Green University of Bangladesh

Department of Computer Science and Engineering (CSE)
Semester: (Spring, Year: 2023), B.Sc. in CSE (Day)

Online Healthcare System

Course Title: Integrated Design Project II
Course Code: CSE-406
Section: D1

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Lab Project Status	
Marks:	**Signature:**
Comments:	**Date:**

Contents

Chapter 1

Introduction

1.1 Introduction

Our project is online healthcare system. Our project aims to make health care available to everyone even in rural places. With the help of this system everyone can have easy access to healthcare. An efficient health care system can contribute to a significant part of a country's economy, development, and industrialization. Health care is conventionally regarded as an important determinant in promoting the general physical and mental health and well-being of people around the world.

Healthcare is a part of life we all consider to be something we are entitled to – it is our right to have access to healthcare whenever we need it. However, for many people across the world, this is simply not an option. Those living in poverty or dealing with the devastating effects of war and conflict do not have access to healthcare – even the most basic medical supplies are out of reach for many vulnerable people. Without access to healthcare, people are far more at risk. Diseases, malnutrition, pregnancy all can become incredibly dangerous without proper help and support. So our system aims eliminate these greater problems of the world.

1.2 Problem Statement

The traditional healthcare system often faces challenges such as long waiting times, limited access to specialized services, geographical constraints, and complex appointment scheduling procedures. Additionally, the COVID-19 pandemic has highlighted the need for remote healthcare services to reduce physical contact and the spread of infectious diseases. The Online Health Care System aims to address these issues by providing a secure and user-friendly platform for patients and healthcare providers to connect virtually.

1.3 Aims and Objectives

1. Develop an online platform that connects patients and healthcare providers.

2. Enable remote consultations.
3. Provide a centralized system for storing and accessing electronic health records.
4. Reducing overall cost.
5. Enhance the overall user experience by providing a user-friendly interface.
6. Making health diagnosis easy.

1.4 Motivation

The motivation behind the Online Health Care System project is to address the limitations and inefficiencies of the traditional healthcare system. By the project aims to improve access to healthcare services, reduce waiting times, enhance patient-doctor communication, and simplify administrative processes. Additionally, the project seeks to provide a platform that can adapt to the changing needs of the healthcare industry, especially during times of crises such as pandemics.

1.5 Project Description

The Online Health Care System project is designed to provide a comprehensive online platform for healthcare services. The system allows patients to create accounts, search for healthcare providers based on specialty, availability and schedule appointments. It also enables healthcare providers to manage their availability, conduct remote consultations, access patient records, and prescribe medications.

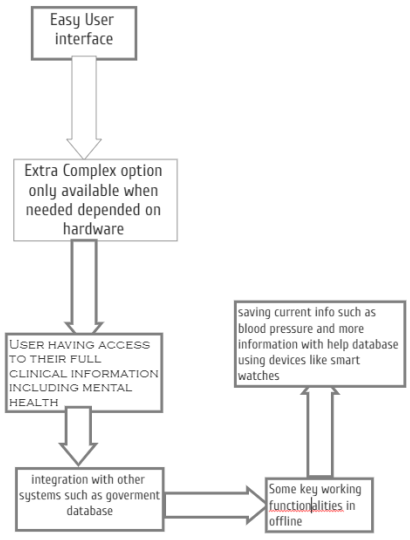

Figure 1.1: Block diagram

Chapter 2

Requirement Analysis and Design

2.1 Requirement Analysis

The requirement analysis phase involves identifying the functional and non-functional requirements of the Online Health Care System.

2.1.1 Functional Requirement

1. Patient can get online appointments through the website.
2. Treatment,Causes,prevention for a sickness
3. The user should able to get real-time advise from a doctor and other experts
4. The user should able to book online appointments
5. The user should able to save all kinds of clinical information of him or herself

2.1.2 Non-functional Requirement

1. Reliability
2. Maintainability
3. Manageability
4. Data integrity
5. Availability
6. Interoperability

2.2 Tools and Techniques

1. Laravel Framework
2. Vs code
3. Xammp

2.3 Gantt Chart

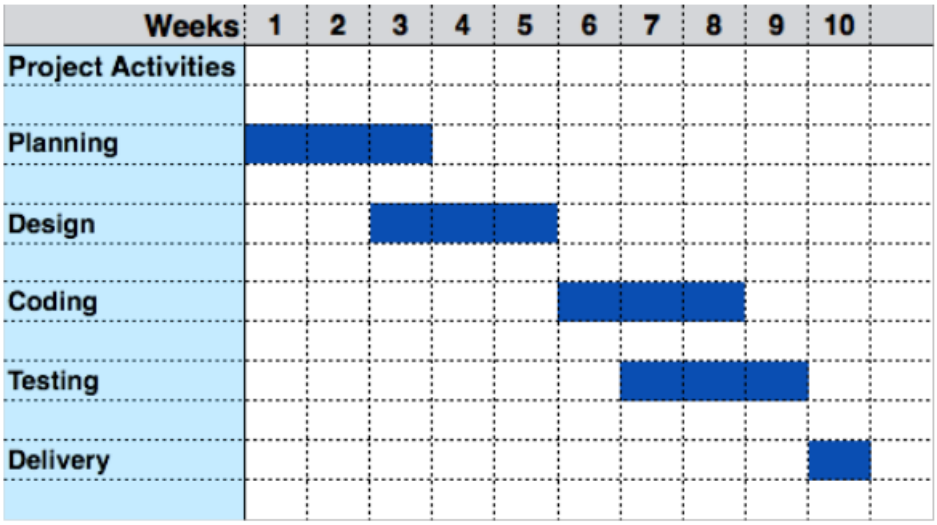

Figure 2.1: Gantt Chart

2.4 Use Case Diagram

The Online Health Care System project includes several key use cases. Patients and healthcare providers can register their accounts, schedule appointments with available providers, and conduct secure video consultations. Healthcare providers can access patient medical records and prescribe medications electronically. The system also allows healthcare providers to manage their availability and administrators to manage user accounts and system settings. These use cases collectively aim to enhance accessibility, convenience, and communication in the healthcare system while improving patient care and operational efficiency.

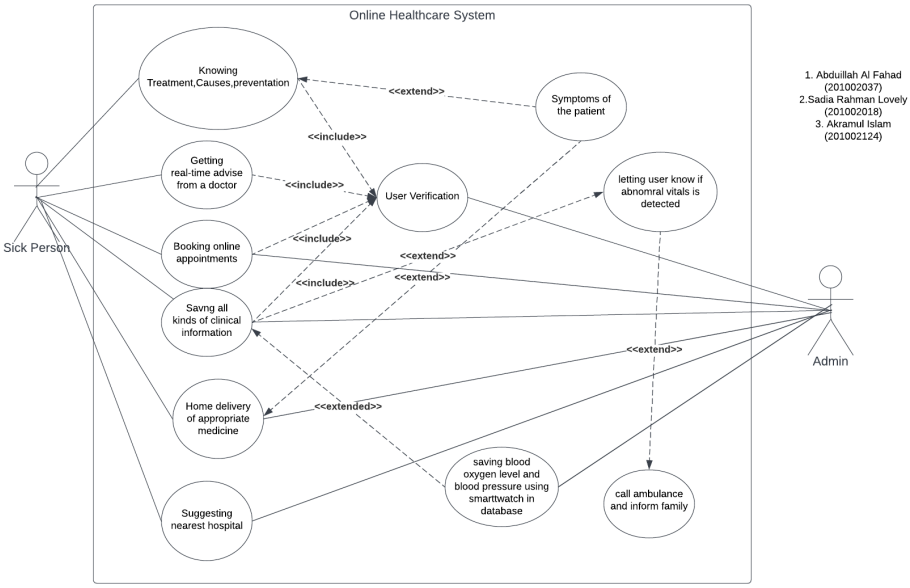

Figure 2.2: Use Case Diagram

2.5 Data Flow Diagram

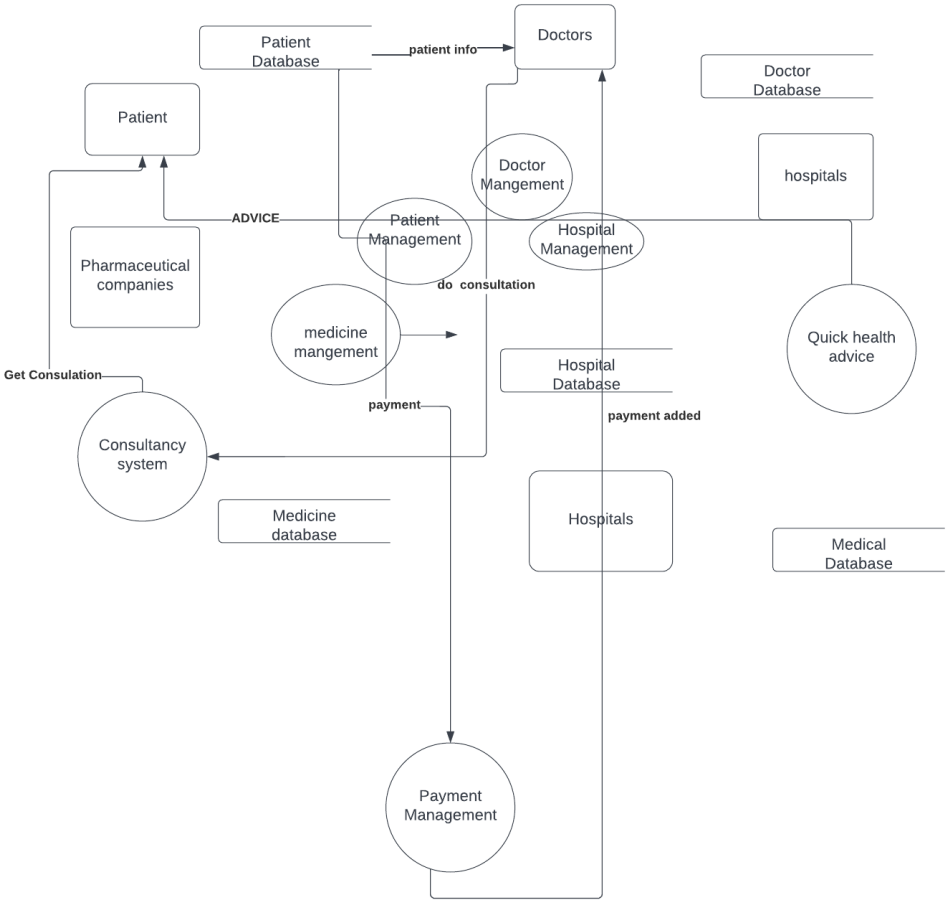

Figure 2.3: Data Flow Diagram

2.6 E-R Diagram and Database Schema

2.6.1 E-R Diagram

Here We have created seven classes. The parent class of patient and doctor is user class. Report is composed of patient and overall report is composed of report. Schedule is composed of doctor. and prescription is composed report. In the Diagram the the relationship count is also given.

