Design and Development of Hospital Cost Application

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This report submitted in partial fulfilment of the requirements of the degree of Bachelor of Science in Computer Science and Engineering

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DHAKA, BANGLADESH

MAY 2021

APPROVAL

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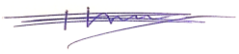

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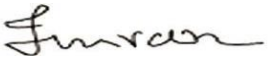

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DECLARATION

We hereby declare that the project work entitled **"Design and Development of Hospital Cost Application Along with Efficiency"** submitted to the Daffodil International University done by us under the guidance of **Mr. Abdus Sattar, Assistant Professor of CSE Department.** We also declare that this project is that the outcome of our own effort, that it's not been submitted to the other university for the award of any degree or diploma.

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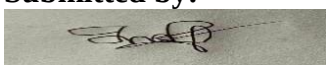

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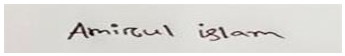

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ACKNOWLEDGEMENT

First of all. All praise is to Allah, by His grace we have got been ready to do our work successfully, together with his showers of blessings, and we completed our project work successfully.

We would prefer to express our deep and sincere gratitude to our research supervisor, **Mr. Abdus Sattar, Assistant Professor of CSE Department, Daffodil International University.** Deep Knowledge and keen interest of our supervisor within the field of "**DESIGN AND DEVELOPMENT OF HOSPITAL COST APPLICATION ALONG WITH IT'S EFFICIENCY**" to hold out this project. His dynamism, vision, sincerity, and motivation deeply inspired us. It absolutely was an excellent privilege and honor to figure and study under his guidance. We are extremely grateful for what he has offered us.

We would also prefer to express our heartiest gratitude to Prof. **Dr. Touhid Bhuiyan** and Head, Department of CSE, for his kind help to end our project and also to other faculty member and also the staff of CSE department of Daffodil International University.

We would wish to thank our classmates who help us in our project with their ideas and suggestion.

And last, we are extremely grateful to our parents for their love, prayers, caring and sacrifices for educating and preparing us for our futur

ABSTRACT

We are living in a technological era. Everything is modern here. But sometimes we are facing information gap problems. Especially our urban area peoples are facing these problems because they don't have enough resources. People coming from the rural area has been facing problem in the medical sector. They don't know the services of this sector. They don't know the rate of hospital costs in the Dhaka area. Here we choose Dhaka as one of our parameters. We choose Dhaka because Dhaka is famous for treatment in Bangladesh. But in Bangladesh especially there is no application which gives us proper information about this sector. That's why we want to develop an application which gives all the information. One can easily know about hospital test costs, bed costs, and doctors' information. So, people can easily know all the information. He/she can easily choose the hospital which is best for him. We hope this app will be very helpful for our rural area people as well as all area people who need information quickly

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CHAPTER 1

INTRODUCTION

1.0 Introduction

The medical sector is one of the largest sectors in Bangladesh. In Bangladesh, 70 percent of people live in rural areas. They don't know the hospital cost and test system. Whenever they come to Dhaka for hospital service, they face a lot of trouble. They don't even know which hospital is best for them according to their ability. That's why we develop an application in which the format is .exe. It can be run on any windows-based computer. Now almost all have a personal computer. It is one of the daily useable things in our life. In any computer, anyone can run this on his/her computer. With this app, one can easily know all the information that he/she needs. Like he can know the test rate, bed rate, ICU rate, doctor's information, and their visitor hour of most of the hospitals in Dhaka city. All the information in just a click away. It reduces hassle. The emergency patient can be admitted within a short time. Our main target is to achieve the best output from hospital service. Our app will give the basic knowledge of hospital costs and other hospital-related information.

1.1 Motivation

Our main motivation for this project is to give the best information on hospital costs in Dhaka city. At this time many peoples are facing many health problems. Like lung disease, heart problem, blood-related problem etc. So, to know the exact situation of the body, doctors give many tests according to symptoms. We want to use our application broadly for the great importance of peoples. So:

1. Want to build up a proper application.

2. Try our best to make it user-friendly.

3. Want to give actual data of our hospital billings.

4. Always try to improve how people can be benefitted from our application.

5. Want to reach this application to all kinds of people in our society.

1.2 Rationale of the Study

We are now facing a great crisis. That is Corona Virus. Every day thousands of people die around the world due to this virus. People have been coming from villages for better treatment. They don't know the hospital system in Dhaka city. Cause they don't know the system. They have no information. Moreover, in this situation going from one hospital to another hospital is very risky. Anyone can be affected by this virus. So, we want to reduce this hassle. With this application, one can easily know the hospital information by sitting in their room.

Another way, it is very hard to collect hospital information. Sometimes hospital authorities don't share the proper information. Some syndicates want to take advantage of people who come from the village. That's why we want to develop this application. So, people will be benefitted. They easily know which hospital is near from their location, which hospital can give them their expected service. They also know the rate chart of these hospitals. So, people can easily take hospital services.

1.3 Objectives

- Changing our old information system
- Creating an easy relation between the patient and hospitals.
- Sharing basic information of hospital cost.
- Developing windows-based application.
- Creating a syndicate-free environment.
- Reducing time and hassle.

1.4 Expected Outcome

- ✓ Our application is basically a windows-based application by which people can easily know their expected hospital cost information.
- ✓ With a pc, anyone can run this application
- ✓ Always try to give people authentic information
- ✓ Provide all the information at hand

- ✓ People who are middle class or below give them a proper cost suggestion according to their choice
- ✓ To reduce time and money
- ✓ Want to make it a very user-friendly application.
- ✓ People need data connection for all kinds of resource but we add some offline data for those who have not data connection.

1.5 Report layout

Chapter 2: In this section, we give the total overview of our application. We give all the information about our work, the design, the future of our application, the challenges that we are faced by doing this application and also the related works.

Chapter 3: In this section, we discuss about the diagram of our project. Every feature work, design requirements will disclose in this section.

