An Undergraduate Internship/Project on Topic

By

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Summer, 2021

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

Department of Computer Science & Engineering

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Attestation

This is to certify that the report is completed by me, Syed Tasdiq (ID:1630238), 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 Moumita Asad . 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
Syed Tasdiq	
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 Moumita Asad , 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 thank to Mr. Muhammad Pasha Biddut, our CTO, for his assistance and support throughout the internship. Lastly, I'd want to express my gratitude to all of my colleagues who welcomed me into their work space and continued to help me as I completed my project and report; it would not have been possible without them.

Letter of Transmittal

August, 2021
Moumita Asad
Lecturer
Department of Computer Science and Engineering
Independent University, Bangladesh (IUB)
Bashundhara R/A, Dhaka 1229, Bangladesh

Subject: Report submission of the internship

Dear Ma'am,

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 by tech team of infotech solution, specially Mr. Pasha Biddut, the Chief Technical Officer (CTO) was so very kind to guide me during my internship. I was assigned to their telemedicine project,which is planned to be operated in Bangladesh, UAE, Saudi Arabia and Qatar, My position was full stack developer trainee.

The main objective of the internship program is to gain knowledge and experience in practical field as well as to improve our set of skills and get a gist of the corporate world, I believe I have accomplished my objective by working at Infotech Solutions. I'd also like to express my gratitude to you, Ma'am, for your support and advice, which enabled me to complete the deadlines in due time. I hope this report is informative and meets your expectations.Hoping that my report will meet the expectation expectations.

Sincerely,
Syed Tasdiq
1630238

Evaluation Committee

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Signature

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Name

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Supervisor

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Signature

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Name

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Internal Examiner

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External Examiner

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Name

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Convener

Abstract

Due to the global pandemic, the main objective of the telemedicine platforms have gained alot of popularity. Many platforms like this have already started their journey since then and Infotech Solutions has also taken the step to develop a multi-national operation capable telemedicine application that will help all bengalis and non-resident benglais around the world.People living in rural areas of Bangladesh do not receive proper doctor's consultations and there also inadequate diagnostic center or hospitals even if some areas have hospital it is quite expensive to get the service . Sometimes they even need to travel to Dhaka just for consultation. Infotech's approach is to solve this problem and provide better assistance and easier and affordable way to communicate with the doctors from Bangladesh and around the world

This report describes my work and my experience with Infotech Solutions BD.

Keywords— telemedicine, system

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Chapter 1

Introduction

1.1 Overview/Background of the Work

Infotech Solutions is developing a telemedicine platform. Through this web portal patients will be able to consult doctors at convenient time. All you need is the internet, laptop/phone to discuss your health issue with your digital doctor from your home. With telehealth, patients in rural or remote areas benefit from quicker and more convenient specialist access. patients endure longer appointment commutes and have trouble accessing lifesaving consultations for specific diseases or chronic care plans. The telemedicine offers better access to more specialists. You can refer your patients to the specific physicians they need, regardless of location.

1.2 Objectives

The aim of this service system is to build a relationship between doctors and patients to provide health care which is essentially needed nowadays. The telemedicine software will keep records of the past/present medical reports and provide the emergency health care service needed for the patient.Through this telemedicine patients can make online appointments for video consultation (Using third party video consultation software) or in call advice using whatsapp with their preferred doctors,patients can upload their test reports and health status and based on the doctor's analysis, the doctor can send online prescription to their patient with their online signature . The Doctor's consultation payment can be paid using online payment gateway (SSl Commerce), using scratchcard or balance taken from the nearest agent.

1.3 Scopes

My job is to make a Account Admin module, which will be responsible for various functionality of the system such as :

SL	Title
1	Account Admin Authentication Module
1.1	Login Module
1.2	Registration Module
1.3	Forget Password Module
2	Scratchcard module
2.1	Generate Scratchcard
2.2	Print Scratchcard
2.3	Activate Scratchcard
2,4	View Scratchcard
2.5	Delete Scratchcard
3	Accounting Module
3.1	Transaction Module (Make, View & Pending Transaction
3.2	Accounts Statement Module
3.3	Report generation Module

Table 1.1: Module and Sub-Module Breakdown

- Account Admin Authentication Module : this is mainly the sign up and login part of the account admin dashboard, the module also allows you recover or change the password of the dashboard
- Scratchcard Module: In this module we can generate, print, activate, view and delete scratchcard.
- Accounting : this module will be used to handle the total accounting part of the system.

Chapter 2

Literature Review

2.1 Relationship with Undergraduate Studies

List of courses that helps me in this internship :

- Database Management System CSE 303
- System Analysis and Design CSE 307
- Web Application and Internet CSE 309
- Data Structure CSE 203

During my undergraduate studies I have gone through many vital courses, among them Database Management System CSE 303 In this course we were taught how to plan, draw process flow diagram, Rich pictures, normalization, and requirement analysis, entity relation diagrams, Business process model and notation diagram and lastly SQL this project's database is is based on MySQL, System Analysis and Design CSE 307 this course helps us to understand how to analyze a system and design according to the requirements, Web Application and Internet CSE 309 where we were taught about the web application development from scratch. In this course we were taught HTML, CSS, JavaScript, json and PHP and how to connect the database. These were huge help during the development and finally Data Structure CSE 203 which helps me to handle the vast amount of data in much easier way

2.2 Related works

Currently, there are about 15 digital healthcare service providers working in the country

Sebaghar, a telemedicine mobile app, was officially launched in April. IT firm bdtask.com created the app, by which patients can speak directly to doctors for advice and prescriptions.

HelloDoc, a virtual hospital, was also launched in April to support the growing demand for

telemedicine. Patients can consult with 42 senior consultants and doctors by video conferencing.

Praava Health, which also provides digital healthcare services, says they have been receiving a huge number of calls from patients during the pandemic.

Daktarbhai, a telemedicine platform, offers online doctor's appointment services with facilities for electronic health records.

Pulse Health Care Service , Tonic and many more. The basic difference between these projects and our project is, Infotech's telemedicine will be operated in multinational countries which will help the lock doctors to have global recognition and our local patients can take consultation and advice from multinational doctors. There are two ways through which patients can take service MediTalk and MediDoc, Meditalk is used only to get advice and MediDoc will be used for regular checkup and follow up and the doctors can prescribe medicine which will have their digital signature and patients can show it to pharmacy to buy medecine.

Reference : https://www.dhakatribune.com/bangladesh/2020/08/29/high-demand-for-telemedicine-in-pande mic

Chapter 3

Project Management & Financing

3.1 Work Breakdown Structure

A work breakdown structure (WBS) is a method for completing a complex multi step project. It's a method of breaking down huge tasks into smaller parts so that they may be completed more quickly and efficiently.