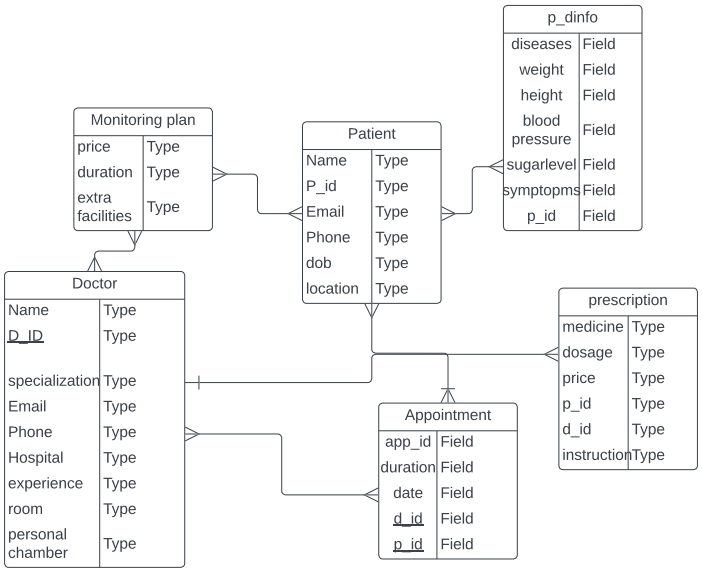

Figure 2.4: ER Diagram

2.6.2 Database Schema

Monitoring plan (price, duration, extra facilitis)
Doctor (Name, $D_ID, Specilaztion, Email, Phone. Hospital, experience, room, personalchamber$)
$Patient(Name, P_id. Email. Phone. dob, location)$
$Appointment(app_id, duration, date, d_id, p_Id)$
$p_d info(diseases, weight, height, blood pressure, sugarlevel, symptoms, P_id)$
$Prescription(medicine, dosage, price, p_id, d_id, instruction)$

2.7 System Architecture

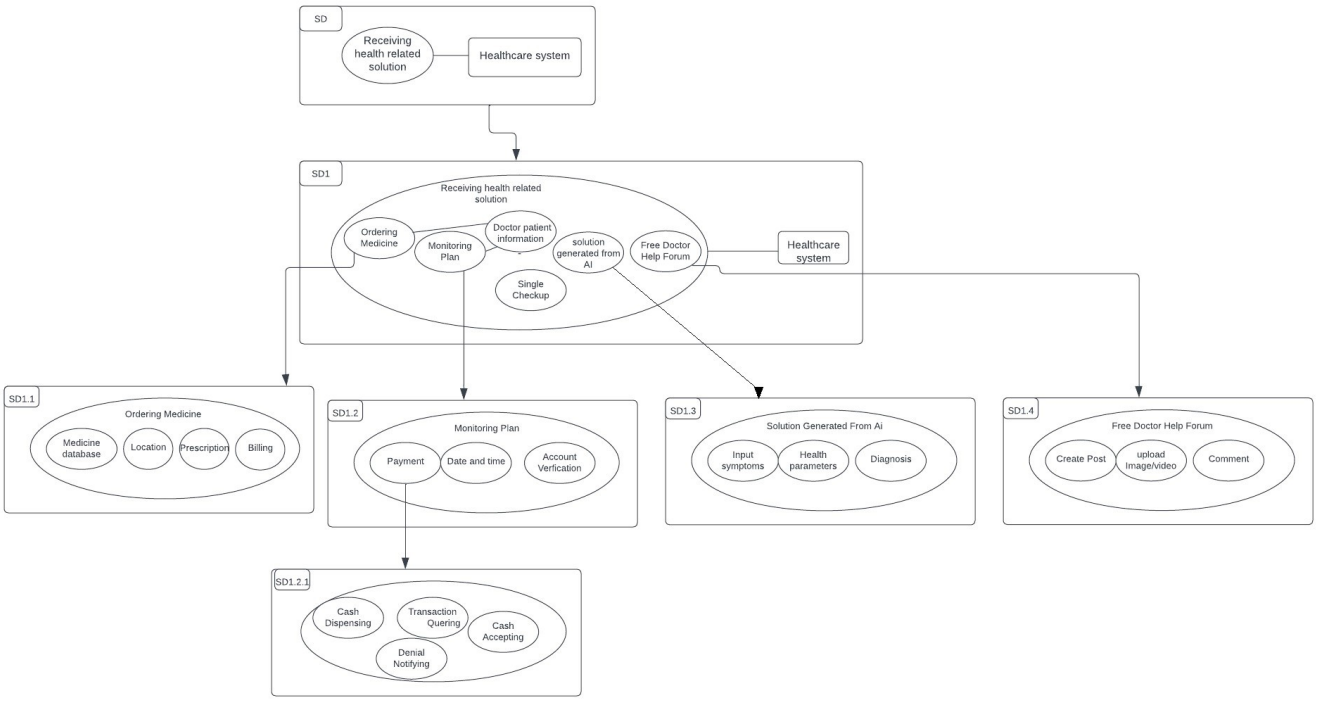

Figure 2.5: System Architecture

Chapter 3

Interface Design and Implementation

3.1 Framework

Here we have used the bootstrap front-end frame work to design overall frontend design. Bootstrap is a widely-used open-source front-end framework that offers a range of pre-built HTML, CSS, and JavaScript components, along with a responsive grid system. Developed by Twitter, Bootstrap has gained immense popularity among web developers due to its simplicity and adaptability. It enables the creation of responsive websites effortlessly, with its grid system allowing developers to design layouts that automatically adjust to different screen sizes. Additionally, Bootstrap provides a vast collection of customizable CSS components and JavaScript plugins, empowering developers to enhance functionality and create visually appealing interfaces. With its extensive documentation and active community support, Bootstrap remains a preferred choice for building modern, responsive websites efficiently.

3.2 Design and functionalities

3.2.1 Welcome page

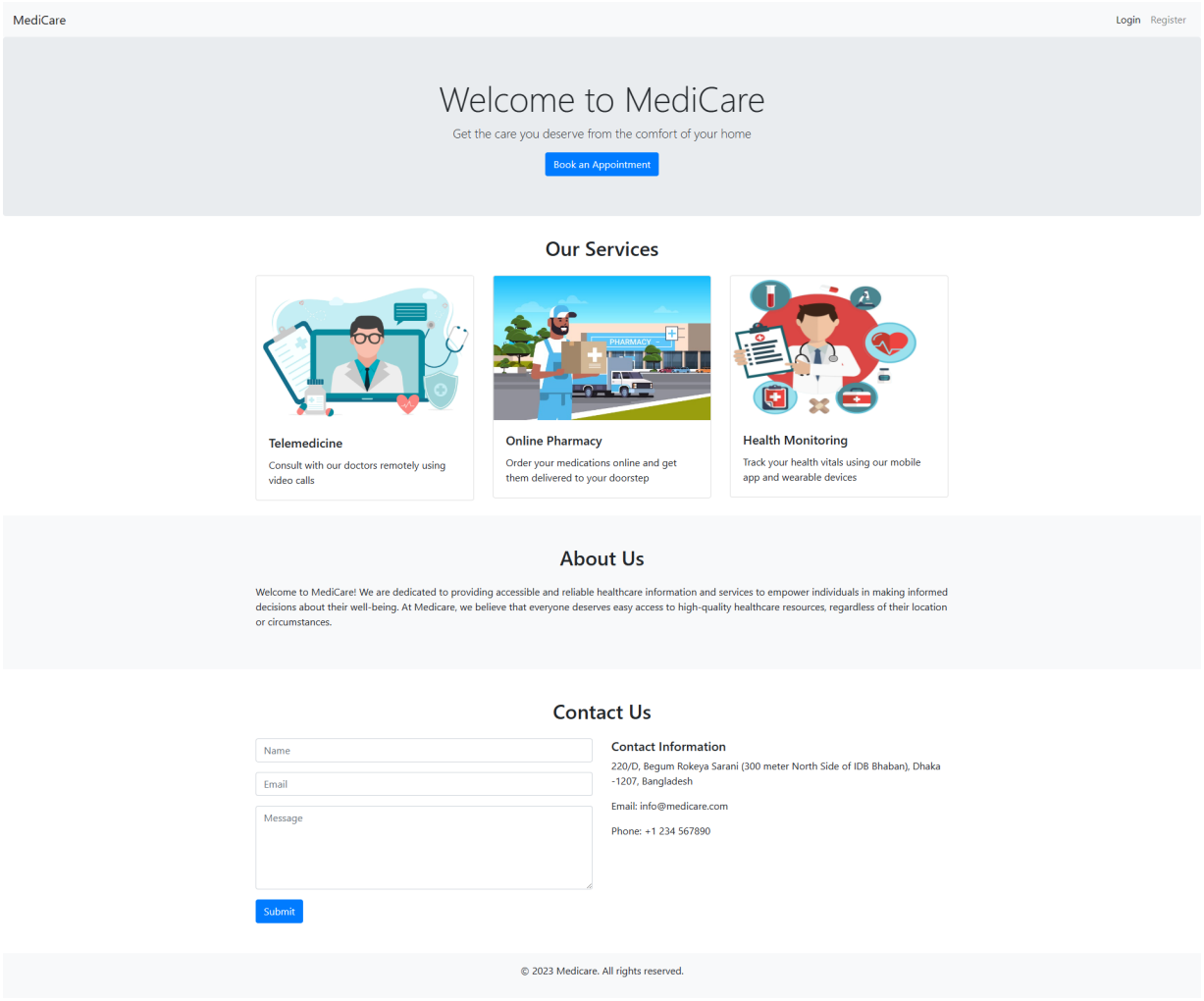

Figure 3.1: Welcome Page

This is the design of the welcome page. In the navigation bar, the logo is clickable which redirects the user to the home page. and there is two buttons for login and register. Our Services are also clickable. And the contact us form sends message to the admin.