Chapter 4: We implemented and tested our project also give the proper discussion about this project.

Chapter 5: In this section, we discuss about the conclusion of the project and the scope of this project for further evolution of our project.

CHAPTER 2

BACKGROUND

2.0 Introduction

Now, almost everyone has a personal computer. It is one of the basic-need in our daily life. And in Bangladesh, most of the users use windows based personal computers. It can be genuine windows or not. Cause many of them are not familiar with other operating systems. And we all know that it is very user friendly. That's why we make this application for windows-based device. Now, here is the total overview of our application:

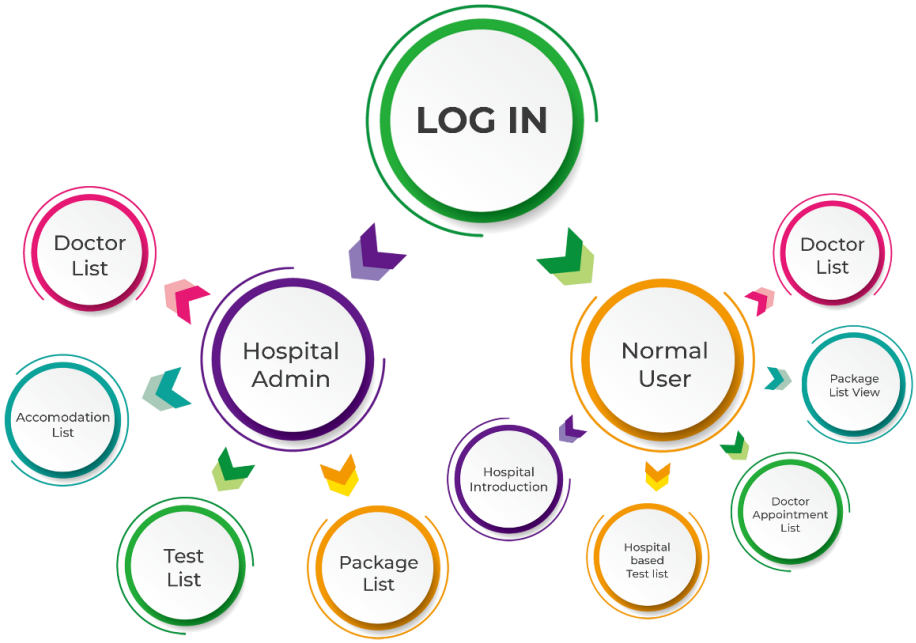

Fig 2.0.1: Total Function

Here we can see that there is a log-in section. This is divided into 2 parts. They are:

1. Hospital Admin
2. Normal User

Hospital Admin: Basically, it is for admin. Admin can control all the parts of this section. He/she can add or delete anything from this section. Users cannot see this part.

Normal User: This is for the user. He/she can log in with his/her user's name and password. And can collect information according to their need.

And last, we can see that these 2 parts are divided into many sectors. These sectors have different kinds of functions.

2.1 Related Works

Hospital Auto Management System:

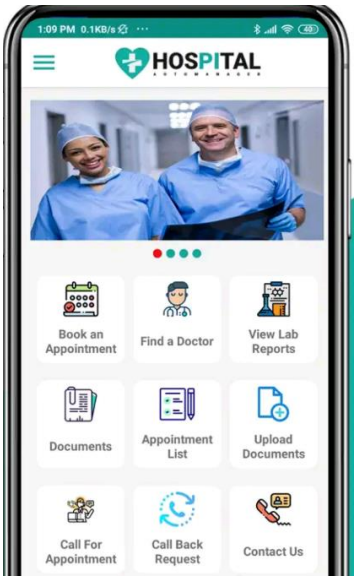

Fig 2.1.1: Hospital Auto Management System

It is an online patient management and appointment application. This application is android based also has a website. With this application, one can easily book an appointment, find all the doctors' information, see their lab reports, and have a lot of other features.

Hospital Number and Emergency Information Bangladesh:

Fig 2.1.2: Hospital Number and Emergency Information Bangladesh

With this application, anyone gets information and phone number of hospitals within a short time. Anyone can get all the hospital's location, contact number, etc. It can also work in offline and real-time data search.

Medical Test Prices Idea:

Fig 2.1.3: Medical Test Prices Idea

This is an android based application. With this application, anyone can know about the prices of almost every test information before going to the hospital. It gives an idea about the prices.

2.2 Design

Now, we are going to show the design of our project:

Log In:

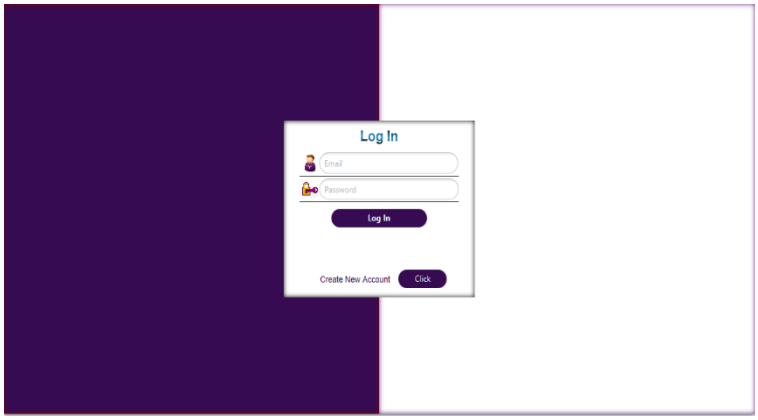

Fig 2.2.1: Login Page

This is the log-in page of our application. In this section users and admin can log in with their email and password. But at first, he/she needs to create a new account. Here is an option. Giving this information he/she can enter the application. This is the starting of this application.