We also have created a WBS for our Project. .

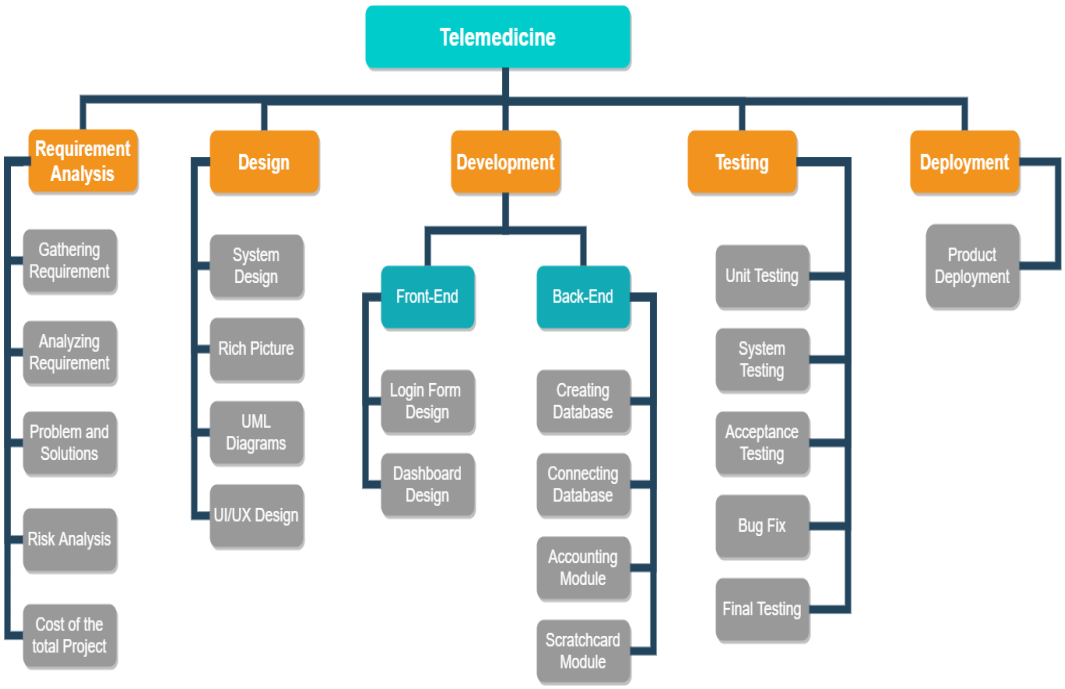

Figure 3.1: WBS

3.2 Process wise Time Distribution

Here we have broken down the amount of time allocated for each activity, processes done in order to make a deliverable software product

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

Gantt chart is a chart in which a series of horizontal lines shows the amount of work done or production completed in certain periods of time in relation to the amount planned for those periods. They help you assess how long a project should take, determine the resources needed, and plan the order in which you'll complete tasks. They're also helpful for managing the dependencies between tasks. They were very useful for planning and scheduling our project

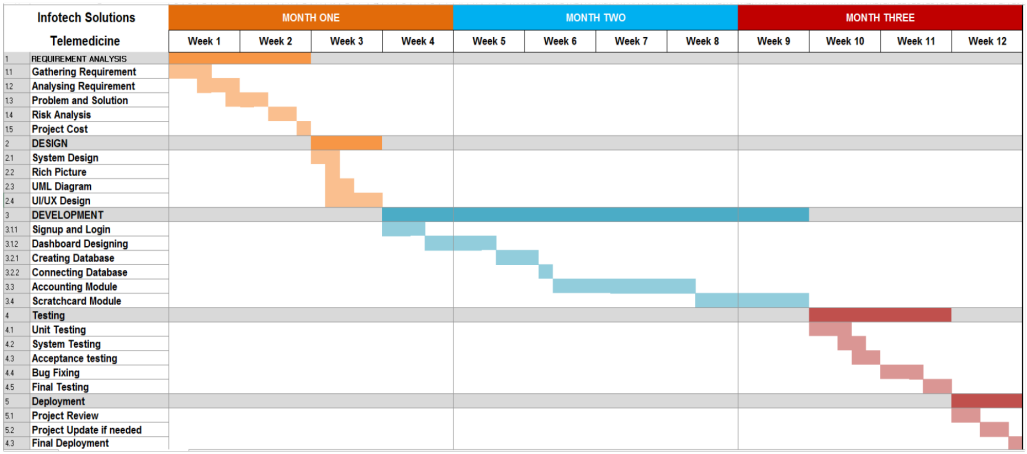

Figure 3.2: Gantt Chart

3.4 Activity wise Resource Allocation

To assign the available resources in an economic way is known as resource allocation. The following information were gathered from the company and we can see how this helps a company in deciding which items to fund in the plan and what level of fund in it should receive and 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	Unit	Price in BDT
Hosting	Digital Ocean	128 GB SSD, 4GB RAM, 3 CORE CPU	1	25,000/Year
Domain	Whois.com	Name.com	1	850/-

Table 3.3: Activity Wise Resource Allocation of Domain And Hosting

3.5 Estimated Costing

It is the process of breaking down the overall cost of anything into the many components that make up the total cost, depending on who is doing the work, what supplies are required, and so on.

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
TOTAL	4,45,850

Table 3.4: Estimated Costing

Description	Cost/Month in BDT
Digital Marketing	25,000
Offline Marketing	15,000
Doctor & Agent Accusation	15,000

Table 3.5: Estimated Costing of marketing budget

Chapter 4

Methodology

Infotech Solution is following Agile Scrum Methodology has several benefits. First, it encourages products to be built faster, since each set of goals must be completed within each sprint's time frame. It also requires frequent planning and goal setting, which helps the scrum team focus on the current sprint's objectives and increase productivity. At infotech solutions we have meeting at every thursday where we have to report how far we have worked so far,

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. [1]

Chapter 5

Body of the Project

In this chapter we will learn about the work description of the the project, system analysis which is divided into 4 parts : Six element analysis, Feasibility analysis, problem solution analysis effect and constraints analysis, furthermore the system design part which have 2 diagram rich picture and uml diagram, lastly functional and non functional requirement of the system is described briefly.

5.1 Work Description

Infotech Solution BD has taken upon themselves to develop a telemedicine platform suitable for the people of Bangladesh living here and abroad. Providing the best healthcare services to patients all around the the globe. The system has mainly 5 stakeholders System admin, Account admin, Doctor, Patient, Agents.. The account admin handles the total accounting system of the operations and the company, the account admin also generates scratchcards which can be redeemed by patients to add balance to patient's dashboard for further service.