3.2.2 Login and Register Page

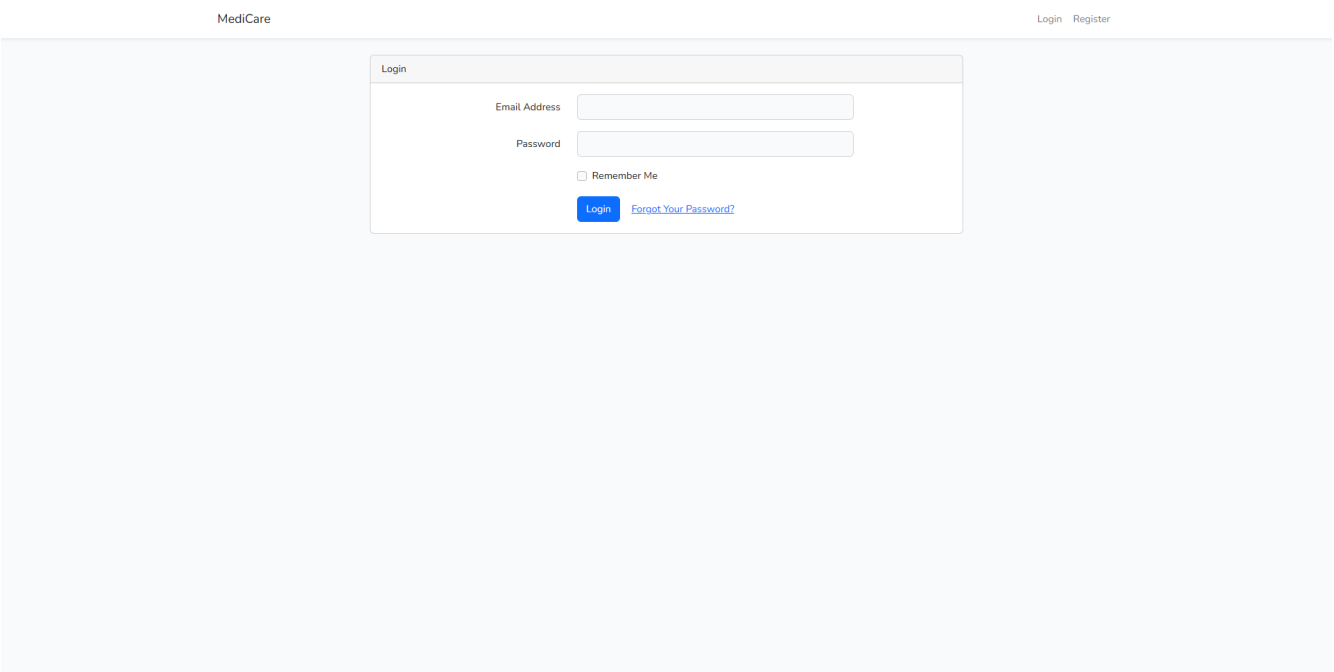

Figure 3.2: Login Page

This is the login page where there is remember me option, when turned on the login information will be saved in a cookie. And there is also forget password option.

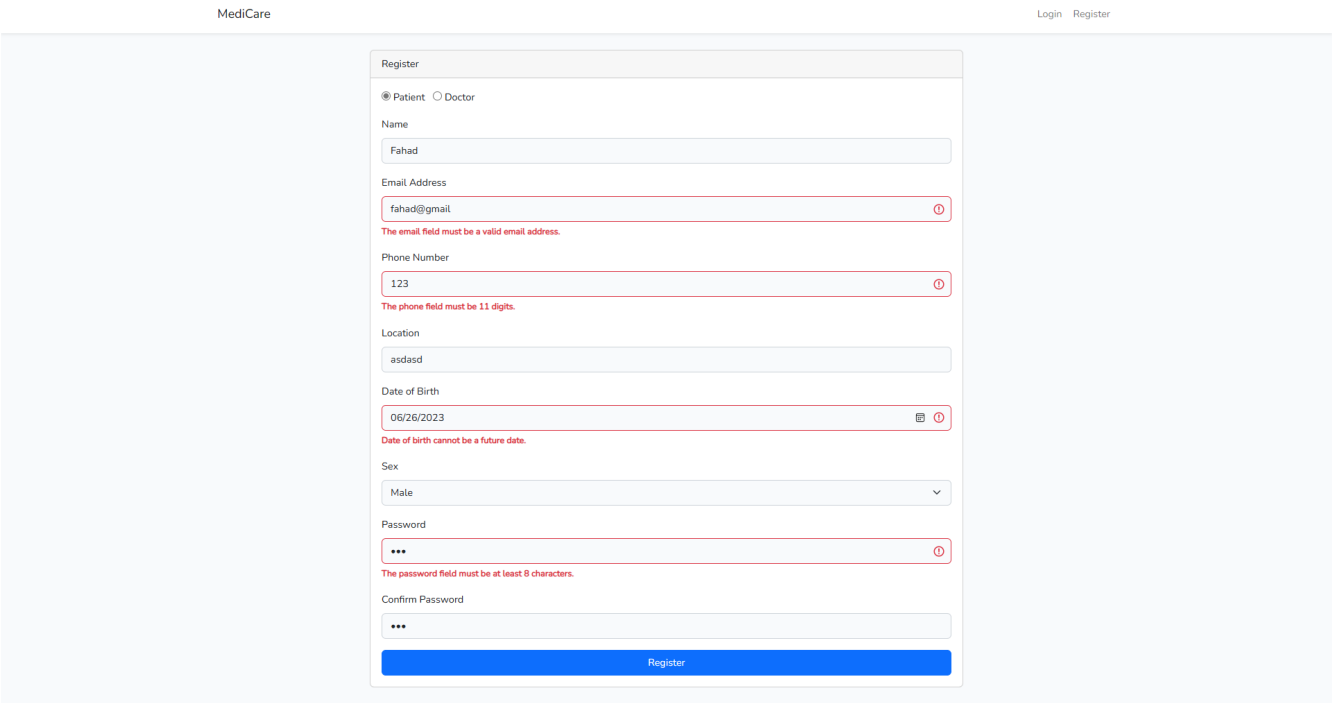

Figure 3.3: Register Page

This is the register page where there is two radio buttons to toggle between two forms patient and doctor. In the form there is set of validation rules that needs to be passed in

order to submit the data.

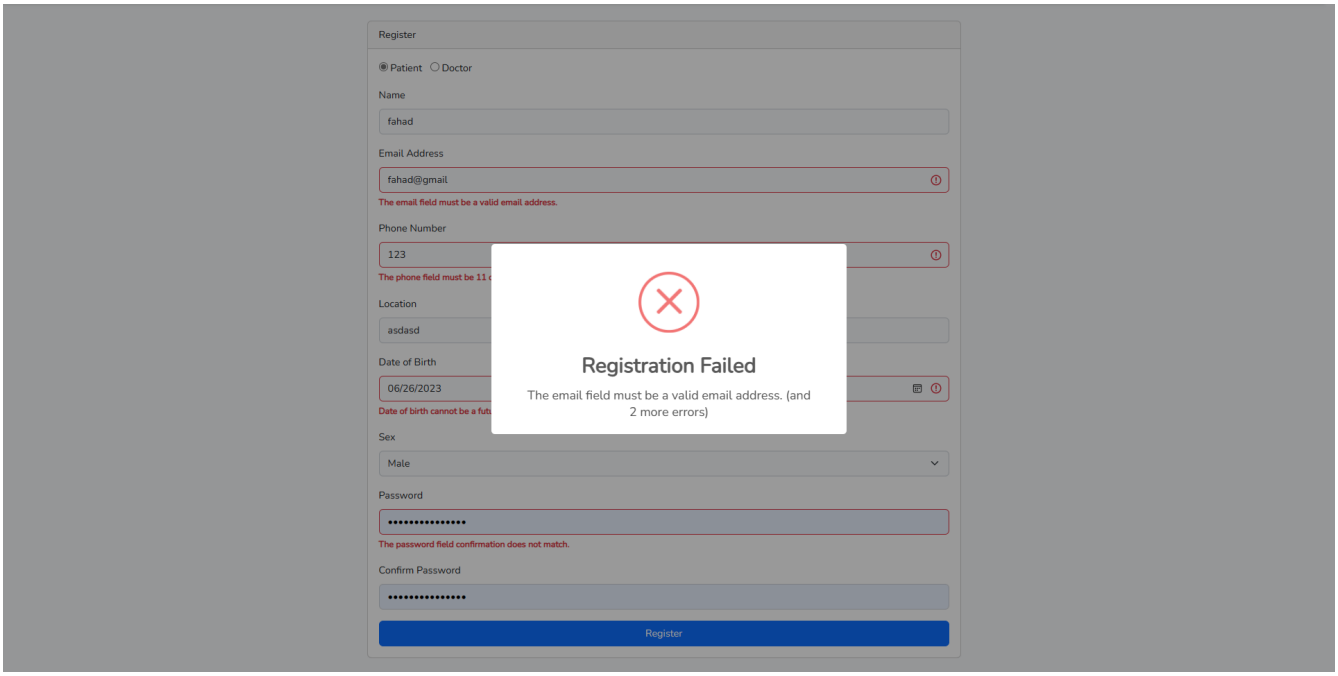

Figure 3.4: Fail Message Prompt

This is to show the unsuccessful message for wrong inputs.

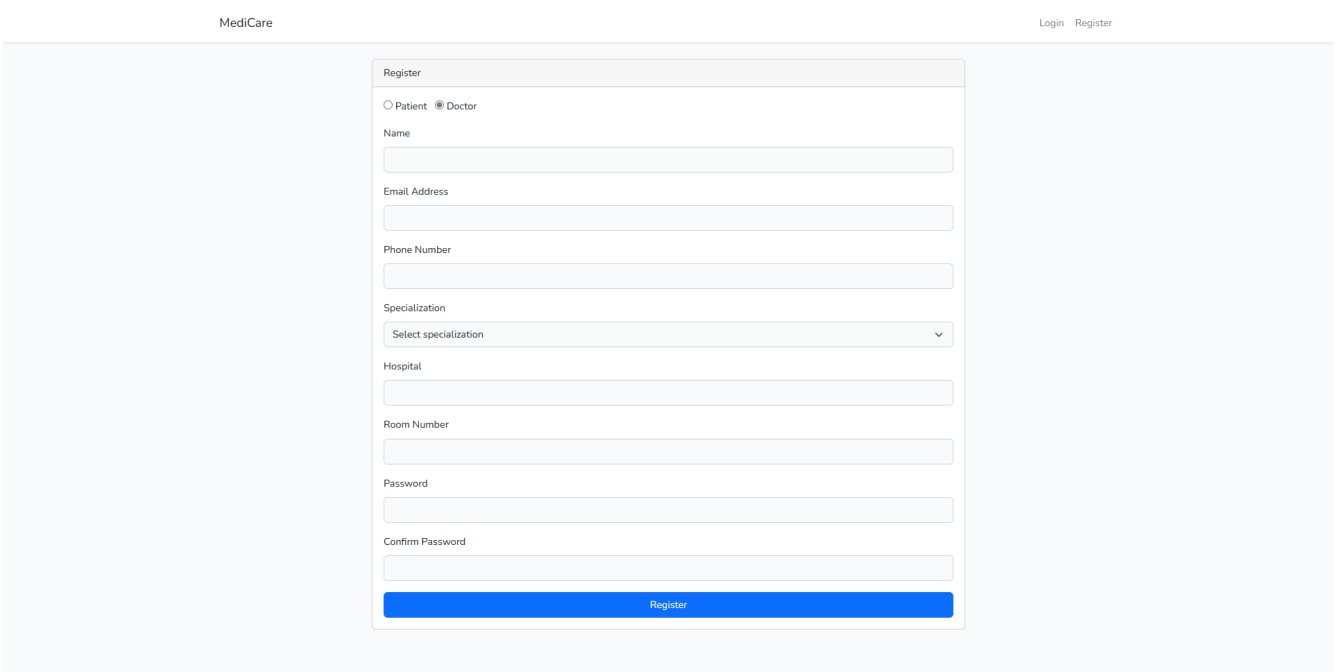

Figure 3.5: Register page

This is the doctor form.