Admin Panel:

Fig 2.2.2: Admin Panel

After giving all the information, the application takes the user in the user panel and takes the admin in the admin panel. Here we can see the admin panel. This is only for the admin. Every hospital has an individual admin. He/she can only add the information about his/her hospital's information. Admin can add or delete anything in this panel. Also modify this. We can see different kinds of options. Like test cost, bed information, doctor's information, package list, etc. Admin can enter all the sections and also add the information in those sections.

Test Cost Information:

This is a part of admin panel. Our main application is based on this section. And this is test cost. Hospital's admin can add this figure. Different hospitals have different chart. So, admin can add this according this hospital's cost. Admin needs to fill up test name, test place, test type, test requirements etc. If test cost gets high, admin can also modify this.

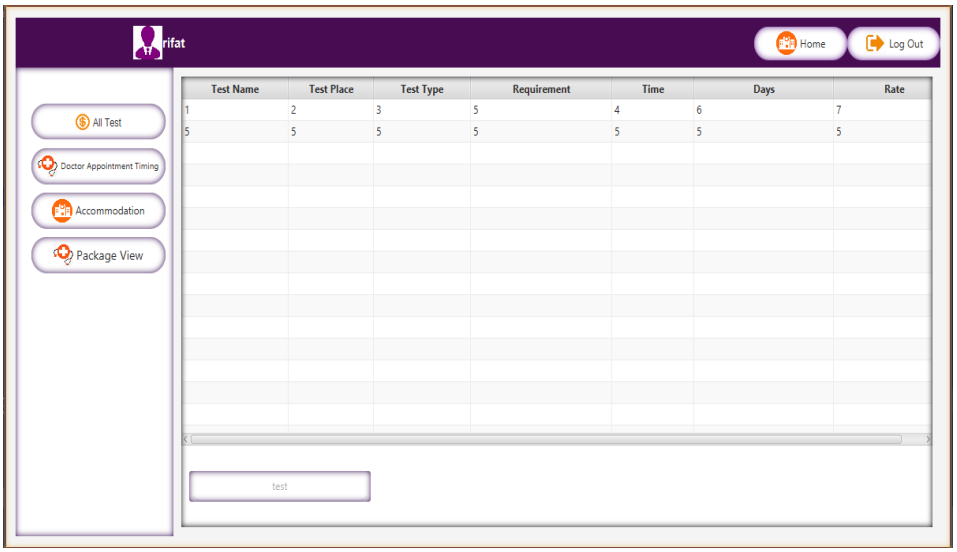

Fig 2.2.3: Test Cost Information

Package Information Section:

It is one of the parts of the admin panel. Admin can add this information. We can see that different hospitals have different package types of tests or operations. Like full body

checkup, caesarian delivery package, normal delivery package, etc. Admin can enter the package name and price with details.

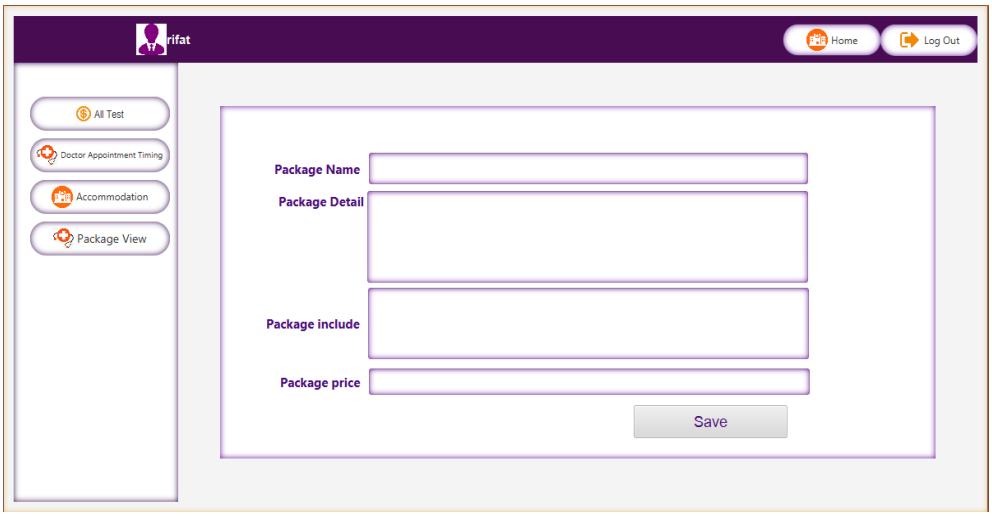

Fig 2.2.4: Package Information Section

Doctor's Information:

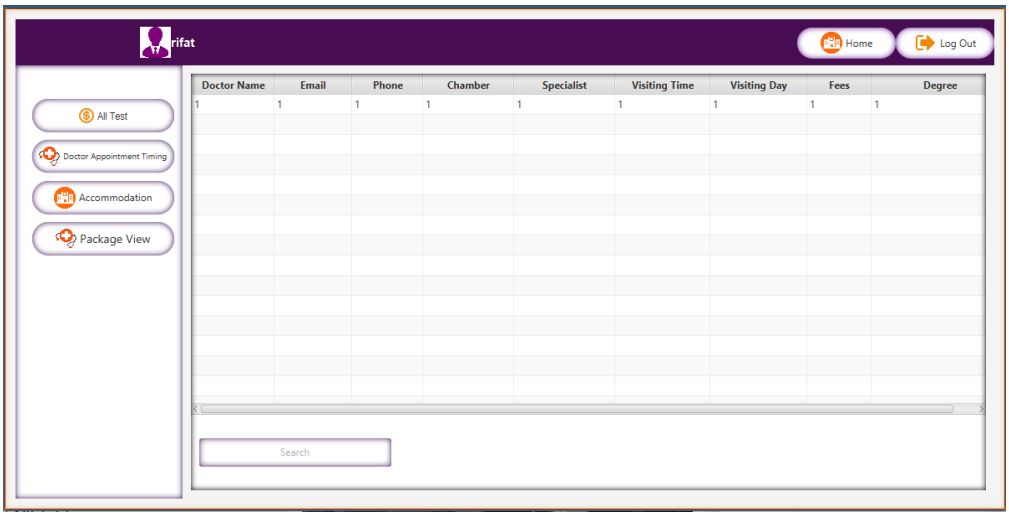

Fig: 2.2.5: Doctor's Information

This is the part of doctor's information. Admin can enter his/her hospital's doctor's name, email, phone number, chamber, specialty, visiting hour etc. All the information, admin can save here.