This system is designed to be operated in all the countries around the world. The operation is started by creating a country from the admins panel, by creating a country for example Malaysia, 7 accounts will be by default generated for country to control the entire accounting system of that country's operation, the 7 accounts are Cash Account, Bank Account, Scratch-Card Account, Balance Account Capital Account, GST Account (Good And Service Tax) Commission Account. Every Company starts with a initial capital, the first task of the account admin is to create capital which will be the asset and save to 'Capital Account'. By adding the capital the operations of the company has been started, now we can deposit most of the amount of the capital to the 'Bank Account', and few money will be left in the 'Cash Account' for expenditure, other miscellaneous or can be used to generate ScratchCard.

As a telemedicine software the main function is to provide doctor's consultation to patient. Patients can get consultation from doctors in 3 ways, first one is MediTalk (where patients can just call the available doctors who are online at that moment to get simple advice), the

second option and the third options are MediDoc Checkup and MediDoc Followup. To avail the consultation patients have to pay certain amount depending on the the type of consultation (MediTalk MediDoc) and the doctors. So the patients needs balance to their telemedicine account. There are 2 ways to add balance, first one is by buying redeeming scratchcard by requesting balance from designated agents of the telemedicine.

Agents can request balance from the system admin, if the system admin has money at 'Balance Account' he/she will accept the balance request of agent and send the requested amount which will be credited from the Balance Account and debilitated to agent's Balance Account, if there is no money at the Balance account the system admin will request balance from Account admin, the account admin will accept the request and send the requested money from the Cash Account to the Balance Account. Similarly the account admin can generate ScratchCard which will be credited from the Cash Account and debited to ScratchCard Account and then after activating the scratchcard the patients can buy the scratchcards online or from the office and redeem it to their dashboard.

After getting the consultation from the doctor, the doctors fee will be deducted automatically from patient's dashboard (GST rest amount) and will be credited to' GST Account' and rest amount other then the GST will be sent into two parts, Doctor's Balance account and the 'Commision account' as commission of the company from doctor.
By this the total accounting system of the company expenditure, liabilities, assets, GST etc will be handled by the account admin module.

5.2 System Analysis

5.2.1 Six Element Analysis

	Human	Non- Computer Hardware	Computer Hardware	Software	Database	Communication
Generate Card	Accounts Admin	Pen-Paper	Computer	Web	My SQL	Internet
Print Card	Accounts Admin	Pen-Paper	Computer	Web	My SQL	Internet
Activate Card	Accounts Admin	Pen-Paper	Computer	Web	My SQL	Internet
View Card	Accounts Admin	Pen-Paper	Computer	Web	My SQL	Internet
Delete Card	Accounts Admin	Pen-Paper	Computer	Web	My SQL	Internet
Generate Card	Accounts Admin	Pen-Paper	Computer	Web	My SQL	Internet
Accounts	Accounts Admin	Pen-Paper	Computer	Web	My SQL	Internet
Reports	Accounts Admin	Pen-Paper	Computer	Web	My SQL	Internet

5.2.2 Feasibility Analysis

A feasibility study states that if the proposed plan or project is feasible. this can be checked by doing financial forecast minimum 5 years and making road-map. The feasibility study examines a project's viability in order to assess whether it is likely to succeed or needed any changes. The analysis should be done before the start of the project.[2]

- Technical Feasibility: helps organizations to determine whether the technical resources meet the capacity and whether the technical team is capable of converting the ideas into working systems.
- Economic Feasibility: Before starting any project a company needs to understand if the project can get seed funding or angel fund or they need further assistance.This analysis determined the project's viability, cost,before allocating financial resources. It also motivates the project's team and project credibility.
- Legal Feasibility: This looks into if any component of the proposed project violates any government regulations,or copyright issues, They can also follow the Health Insurance

Portability and Accountability Act (HIPAA) sets the standard for sensitive patient data protection, social media laws.I nfotech Solutions BD investigated if our project and it's added facilities will violate any law of the countries they are going to operate

- Operational Feasibility: we have found that people do not like standing for hours in a hospital and also the journey can be very disturbing. Our system can solve these problems easily. Nowadays, people have faith and are comfortable consulting to the doctor online and downloading the prescription. .Nowadays, patients are comfortable talking with there preferred doctors online and they can download the prescription generated by their doctors to buy medicines from nearest pharmacy.

- Scheduling Feasibility: The project's road-map was planned even before starting the project. We all had deadlines to follow, the company was strict about it. This helped the team to succeed all the tasks and developing the project. Infotech Solutions Bd is aiming to launch this project in October 2021 to the Bangladesh, Malaysia and UAE market simultaneously

5.2.3 Problem Solution Analysis

This is my first time working in a corporate environment as an intern in such a big project. Initially there were some small difficulties as this is my first time in field making project for real life problem :

- Working in group.

- Working with a new framework (Code Ignitor)

- Following the MVC model: The whole team had to follow a specific model so that our work matched.

