



**Tribhuvan University**

**Faculty of Humanities and Social Sciences**

## **E-HEALTHCARE**

### **A PROJECT REPORT**

**Submitted to:**

**Department of Computer Application**

**Prime College**

*In partial fulfillment of the requirements for the Bachelors in  
Computer Application*

Submitted by

Ram Mahat (6-2-410-299-2019)

May, 2022 A.D

**Under the supervision of**

**Ms. Rolisha Sthapit**



**Tribhuvan University**

**Faculty of Humanities and Social Sciences**

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**Supervisor's Recommendation**

I hereby recommend that this project prepared under my supervision by Ram Mahat entitled “**E-Healthcare**” in partial fulfillment of the requirements for the degree of Bachelor of Computer Application is recommended for the final evaluation

**Ms. Rolisha Sthapit**  
**SUPERVISOR**  
**BCA Coordinator**  
**Prime College**

**Tribhuvan University**  
**Faculty of Humanities and Social Sciences**  
**Prime College**

**LETTER OF APPROVAL**

This is to certify that this project prepared by Ram Mahat entitled “**E-Healthcare**” in partial fulfillment of the requirements for the degree of Bachelor in Computer Application has been evaluated. In our opinion it is satisfactory in the scope and quality as a project for the required degree.

Ms. Rolisha Sthapit Supervisor Prime College, Khusibun	Ms. Rolisha Sthapit BCA Co-Ordinator BCA Department Prime College, Khusibun
	<b>Prof. Dr. Subarna Shakya</b> <b>External Examiner</b>

## ABSTRACT

The capstone project entitled “e-Healthcare” was designed and developed in PHP, MySQL. The purpose of the study is to implement an online database system that caters the doctor appointment scheduling, reservation and records management of consultation for a hospital or clinic. In this era of pandemic, medical clinic and hospital imposed strict guidelines on the number of people who can enter their facility. Consultations to doctors are also very limited and can facilitate a limited number of patients. The online system for appointment and consultation is one of the solutions that can be used in order to give the people a way on how to contact their doctors and reserve an appointment for consultation. The implementation of the said project will help hospital and clinic provide better client management while ease and comfort are the advantage on the patient end.

On the other hand, only few people will be given the admin credentials using that one can access the admin dashboard where they can see all of the appointments from the user. They will be able to process appointment, close and also delete the appointment if necessary. Once the admin processes the appointment, users will be able to see in their own profile and appointment information.

*Keywords: Admin, HTML, MySQL, Appointment Scheduling System, Online Appointment System*

## ACKNOWLEDGEMENT

For the partial fulfilment of the project in this semester I would like to express my sincere gratitude to everyone who has directly and indirectly helped me to develop this project. There were times when I thought that this project was too difficult or may be not possible but I am really thankful to my supervisor Ms. **Rolisha Sthapit** who continuously inspired me to give my best and perform the project to complete it. I could barely do anything without the help of Mr. **Sravan sir** who has helped me throughout and find and reconcile my mistakes.

I would also like to include the continuous support of my classmates who were always inspiring me to continue with the project and reminded me of the competition every time. I have also taken help from the seniors of Prime college so I would like to acknowledge them and really thank them from the bottom of my heart. It is because of all of you that I did not stop and give my best that has today brought the project here today.

In the end, I would also like to thank the Tribhuvan University for giving me this opportunity via the course of Computer Application to help me understand the project ethics at this early stage and helped me to evaluate my knowledge and expand it a little more.

Ram Mahat

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## **LIST OF ABBREVIATIONS**

CSS- Cascading Style sheets

DFD- Data Flow Diagram

ERD- Entity Relationship diagram

HTML- Hypertext Markup Language

JS- JavaScript

PHP- Hypertext Preprocessor

SQL- Structured Query Language

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# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 Introduction**

With the advancement of technology, it is also important for the health care systems to automate all the processes which will help improve customer service and reduce the waiting time. Unlike the manual process, that essential information cannot be available in the necessary time as there are volumes of information that cannot be done if you do not have enough manpower. With that being said, this system will be able to wipe out the existing drawbacks by optimizing all the process within an institution and destroy the communication barrier between medical personnel and patients.

E-Health Care is an automated web-based application that assists in management of doctors and patients in easy, comfortable and effective manner. When doctors and patients are not directly in contact with each other, their interaction is made possible by this system. The main purpose of this online Health Care system is to help improve and optimize all the processes within the institution. This system has three sides, an admin, user and doctor. In this system, the user must register to have an account so; he can book an appointment and can get locations of the nearest hospitals with their respected names. The user also has the ability to see on the Homepage different doctors assigned in the hospital along with their professions. They can also view the contact list of the admin, so the user can send a message directly to them if they have any queries.

This system will be developed using PHP, MySQL Database, HTML, CSS, Bootstrap, JavaScript (jQuery and Ajax), and some libraries/plugins. In contrary, this project will be a small contribution in creating a friendly working environment for any health care centers and to overcome the drawbacks in existing system and make it more feasible.

## **1.2 Problem Statement**

Growing quality demand in the hospital sector makes it necessary to exploit the whole potential of stored data efficiently, not only the clinical data, but also on management, in order to minimize costs and improve the care given to the patients. So, it becomes mandatory to automate all the processes which will in turn help in improving customer service, data management and reduce the waiting time for people(patients). With this project will help in optimizing all the complex and time-consuming medical procedures in an online platform and create great convenience for the people.

## **1.3 Objectives**

- To provide online services where patients and doctors information can be maintained in an organized way.
- To enable users to schedule appointments with doctors specialized in various fields.

## **1.4 Scope and Limitation**

### **Scope:**

- It can be used by any pharmacies, health post and health-centers.
- It can add feasibility to the user by getting rid of the exhausting manual process.

### **Limitations:**

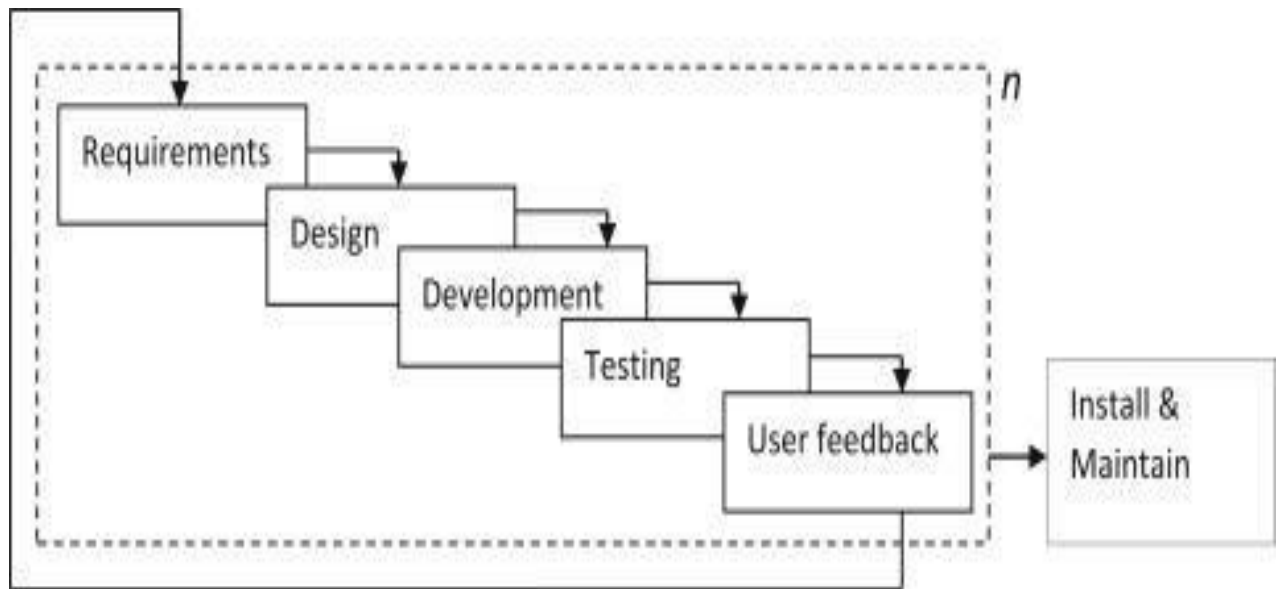
- Prone to cyberattacks because the system does not have strong security layer and can breach the system.
- It requires stable internet connection.
- No implementation of payment gateway.

## **1.5 Development Methodology**

A software development methodology or system development methodology is a framework that is used to structure, plan and control the process of developing a system. There are different models or methods used or followed during software development life cycle (SDLC) processes

such as the waterfall model, prototyping model, spiral model and others based on the nature or objective of the software.

As maximum requirements for the project were discussed and finalized before starting working on the project and one stage would come after the completion of the previous steps, the author decided to use the iterative model for the completion of the project.



**Figure 1.1 Incremental model**

Source: <https://www.sciencedirect.com/topics/computer-science/incremental-model>

**Requirement Analysis:** This phase includes the gathering of all the requirements of the system. For this, some research was done and some useful insights were pointed out so that the requirements, the functions, and the objectives of the system were well known.

**Design:** It includes the study and designing of the requirements gathered in the analysis phase for the system development. Thus, the formed design was then converted into use case-diagram, data modeling -diagram, interface design where each diagram depicted the design in their unique representation.

**Implementation:** This phase includes the implementation of the design done for system development in the previous phase. The features of the system were developed one at a time and then all the features were integrated to form a complete system in the next phase. All the

modules were developed using html, CSS and JavaScript for the front end and PHP and SQL for the backend programming.

**Testing:** The main objective of this phase is to see if the system is functioning as intended or not. This phase includes unit testing as well as system testing under various test case scenarios. In unit testing, each unit is tested one by one whereas in system testing the system as a whole is tested.

**User Feedback:** The main objective of this phase is to get the user feedbacks and again start over with the planning, analysis, design and development.

**Maintenance:** The errors were debugged, and solved then the completed version of the system was delivered to the concerned parties.

## **1.6 Report Organization**

The report is initially started with a brief introduction on online health care with problem statements and objectives of the project. Chapter 2 analyses the existing system. Chapter 3 discusses the data modeling and process modeling techniques used to give the information about the system requirement and feasibility study. The system design can be database schema design, interface design and process design. Chapter 4 explains about the tools that are used on this project's front end, back end and purpose of it. The modules used are also explained. The testing is also explained in this part. Chapter 5 discusses the conclusion of how the project is accomplished, its findings and many more. It also discusses the recommendation for future enhancements of the project. In conclusion, this chapter overview's purpose of doing this project including its scopes and objectives.