Accommodation Information:

In this section admin can add or modify all the accommodation information. We know that every hospital has different kinds of beds. Like ac cabin, non-ac cabin, ICU, CCU and local bed.

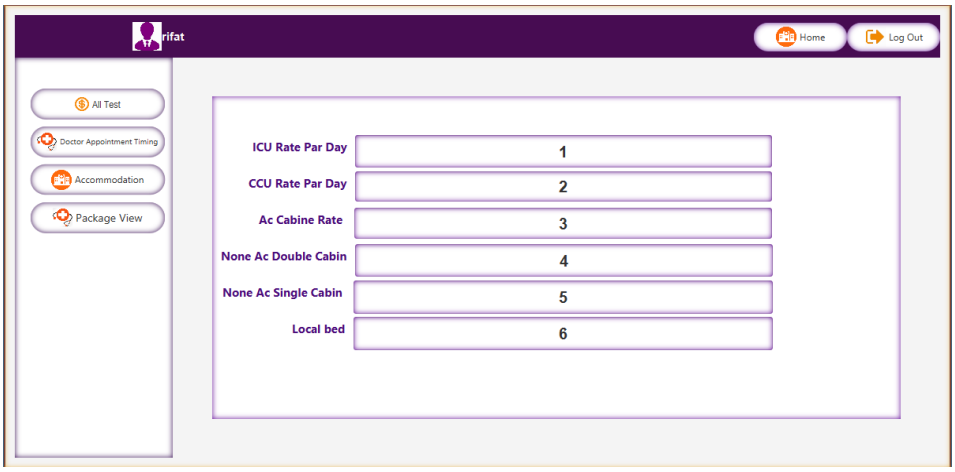

Fig 2.2.6: Accommodation Information

User Panel: This panel is only for user. Use can see the all the hospital's details information in this section.

Estimated Cost: In this section, people can easily see their estimated cost by clicking the selected option. They can choose any hospital's any test.

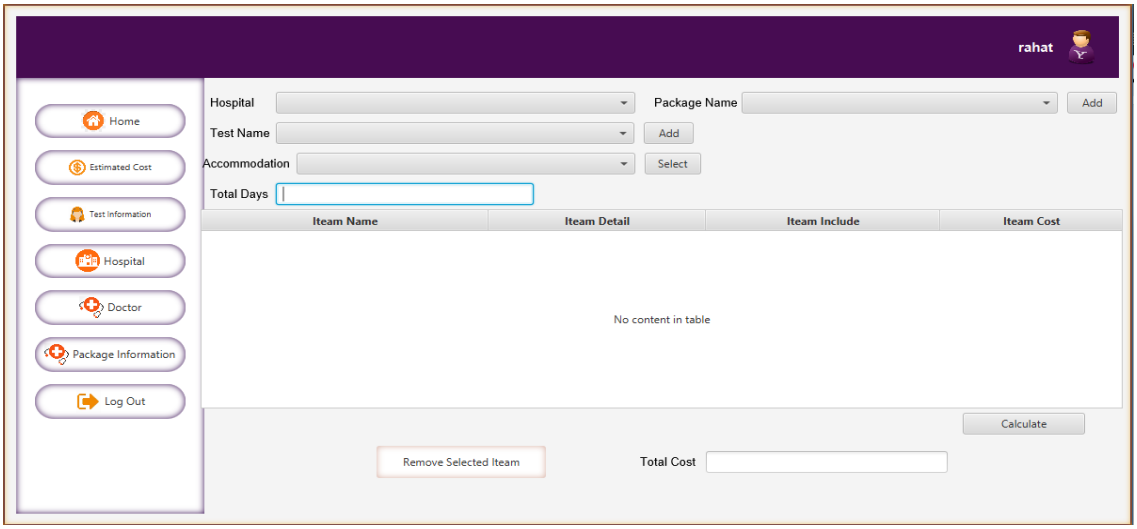

Fig 2.2.7: Estimated Cost

Test Information: People can see the all the test information with their price in this section.