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

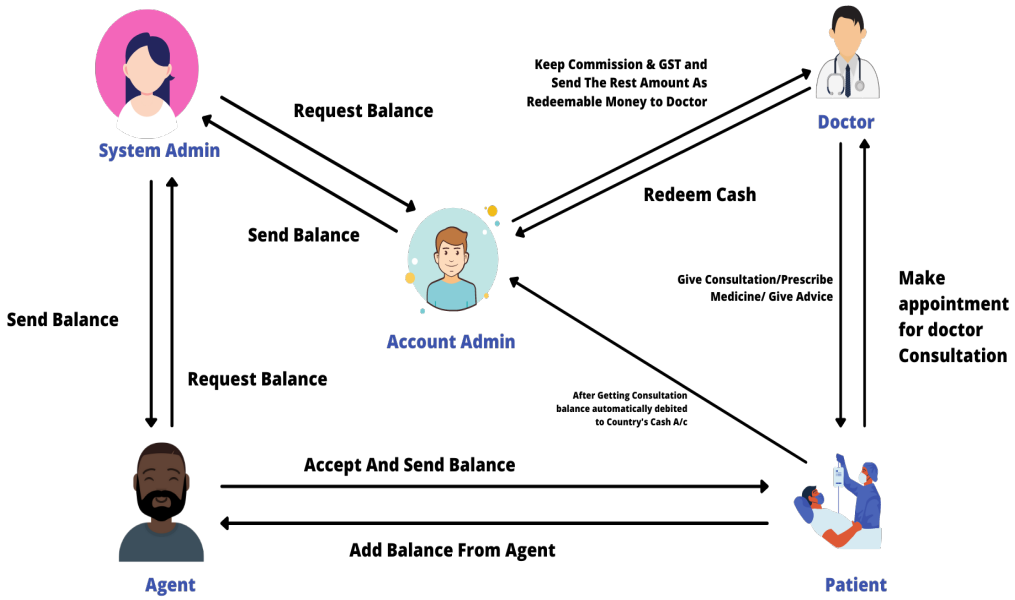

Figure 5.1: Rich Picture

5.3.2 UML Diagrams

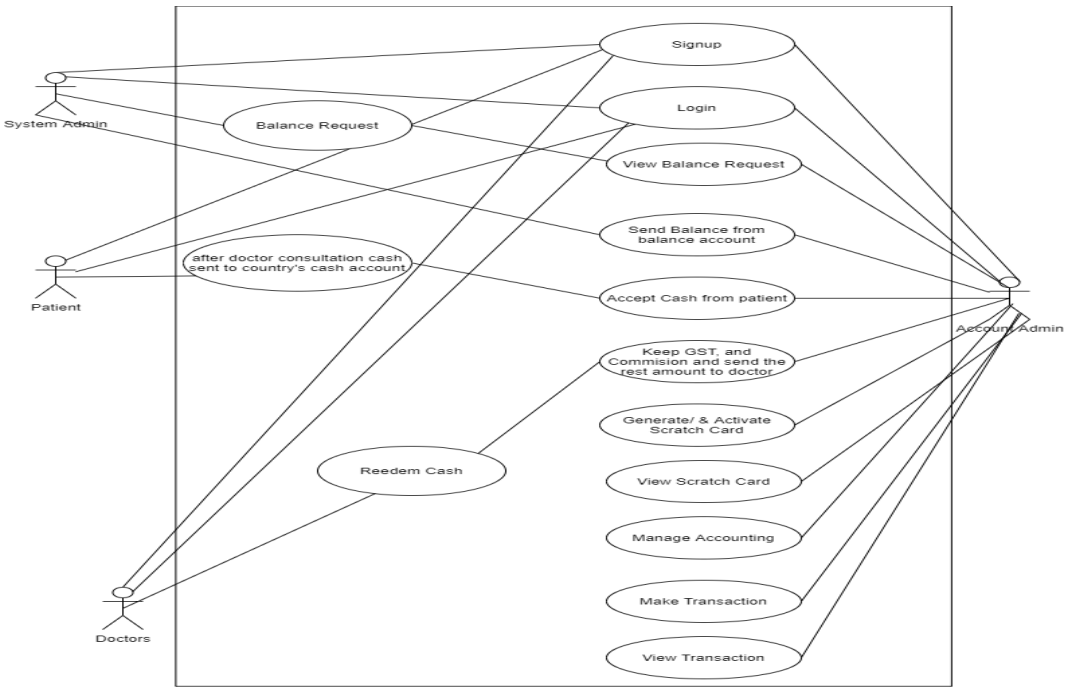

Figure 5.2: Use Case Diagram

5.3.3 Functional and Non-Functional Requirements

Key Functional Requirement:

The functional requirements for the application are different for the different types of people that use the application.

- Non-registered application users : The application must give the chance to normal users to surf through the application and get information (what is diabetes, types, FAQ, interest links, etc.) about diabetes without logging into the system.
- Registered As Doctor For each patient, the doctor must be able to see all the forms that the patient has sent along with their medical report as well as the appointment requests. The doctor must be able to send an email to the patient to ask him to go to the hospital if any parameter in the forms is out of the normal range
- Registered users. (Patient) When a user log into the system, he must be able to see his/her personal information in the screen, but he wont be able to modify it. To do this kind of modifications, the patient must contact the technical team of Medistata to make such change.

Non-Functional Requirement:

The application must be accessible 24 hours a day, 7 days a week. So a computer with internet connection (server) will be necessary. The application and the database will be stored in this computer.

The system will be used by multiple users at the same time, so it has to offer a good response time (real time interaction). For that we will need a computer with good enough characteristics (HD space, RAM memory, CPU speed, etc.).

5.4 Product Features

5.4.1 Input

Account Admin Sign up Form:
Use the pre-defined User ID and password to login into the account admin dashboard.

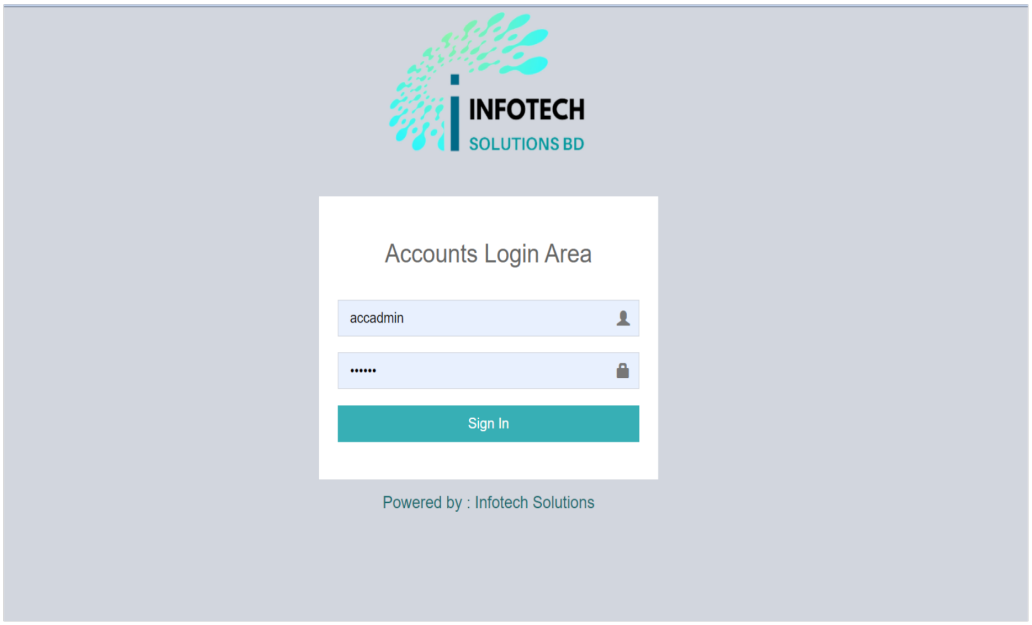

Figure 5.3: Account Admin Sign-up Form

Account Admin Dashboard: at the home page of the dashboard there is a input field named Check Scratchcard, where the scratchcard number can be typed in order to check the status of the scratchcard