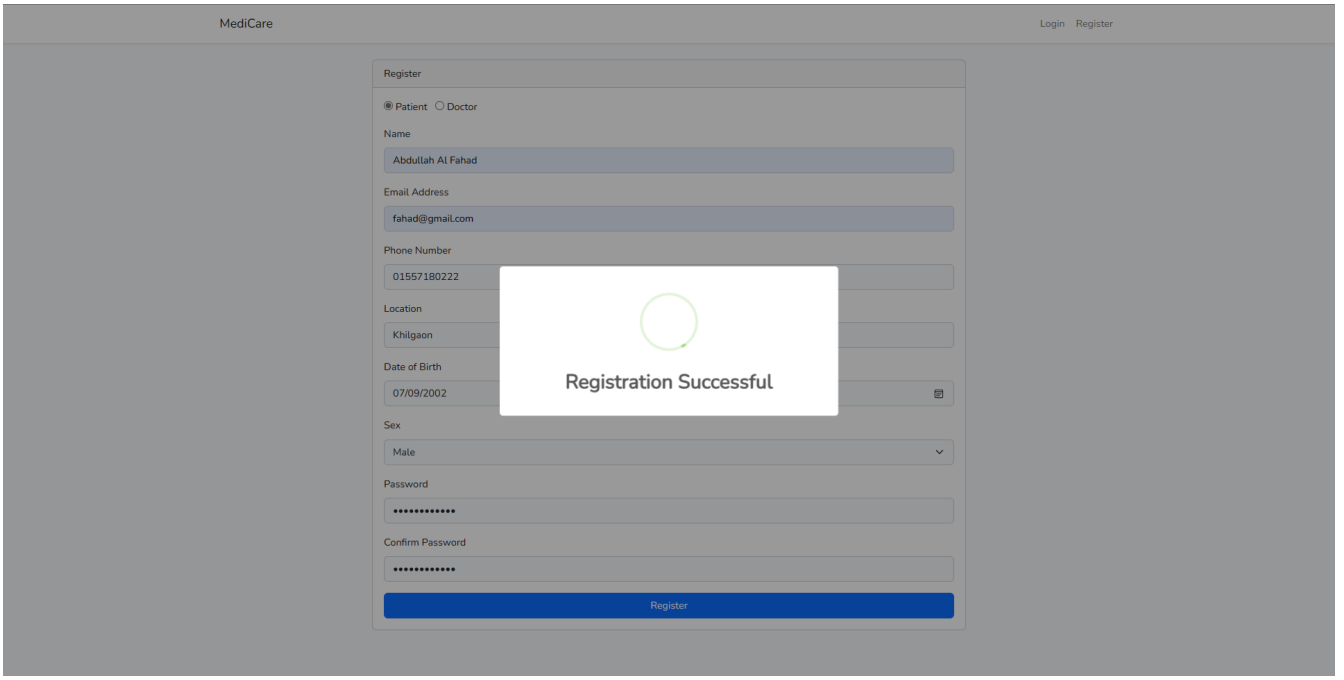

Figure 3.6: Successful Message Prompt

After successful registration user will get a successful message prompt.

3.2.3 Views of Patient

Home Page

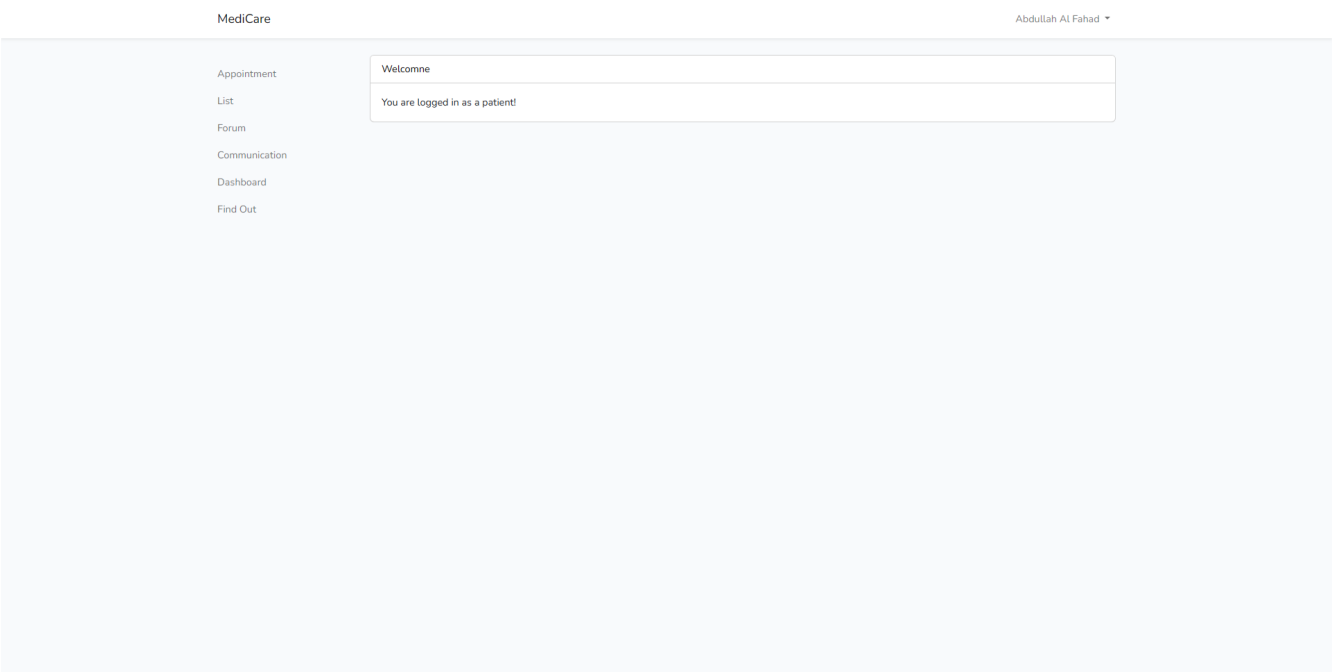

Figure 3.7: Patient Home Page

Here the system recognises the type of user based on his login information. And on the left side we can see all the options available for the patient.

Appointment

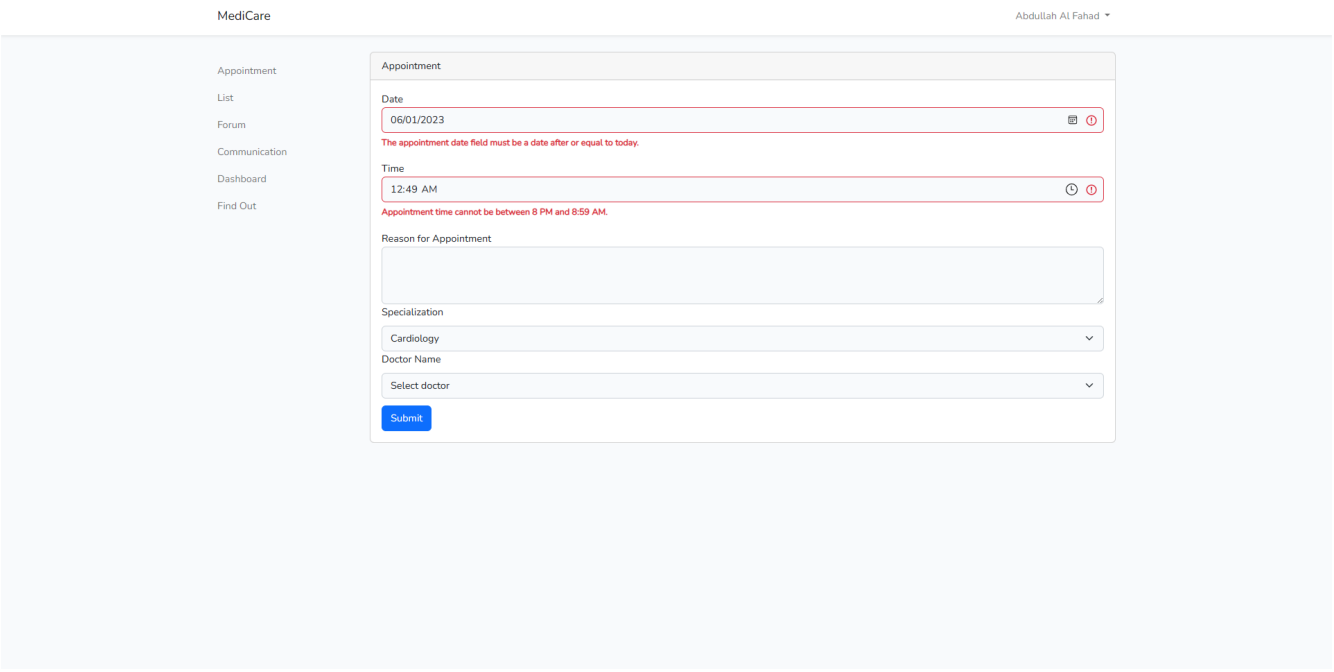

Figure 3.8: Appointment Page

This is where user can take appointments.