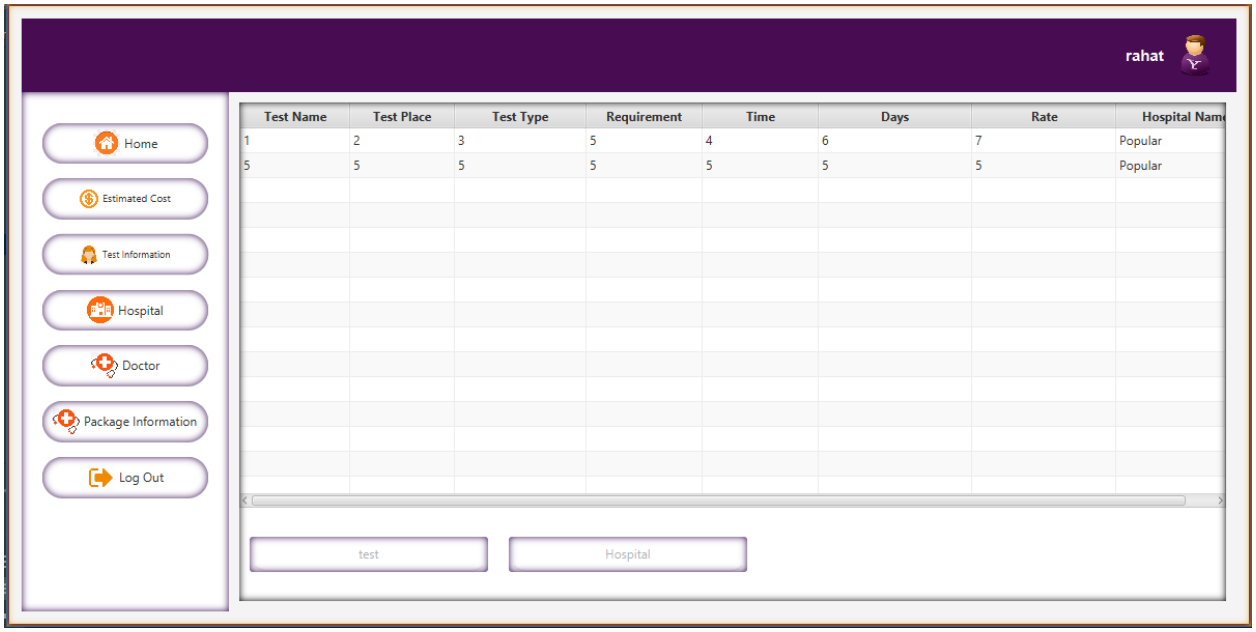

Fig 2.2.8: Test Information

Hospital Information: People can search or see the information about all the hospitals in this section.

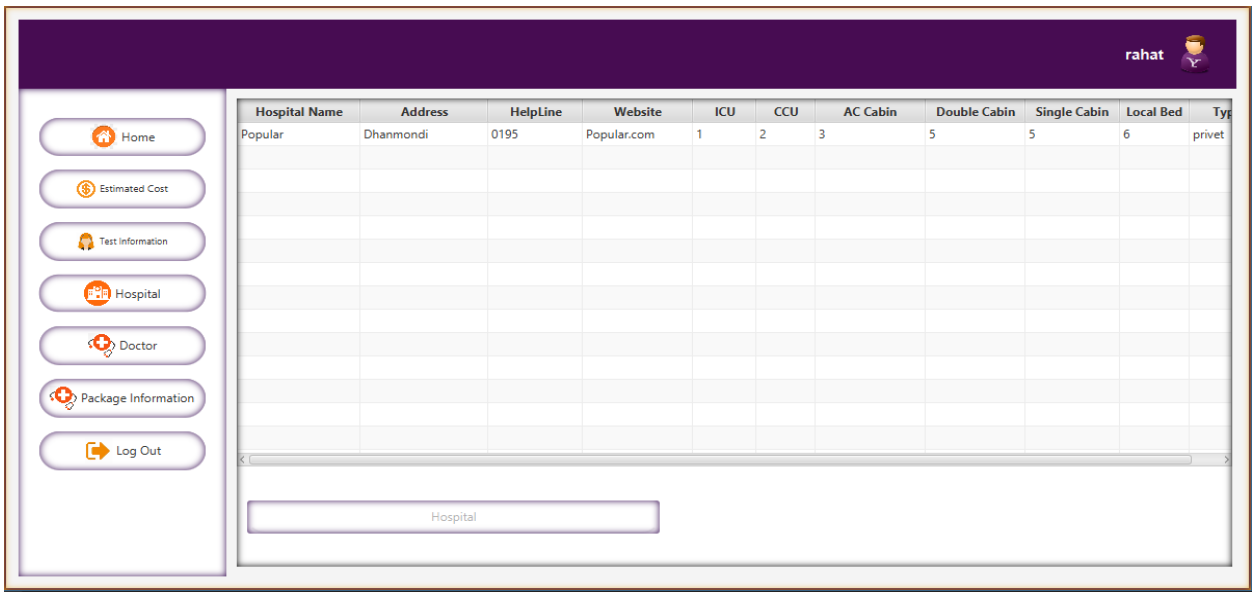

Fig 2.2.9 Hospital Information

Doctors Information: People can see all the doctor's information in this section.

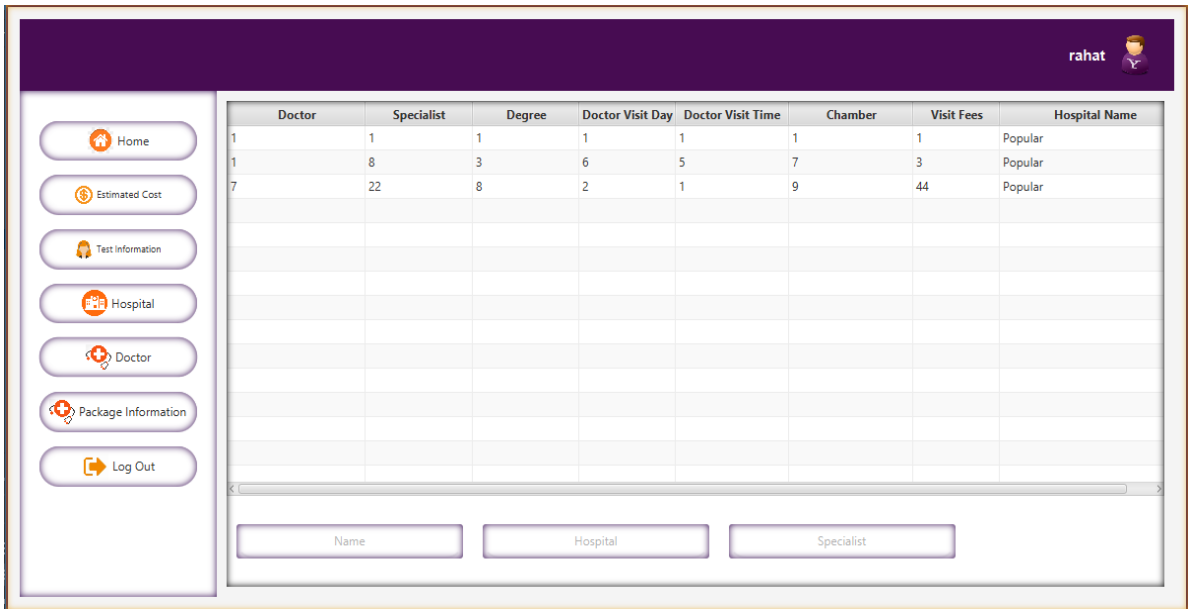

Fig 2.2.10: Doctors Information

Package Information: Most of the hospitals have some package system. In this section, people can know all the information about this.