## **CHAPTER 2**

### **BACKGROUND STUDY AND LITERATURE REVIEW**

#### **2.1 Background study**

Health care is changing with a new emphasis on patient-centeredness. Fundamental to this transformation is the increasing recognition of patients' role in health care delivery and design. Medical appointment scheduling, as the starting point of most non-urgent health care services, is undergoing major developments to support active involvement of patients. By using the Internet as a medium, patients are given more freedom in decision making about their preferences for the appointments and have improved access.

Traditionally, medical appointments have been made with schedulers over the telephone or in person. These methods are based on verbal communications with real people and allow for maximum flexibility in complicated situations. However, because these traditional methods require the intervention of schedulers, the ability to get a timely appointment is not only limited by the availability of appointment slots, but also by the schedulers and phone lines. Patients' satisfaction with appointment booking is influenced by their ability to book at the right time with the right health service providers. This is a project designed to identify the benefits and barriers to implement Web-based medical scheduling and the unmet needs under the current health care environment.



## 2.2 Literature Review

The article published by P. Zhao, I. Yoo, J. Lavoie, B. J. Lavoie, and E. Simoes states that most of the practices have positive changes in some metrics after adopting Web-based scheduling, such as reduced no-show rate, decreased staff labor, decreased waiting time, and improved satisfaction, and so on. Cost, flexibility, safety, and integrity are major reasons discouraging providers from switching to Web-based scheduling. Patients' reluctance to adopt Web-based appointment scheduling is mainly influenced by their past experiences using computers and the Internet as well as their communication preferences [1].

J. Marynissen and E. Demeulemeester [2] paper presents a review of the literature on multi-appointment scheduling problems in hospitals. Each patient is assigned a specific path over a subset of the considered resources and each step needs to be scheduled. The main aim of these problems is to let each patient visit the resources in his or her subset within the allotted time to receive timely care. The results show that multi-appointment scheduling problems are becoming increasingly popular. In fact, multi-appointment scheduling problems in hospitals are currently gaining progressively more momentum in the academic literature.

Varden.se is a platform that collects information regarding 19 000 licensed healthcare providers, covering all health categories, in Sweden. Users can sort, compare and book care providers on the website. By presenting specific information about the services that each care provider offers, the users can make well-informed decisions about the care they choose for themselves [3].

Doktor.se is a solution that tries to solve the problem of easy access to a specialist. With a limited number of doctors and nurses in medical centers, patients often have to wait for a medical consultation. With Doctor.se, they only have to download an Android or iOS app and get a free consultation online. Only if needed, a patient will be appointed to the physical location run by the company behind Doktor.se or to a specialist. The prescriptions can also be sent to the patient's house due to the cooperation between Doktor.se and a pharmacy chain Kronos Aponte [3].

Kry is another solution that provides similar possibilities is kry, an app and a chain of 400 medical clinics. Similarly, to Doktor.se, it uses a mobile application for video support and consultation. When needed, a patient can be appointed to a specialist, get a prescription, and plan further treatment. These solutions blend physical with digital, freeing up resources like patients' time, and specialists, so they can offer help where it's needed the most [3].

Jeeve is like a hospital but it's online. Jeeve ties up all these users (patients, doctor, clinics) together through their portal and makes it easier for all of them. Here, registered clinics get a dashboard through which they can manage doctors, their appointments, and send the patient to doctors. On the other hand, the doctors get to see their schedule beforehand and plan accordingly. At the very first glance, after opening their web portal or app, you are directed to the store. The store features different health products that you could choose and order from. There's another section included called appointments. Through this section, user can schedule an appointment for the doctor according to their convenience [4].

Nepmeds help you in accessing your health issues, getting in touch with the right doctor, booking diagnostic tests, vaccination, getting your required medicines, storing health records, staying fit or learning new ways to live happier. We are committed to providing you genuine medicines at a cheaper rate with easy accessibility and easy payment options. We provide you a one-stop solution to a variety of medicines from different manufacturers offering a variety of categories including generic medicines, OTC products, wellness products, vitamins, diet/fitness supplements, Ayurveda products, pain relievers, diabetic care kits, baby/mother care products, beauty care products and surgical consumables.[5]

## CHAPTER 3

### SYSTEM ANALYSIS AND DESIGN

#### 3.1 System Analysis

System analysis is a process of gathering and interpreting facts, diagnosing problems and the information about the Complaint Management System to recommend improvements on the system. It is a problem-solving activity that requires intensive communication between the system users and system developers. It is an important phase of any system development process.

##### 3.1.1 Requirement Analysis

###### i. Functional Requirement

- a) **Patients:** This application allows patients to login, register, book appointments and manage the appointments.

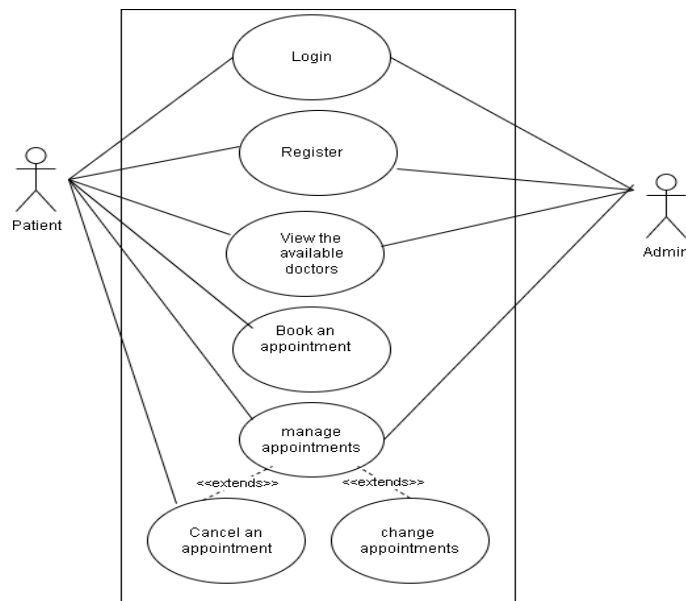
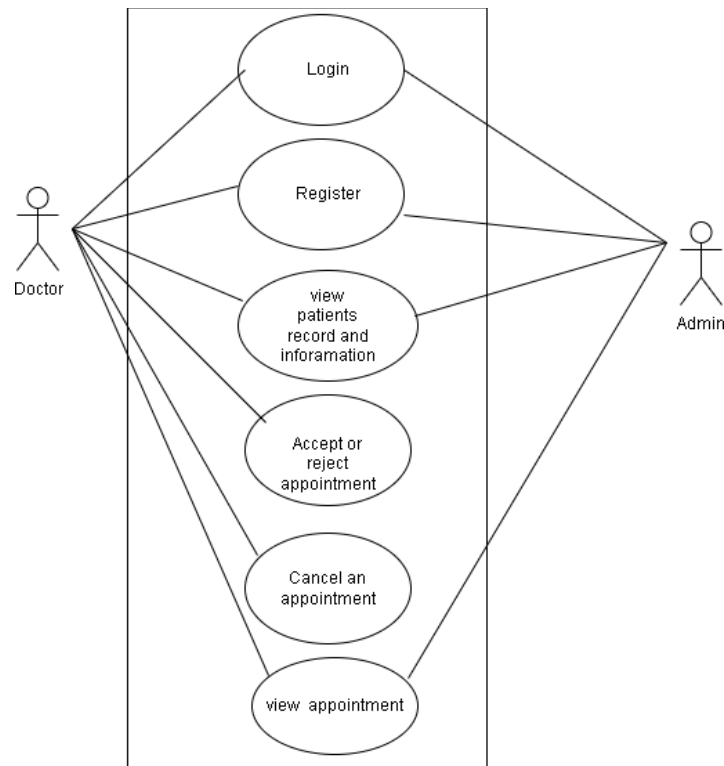


Figure 3. 1.Use Case Diagram of Patient

## b) Doctors:

This application allows doctor to register ,login,help in viewing the patients records and information.They can also accept or reject appointments too .



**Figure 3. 2.Use Case Diagram of Doctor**

**a. Patient Registration:** Registration is open to all the visitors to e-Healthcare. Patients can register to the online system by filling up the form and entering the correct details.

**b. Patient Login:** (general user/admin): Patient can login with username and password. Patient then selects appropriate login credentials to access their profile.

**c. Take appointments:** General patients can take appointments by going to the specific doctor that the patients want to take appointments from, and schedules time for the appointments. General patients can view their appointment history and their details.

**d. Cancel Appointments:** Patient and doctor themselves can cancel appointments in case of necessity.

**e. Change Appointments:** Patient can change appointments in case of necessity.

**f. View all appointments for specific doctor:** Admin and doctor both can view the appointments taken by patients from specific doctor.

**g. View patients record information:** Doctor and admin can view patients record and information in case of any necessity.

## **ii. Non-functional Requirement**

**a. User Friendly:** User Friendly is self-explanatory. When something is user friendly then it is easy to access and work with it. E-healthcare is user friendly. Person having basic knowledge and skills of computers can also easily use the web application.

**b. Simple and easy to use:** E-healthcare uses a simple design as well as simple language on the content to improve the user friendliness of the web application

**c. Easy Access:** E-healthcare is a web application. It can be accessed anytime from anywhere with the help of internet connection.

**d. Responsive:** E-healthcare is responsive. This nature could prove to be extremely beneficial to people living in areas with limited access to computers.

### **3.1.2 Feasibility analysis**

Feasibility study includes consideration of all the possible ways to provide a solution to the given problem. The proposed solution should satisfy all the user requirements and should be flexible enough so that future changes can be easily done based on the future upcoming requirements.

#### **i. Economic Feasibility**

This is a very important aspect to be considered while developing a project. The author decided the technology based on the minimum possible cost factor.

- All hardware and software cost has to be borne by the organization.
- The benefits the organization is going to receive from the proposed system will surely overcome the initial costs and the later on running cost for the system.
- Also, the cost of the development of this system will be minimum which will benefits both users and developers

## **ii. Technical Feasibility**

It is an evaluation of the hardware and software and how it meets the needs of the proposed system. This includes the study of function, performance and constraints that may affect the ability to achieve an acceptable system. For this feasibility study, we studied complete functionality to be provided in the system, and checked if everything was possible using different types of frontend and backend platforms.

**Table 3.1 Hardware Requirements:**

SN	Hardware	Minimum System Requirements
1	Processor	2.4 GHz Processor speed
2	Memory	2 GB RAM
3	Disk Space	500GB

**Table 3.2 Software Requirements:**

SN	Software	Minimum Software Requirements
1	Operating System	Windows 7
2	Database Management System	MySQL
3	Runtime Environment	Visual Studio 2008

## **iii. Operational Feasibility**

Operational feasibility is the measure of how well the project will support the customer and the service provider during the operational phase. No doubt the proposed system is fully GUI based that is very user friendly and all inputs to be taken all self-explanatory. Besides, proper training has been conducted to let the users know the essence of the system so that they feel comfortable with the new system. As far our study is concerned the clients are comfortable and happy as the system has cut down their loads and doing.