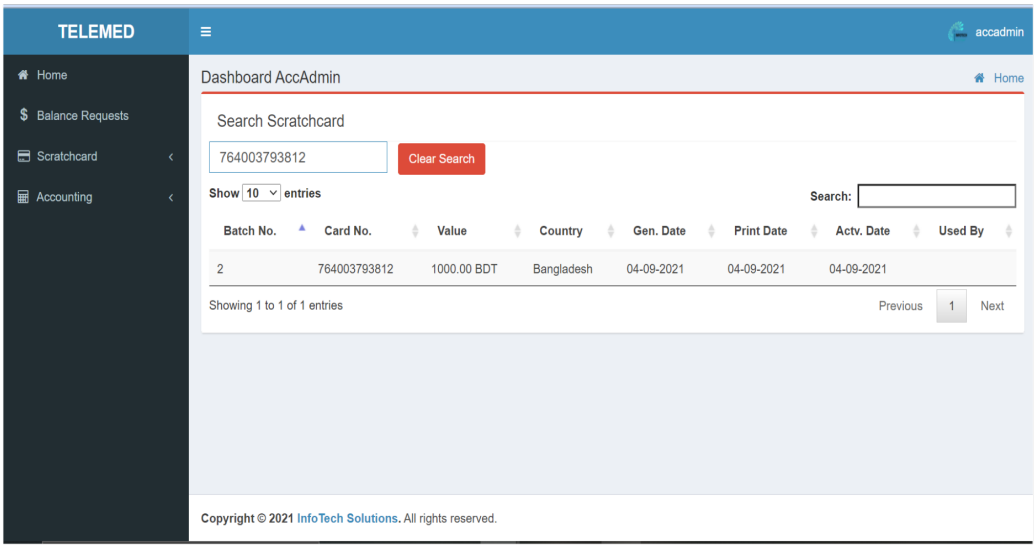

Figure 5.4: Search Scratchcard

Scratchcard Module: There are mainly 5 functions called Generated, Print, Activate, View Delete Scratchcard.

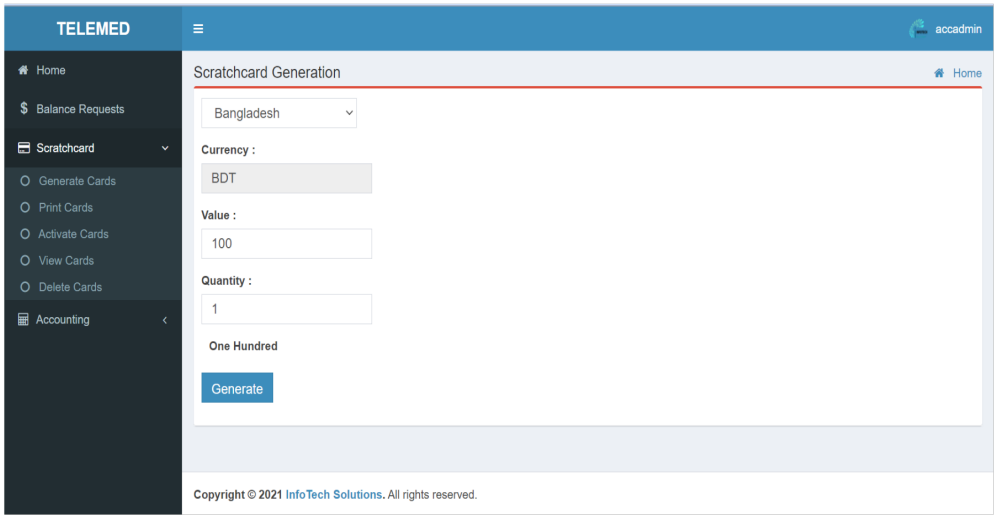

Figure 5.5: Generate Scratchcard

Generate Scratchcard: To generate scratchcard you need to select country, for which country's operation do you want to use the scratchcard, then you have to if you have enough balance in the Cash account to generate the desired amount and quantity of scratchcard you want to generate, if yes you need to select the amount per scratchcard and then select the number of same amount scratchcard you want to generate at a time.

Print Scratchcard: Scratchcards can be sold in both online and physically for that you need to give the print scratchcard command,only then you can activate the scratchcard.

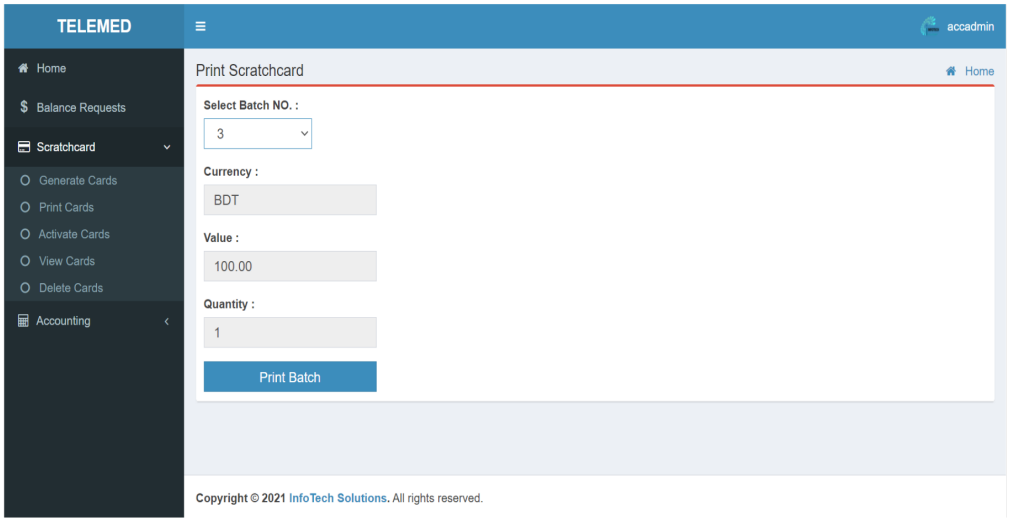

Figure 5.6: Print Scratchcard

View Scratchcard: you view all the status of scratchcard.

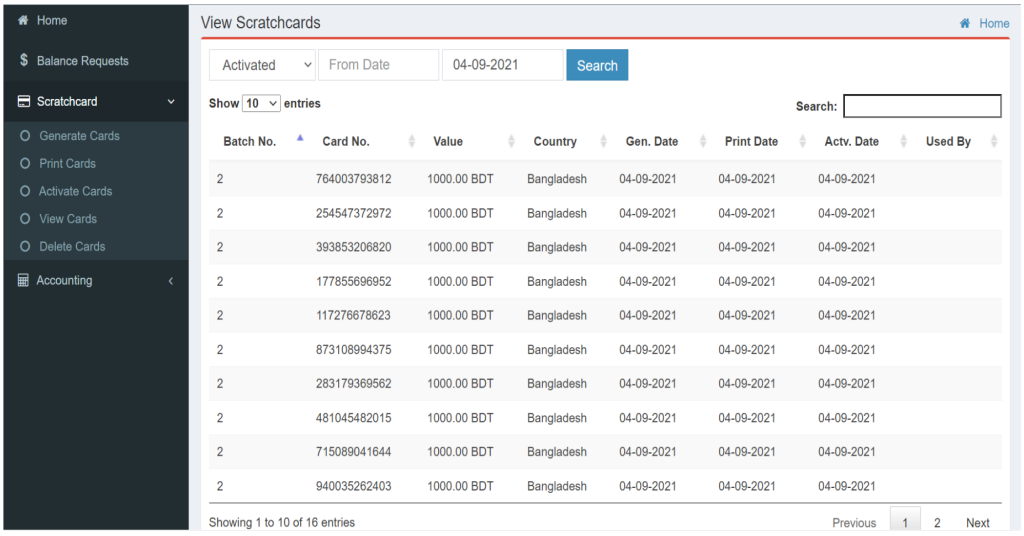

Figure 5.7: Print Scratchcard

Accounting: from this module the whole operation will be started, at first you need to create a capital for the company in order to perform all your operations, after that you handle the whole accounts of the system and keep report of the accounts.