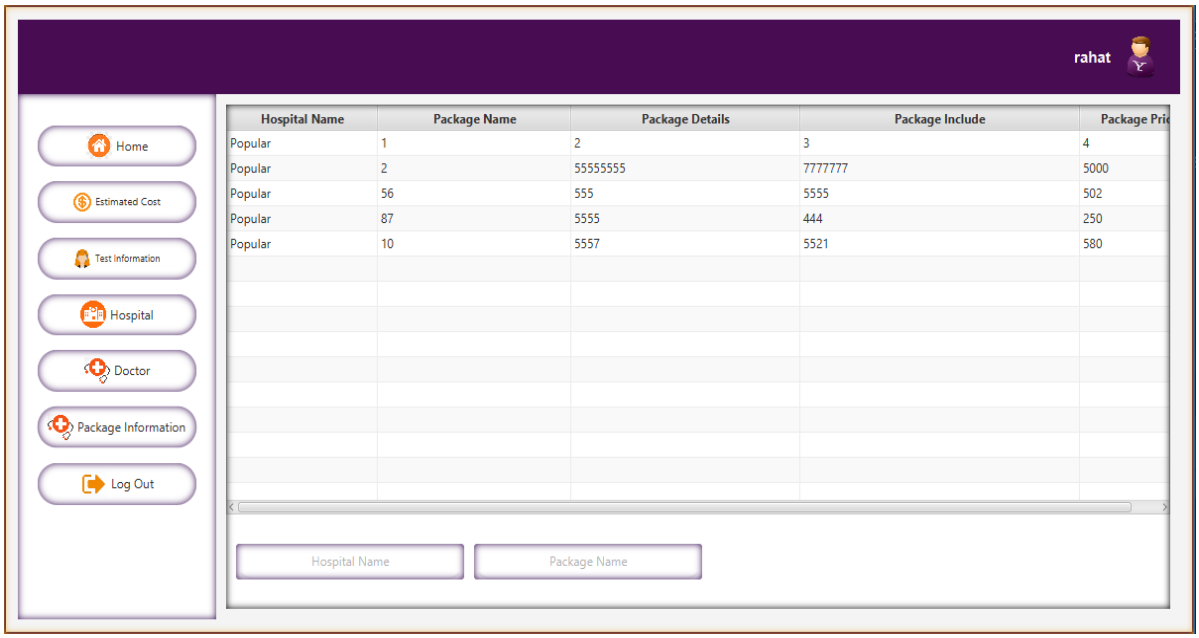

Fig 2.2.11: Package Information

Back End Design: Our back-end design is given below:

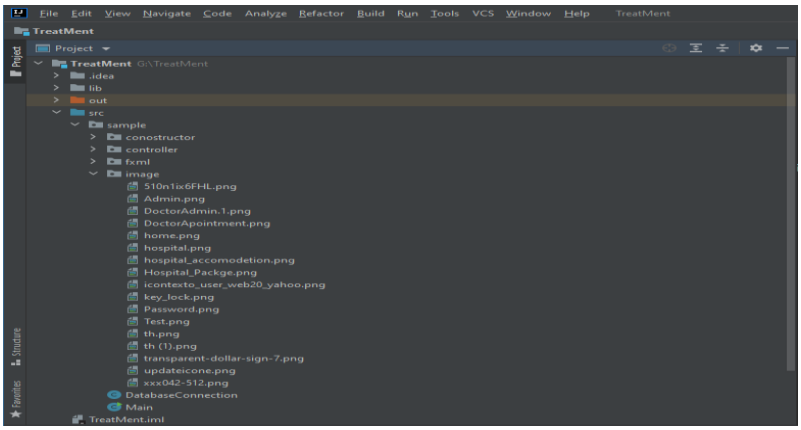

Fig 2.2.12: Back End Design

All images that we use for Our Application. These images are used in XML file below.

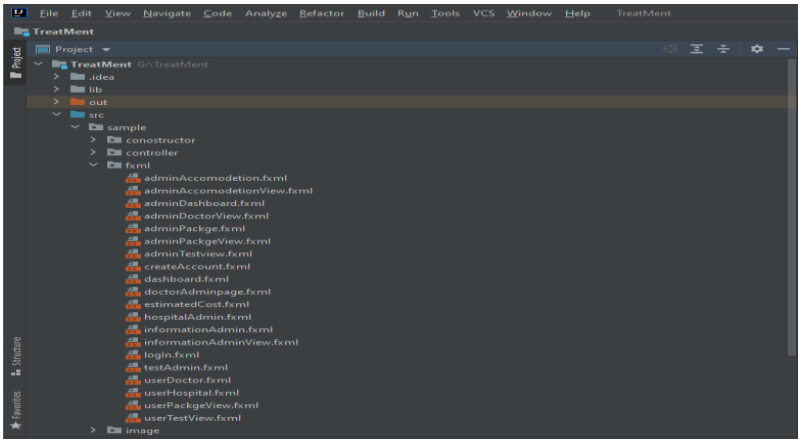

Fig 2.2.13: Back End Design

These XML files are the UI design of our Application.