## **iv. Schedule Feasibility**

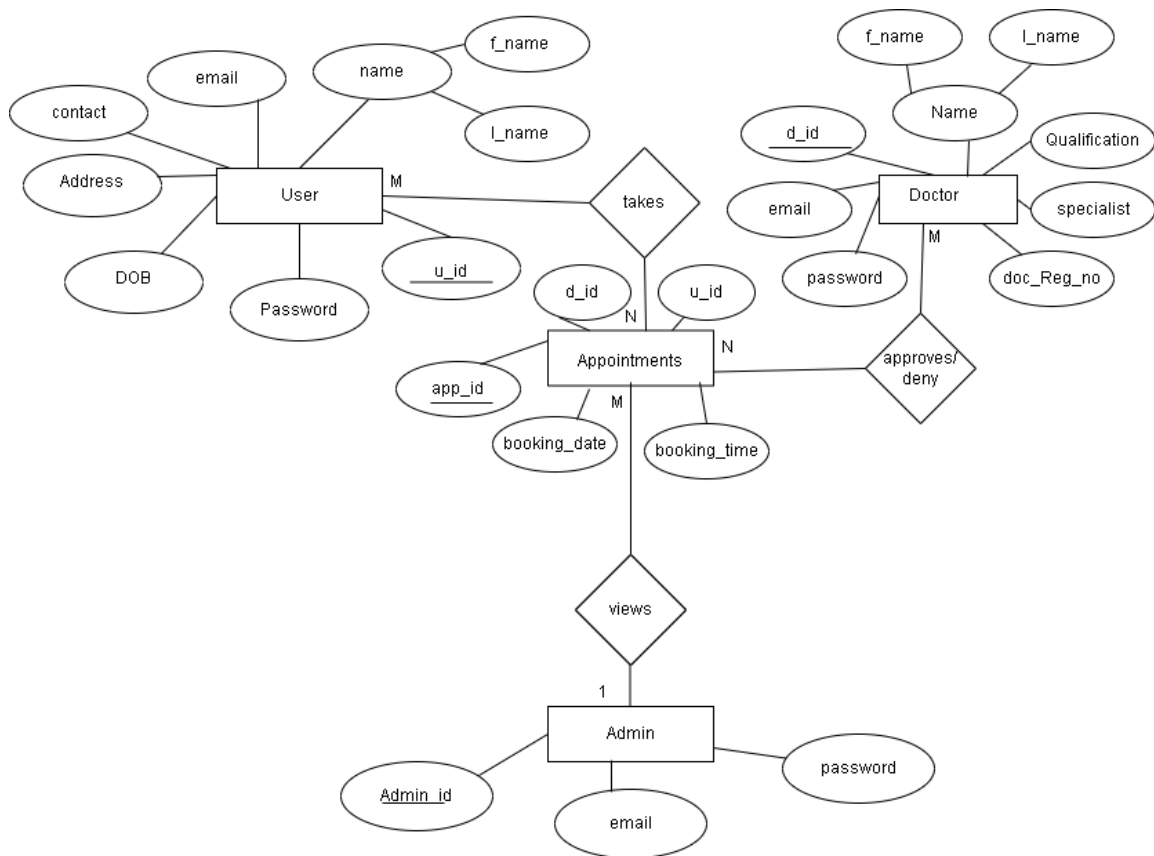
This is one of the most important feasibility analyses as it helps an organization to estimate how much time the organization will take to complete the project and how much of it is on track to a given schedule.

Activities	Start Date	End Date	Duration
Idea Generation	28/08/2078	02/09/2078	5
Proposal Writing and Presentation	03/09/2078	20/09/2078	17
Analysis and Data Collection	21/09/2078	01/10/2078	10
System Design	02/10/2078	03/11/2078	32
Implementation	04/11/2078	25/12/2078	24
Testing and debugging	01/12/2078	25/12/2078	24
Documentation	03/09/2078	25/12/2078	113

**Figure 3.3: Gantt Chart Table**

### 3.1.3 Data Modeling

A data model is a mechanism that provides this abstraction for database application. Data modeling is used for representing entities and their relationship in the database. E-R (Entity Relationship) Model can be referred to as a Data Model. E-R Model is a popular high level conceptual data model. This model and its variations are frequently used for the conceptual design of database application and many database design tools employ its concept.

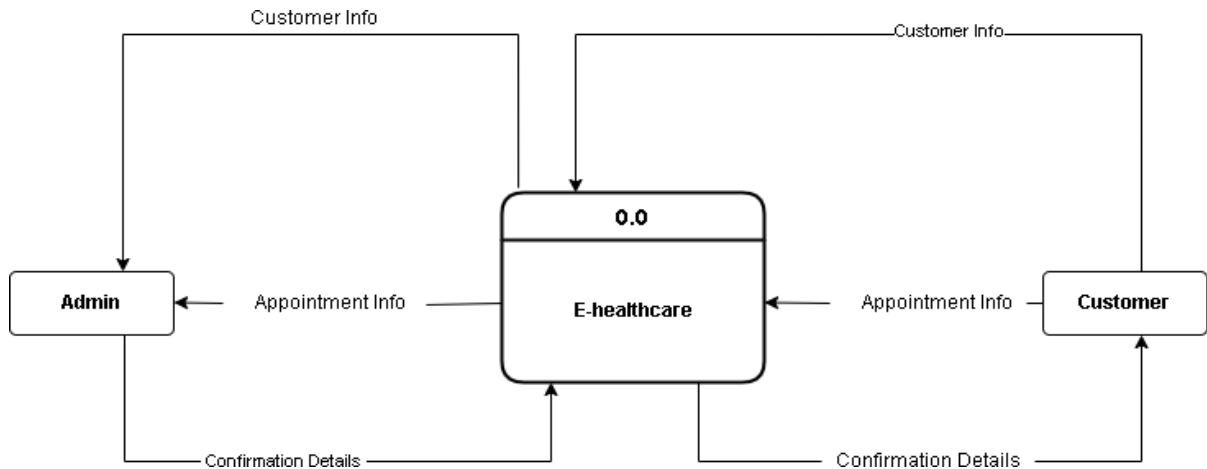


**Figure 3.3 ER Diagram**

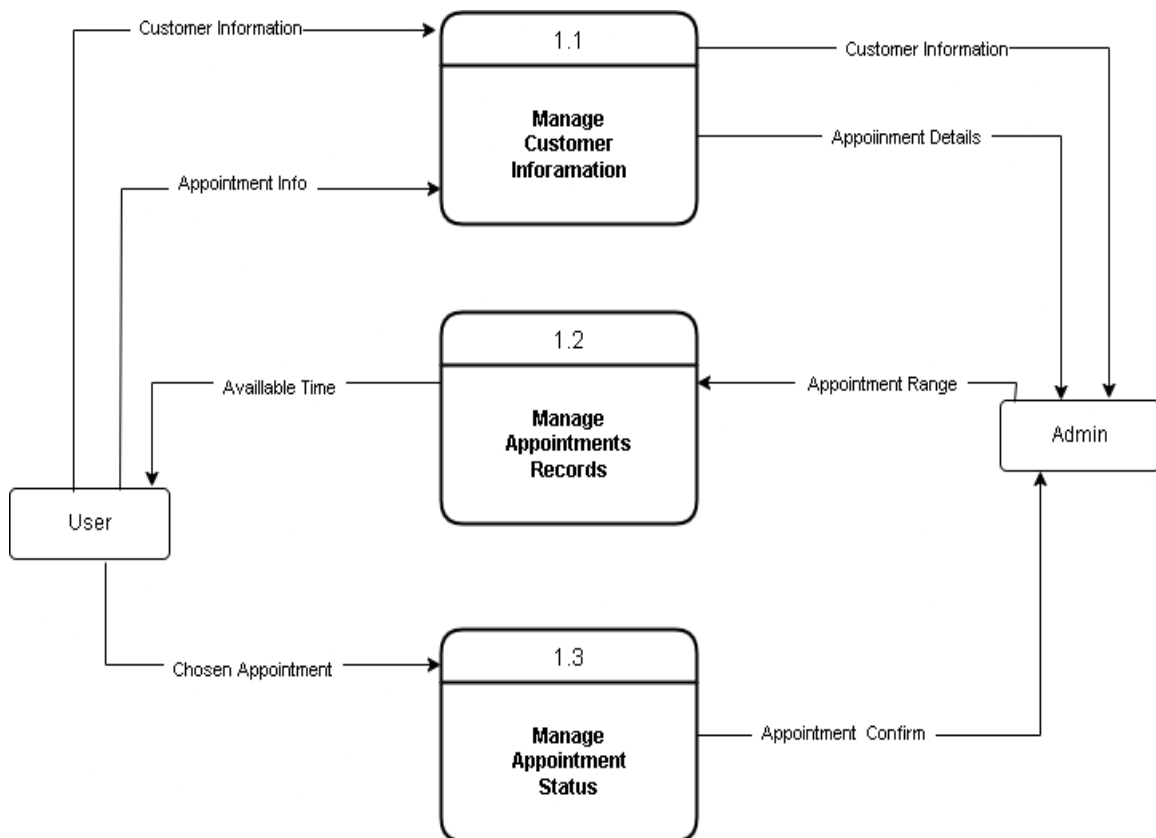
### 3.1.4 Process Modeling

A **DFD** can be referred to as a Process Model. A **data-flow diagram (DFD)** is a graphical representation of the "flow" of data through an information system. A **data flow diagram (DFD)** is a significant modeling technique for analyzing and constructing information processes. It illustrates this flow of information in a process based on the inputs and outputs.





**Figure 3.4 DFD level-0 diagram**



**Figure 3.5: DFD logical diagram level-1**

## 3.2 System Design

System Architecture is a framework that incorporates the interactions and relationships between application components such as databases, middleware systems, and user interfaces. The common concept of System Architecture of Web Application is in line with the idea of a browser user who triggers an application which is capable of running in multiple websites. The components of e-Healthcare can be grouped as:

### **User interface components:**

User interface application components are not relevant to the structural development of the application and are more user experience/ interface oriented. They refer to web pages displaying dashboards, logs, notifications, profiles and more.

