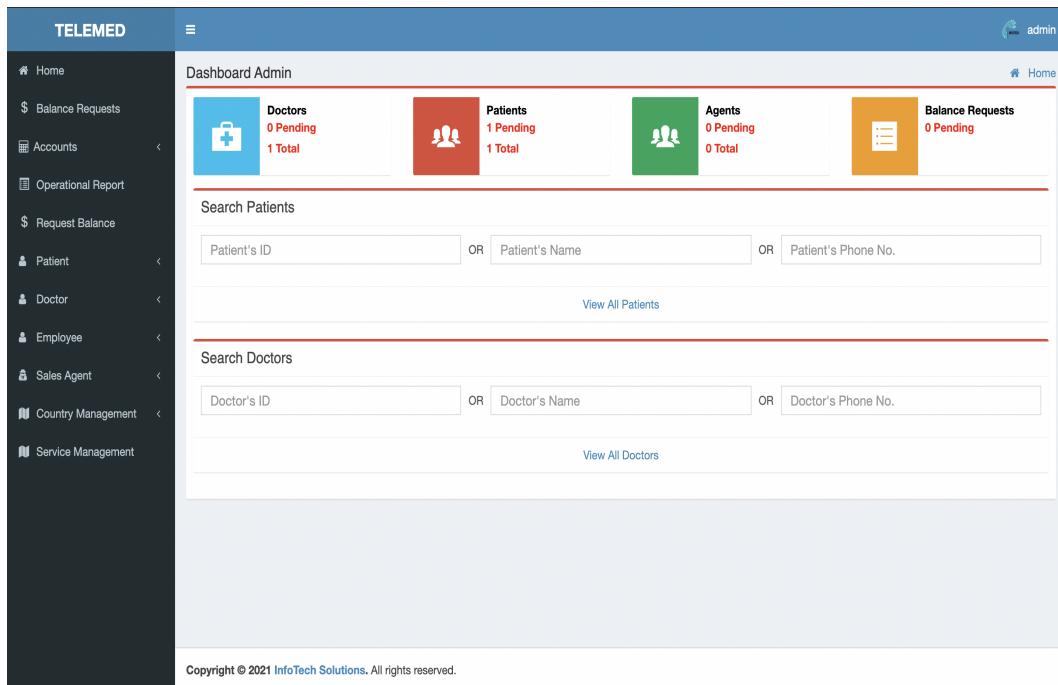


Figure 5.4: admin homepage

Add Employee: In order to add employees, the admin will fill in the details and click submit.

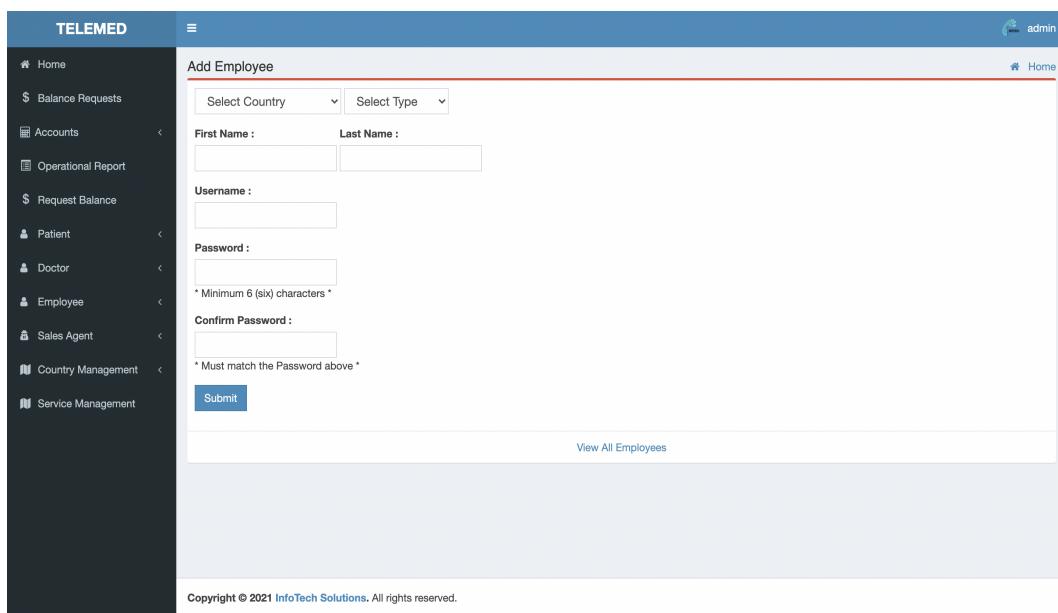


Figure 5.5: Add employee page

View Employee: After selecting the Country and User type. All the employees under that specification will load into the page.

The screenshot shows the TELEMED application's user interface. On the left is a dark sidebar with a navigation menu containing items like Home, Balance Requests, Accounts, Operational Report, Request Balance, Patient, Doctor, Employee, Sales Agent, Country Management, and Service Management. The main content area has a blue header bar with the word 'TELEMED' on the left and a user icon labeled 'admin' on the right. Below the header, the title 'Employees' is displayed above a search bar with dropdowns for 'Country' (set to 'Bangladesh') and 'Type' (set to 'Calling Agent'), and a 'Search' button. To the right of the search bar is a 'Show [10] entries' dropdown and a 'Search:' input field. The main table lists one employee entry: Mahin22, MAHIN RAHMAN, Calling Agent, Bangladesh, Enabled. Action buttons for 'Disable', 'Edit', and a trash icon are shown next to the status. At the bottom of the table, it says 'Showing 1 to 1 of 1 entries'. Navigation buttons for 'Previous', '1', and 'Next' are at the bottom right. The footer of the page contains the copyright notice 'Copyright © 2021 InfoTech Solutions. All rights reserved.'

Figure 5.6: View employee

Add Sales Agent: The admin will fill in the details of the agent and press the submit button to successfully add the agent.