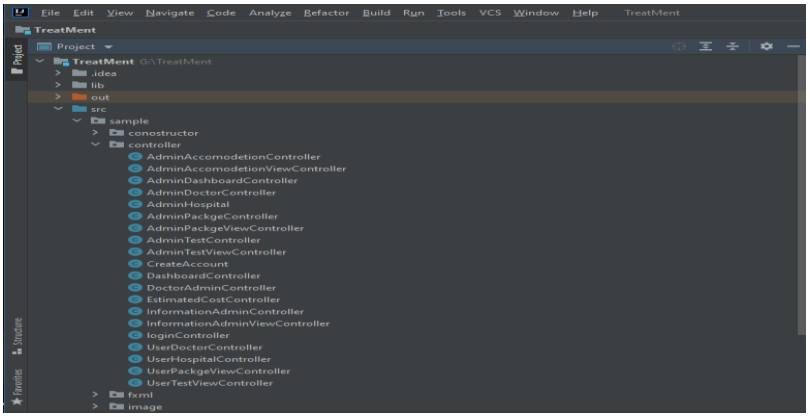

Fig 2.2.14: Back End Design

These are the controller class of our XML files. Where We connect XML file with our Java Code Logic and Database

2.3 Research Summary: In Bangladesh, every year a lot of people coming to Dhaka from the rural areas for better treatment. The Hospital system in our rural is not good enough. Even the test system and its accuracy is very bad in our Zilla district. That's why people are coming to Dhaka city. Dhaka has better treatment capability compare to other cities. Our research focused on how to help people who haven't enough resource. Even in this pandemic situation, this is the best solution to get hospital related information.

2.4 Challenges: Developing any type of project, we have to face some problems. This is a common issue. In our project, we also faced some problems. Like:

1. In our Bangladesh, hospital authorities' behaviors are not well enough. Some hospitals refused to give information. Our govt. has recently announced that, every hospital must hang their price chart. People have the proper right to see the price list. But we found that some hospitals have no price chart. Even when we wanted this they refused. That's why it is very hard for us to collect the price list.

2. Then we faced a data set problem.
3. Database online server hosting problem.

4. Training people with this application.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.0 Requirement Collection and Analysis

Our application is basically for windows-based computer. For better work this application needs some tools and requirements. Like:

Hardware Configuration:

- Simple Windows Computer

Software Configuration:

- OS: -Windows 10/8/7 or higher Tools.
- Java JDK 8/10 or higher
- Java JRE, JVM
- DB: MYSQL
- Database Server: Local Host

3.1 Features:

- Show Hospital Information
- Doctor Appointment
- Accommodation Cost for hospital
- Doctor list and Appointment number
- Hospital Package list
- Estimated Cost

3.2 Use Case Modeling and Description:

It is basically representation of a user's interaction with the system. It shows the relation between users and the different use cases. Here is our use case diagram:

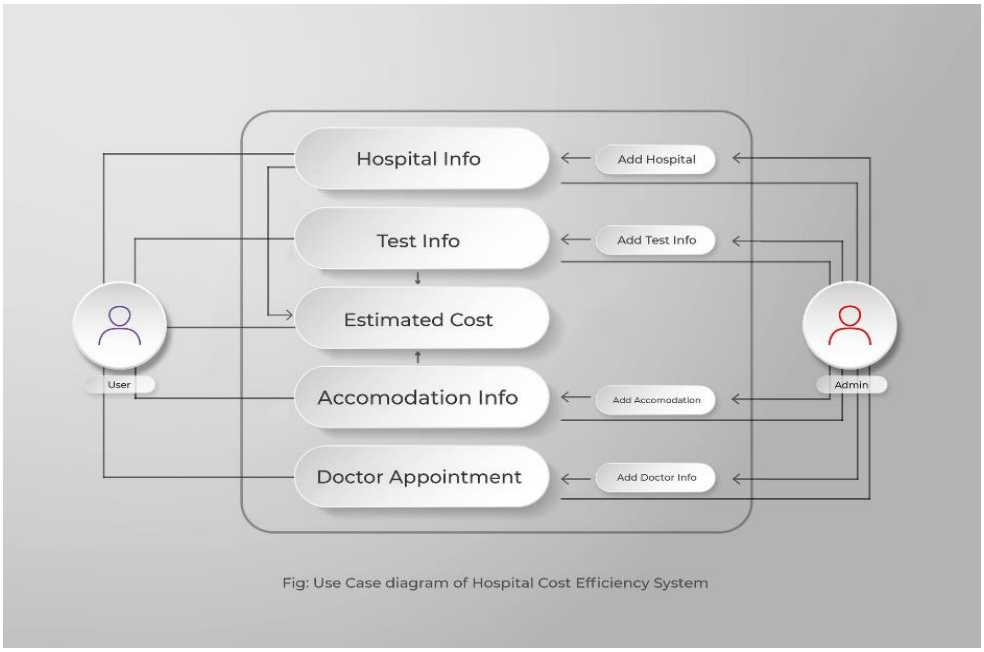

Fig 3.2.1: Use Case Modeling

In this diagram, there are 2 actors and many use cases also with some connectors. Users can only see the hospital info, test info, estimated cost, accommodation cost, and doctor appointment. And on the other hand, the admin can modify and see all the cases except the estimated cost.