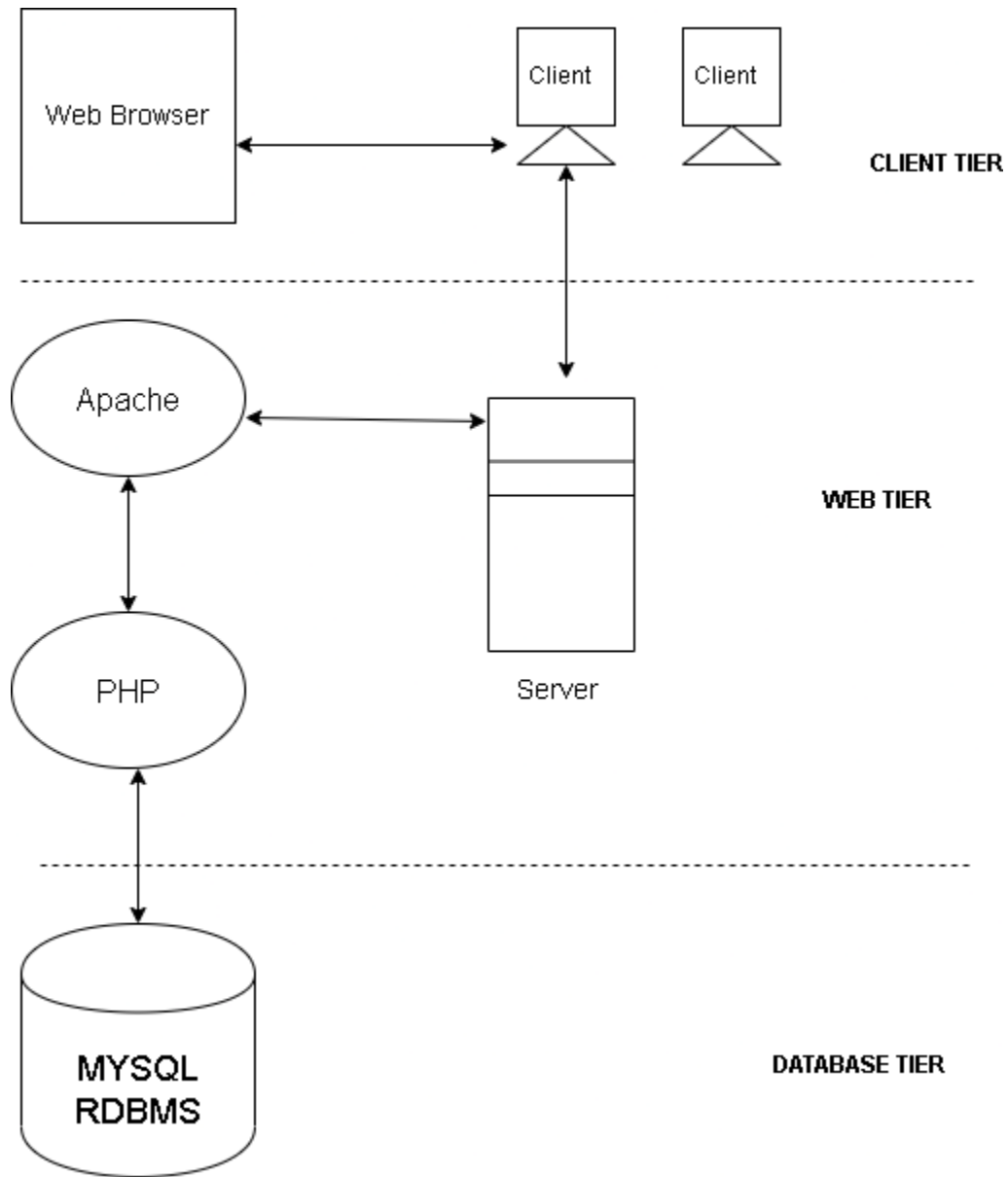
### **Structural components:**

**Client tier:** The web browser or client is the interface interpretation of a web app functionality with which the user interacts. Content delivered to the client is developed using HTML, JavaScript, CSS. In general, the web browser or client manages how end users interact with the application.

**Web tier:** The web application server manages business logic and data persistence and is built using PHP. It comprises a centralized hub to support multi-layer applications. XAMPP is used which is completely free, easy to install Apache distribution containing PHP.

**Database tier:** The database server provides and stores relevant data for the application. Furthermore, it may also supply the business logic and other information that is managed by the web application server

### 3.2.1 Architectural Design



**Figure 3. 6 System Architecture**

### 3.2.2. Database Schema Design

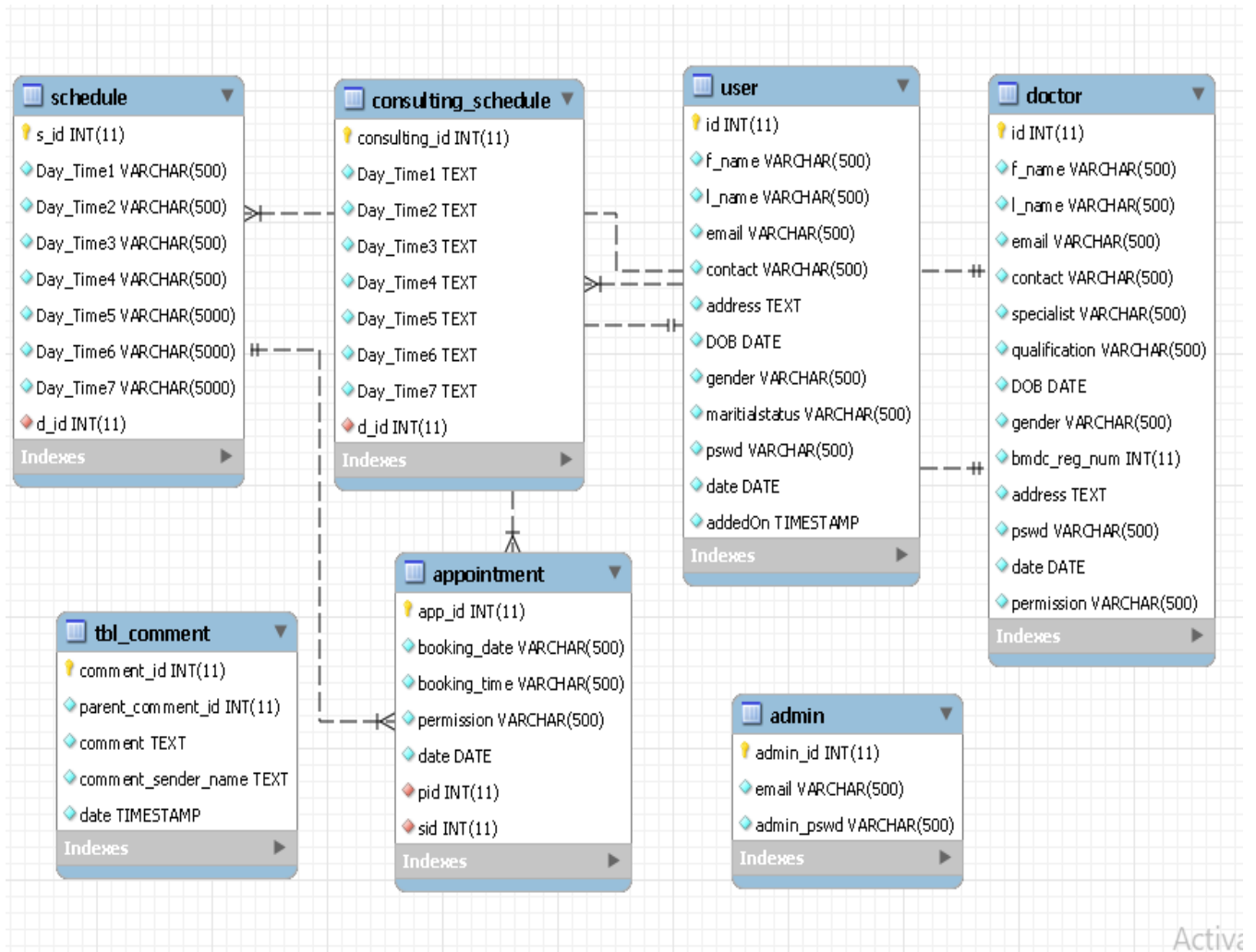
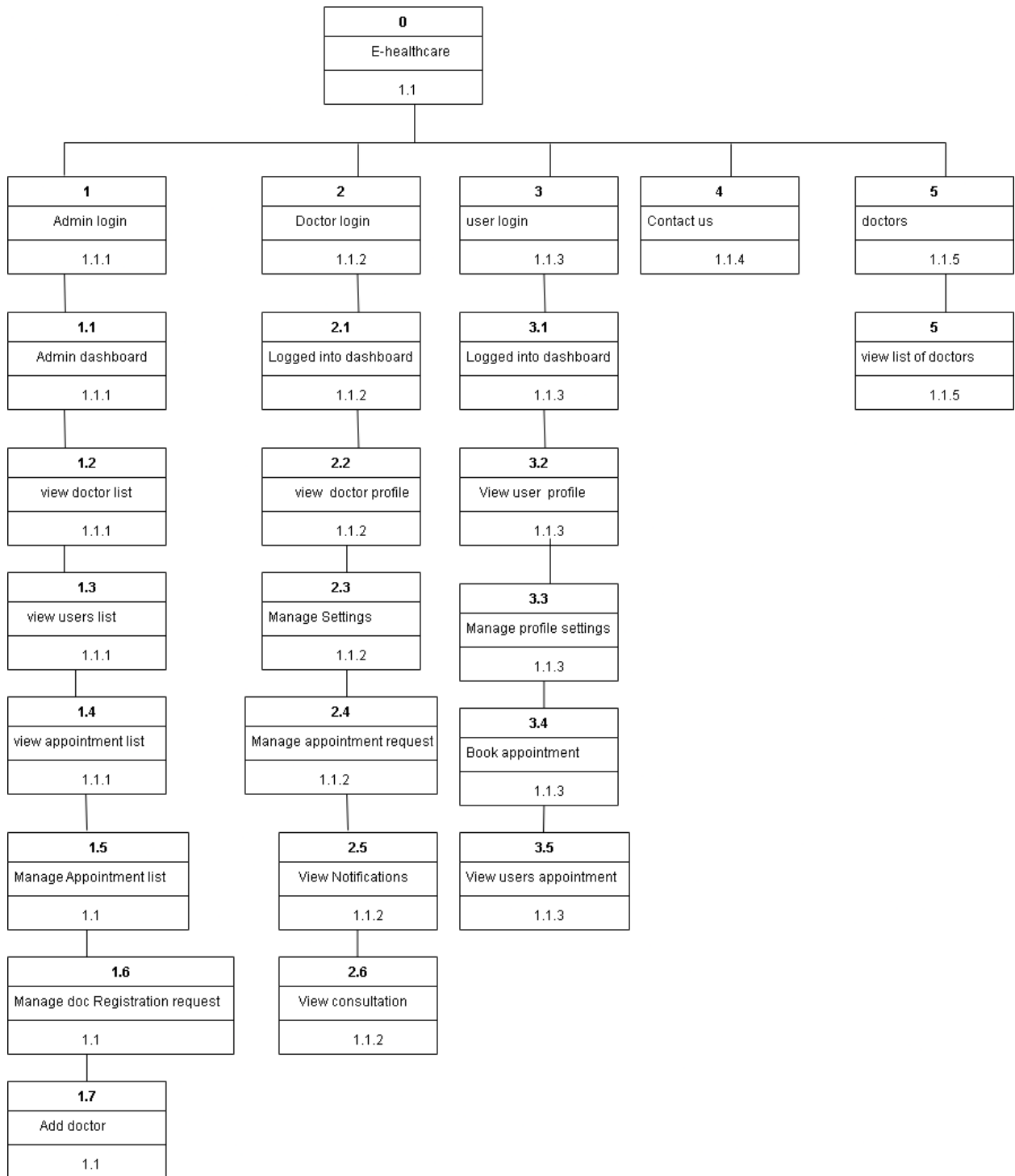
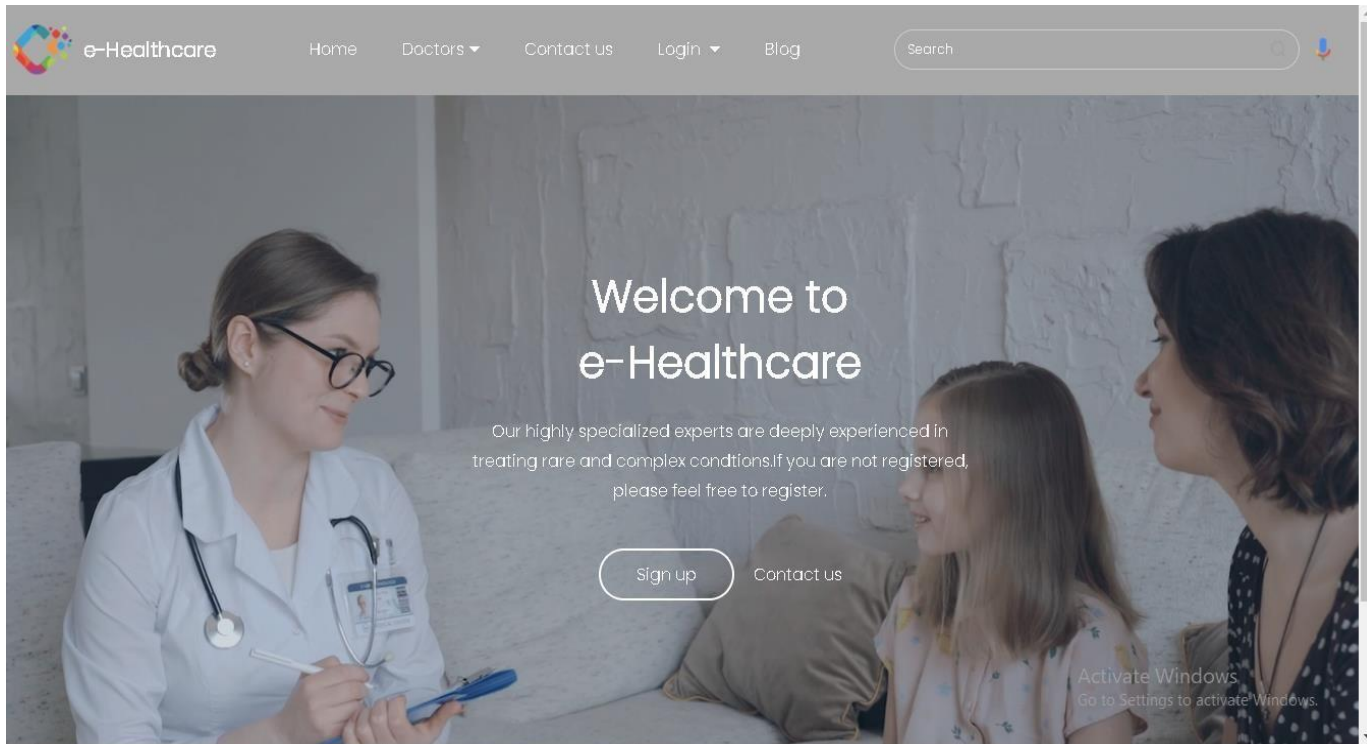