Add Sales Agent

Country : State :

Select Country | Select State

First Name :

Last Name :

Choose Username :

MahbubR

Password :

.....

* Minimum 6 (six) characters *

Confirm Password :

* Must match the Password above *

Mobile No :

Select Code | 12 345 67890

Email :

Confirm Email :

Submit

Figure 5.7: Add Sales Agent

View Sales Agent Request: All the requests from sales agents will load here and only upon being accepted from the admin will the agent be able to log in and be added into the system as registered sales agents.

Sales Agent's Reg. Request(s)

Show 10 entries

Action Name Country Phone No. email

TALHA RAHMAN Bangladesh +8801222987712 Not Verified

Showing 1 to 1 of 1 entries

Previous 1 Next

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Figure 5.8: Sales Agent Request

View Sales Agent: After selecting the Country and User type. All the agents under that

specification will load into the page.

Action	ID	Username	Full Name	Country	State	A/c No.	Balance
	000001	MahbubR	MAHBUBUR RAHMAN	Bangladesh	Cox's Bazar	000031	0.00

Total : 0.00

Showing 1 to 1 of 1 entries

Previous 1 Next

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Figure 5.9: View Sales Agent

5.4.2 Output

Date	Voucher No	Description	Debit	Credit
08/09/21	000015	Balance Patient - 000002	1.00	View
08/09/21	000016	Balance Patient - 000002		1.00 View

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Figure 5.10: Sales Agent Transaction

Transactions: All the transactions made by the agents will appear upon inputting the Agent ID and selecting the time.

The admin can download and print transactions made by any Sales Agent by selecting any time frame.

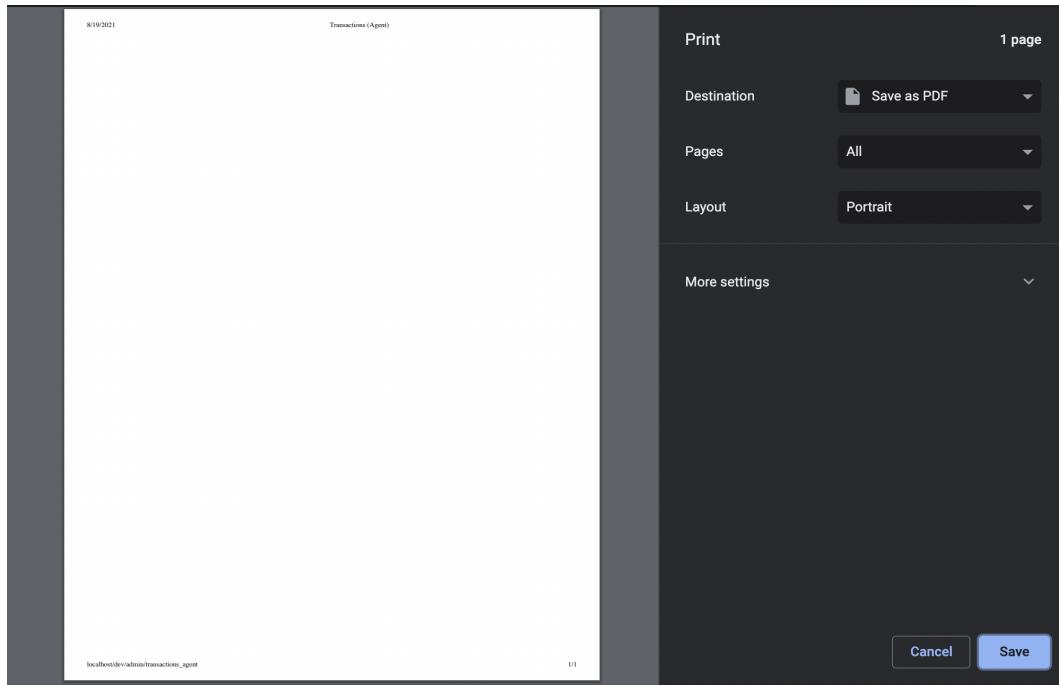


Figure 5.11: Sales Agent

5.4.3 Architecture

We are following the Model–view–controller (usually known as MVC). This enables all the employees to follow a strict way of programming and store all the files in a common pattern. Model; The pattern's most important element. It's the app's dynamic data structure, which isn't affected by the user interface. It manages data, connects the database, logic, and rules. Views; It is the front end of the browser. Anything and everything we see. Controller; Accepts input and turns it to model or view commands. The model–view–controller design not only divides the program into these components, but it also defines the interactions between them. The model is in charge of data management. From the controller, it accepts user input. The view is used to render the model in a certain format. The controller reacts to user input and interacts with the objects in the data model. The controller accepts the input, validates it if necessary, and then sends it to the model. Different types of architecture are employed in different systems. We adopted a three-layer architecture in our telemedicine system.