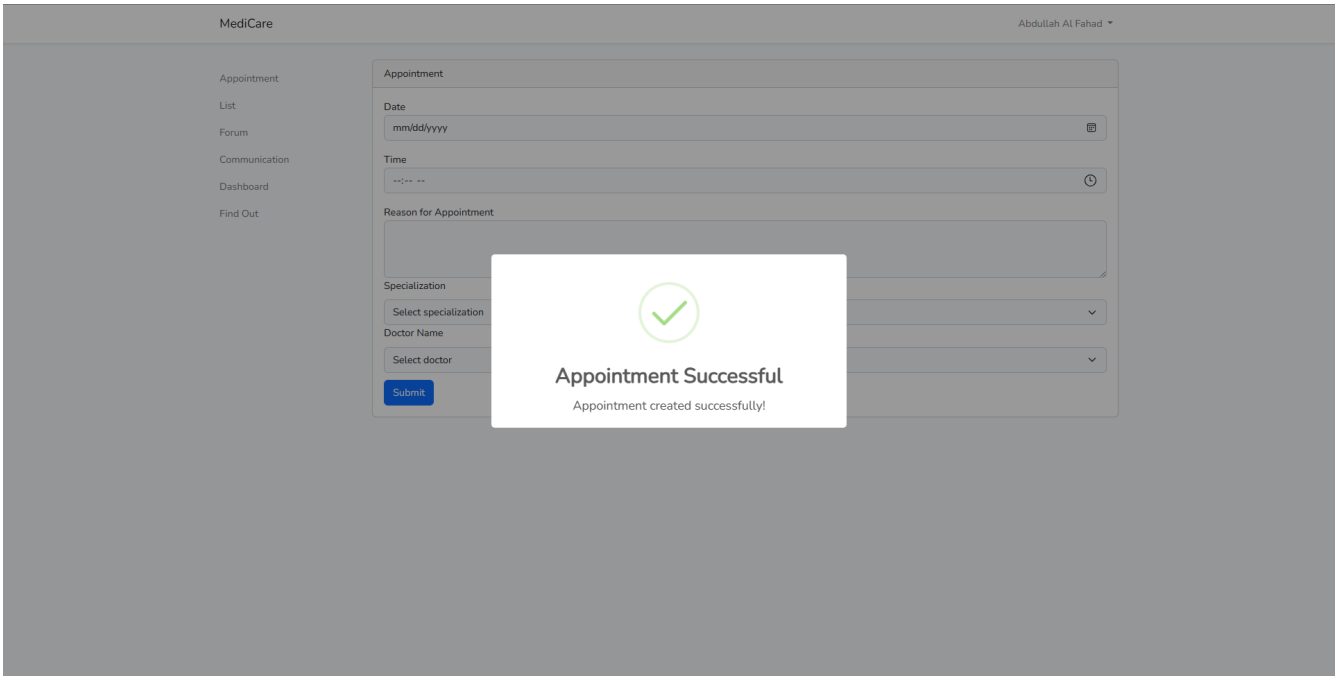

Figure 3.9: Success Prompt

User will get successful message if correct inputs are given into the form.

Appointment List

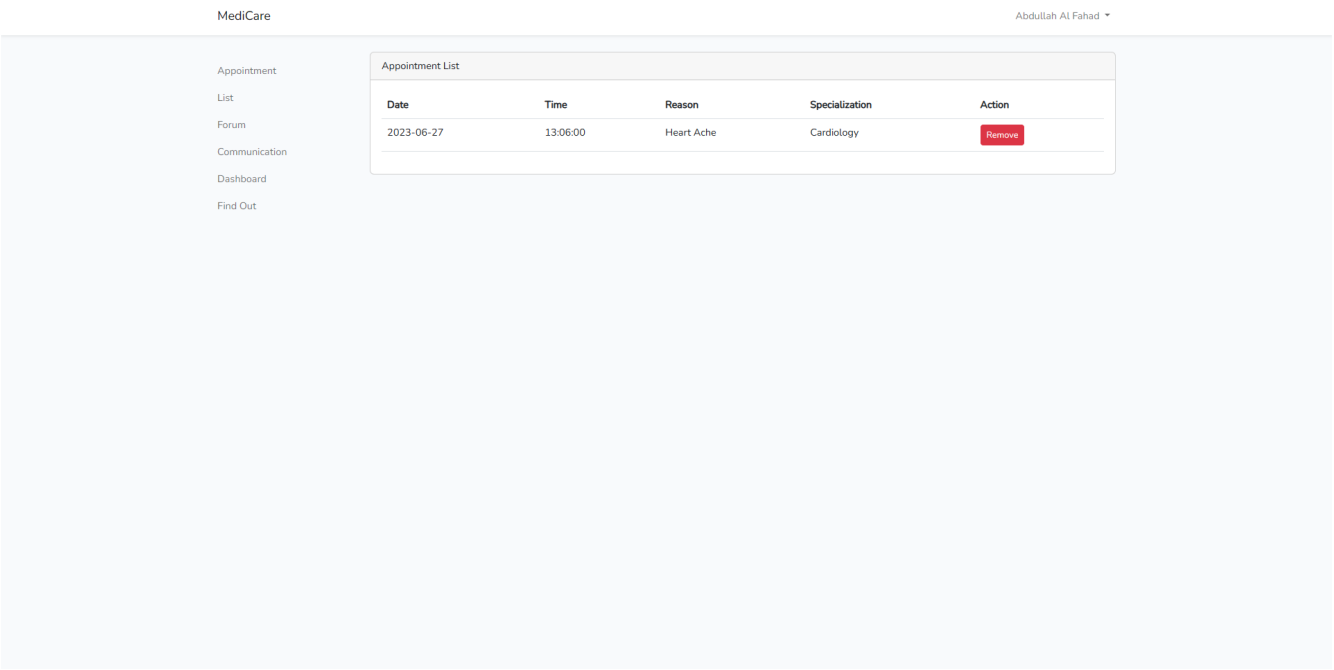

Figure 3.10: List of Appointments

Here, user will be able to see their appointment list.

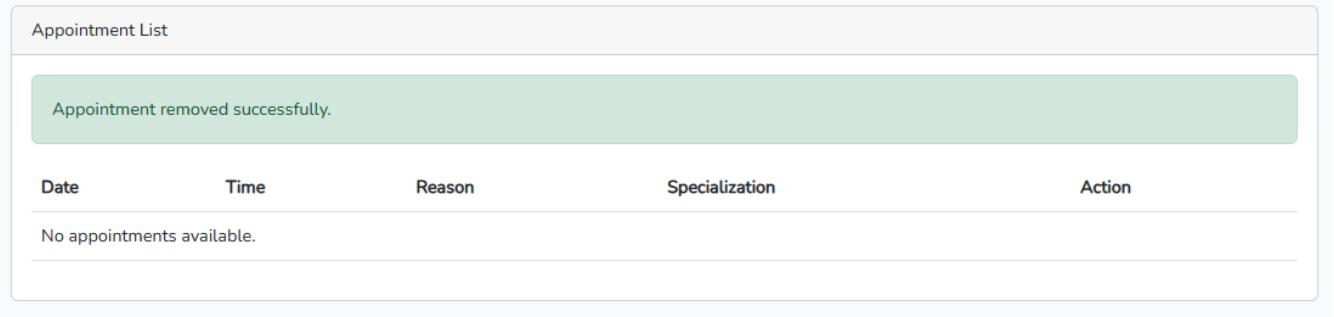

Figure 3.11: After removing an appointment

After removing an appointment user will get a message reassuring that their appointment has been removed.

Forum

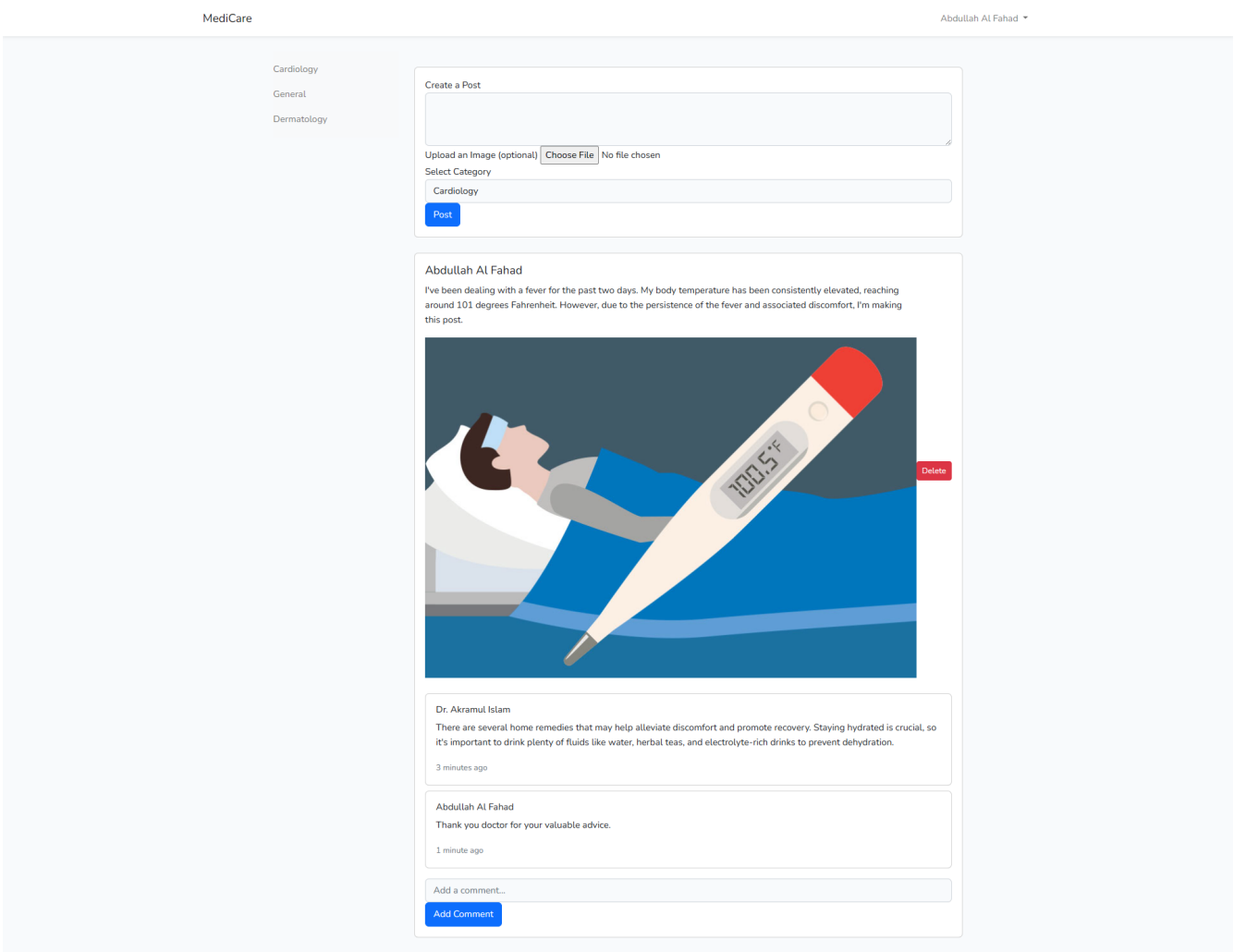

Figure 3.12: Forum

After clicking the forum menu user will be able to post their problems in forums where doctors and other can give their advice based on the given information. User has several sub forums for posting their problem specific to a forum. They can post pictures, file, videos etc.