Figure 3.7 Database Schema design

### 3.2.3. Interface Design (UI Interface / Interface Structure Diagrams)

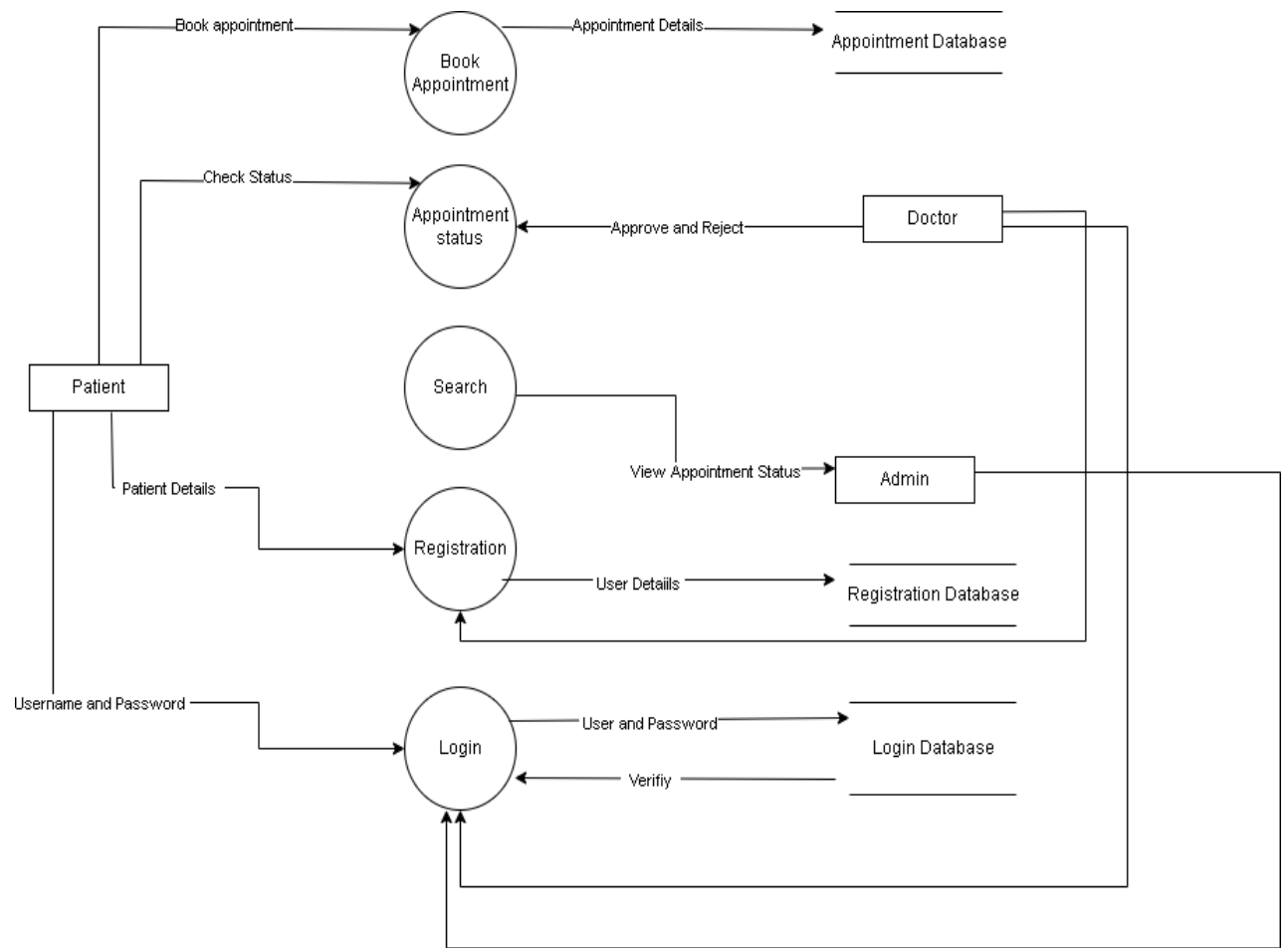


**Figure 3. 8 Interface design**



**Figure 3.9 UI Interface**

### 3.2.4. Physical DFD



**Figure 3.10 Physical DFD**

## **CHAPTER 4**

### **IMPLEMENTATION AND TESTING**

#### **4.1 Implementation**

##### **4.1.1. Tools Used (CASE tools, Programming languages, Database platforms)**

###### **4.1.1.1 Front End Tools**

**HTML:** HTML is used to design the frontend views of this system.

**CSS:** CSS is used for describing the presentation of the front-page including colors, layout, and fonts of the system.

**JavaScript:** JavaScript web framework is one of the best ways to stack backend and frontend frameworks and has been used for the same in the project.

###### **4.1.1.2 Back End Tool**

**PHP:** The PHP Hypertext Preprocessor (PHP) is a programming language used to create dynamic content that interacts with databases. It has helped to send and get requests and data from and to databases like MySQL in the project and is used for developing web-based software applications.

**MYSQL:** MySQL is an open-source relational database management system (RDBMS). We have used MySQL to store and retrieve data.

##### **4.1.2. Implementation Details of Modules (Description of procedures/functions)**

There are different module descriptions. They are described below:

**Doctor Module:** This module is dedicated to register doctors. This module displays the profile of the doctor where the doctor information can be displayed which contains doctor consulting



hours, their specialization and clinics too. They can also approve users' appointments either by accepting or cancelling appointments.

**Patient Module:** This module is dedicated to register users. This module displays the profile of the user where the user information can be displayed which contains user appointment information and their visit date. They can also make appointments by booking with specific doctor

**Admin Module:** This module can be accessed by those having admin credentials and are responsible for processing appointments and closing it once the problem is solved.

## **4.2 Testing**

Testing is the process of detecting errors. It performs a very critical role for quality assurance and for ensuring the reliability of software. The results of testing are used later on during maintenance also.