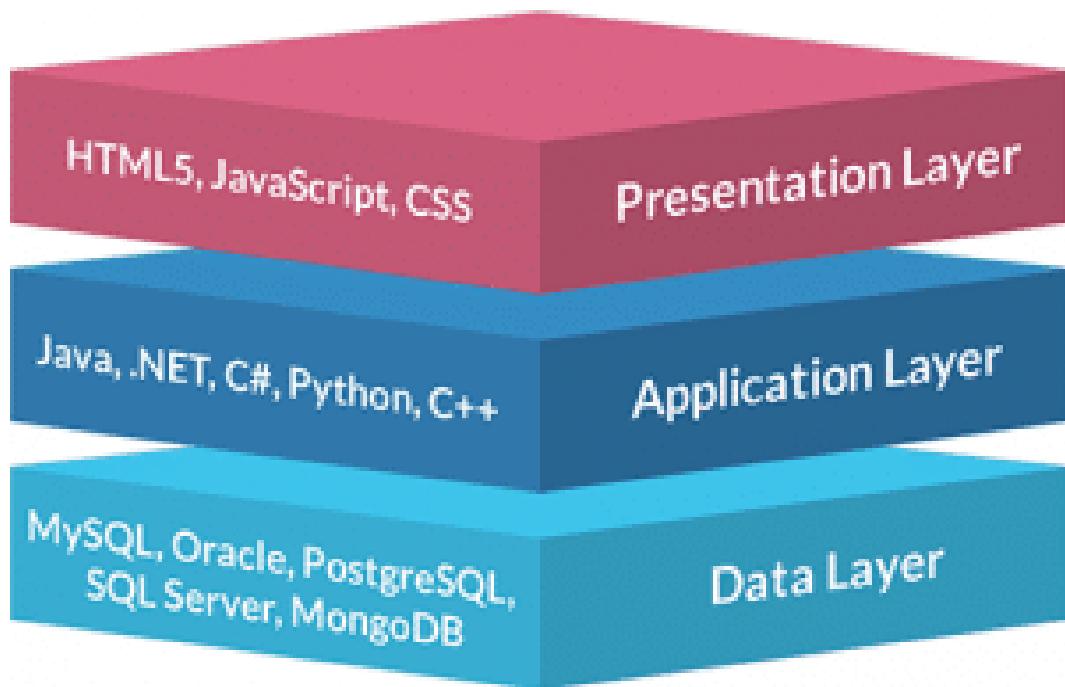


Figure 5.12: 3 tier architecture of the system

Chapter 6

Results & Analysis

The project of Infotech Solutions Bd is being made to provide user friendly ambiance for all users including the admin. This is being considered the top of our concern because Infotech Solutions is targeting the people from urban areas and bengali workers in UAE therefore making the platform user friendly will make it easier for them to use it and also enjoy our services. We catered to their needs and build a system ideal for all users.

Below is an overview of what we have achieved in the project and how it will help our users:

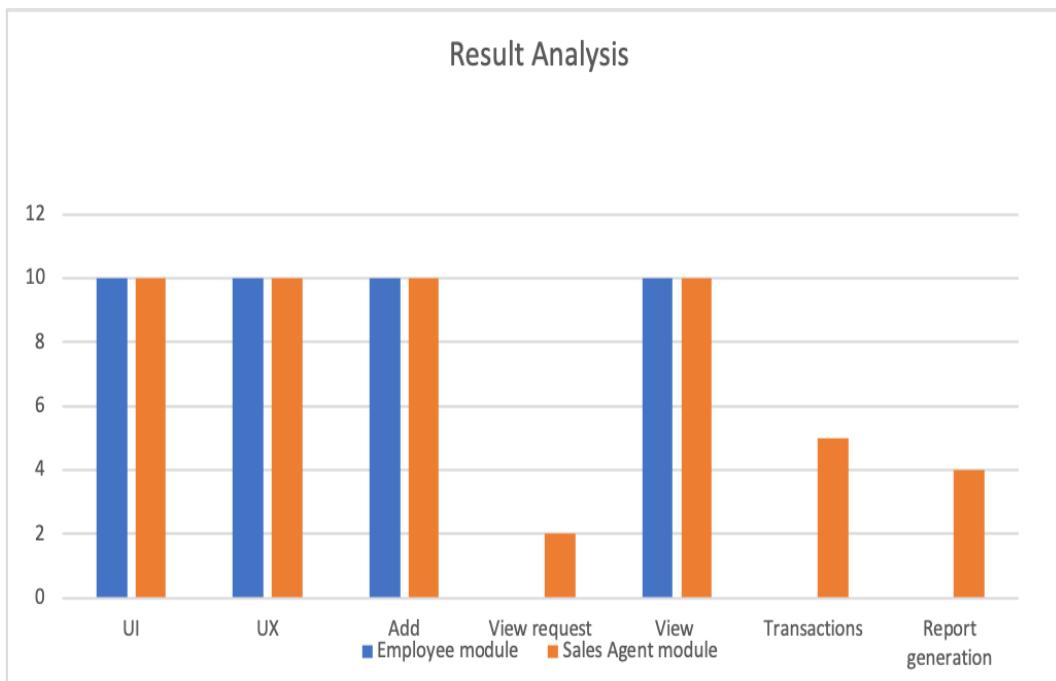


Figure 6.1: Double Bar graph of Result Analysis

Furthermore, some attachments are given to illustrate the results.

Log IN page: We have made separate panels for different type of user log-ins instead of a normal drop down box to select user type.