3.3 Relational Diagram:

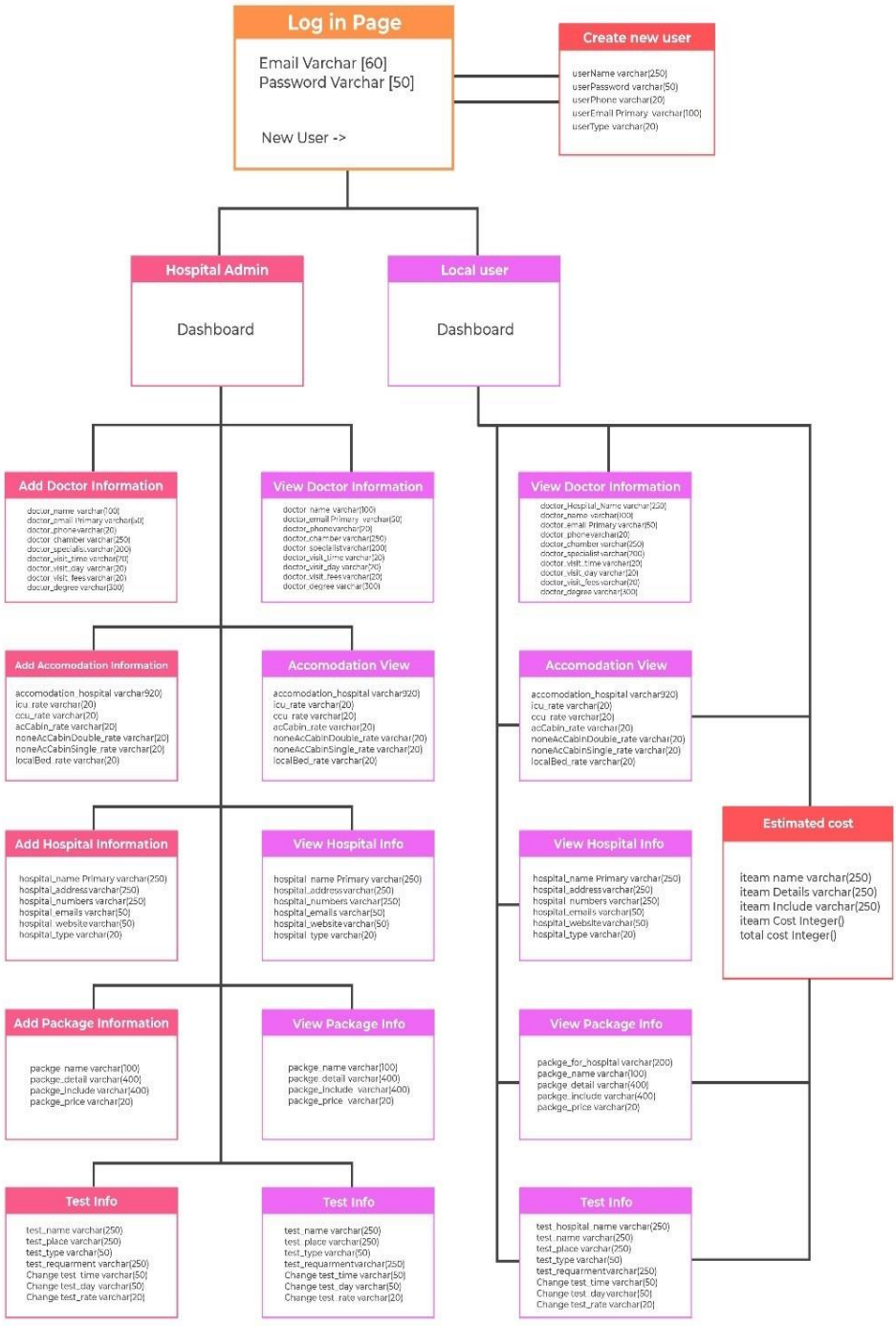

Fig 3.3.1: Relational Diagram

This is the relational diagram of our project. We can see here the log-in page and if a new user or a new admin enters into the application, he needs to create a new account. There are 2 parts. Admin and user. Admin has some specific tasks and users have others. All the variable info is given here. We have a clear idea about this application with this relational diagram.

CHAPTER 4

IMPLEMENTATION AND TESTING

4.0 Testing and Diagram:

We need some key requirements for implementation. Without these things, we cannot run our project. We need:

1. Windows computer for the user
2. Then we need to install this on the user's computer

After that user can be easily benefitted from this application.

Here is our testing table:

Table Name: Testing Application

Test case	Device OS	Test input	Expected outcome	Obtained outcome	Passed/ Failed	Testing Period
Install	**Windows 10**	Installed by valid Computer	Successfully Installed	Successfully Installed	Passed	06-03-2021
Install	**Service Pack 3/without JRE 8.0**	Installed by invalid Computer	Re-enter warning for failure	Installed denied	Failed	06-03-2021
Install	**Windows Vista/Without JVM**	Installed with empty Computer	Re-enter warning for failure	Installed denied	Failed	06-03-2021
Install	**Windows10**	Installed by valid Computer	Successfully Installed	Successfully Installed	Passed	07-03-2021
Install	**Service Pack 2/without JRE 8.0**	Installed by invalid Computer	Re-enter warning for failure	Installed denied	Failed	07-03-2021

Install	**Windows 7/Without JDK**	Installed by valid Computer	Successfully Installed	Installed denied	Passed	07-03-2021
Install	**Kali Linux**	Installed by valid Computer	Successfully Installed	Successfully Installed	Passed	08-03-2021
Install	**Linux**	Installed by valid Computer	Successfully Installed	Successfully Installed	Passed	08-03-2021

Application Testing is a part of the Software Application Development process that is carried out for verifying the correctness and validating the functional features of the application being developed. That is the testing process of our application.

CHAPTER 5

CONCLUSION AND FUTURE OPPORTUNITY

5.0 Discussion and Conclusion

At last, our work has been completed. We live in modern society. Everything is now on the internet. It is one of the important things in our daily life. That's why we create this application. Dhaka is full of traffic. It is very loathsome to go from one area to another area. People are very busy now. They don't want to go to the hospital for information. They want a quick solution. Our application can give them accurate information within a very short time. It saves both time and money. Again, we can see a long line in govt. hospital's counter. Syndicate is also a problem there. With our application, one can easily know his/her desired information from home. And we think this is the future.

5.1 Future Opportunity and Further Development:

We have some plans for our application. We tried to make it user-friendly but it can be more user-friendly in the future. We will add more features to it. We tried to give most of the important information. But we will definitely increase this. Again, we will improve the design of our app. Now, this app is only windows-based. We want to make it for all devices. Like we want to create an android app based on our idea. So, all mobile users will use this application in the future. Cause mobile users are increasing day by day. If we make this in the android platform, it will be very helpful for them.

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