### **4.2.1 Test Cases for Unit Testing**

Unit testing is a software development process in which the smallest testable parts of an application, called units, are individually and independently scrutinized for proper operation- healthcare contains different types of individual parts that are tested. Some of the test cases are:

**Table 4.1 User Registration**

SN	Action	Input	Expected Outcome	Actual Outcome	Test Result
1	Launch Application	Localhost/ehealthcare	Registration Page	Registration Page	Pass
2	Submit without any details	Null	This field cannot be empty	This field cannot be empty	Pass
3	Enter numeric value	First name: 123 Last name: Mahat Address: Kirtipur Contact:1234567 Gender: Female Email: btycoon77@gmail.com Password: 123456789	Invalid name	Invalid name	Pass
4	Enter email of incorrect format	First name: 123 Last name: Mahat Address: Kirtipur Contact:1234567 Gender: male Email: b.com Password: 123456789	Please include @in the email	Please include @in the email	Pass
5	Enter correct details	First name: 123 Last name: Mahat Address: Kirtipur Contact:1234567 Gender: male Email: btycoon77@gmail.com Password: 123456789	Registration Successful	Registration Successful	Pass

**Table 4.2 User Login**

SN	Action	Input	Expected Outcome	Actual Outcome	Test Result
1	Launch Application	Localhost/ehealthcare	Login page	Login Page	Pass
2	Submit without any details	Null	This field cannot be empty	This field cannot be empty	Pass

3	Enter incorrect email	Email: btyn77@gmail.com Password: 123456789	Invalid credential	Invalid credential	Pass
4	Enter incorrect password	Email: btycoon77@gmail.com Password: 123456789	Invalid credentials	Redirect to the same page	Pass
5	Enter correct details	btycoon77@gmail.com Password: 123456789	Redirected to dashboard	Redirected to dashboard	Pass

**Table 4.3 Edit User**

SN	Action	Input	Expected Outcome	Actual Outcome	Test Result
1	Launch Application	Localhost/ehealthcare/users/Settings.php	User settings	User Settings	Pass
2	Submit without any Changes	Similar details	Redirected to dashboard	Redirected to dashboard	Pass
3	Change name	Previous Name: Ram New Name: Tycoon	Details updated	Details updated	Pass
4	Change password	Previous password: 123456789 New password: 123456	Redirected to dashboard	Redirected to dashboard	Pass
5	Change address	Previous address: Kirtipur New address: New York	Redirected to dashboard	Redirected to dashboard	Pass

**Table 4.4 Doctor Registration**

SN	Action	Input	Expected Outcome		Actual Outcome	Test Result
1	Launch Application	Localhost/ehealthcare	Registration Page		Registration Page	Pass
2	Submit without any details	Null	This field cannot be empty		This field cannot be empty	Pass
3	Enter numeric value	First name: 123 Last name: Mahat Address: Kirtipur Contact:1234567 Gender: Female Registration_no:12345 Email: btycoon77@gmail.com Password: 123456789	Invalid name		Invalid name	Pass
4	Enter email of incorrect format	First name: 123 Last name: Mahat Address: Kirtipur Contact:1234567 Gender: male Email: b.com Registration_no:12345 Password: 123456789	Please include @in the email		Please include @in the email	Pass
5	Enter correct details	First name: 123 Last name: Mahat Address: Kirtipur Contact:1234567 Gender: male Registration_no:12345 Email: btycoon77@gmail.com Password: 123456789	Registration Successful		Registration Successful	Pass

**Table 4.5 Doctor Login**

SN	Action	Input	Expected Outcome	Actual Outcome	Test Result
1	Launch Application	Localhost/ehealthcare	Login page	Login Page	Pass
2	Submit without any details	Null	This field cannot be empty	This field cannot be empty	Pass
3	Enter incorrect email	Email: btyn77@gmail.com Password: 123456789	Invalid credential	Invalid credential	Pass
4	Enter incorrect password	Email: btycoon77@gmail.com Password: 123456789	Invalid credentials	Redirect to the same page	Pass
5	Enter correct details	btycoon77@gmail.com Password: 123456789	Redirected to dashboard	Redirected to dashboard	Pass

**Table 4.6 Edit Doctor**

SN	Action	Input	Expected Outcome	Actual Outcome	Test Result
1	Launch Application	Localhost/ehealthcare/doctor/Settings.php	User settings	User Settings	Pass
2	Submit without any Changes	Similar details	Redirected to dashboard	Redirected to dashboard	Pass
3	Change name	Previous Name: Ram New Name: Tycoon	Details updated	Details updated	Pass
4	Change password	Previous password: 123456789 New password: 123456	Redirected to dashboard	Redirected to dashboard	Pass

5	Change address	Previous address: Kirtipur New address: New York	Redirected to dashboard	Redirected to dashboard	Pass
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#### 4.2.2 Test Cases for System Testing

System testing is an overall testing of the system after integrating all the functions of the project. When all the functions of the e-healthcare are integrated then system testing is done.

**Table 4.7 Admin Interface**

S. N	Action	Input	Expected Outcomes	Actual Outcomes	Test Result
1	Launch application	Localhost/ehealthcare/ Admin_homepage.php	Login Page	Login Page	Pass
2	Admin Login	Email: admin@gmail.com Password:12345	Login Successful	Login Successful	Pass
3	Approve doctor registration request	Take Action to approve	Redirected to Approve	Redirected to approve	Pass
4	Reject Registration request	Are you sure to reject the Doctor registration? Yes	Registration Revoked	Redirected to dashboard	Pass
5	Approve doctor registration request	Take Action to approve	Redirected to Approve	Redirected to approve	Pass

**Table 4.8 User Interface**

SN	Action	Input	Expected Outcome	Actual Outcome	Test Result
1	Launch Application	Localhost/ehealthcare	Registration page	Registration Page	Pass
2	Register new user	First name: Ram Last name: Mahat Email: btycoon77@gmail.com Contact no: 1234567890 DOB: 2056/12/26 Address: kirtipur Password: 1234 Confirm password: 1234 Gender: male	Registered successfully	Registered Successfully	Pass
3	Login by same user	Email: btyn77@gmail.com Password: 1234	Login Successful	Redirected to dashboard	Pass
4	Edit user	Previous name: Ram New name: lasman	Redirected to same page (Details Updated)	Redirect to the same page	Pass
5	Take appointment	First name: Ram Last name: Mahat Address: kirtipur Contact: 123456789 Booking date: 4 <sup>th</sup> April, 2022 Booking time: 6:30-7:30 Pid: 33 Sid: 24	Appointment was successfully updated	Appointment was successfully updated	Pass

**Table 4.9 Doctor Interface**

SN	Action	Input	Expected Outcome	Actual Outcome	Test Result
1	Launch Application	Localhost/ehealthcare	Registration page	Registration Page	Pass
2	Register new doctor	First name: Ram Last name: Mahat Email: btycoon77@gmail.com Contact no: 1234567890 DOB: 2056/12/26 Address: kirtipur Password: 1234 Confirm password: 1234 Gender: male Registration no: 1234567	Registered successfully	Registered Successfully	Pass
3	Login by same user	Email: btyn77@gmail.com Password: 1234	Login Successful	Redirected to dashboard	Pass
4	Edit doctor	Previous name: Ram New name: lasman	Redirected to same page (Details Updated)	Redirect to the same page	Pass
5	Approve appointment	Take action to approve User appointment	Appointment was successfully approved	Appointment was successfully approved	Pass



## **CHAPTER 5**

### **CONCLUSION AND FUTURE RECOMMENDATIONS**

#### **5.1 Lesson Learnt/Outcome**

During the application development process, there were many circumstances where the author felt like something more could be added but due to lack of enhancement and excellence in the programming language there might be some loopholes which could be fixed once the author gets to learn and explore this technology. The constraints that author have faced during the project development is time management and learning to build application using PHP. Due to improper time management, the developed application is not of a top-notch quality. Besides that, learning to build the application is a difficult task for a first timer with lack of knowledge as a lot needs to be learned. Although the project has not turned out to be exactly what the author has imagined it to be, there are some functions that the author would like to add in the forthcoming days and make it more user friendly and competitive

#### **5.2 Conclusion**

This project “E-healthcare “a web-based mobile application is designed to help in patient scheduling. Based on the developed application, some of the advantages has been identified. Users can easily book their appointment with the practice they wanted avoiding a long queue at the clinic. During the analysis and development of e-Healthcare, there are some drawbacks that has been identified. The application is unable to allow practices’ administrators to show the unavailable appointment time. It only allows user, the patient to fill in the appointment form without knowing which appointment time is available for them. However, these constraints do not hamper the development of this application and the disadvantages can be improved in the future.

### **5.3 Future Recommendation**

This project “E-healthcare” has the potential to be improved in the future. The first and foremost thing that is recommended is to make the administrator able to display the available appointment time for the user to choose and to make an email notification or any sort of notification for appointment rejection. Secondly, providers and patients both have reasons for the slow adoption of Web-based appointment scheduling. Cost, flexibility, safety, and integrity are major reasons discouraging providers from using Web-based scheduling. Patients’ reluctance to adopt Web-based appointment scheduling is mainly influenced by their past experiences using computers and the Internet, as well as their communication preferences. So, this system should be designed in such a way that it enables the user to use it at a relatively lower cost and should always get updated with the changing user needs and requirements.