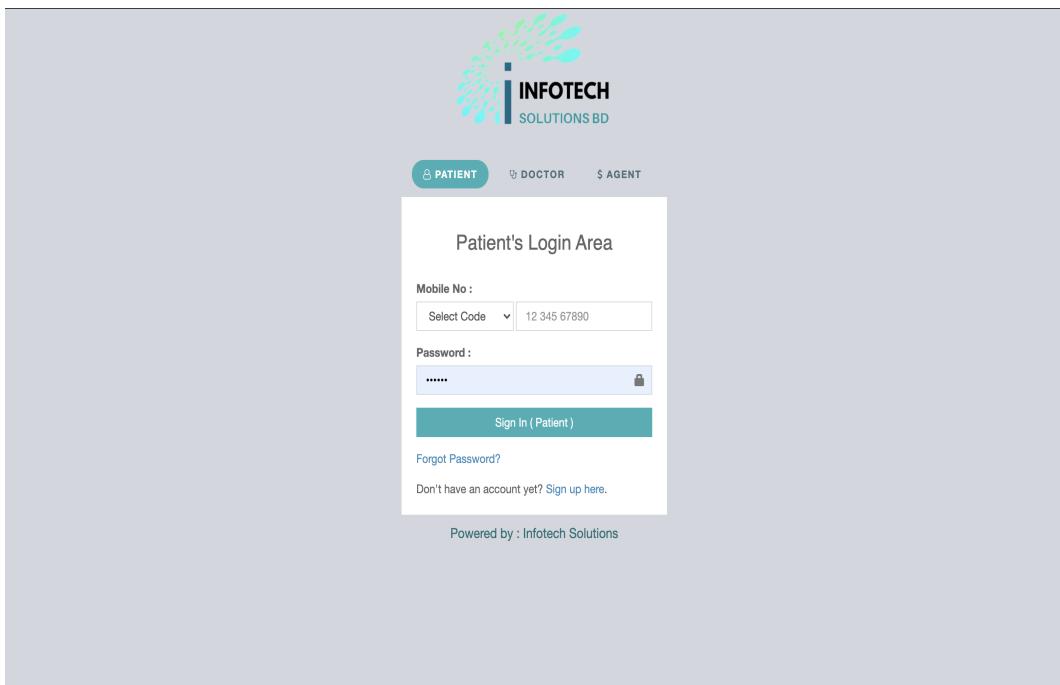


Figure 6.2: Log In page of patient

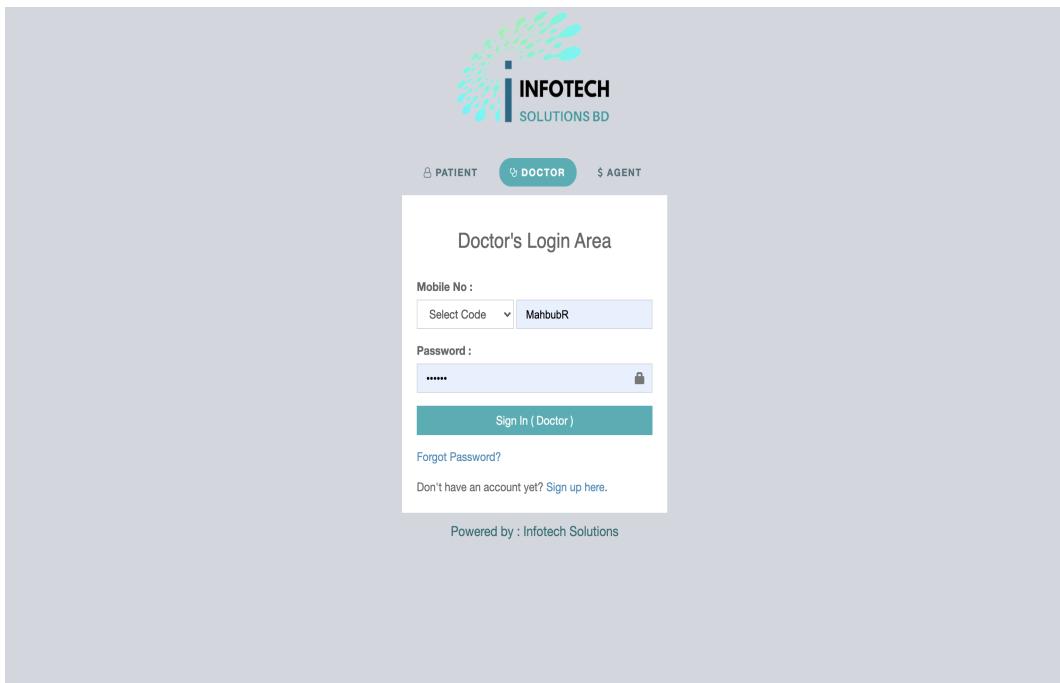


Figure 6.3: Log In page of doctor

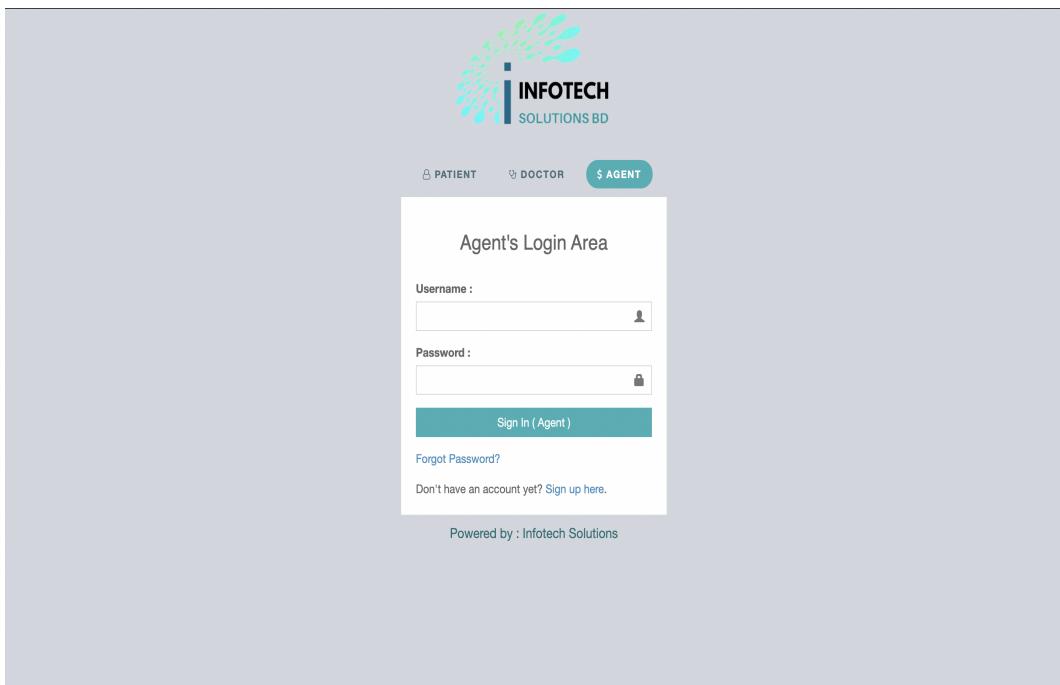


Figure 6.4: Log In page of agent

Sign Up page: The Sign Up page contains individual panels for each user as well. During registration, we take only whatsapp authenticated numbers as our MediTalk services will be provided using this platform.