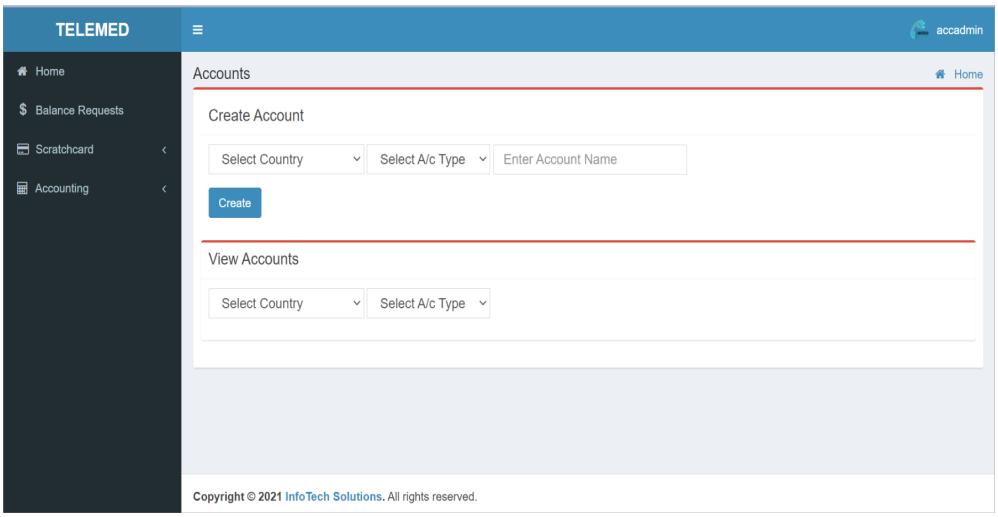

Figure 5.8: Accounts Module

5.4.2 Output

The Account admin can download all the reports created by him

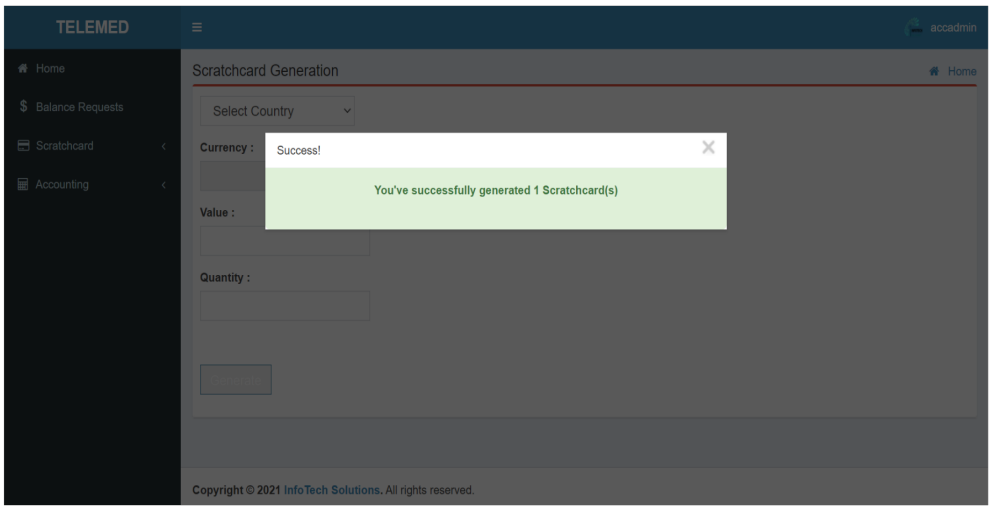

Figure 5.9: Successfully generated scratchcard

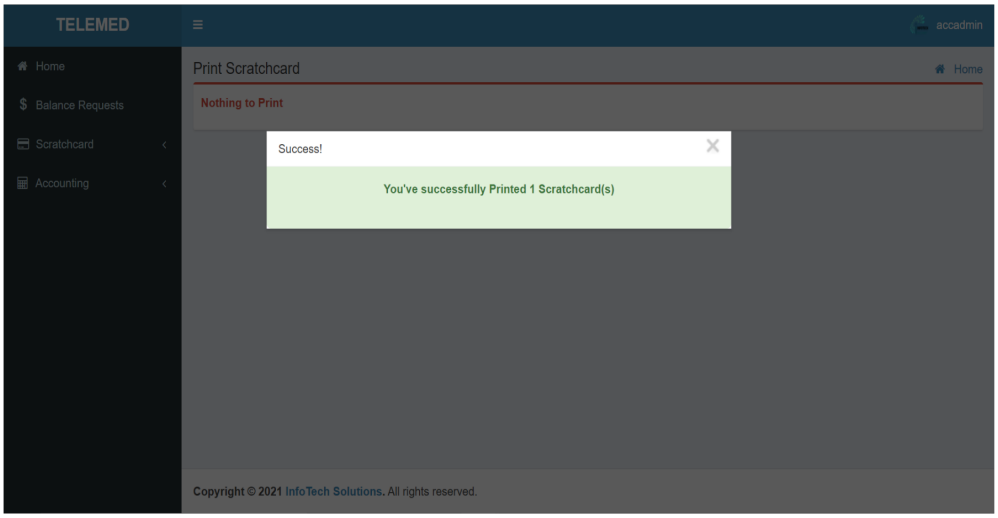

Figure 5.10: Successfully Printed scratchcard

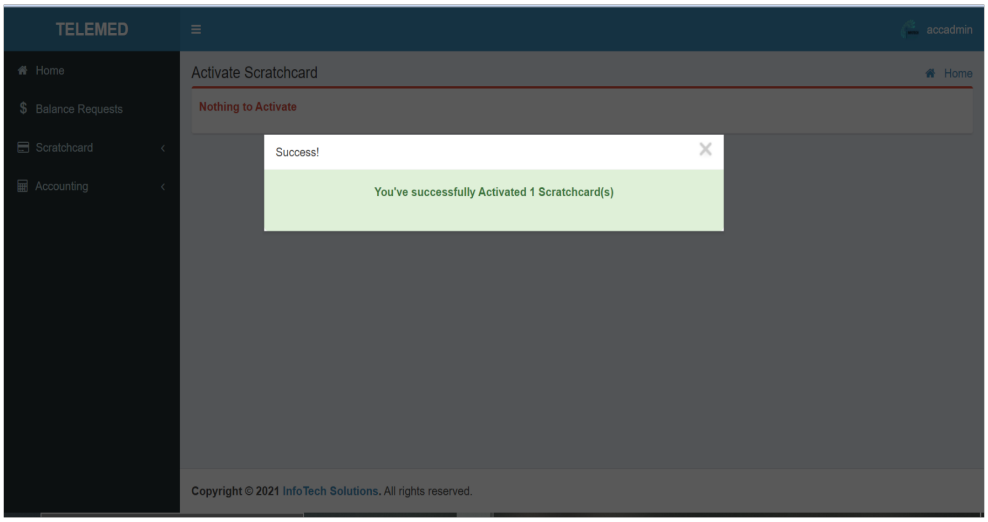

Figure 5.11: Successfully Activated scratchcard

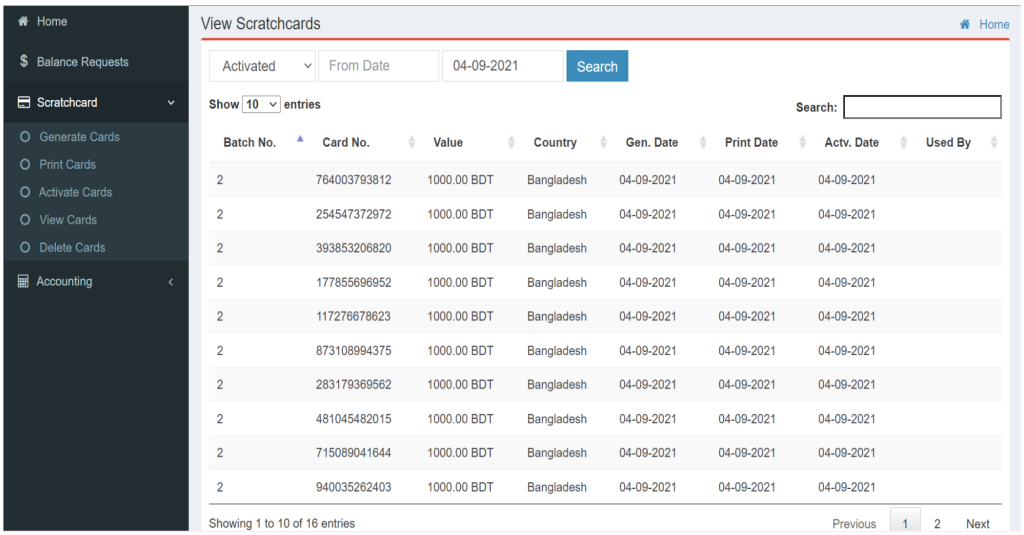

Figure 5.12: Scratchcard Status

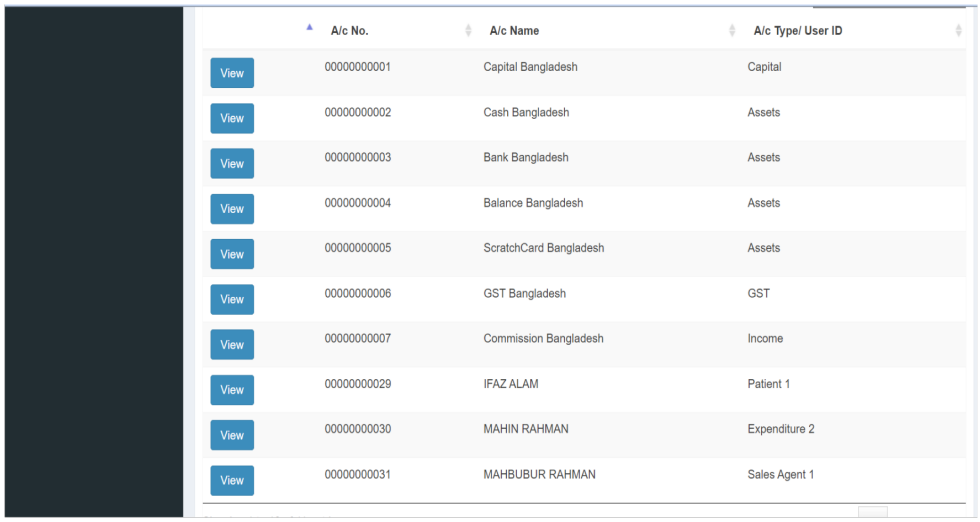

Figure 5.13: View All The Transactions

5.4.3 Architecture

The architecture that we are using for this project is MVC architecture. MVC stands for Model, View and Controller. . This allows the developer to follow a strict way of programming and store all the files in a same pattern. Modes are the app's dynamic data structure, which

isn't affected by the user interface. It manages data,connects the database, logic, and rules. Views; is mainly the front end of the browser basically what 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. this is mainly known as as the 3-Layered architecture.[3]

Chapter 6

Results & Analysis

6.1 Introduction to Test Case

A test case is a document, which has a set of test data, preconditions, expected results and postconditions, developed for a particular test scenario in order to verify compliance against a specific requirement. Test Case acts as the starting point for the test execution, and after applying a set of input values, the application has a definitive outcome and leaves the system at some end point or also known as execution post-condition. We have conducted a test case for Infotech's Telemedicine to assure quality and the functionalities of the website

6.2 Test Case Analysis

The following functionalities has been tested for this particular website:

- Account admin login to Dashboard
- Search Scratchcard
- Check Balance Request
- Print Scratchcard
- Activate Scratchcard
- Delete Scratchcard
- Make Transaction
- View Transaction
- Logout

6.3 Test Table

Table 6.1: Test Case

SL	Case	Action	Precondition	Steps	Expected result	Obtained result
1	Login	Account Admin login	a) Connected to the admin panel through internet.b) Valid login credentials.	a) Add admin information to the users table in DB.b) Fill up the fields and Press login button.	a) Logins in to the database and view the dashboard interface. b) Wrong credentials give an error message: "Login failed"	Login successful.
2	Search Scratchcard	Can search scratchcard status.	Must be logged in to the admin panel.	Type the scratchcard number.	Status of the scratchcard	Status checked.
3	Balance Request .	Can check balance request by admin.	Must be logged in to the admin panel.	NULL.	Balance Requested / Not Requested.	Received the query If requested
4	Generate Scratchcard.	i) Can generate any amount of scratchcard at any quantity	Must be logged in to the admin panel ii) Must have cash in cash Account.	a) Select Country b)Type the value of scratchcard c) Type the quantity	Scratchcard generated	A batch of Scratchcard