## REFERENCES

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## APPENDICES

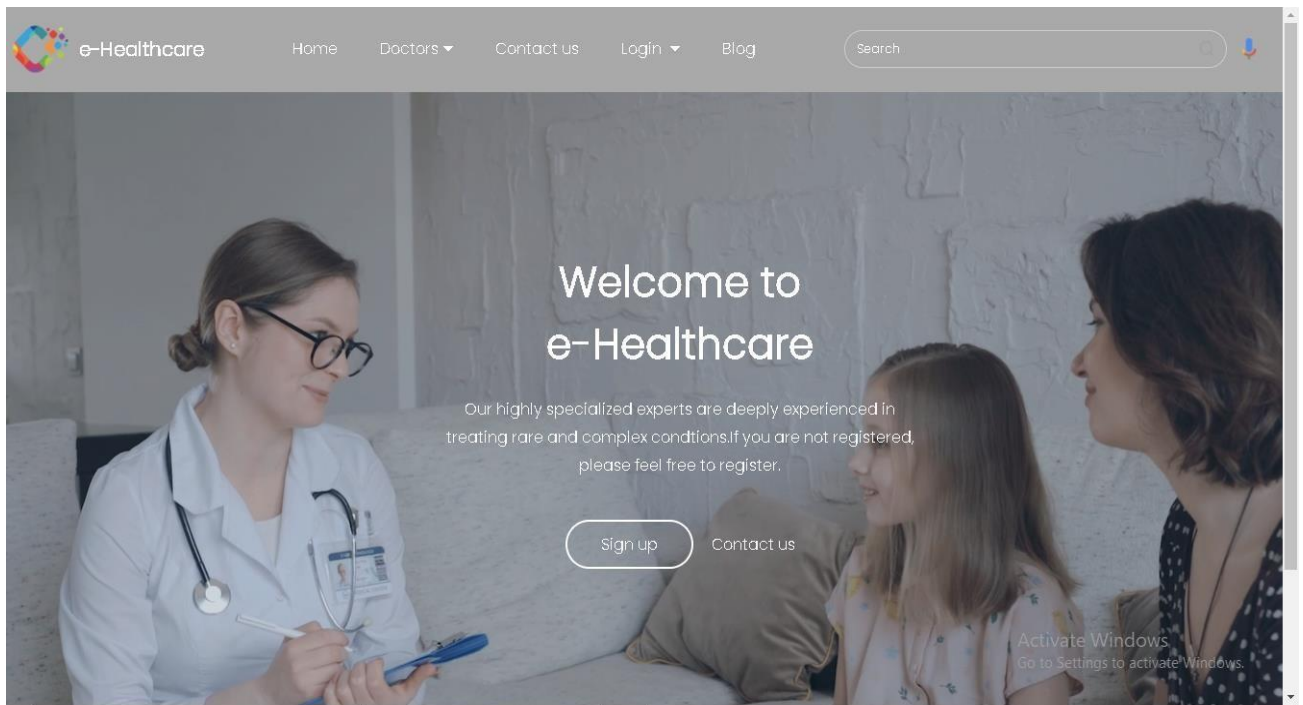


Figure: Homepage

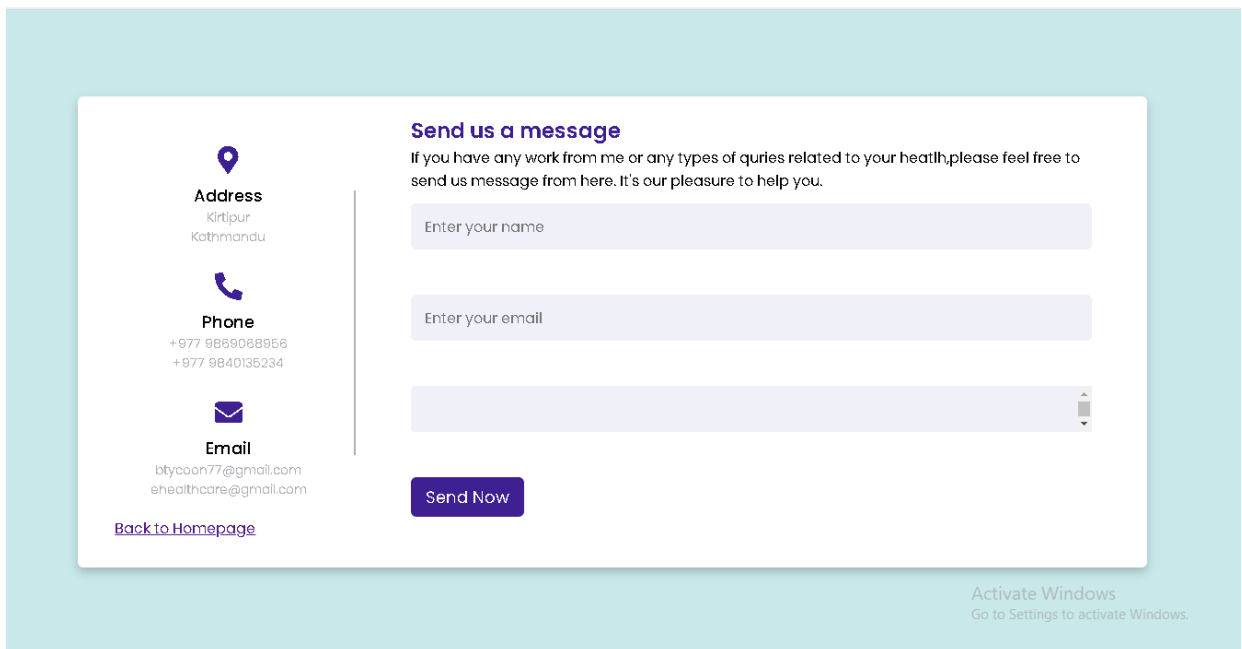


Figure: Contact page

<a href="#">+ CREATE NEW</a>		Search: <input type="text"/>		
ID	Name	Status	Specialist	Qualification
1	<a href="#">Dr. Lutfor Rahman</a>	Approved	cardiologist	MBBS, MS (CTS) Chief Cardiac Surgeon, Labiad Cardiac Hospital
2	<a href="#">Dr. Fazlur Rahman</a>	Approved	cardiologist	MBBS, MCPS ( Medicine ), Dcard, MD ( Card ) Cardiology /Heart Specialist

Figure: Cardiologist list

<a href="#">+ CREATE NEW</a>		Search: <input type="text"/>		
ID	Name	Status	Specialist	Qualification
1	<a href="#">Dr. Muhammad Jahir Uddin</a>	Approved	medicine	MBBS, FCPS ( Medicine ), MD ( Internal Medicine ), MACP ( USA ) Associate Professor

Figure: Doctor of medicine list

+ CREATE NEW

Search:

ID	Name	Status	Specialist	Qualification
1	Dr. Abu Jafar Chowdhury	Approved	Orthopedic	MBBS, MS ( Ortho ),Assistant Professor
2	Professor Dr. Kh. Abdul Awal	Approved	Orthopedic	Qualification : MBBS, MS, FICS Designation: Professor & Director

Figure: Doctor of orthopedic list

## User Registration Form

**First Name**

**Last Name**

**Email**

**Contact no:**

**DOB**

**Address**

**Password**

**Confirm Password**

**Gender**  

☐ Male
 ☐ Female
 ☐ others


Register

[Back to homepage](#)

Figure: User Registration form

## Login

 Enter your email

 Enter your password



☐ Remember me

[Forgot password?](#)

Login Now

Not a member? [Signup now](#)

[Back to Homepage](#)

Figure: Login form

## Registration Form

<b>First Name</b>	<b>Last Name</b>
<input type="text" value="Enter your first name"/>	<input type="text" value="Enter your last name"/>
<b>Email</b>	<b>DOB</b>
<input type="text" value="Enter your email"/>	<input type="text" value="mm/dd/yyyy"/>
<b>Clinic/Hospital Address</b>	<b>Specialist</b>
<input type="text" value="Enter your clinic address"/>	<input type="text" value="Orthopedic"/>
<b>Qualification</b>	<b>Doctor Registration Number</b>
<input type="text" value="Enter your qualification"/>	<input type="text" value="Enter your number"/>
<b>Password</b>	<b>Confirm Password</b>
<input type="text" value="Enter your password"/>	<input type="text" value="Confirm your password"/>
<b>Gender</b>	
<input type="radio"/> Male <input type="radio"/> Female <input type="radio"/> others	
<input type="button" value="Register"/>	