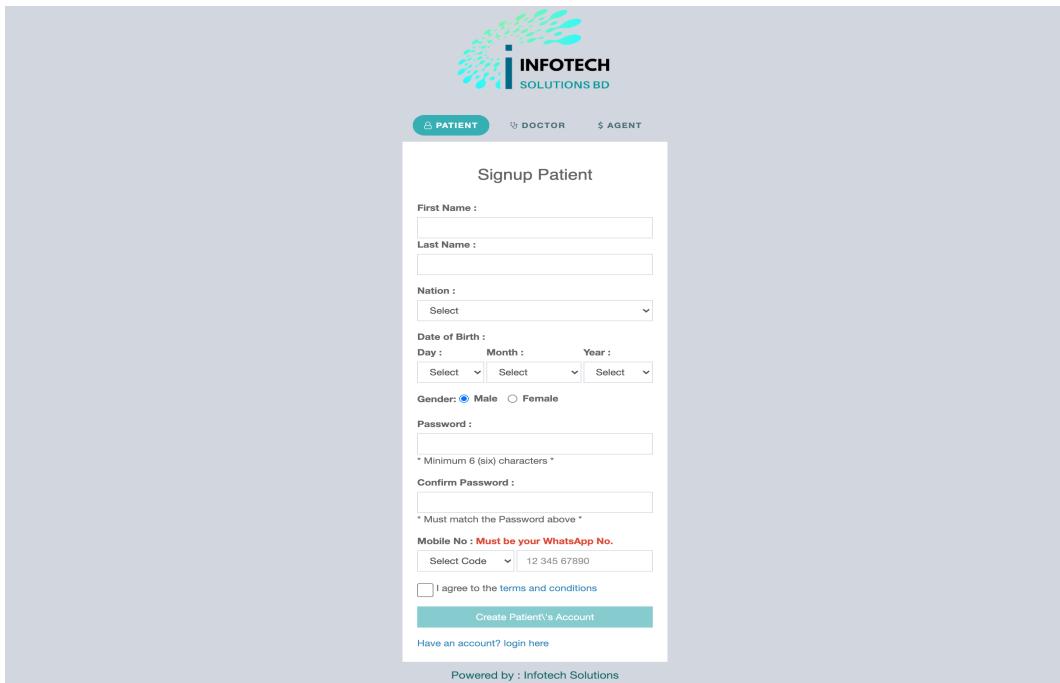


Figure 6.5: Sign Up of Patient



PATIENT DOCTOR AGENT

Signup Agent

First Name :

Last Name :

Choose your Username :

Password : * Minimum 6 (six) characters *

Confirm Password : * Must match the Password above *

Country : State :
Select Country Select State

Mobile No : Select Code 12 345 67890

Email : ex: email@email.com

Confirm Email : ex: email@email.com
* Must match the address above *

Submit

Have an account? [login here](#)

Powered by : Infotech Solutions

Figure 6.6: Sign Up of Agent



PATIENT DOCTOR AGENT

Signup Doctor

Mobile No : **Must be your WhatsApp No.** Select Code 12 345 67890

Have an account? [login here](#)

Powered by : Infotech Solutions

Figure 6.7: Sign Up of Doctor

Once each user has logged into their account, they can view their own dashboards. Each user has different functionalities and works according to that.

Admin dashboard: User confirmation is accepted and declined by the admin. They have access to view all patients and doctors registered in the system.

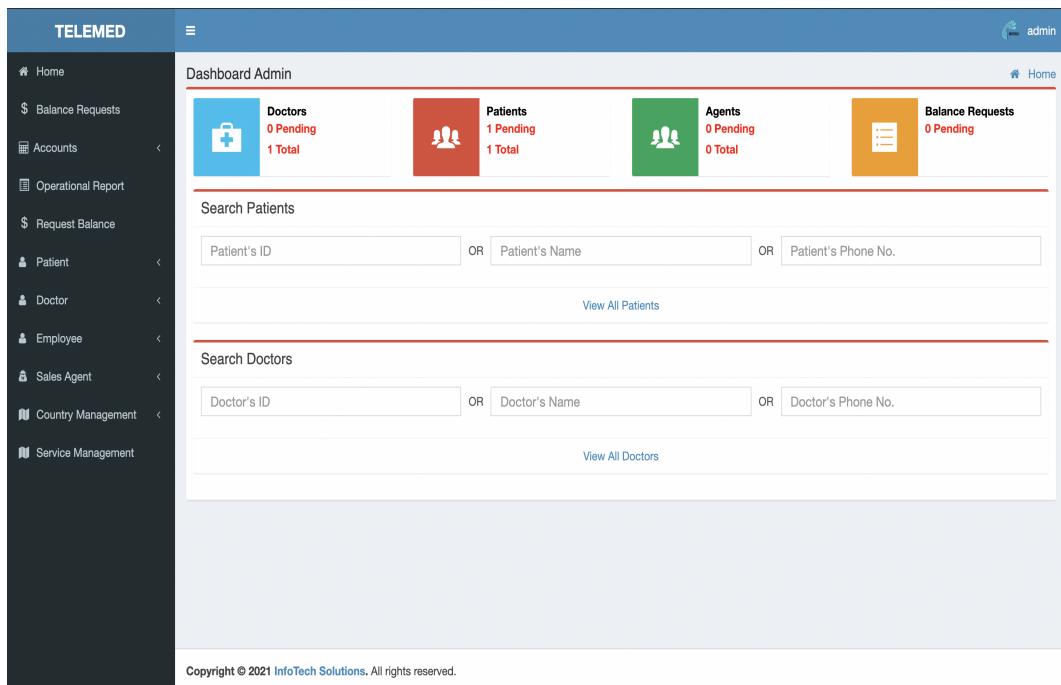


Figure 6.8: Admin dashboard

Add Employee: The admin adds employees (Calling agents, Accountant) by selecting country, type and filling out the name and temporary password for the user.

Figure 6.9: Add employee in Admin dashboard

Upon clicking the button, "Submit" a pop-up notification will appear asking if the admin is confirm to add the user.