Communication

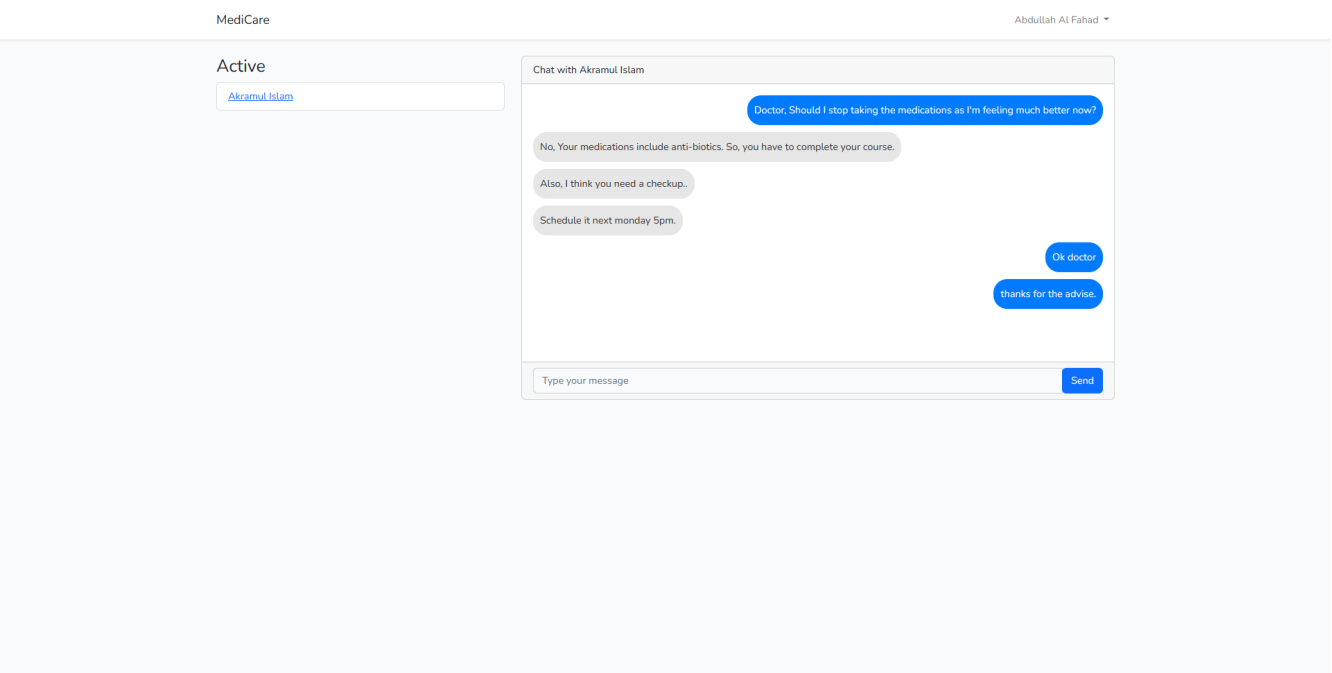

Figure 3.13: Chat

In this menu, users will be able to communicate with the doctors they have appointments with.

Dashboard

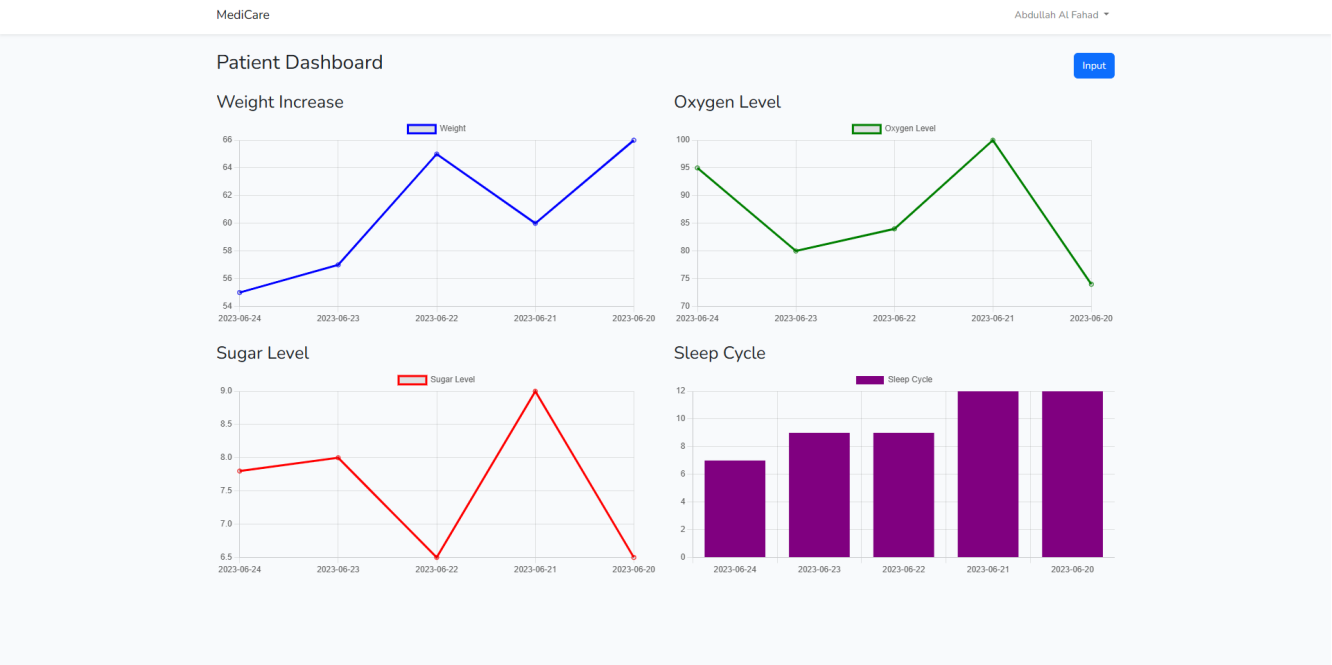

Figure 3.14: Patient dashboard

In the dashboard menu, user will be able to see their health stats in graphs to see the overall change overtime. Here, In the graph I am showing data of the last five days.

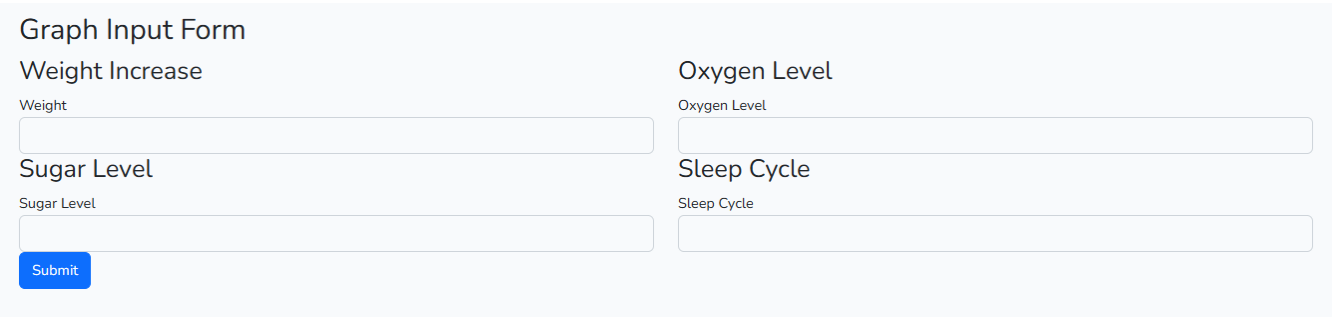

Figure 3.15: Graph data input

The data will be taken from smartphone app and smartwatch in a practical situation. But here user can input their own data manually if they don't have such options available.

Settings

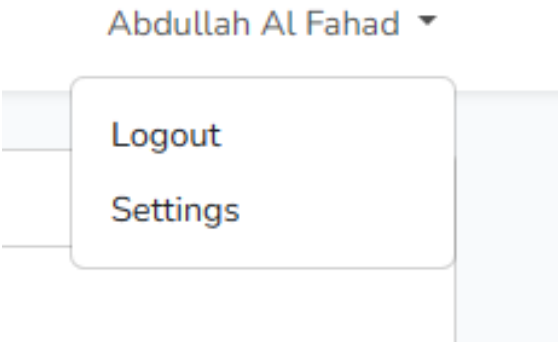

Figure 3.16: Settings and logout buttons

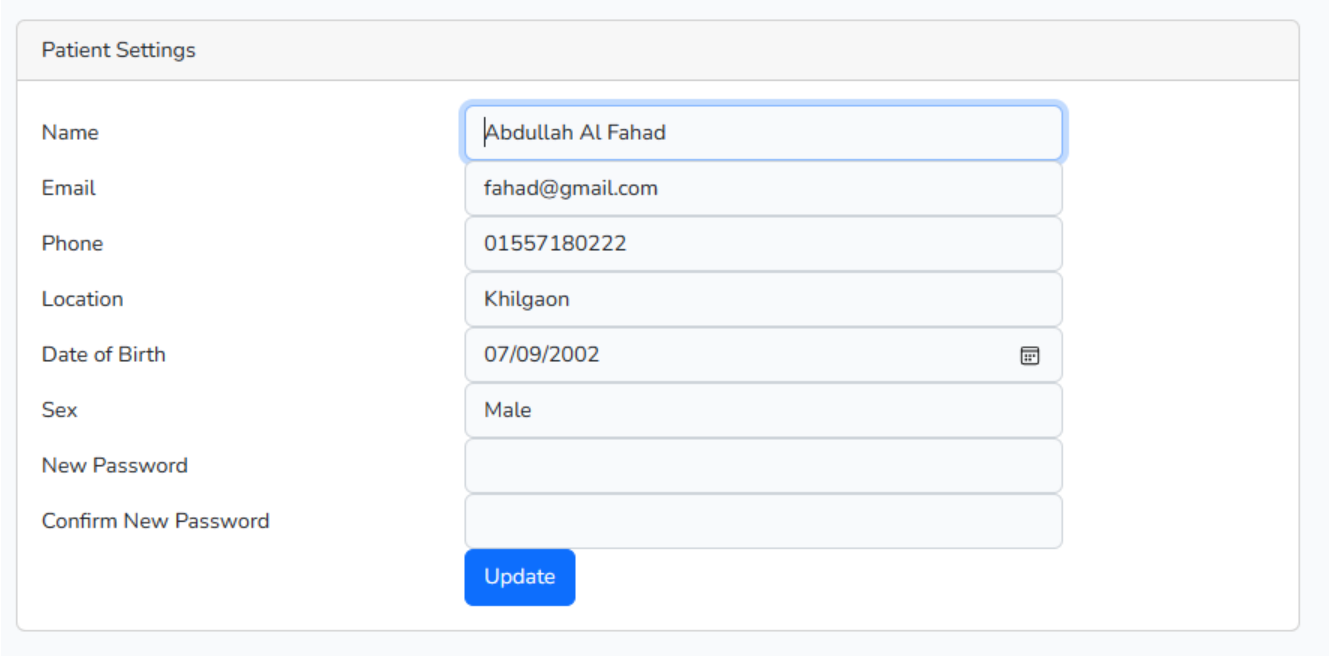

Figure 3.17: Patient Settings

After clicking the settings patient will be redirected to page where they can update their current information.