5	Print Scratchcard.	a)Can print the generated scratchcard batch.	a) Must be logged in to the admin panel b) Must have a generated scratchcard batch	Select the batch you want to print.	Scratchcard print status updated	Scratchcard status changes to printed
6	Activate Scratchcard.	Can activate the Printed scratchcard batch	a) Must be logged in to the admin panel b) Must have a Printed Status scratchcard batch	Select the batch you want to activate.	Scratchcard batch activated.	Scratchcard status changes to activated
7	Delete Scratchcard.	Can delete the scratchcard batch.	a) Must be logged in to the admin panel b) Must have scratchcard batch	Select the batch you want to delete.	Scratchcard batch deleted	Batch deleted
8	Make Transaction	Can make transaction	Must be logged in to the admin panel .	a) “Select debit/credit b) Select country, account Type and account name	Make Transaction	Accounts updated
9	View Transaction.	Can View all the transaction.	a) Select Country b) Select Starting Date	View all the transaction	View all the transaction	Transaction viewed.

10	Logout.	Admin can successfully log out.	Needs to be logged in to the account admin panel	Click sign-out from user menu in profile icon.	Logs out from the account admin panel.	Successful logged out

all the test status as passes

Chapter 7

Project as Engineering Problem Analysis

7.1 Sustainability of the Project/Work

The sustainability of the project depends on many thing such as the impact, proper planning, road map and proper utilization of funding, strategies for long-term sustainability, proper training and support. Infotech's telehealth program has had a measurable impact on the lives of people served by the program and the overall community. Infotech solutions is planning for long-term sustainability by

- Understanding the demand for telehealth in the community and the kinds of strategies that will best meet identified needs.
- Assessing current workflow and identifying what kinds of resources are needed to integrate telehealth into practice.
- Identifying a champion to drive telehealth adoption, address issues, and identify programs for continued use.
- Providing adequate training and support for staff to ensure the best possible experience for staff and patients.
- Budgeting for implementation, maintenance, and periodic upgrades of technology
- Marketing telehealth services to its targeted consumer, providers, and other stakeholders.
- Understanding the regulatory environment to understand ongoing costs for reimbursement, licensing, and credentialing.
- Building partnerships with payers to expand coverage for telehealth services

The sustainability of the project will also be maintained through regular maintenance of the website and its server. The HTML, CSS, JS and backend code for the website is well optimized. By reducing repetitive codes, modifying different scripts that are used, and maintaining proper coding standards it is made sure that the website performs well and easily accessible by users regardless of the device's specification.

7.2 Social and Environmental Effects and Analysis

Telemedicine allows patients to get remote diagnosis and treatment by means of telecommunications technology the system is one of the key areas of medical technology innovation that hold promise for reduction of cost, enhancement of health care access, and improvement in the quality of patient care It is also helping to shift the focus of health care to a more patient-centric model that goes beyond treating disease to a more predictive and preventative approach

The system also allows doctors to give consultation all over the world remotely. Delivery of health services by real time video communication was cost-effective for home care and access to on-call hospital specialists, showed mixed results for rural service delivery, and was not cost-effective for local delivery of services between hospitals and primary care.

7.3 Addressing Ethics and Ethical Issues

Before the start of the project, our company made sure to check if they were crossing any ethical issues. Luckily, a telemedicine platform does not cross any unethical issues in Bangladesh, Malaysia, UAE and Saudi Arabia. Infotech Solutions BD maintains strict ethical company guidelines.

Chapter 8

Lesson Learned

8.1 Problems Faced During this Period

The internship experience in Infotech Solutions Bd and working on a real-life project was very helpful in terms of learning and gaining knowledge. I got the to learn from the very skillful CTO who have a vast knowledge. Although the wonderful experience there were certain limitations in my period of internship. The major limitation for us was the world-wide pandemic. We had to take most of the guidelines and instruction through online fo few weeks before we can start going to the office. This makes it tough to complete the module deadlines and my proper learning of some vital part of the project. It was also challenging to learn new protocols and technologies at such a short time.It was difficult for me to cope up with the pace of the team..

8.2 Solution of those Problems

We tried covering this problems by using online management applications like Figma, Whereby click-up. The solution is to make frequent communications using whereby, the whole team can be online all the time at whereby and can discuss about the updates and problem. We were assigned with KPI's using click-up and whole design prototype and planning was managed using figma.Also learning and practicing the technologies more in depth. Spending more time with these technologies will surely make me us used to with this problem.

Chapter 9

Future Work & Conclusion

9.1 Future Works

To make a profitable business sustainable system, the system needed to have continuous development and road map planned. Infotech solution also set their road-map and future development of the project planned :

- Make their own payment gateway and connect it with the bank and MFS (mobile finance system) for easy payment system for the user.
- Adding Biosensors with the system so that patients can use the biosensors to add their health status to doctors dashboard as patients health status, currently it has been doing manually.
- Adding a Medical E-Commerce Store where users around the world can shop medicines and health related equipment's..
- Develop Ios and Android App.

9.2 Conclusion

Finally the Telemed project is successfully deployed.My CTO and the company are happy with the outcome we achieved, believing there are still scopes for improvement which we will work on gradually. Now Telemed has started piloting in Bangladesh and we hope the the application will gradually penetrate in the target market and start taking market share. We wish them good luck.

My internship in Infotech Solutions was really good. Working in a company with a professional team in the IT sector was a very fruitful experience for me and my future career. I learned working in office environment, working with real life project and finally working in team and making up to the deadline. This also helped me to increase my set of skills. My professional skills, communication skills and last but not least technical skills have gotten better. I would

like thank my CTO and Infotech Solutions. The CTO helped me in every step and guided me whenever I needed he was always online at Whereby Room. I also learned working under pressure. But my team members played a vital role to make my job easy with their advices and suggestion and I never felt like a new comer in the company. The internship made me more confident in myself than before and I believe I am ready to step into my professional career

Bibliography

[1] S. Ilieva, P. Ivanov, and E. Stefanova, "Analyses of an agile methodology implementation," in *Proceedings. 30th Euromicro Conference, 2004.*, pp. 326–333, IEEE, 2004.

[2] N. Sunthonpagasit and M. R. Duffey, "Scrap tires to crumb rubber: feasibility analysis for processing facilities," *Resources, Conservation and recycling*, vol. 40, no. 4, pp. 281–299, 2004.

[3] G. Wang, "Application of lightweight mvc-like structure in php," in *2011 International Conference on Business Management and Electronic Information*, vol. 2, pp. 74–77, IEEE, 2011.