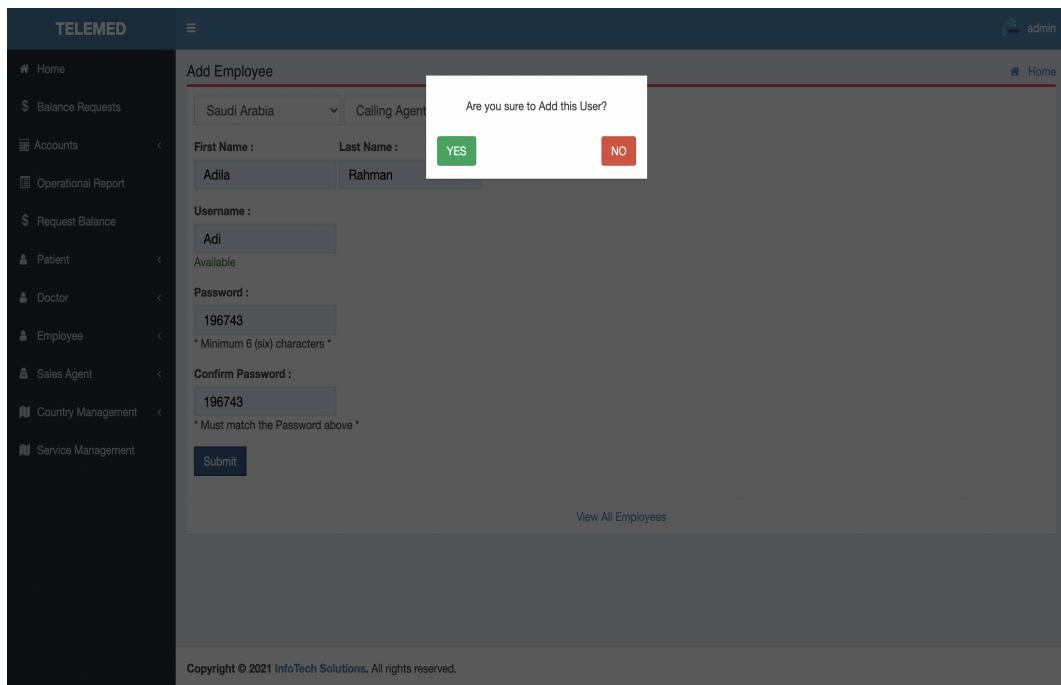


Figure 6.10: Add employee in Admin dashboard

Once confirmed, another pop-up message will appear confirming the action.

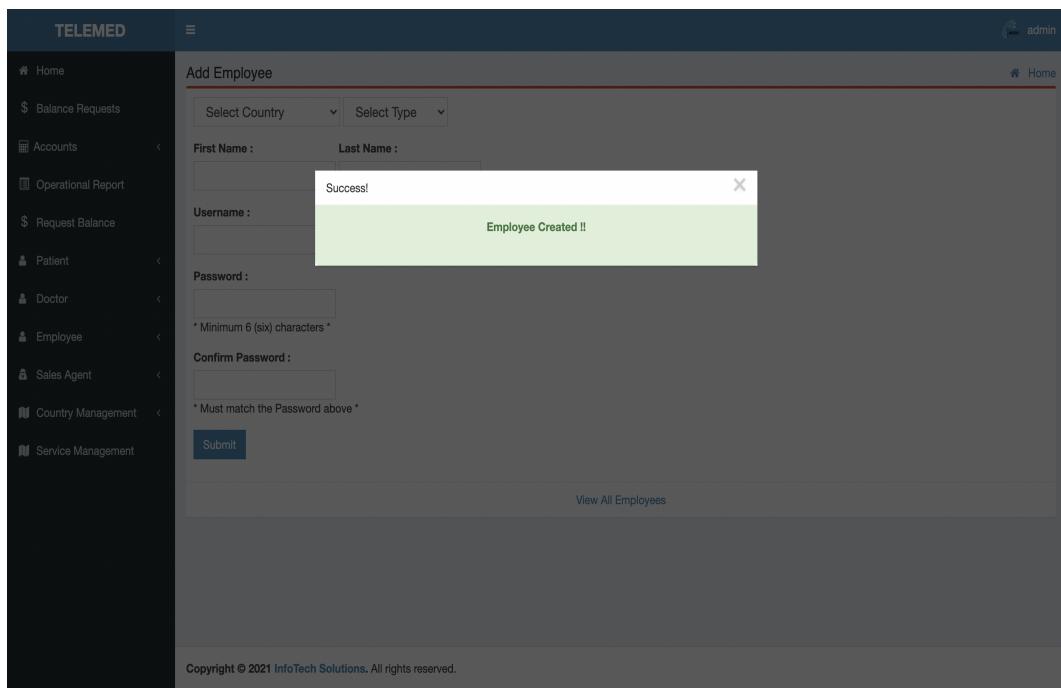


Figure 6.11: Add employee SUCCESS

View Employee: The admin can view all of the employees registered on system once the country and user type is selected.