3.2.4 Views of Doctor

Home Page

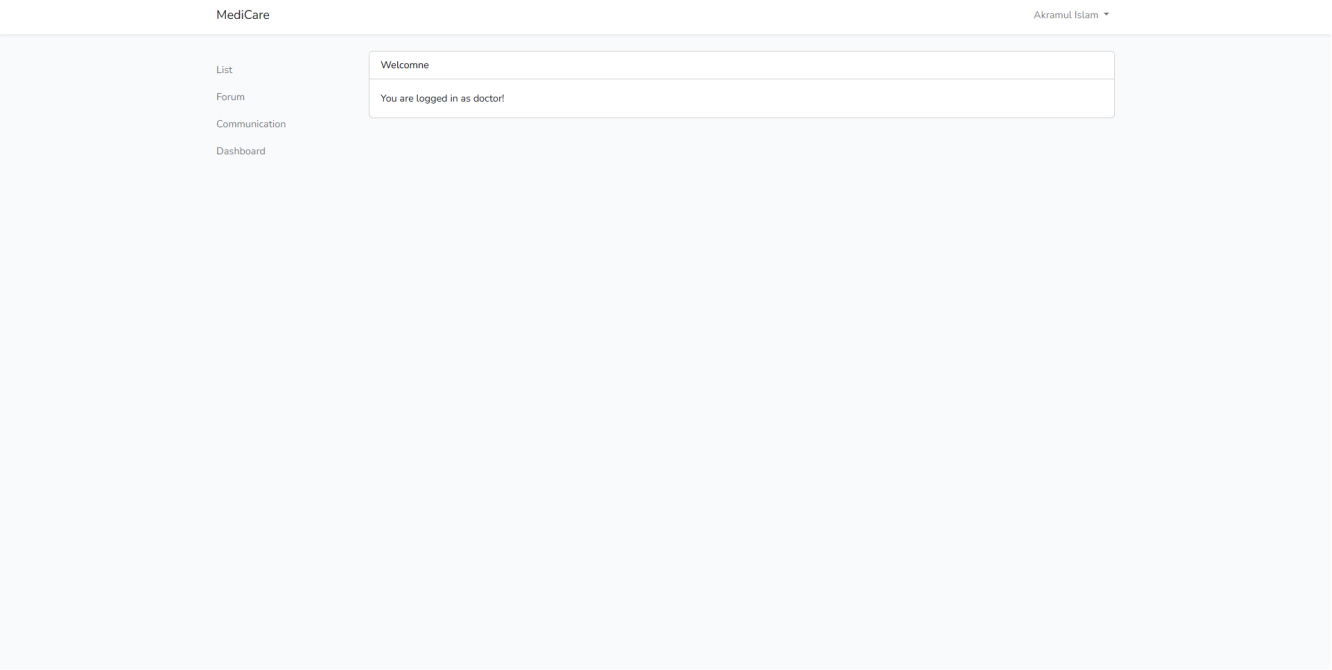

Figure 3.18: Doctor home page

Like patient home page here doctor home page will also say the user is doctor or patient based on login credentials.

Appointment list

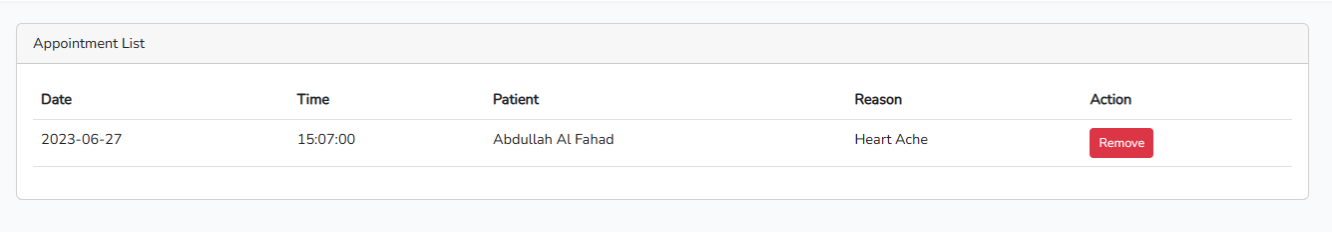

Figure 3.19: List of Appointments

Doctor can see the name of the patients they have appointments with and all of the information of the appointments they have.

Dashboard

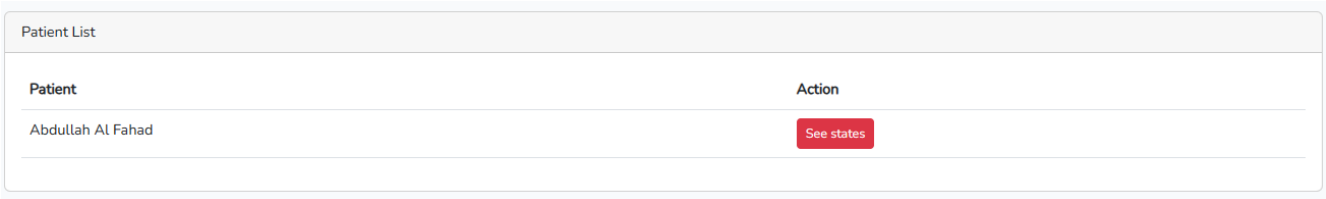

Figure 3.20: Dashboard

In this menu, doctors will be able to see the health stats of the patients they have appointments with.

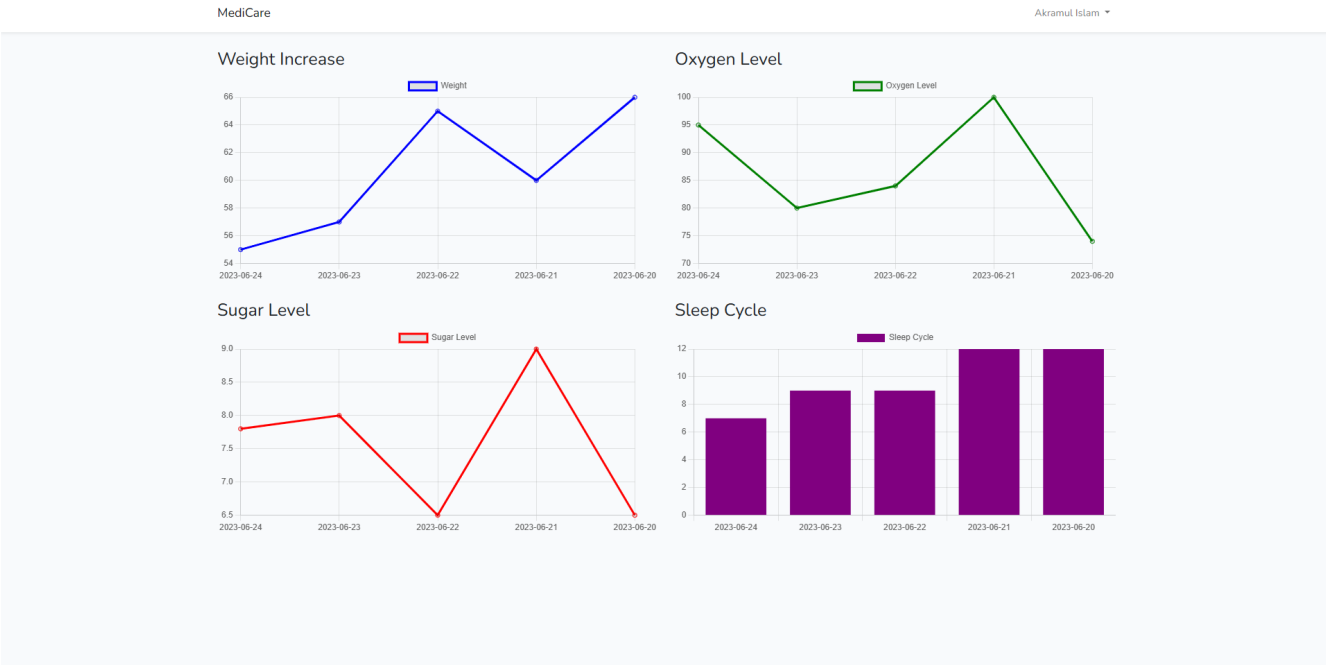

Figure 3.21: Graph of patient

After clicking the see states button states of that patient will be shown.

Settings

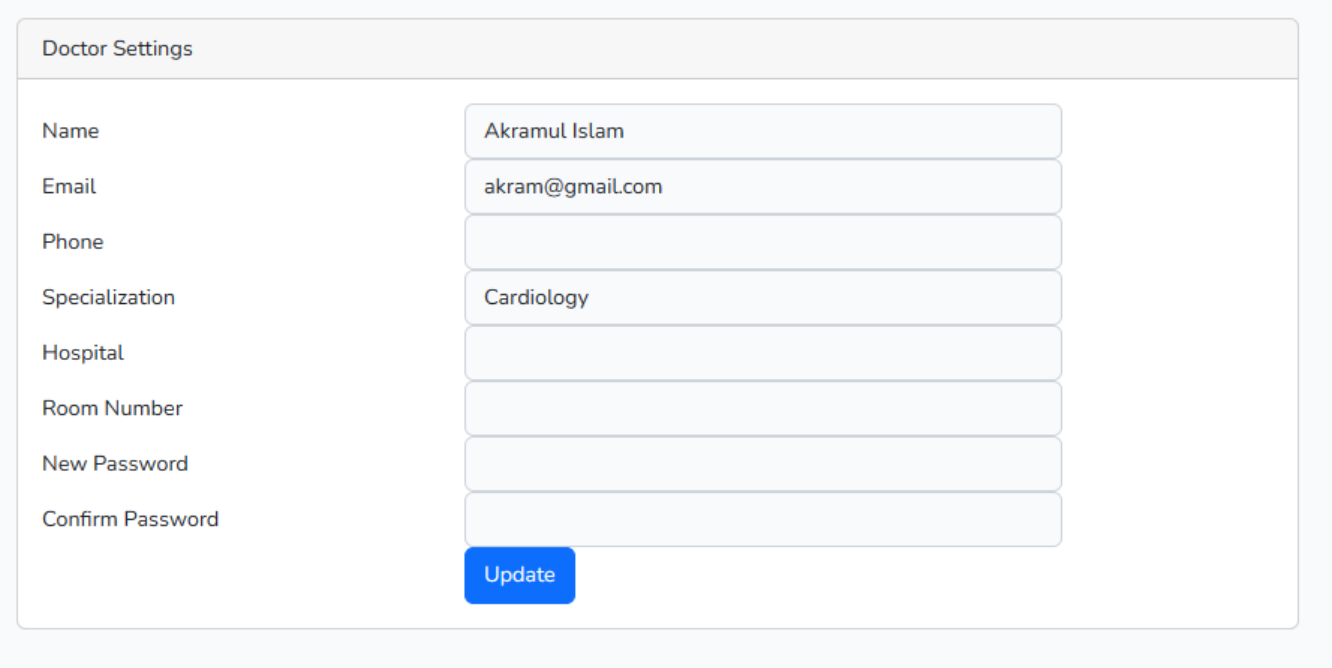

Figure 3.22: Doctor Settings

This is the settings for doctor.