Figure: Doctor Registration form



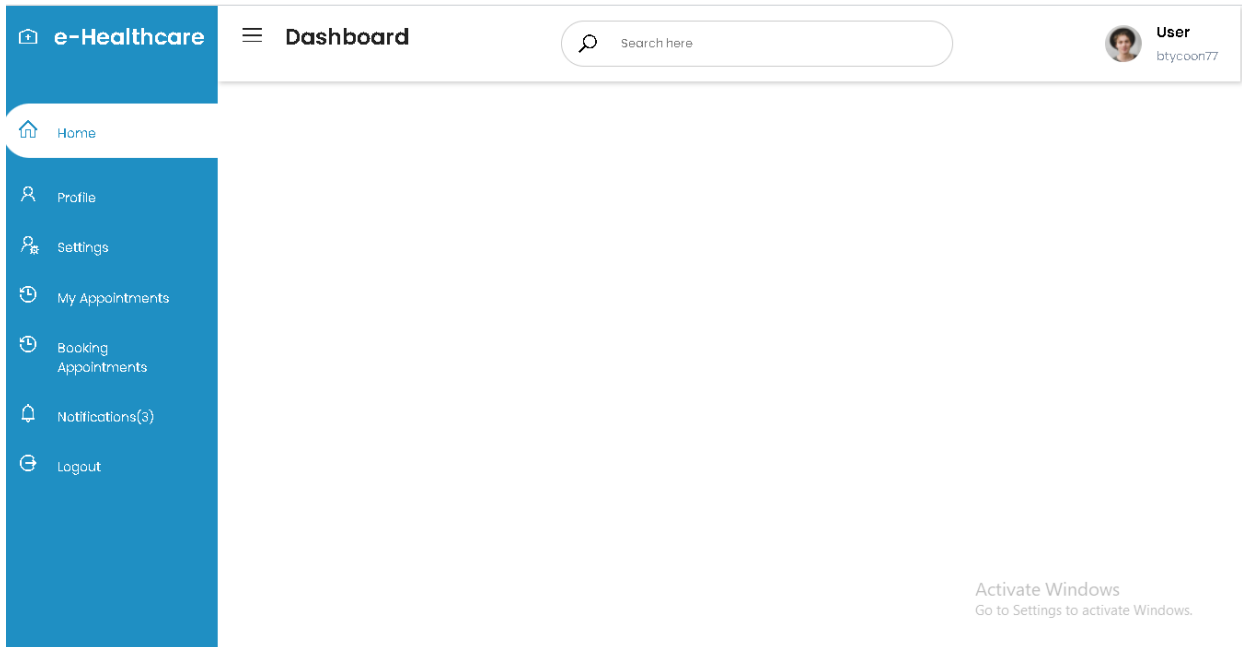


Figure: User dashboard

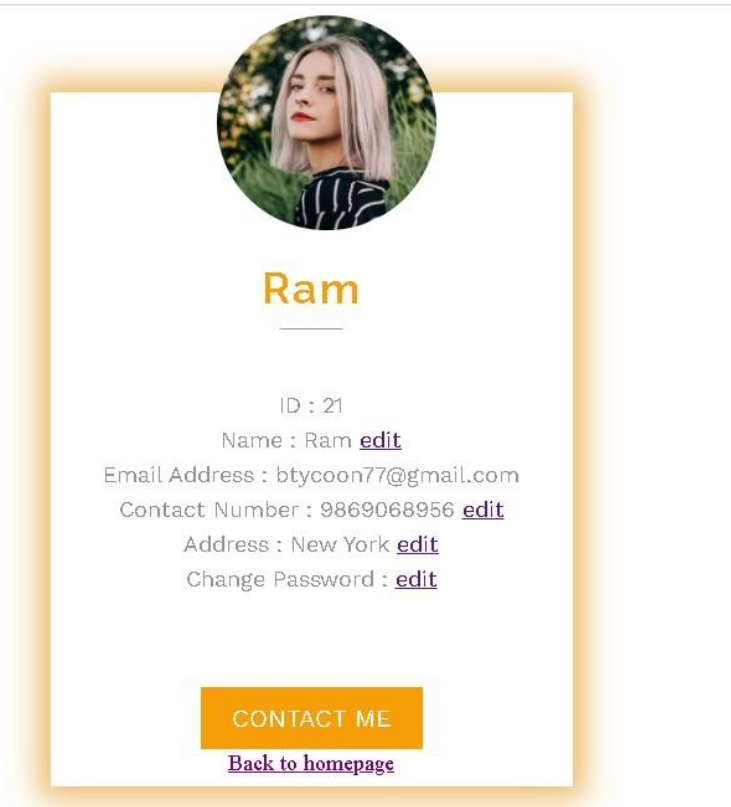


Figure: User profile page

## All The Appointments

Enter Your ID : 21

Appointment To	Appointment Date	Appointment Time	Status	<a href="#">Cancel Booking</a>
<a href="#">Dr. Abu Jafar Chowdhury</a>	2022-04-12	8:30 PM To 9:00 PM	Approved	<input type="checkbox"/>
<a href="#">Dr. M. A. Sikder</a>	2022-04-13	3:30 PM To 4:00 PM	Approved	<input type="checkbox"/>
<a href="#">Dr. Nasrin Zulfiqar</a>	2022-04-06	11:00 AM To 11:30 AM	Approved	<input type="checkbox"/>
<a href="#">Dr. Lutfor Rahman</a>	2022-04-20	9:00 AM To 9:30 AM	Pending	<input type="checkbox"/>

Activate Windows  
Go to Settings to activate Windows.

Figure: Appointment page

<a href="#">+ CREATE NEW</a>			Search: <input type="text"/>		
ID	Status	Specialist			
1	Approved	Cardiologist			
2	Approved	Orthopedic			
3	Approved	Cardiac_electrophysiologist			
4	Approved	Dentist			
5	Approved	Surgeon			
6	Approved	Gynecologist			
7	Approved	Medicine			
<a href="#">Previous</a>			<a href="#">Next</a>		

Figure: Doctors page

## You Have a Notification

Your Appointment Has Been Approved By [Dr. Abu Jafar Chowdhury](#)

Your Appointment Has Been Approved By [Dr. M. A. Sikder](#)

Your Appointment Has Been Approved By [Dr. Nasrin Zulfiqar](#)

Figure: Notification page



Figure: Doctor Profile Page

## View Patients Request

Enter Your ID

Name	Request Date	Appointment Date	Appointment Time	Status	Approved	Cancel Booking
------	--------------	------------------	------------------	--------	----------	----------------

Previous

Next

Figure: Patient request page

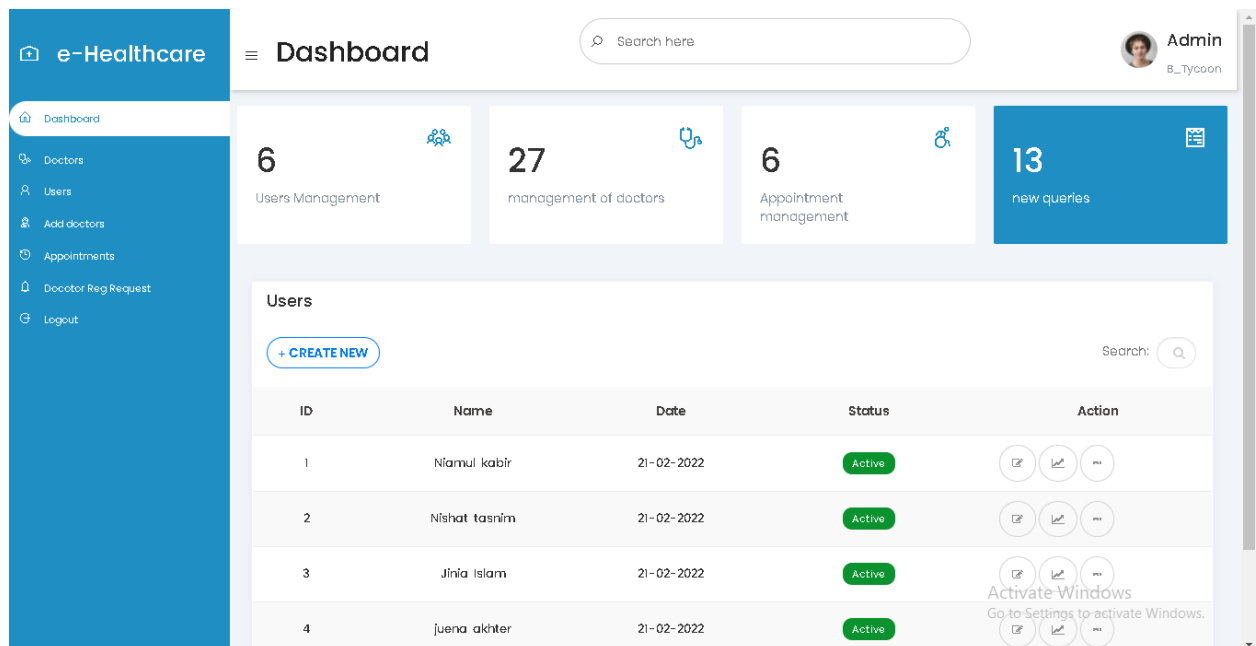


Figure: Admin dashboard

Dashboard

Search here

Admin Tycoon

Dashboard

Doctors
Users
Add doctors
Appointments
Doctor Reg Request
Logout

+ CREATE NEW

Search:

ID	Name	Mode	Event	Date	Status	Action
1	Dr. Sohel Mahmud Arafat	Success	Journey	01-01-1970	Active	
2	Dr. Muhammad Jahir Uddin	Success	Journey	01-01-1970	Active	
3	Dr. Md. Abul Kalam Azad	Success	Journey	01-01-1970	Active	
4	Dr. Mohammad Hyder Ali	Success	Journey	01-01-1970	Active	
5	Dr. Amit Kapoor	Success	Journey	01-01-1970	Active	

Previous
1
2
3
4
5
6
Next

Activate Windows  
Go to Settings to activate Windows.

Figure: Doctors list page

Dashboard

Search here

Admin Tycoon

Dashboard

Doctors
Users
Add doctors
Appointments
Doctor Reg Request
Logout

+ CREATE NEW

Search:

ID	Name	Mode	Event	Date	Status	Action
1	Niamul kabir	Success	Journey	21-02-2022	Active	
2	Nishat tasnim	Success	Journey	21-02-2022	Active	
3	Jinia Islam	Success	Journey	21-02-2022	Active	
4	Juena akhter	Success	Journey	21-02-2022	Active	
5	Ram	Success	Journey	10-04-2022	Active	

Previous
1
Next

Activate Windows  
Go to Settings to activate Windows.

Figure: Users list page

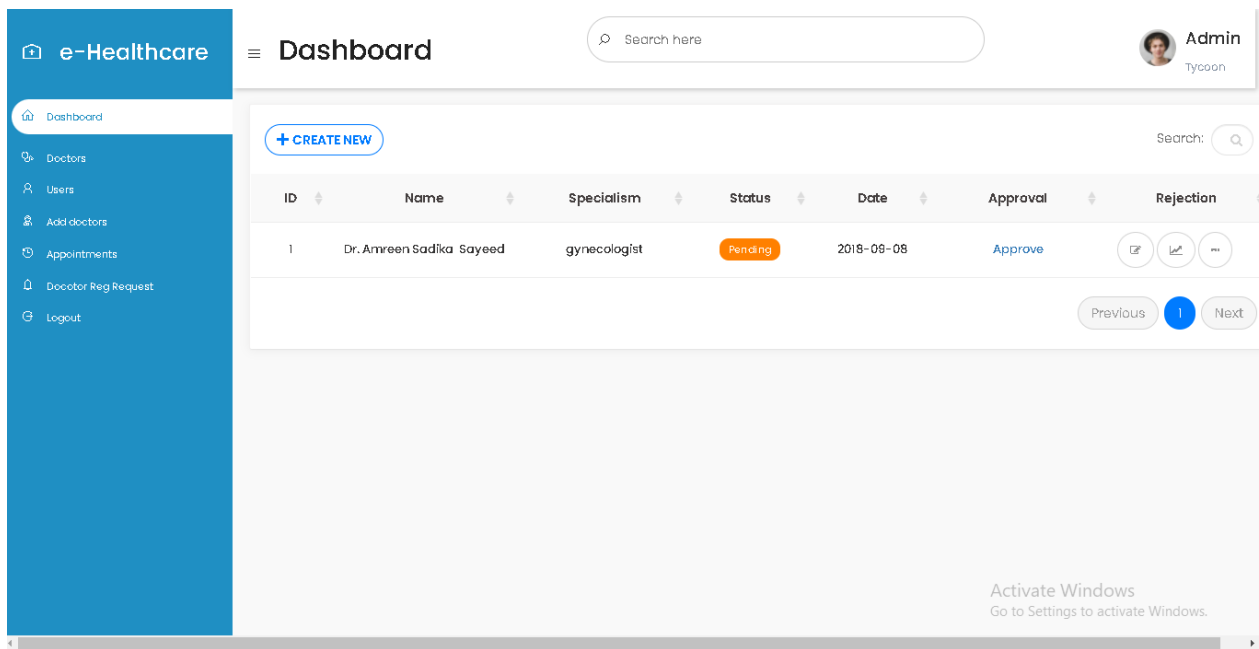


Figure: Doctor Registration approval page

The screenshot shows the Booking Appointment Form. The form includes the following fields and controls:

- First Name:** Text input field with placeholder 'Enter your first name'.
- Last Name:** Text input field with placeholder 'Enter your last name'.
- Contact no.:** Text input field with placeholder 'Enter your phone'.
- Booking date:** Text input field with placeholder 'mm/dd/yyyy' and a calendar icon.
- Booking time:** Dropdown menu with selected value '9:00 AM To 9:30 AM'.
- Patient\_id:** Text input field with placeholder 'Enter your id' and a pre-filled value '21'.
- specialist\_id:** Text input field with placeholder 'Enter speicalist id' and a pre-filled value '36'.
- Buttons:** A 'Back to homepage' link and a 'submit' button.

Figure: Appointment booking page