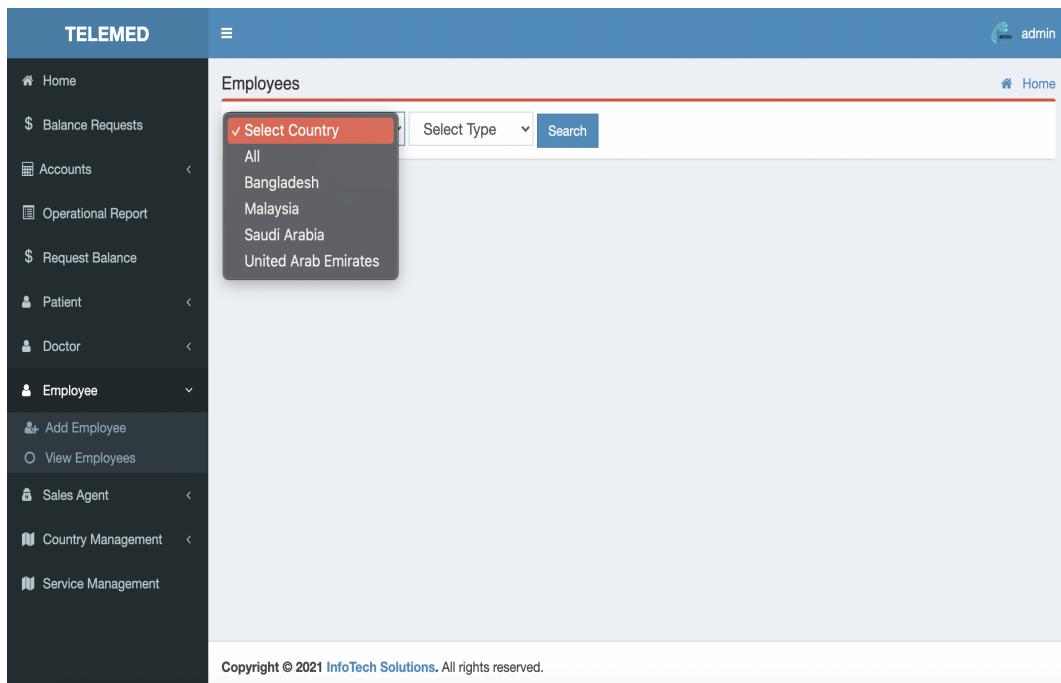


Figure 6.12: View employee in Admin dashboard

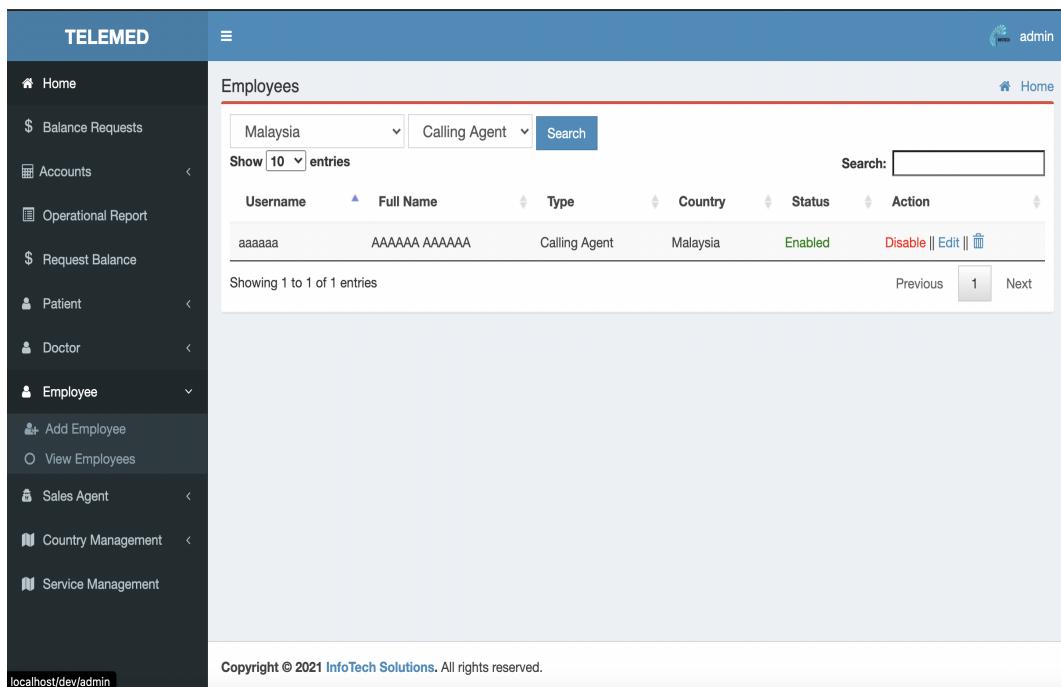


Figure 6.13: View employee in Admin dashboard

As we can see, there is an action column where it says, "Disable" and "Edit". The disable button will disable the employees account, the admin has the authority to do so. Once clicked on the "Yes" button, the system will deactivate the employee's account. The edit option allows the admin to change the password of the employee. This authority was given because after our analysis of calling agents in Bangladesh, we have found that some agents may not be as

educated to keep track of their account and password. Therefore, if they do forget it in the future Infotech Solutions can help and solve it. We have also added a search bar to ease the admin's work when he/she wants to look for a certain employee.

6.1 Test Case

A test case is a document that contains a set of test data, preconditions, expected results, and postconditions that was created for a specific test scenario in order to check compliance with a certain requirement. After applying a set of input values, the program has a final consequence and departs the system at some end point, also known as execution postcondition. Infotech Solutions BD did a test case to ensure the system's quality and functionality.

6.1.1 Test System

The project URL will be distributed to the development team and a QA tester. The QA tester will begin testing alongside the development team members in the middle of the development process. The testing is done simultaneously during the development phase to make it easier to alter the problems found. When a problem is discovered, it will be recorded on a shared Google sheet with a detailed description of the problem. The developer will resolve the issues and mark them as resolved in the spreadsheet. After the initial development is completed the whole team and the QA tester will examine the system once again to eliminate all faults possible.