Chapter 4

Test Cases

4.1 Screenshots

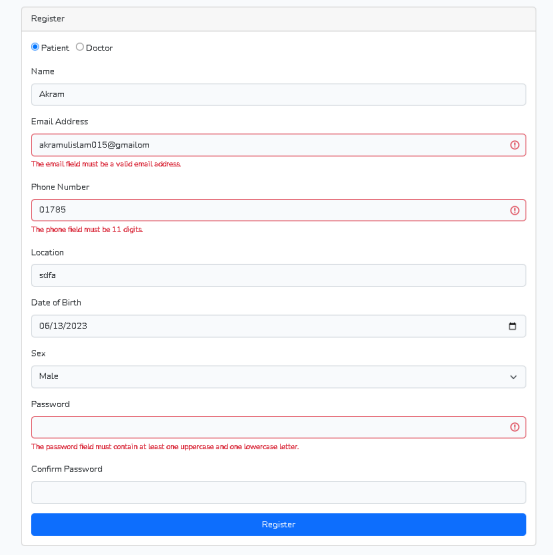

Figure 4.1: Registration

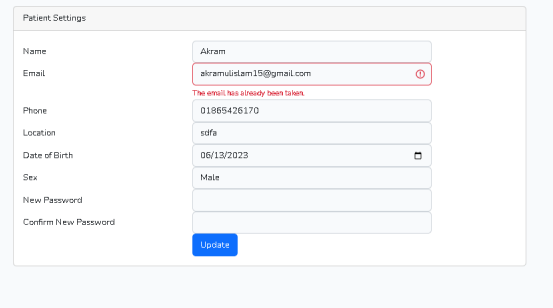

Figure 4.2: Update

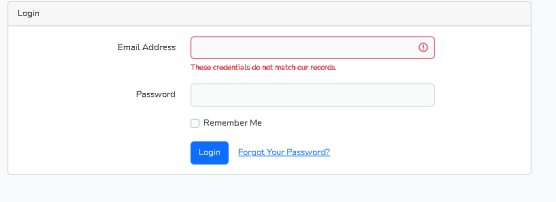

Figure 4.3: log in

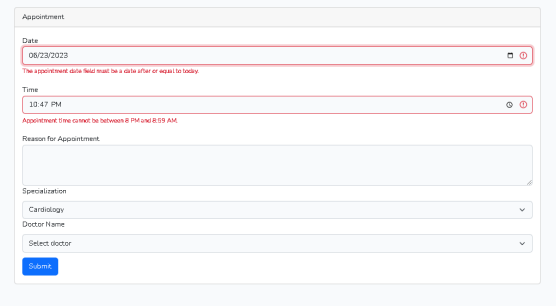

Figure 4.4: Appointment

From the above screenshots we can understand that wrong input,duplicate entry,dob from future and appointment from previous date are detecting properly.

4.2 Test cases

Serial	Name	Email	Gender	DOB	Phone	Password	Confirm Password	Expected Result	Actual Results	Pass / Fail / Not executed / Suspended
1	Md. Akramul Islam	akgmail.com	Male	10/11/98	1999999999	Abcd12989.	Abcd12989.	1)Must give @ in email setion	Not As Expected, email section must have @	Fail
2	Md. Akramul Islam	ak@gmail	Male	10/15/98	1999999999	Abcd12990.	Abcd12990.	2)No top level domain given here,required date of birth	Not As Expected, top level domain should be given here	Fail
3	Md. Akramul Islam	@gmail.com	Male	10/13/98	1999999999	Abcd12990.	Ab991	3)The recipient name is missing,confirm password must be same as password.	Not As Expected, less the 11 digit given	Fail
4	Md. Akramul Islam	akram007@	Male		1999999999	Abcd12990.	Abcd12990.	4) required date of birth	Not As Expected, required date of birth	Fail
5	Md. Akramul Islam	akram@gmail.com	Male	10/15/98	1999999999	bcd129	bcd129	5) Password must be at least 8 digit and at least 1 capital letter ,lowercase letter, symbol and number	Not As Expected, Password must be at least 8 digit and at least 1 capital letter ,lowercase letter, symbol and number	Fail
6	Md. Akramul Islam	akram007@gmail.com		10/16/98	22222	Abcd12994.	Abcd12	6)Required gender field,confirm password must be same as password	Not As Expected, gender field should be filled, confirm password is not same	Fail
7	Md. Akramul Islam	akram@gmail.com	Male	10/17/98	1999999999	Abcd12995.	Abcd12995.		As Expected	Pass

Table 4.1: Registartion

Here all field are required . Name ,Email, Phone number must be unique.Email id should contain @ and proper domain name(abc@gmail.com) . Phone number must be 11 digit. Password should be atleast 8 digit and also should be combination of lowercase,uppercase,symbol. Password and confirm password should be same. Here both

Email	Password	Expected Result	Actual Results	Pass / Fail / Not executed / Suspended
akgmail.com	Abcd12989.	1)Must give @ in email setion	Not As Expected, email section must have @	Fail
ak@gmail	Abcd12989.	2)No top level domain given here	Not As Expected, top level domain should be given here	Fail
@gmail.com	Abcd12989.	3)The recipient name is missing	Not As Expected, The recipient name is missing	Fail
akram007@gmail.com	Abcd12989.	4) Password email should be match with database	As Expected	Pass
akram@gmail.com	bcd129	5) Password must be at least 8 digit	Not As Expected, Password must be at least 8 digit and at least 1 capital letter ,lowercase letter, symbol and number	Fail
akram007@gmail.com		6)Required password field	Not As Expected, password must be given	Fail
	Abcd12995	7)Required email address	Not As Expected, required email address	Fail

Table 4.2: Login

field are required.Email id should contain @ and proper domain name(abc@gmail.com) . Password should be atleast 8 digit and also should be combination of lowercase,uppercase,symbol. And the most important thing both should match with database. Here patient and doctor can update their information but they need to follow the instruction which is given in regitration.

In Solution generate Symptoms should be given with health parameter to get better solution.

Name	Email	Gender	DOB	Phone	Password	Expected Result	Actual Results	Pass / Fail / Not executed / Suspended
Md. Akramul Islam	akgmail.com	Male	10/11/98	1999999999	Abcd12989.	1)Must give @ in email setion	Not As Expected, email section must have @	Fail
Md. Akramul Islam	ak@gmail	Male	10/15/98	1999999999	Abcd12990.	2)No top level domain given here,required date of birth	Not As Expected, top level domain should be given here	Fail
Md. Akramul Islam	@gmail.com	Male	10/13/98	1999999999	Abcd12990.	3)The recipient name is missing,confirm password must be same as password.	Not As Expected, less the 11 digit given	Fail
Md. Akramul Islam	akram007@	Male		1999999999	Abcd12990.	4) required date of birth	Not As Expected, required date of birth	Fail
Md. Akramul Islam	akram@gmail.com	Male	10/15/98	1999999999	bcd129	5) Password must be at least 8 digit and at least 1 capital letter ,lowercase letter, symbol and number	Not As Expected, Password must be at least 8 digit and at least 1 capital letter ,lowercase letter, symbol and number	Fail
Md. Akramul Islam	akram007@gmail.com		10/16/98	22222	Abcd12994.	6)Required gender field,confirm password must be same as password	Not As Expected, gender field should be filled, confirm password is not same	Fail
Md. Akramul Islam	akram@gmail.com	Male	10/17/98	1999999999	Abcd12995.		As Expected	Pass

Table 4.3: Update

Symptoms	Health Parameters	Expected Result	Actual Results	Pass / Fail / Not executed / Suspended
Cough,fever,abdominal pain	300 mg/dL(sugar level)	300 is not normal sugar level will show error	As expected	Pass
Fever	100c fever	Low grade fever indicates viral infection, appenditis, auto immune diseases.	As expected	Pass
		no input detected	Must be filled	Fail
Blurry vision. Confusion. Dizziness. Fainting (syncope)	blood pressure under 90/60 millimeters	low pressure	As expected	Pass

Table 4.4: Solution Generate

Date/Time	Reason for appointment	Specialization	Expected Result	Actual Results	Pass / Fail / Not executed / Suspended
June 6, 2023 10:00 AM		General Practice	1)Must be filled Reason for appointment	Not As Expected, Reason for appointment is required	Fail
June 8, 2023 2:30 PM	"Abnormal blood test results "		2)Must be filled Specialization	Not As Expected, Specialization is required	Fail
	Diabetes management	Endocrinology	3)Must be filled the date and time section	Not As Expected, Date/Time is missing	Pass
June 16, 2023 3:00 PM	Blood disorder	Hematology	4)All field must be filled	As Expected	Pass
June 22, 2023 9:30 AM	Stomach ulcers	Gastroenterology	5) All field must be filled	As Expected	Pass

Table 4.5: Appointment

In appointment all field are required .Date ,time of appointment should be added with the reason of appointment . In specialization field there should be select doctor speciality which relates with the reason.

Writing section	Content Upload	Expected Result	Actual Results	Pass / Fail / Not executed / Suspended
		1) Writing section must be filled	1) Not as Expected, writing section is required	Fail
300 character text		2)Writing section should not exceed 250 characters	2) Not as Expected, writing section has been exceed 250 characters.	Fail
Rashes on my hand	hand.png	3)All field must be filled	3)As expected	Pass
Here is my X-ray	setup.exe	4)Exe file should not be accepted	4)Not as Expected,exe file is not allowed	Fail

Table 4.6: Forum

In forum if anyone want to post writing section must be filled which should not exceed 250 characters. File upload supports pdf,docx,jpg.

Patient name	Condition	Expected Result	Actual Results	Pass / Fail / Not executed / Suspended
Akram		1)Must be filled condition	Not As Expected, condition is required	Fail
	He has a high fever	2)Must be filled patient name	Not As Expected, patient name is required	Fail
Akram	Health condition is good now	4)All field must be filled	As Expected	Pass

Table 4.7: Database

Here both field are required where doctor will give input the patient name and his/her health condition

Chapter 5

Conclusion and Future Work

5.1 Summary of the Project

The Online Health Care System project aims to address the limitations of the traditional healthcare system by providing an online platform for remote consultations, appointment scheduling, and medical record management. Through a user-friendly interface and secure chatting capabilities, the system aims to enhance accessibility and convenience for both patients and healthcare providers.

5.2 Future Works

Future enhancements for the Online Health Care System could include the following:

1. Integration with wearable devices to monitor patient health remotely.
2. Incorporation of artificial intelligence and machine learning algorithms for improved diagnosis and treatment recommendations.
3. Expansion to mobile platforms through the development of native mobile applications.
4. Integration with insurance providers and payment gateways for seamless financial transactions.
5. Continuous improvement of security measures to protect patient data from evolving threats.

5.3 References

1. https://www.academia.edu/5885305/Learning_Laravel_The_Easiest_Way#:~:text=Learning%20Laravel%3A%20The%20Easiest%20Way
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