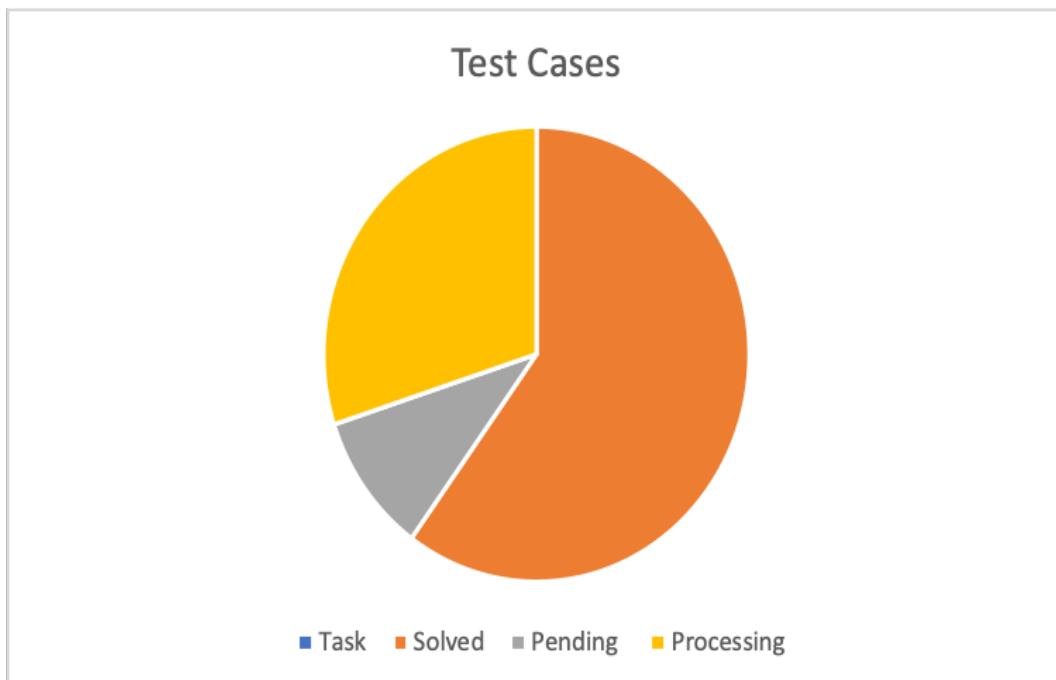


Figure 6.14: Test Case Pie Chart

Chapter 7

Project as Engineering Problem Analysis

7.1 Sustainability of the Project

In order to survive the competition in the market, Infotech Solutions believe it is mandatory to maintain optimum sustainability.[3]

Sustainability is maintaining the system, keeping it up to date.[3] Infotech does so, by keeping the system always under observation and fixing any bugs immediately after a complain. The website is well-designed and well-optimized by minimizing repeated codes, minifying different scripts that are utilized, and maintaining suitable coding standards.

The provision of our telemedicine service satisfies a critical social demand in developing countries, like Bangladesh is providing health care to remote and rural areas. Therefore,to ensure the long-term viability of our project, the website has been created to be accessible regardless of the user's machine's environment. The system we built is not affected by the user's computer configuration, operating system, resolution, or internet speed. All computers and smartphones will be able to access the website using the most prevalent browsers.

7.2 Social and Environmental Effects and Analysis

The main goal of this project is to provide inclusive healthcare facility to all the Bengalis living in the city, rural areas and even abroad.[4] Our project eliminates the need to travel miles for our users just to consult with a doctor they trust. They can book their desired doctor at their preferred time and our calling agents will check the availability and will assist them further if any assistance is needed. They will be available 24/7. Customer service is our priority.

7.3 Addressing Ethics and Ethical Issues

In this day and age, with so many online threats on the loom, it is important to address the ethical issues and follow the common practice of ethical rules and guidelines.

While working on the creation and release of our telemedicine website, there were several unsaid conventions and ethics guidelines that were followed. Data were protected from any kind of leak, proper security measures were taken. Data were securely stored in the cloud, and critical information such as passwords encrypted. These data can only be accessed by our team's Lead Developer with valid credentials, and no one else on our team has access, ensuring the data's security. Infotech Solutions keeps all project-related papers, negotiations and agreements, and codes secret to protect the company's and our clients' privacy. Everyone else were given to do just their assigned work and once completed it was submitted to the Supervisor.

Chapter 8

Lesson Learned

8.1 Problems Faced During this Period

My time in Infotech Solutions BD was simply amazing. It was scary and fun both at the same time. It was hard adjusting myself among other co-workers and working on a real-life project. Constantly so many changes were thrown at me. At the same time adjustments took longer due to the constant change of work space with having lockdowns on and off. I tried giving my best. Partook in collecting data from several clinics abroad and in Bangladesh, several analysis were done, held presentations for other clients not related to my project. I somewhat got nervous in the middle and stammered but held my ground. In the middle, I was effected by Covid-19 and missed some days of work but they were nice enough to allow me some break from work. I resumed back as soon as possible and. At the end, my supervisor and colleagues felt like an extended family. We learned and grew together in this short course of time.

8.2 Solution of those Problems

Alhamdulillah i was able to overcome my struggles, identified false data entries, handled a new framework and got an insight of professional world and the additional skill sets that are required along with being a good programmer. Since i had some basic skills of photoshop, I also worked with the design layout of our project with the in house graphic designers and UX designers. It was interesting to see how the marketing team came into scene as well. Thus, I gained a little bit of knowledge in marketing too. Therefore, the solution to my problem was letting myself become a part of the routine and daily overcoming my fears that my work is not good enough.

Chapter 9

Future Work & Conclusion

9.1 Future Works

The telemedicine platform is growing each and every day and the prospects are endless, some might even surprise us.

- Infotech Solutions BD has plans on adding an e-commerce based pharmacy into the existing system so that our patients can easily order the medicines through our system when they receive a prescription from our doctors.
- We also plan on bringing international doctors on board from all over the world.
- Develop both an android an IOS application.
- Add bengali language as an option.

9.2 Conclusion

My time as an intern in Infotech Solutions BD was simply surreal. I am tremendously thankful for them to have given me this opportunity. Working at an IT firm with a skilled staff was a rewarding experience for me. I learnt and implemented new skills and strategies, which enabled me not only to create a part of a great platform, but also to broaden my skill set. My professional skills, communication skills, and, last but not the least, technical skills have all improved. I've also learned how to work under pressure and to meet tight deadlines. My team members played an important part in making my job easier by offering advice and suggestions. This internship has also given me an introduction to the real world. I am more confident in myself now than I was before the internship, and I believe I am ready to begin my professional career.

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