Health Care Digitalization

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering

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SEPTEMBER 2022

APPROVAL

This Project/internship titled Health Care Digitalization, submitted by Md Riad Hossain , ID No: 181-15-11177 , K.M. Ratul Mahmud, ID no: 181-15-11195 to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Science in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 14-9-2022.

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We hereby declare that, this project has been done by us under the supervision of **Mr. Ahmed Al Marouf , Sr. Lecturer, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ABSTRACT

We know there are five basic needs for people and treatment is one of them. Treatment is basic needs for live. So good Health is important because a people of health can enjoy great happiness during his life time. Without health we cannot do anything in this world. So what is health care? Health care is the maintenance or improvement of health via the prevention, diagnosis, and treatment of disease, illness, injury, and other physical and mental impairments in human beings. Health care is an important piece of our life. It keeps people safe and healthy. Simple example A man suffering from fever remains confined to bed. He cannot get out of doors. He cannot do anything for anybody. Health is more valuable than wealth. Even a poor peasant with good health is happier than the rich person with poor health.

A sound mind lives in a sound body. Health is essential for all our activities of life whatever we may be – an engineer, a leader, an artist, we must possess health by all means

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CHAPTER 1
INTRODUCTION

1.1 Introduction

In this project , we will develop a system where people can make an appointment for themselves to find a doctor and then actively manages and responds to medical ecosystem needs in an intelligent manner. A smart healthcare system collects data about patient and send to staff appropriately for appointments as necessary. This makes it possible to reduce wait times and cost of patients.

1.2 Motivation

There are maybe many doctor finder software available out there. But I try to make it more simple with user friendly interface so people can make comfortable with this system and the system will make peoples life easier than before because they can find best doctor to solve their problems. It will be able to provide services as fast as possible. Though I live in Dhaka so initially I start it from Dhaka but I will try explore more district in future.

1.3 Objective

The principle objective of this web application is to give an advantageous, easy to understand continuous web stage. Work to our life simple.

Simple and convenient web platform

One platform for all health needs

Making comfortable user experience

Sustainable, low cost of time and effective

New dimension of use of technology

Creating new opportunity

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1.4 Expected Outcomes

Hope fully it can effectively reduce the cost and time
And help patient to get easily appointment it also can reduces the risk.
This kind of development will push the people more productive.

1.5 Report Layout

Chapter 1: Introduction In this Chapter we've discussed Introduction, Objectives, Motivation, Expected Outcome and Report layout of the project.

Chapter 2: Background This chapter contains Project Introduction, Related works, Comparative Studies, Scope of the Problem and Challenges of our project.

Chapter 3: Requirement Specification This chapter contains Business Process Modeling, Requirement Collection and Analysis, Use Case Model and Description, Logical Data Model and Design Requirement.

Chapter 4: Design Specification This Chapter describes our application description which is related to Design Specification like Front-end Design, Back-end Design, Interaction Design and UX and Implementation Requirements.

Chapter 5: Implementation and Testing This chapter contains Implementation of Database, Front-end Design, Interactions, Testing Implementation and Test Results and Reports.

CHAPTER 6: Impact on society Impact on society, Impact on Environment , Ethical Aspects ,Sustainability Plan

Chapter 7: Conclusion and Future Scope In this chapter we will discuss conclusion and Scope for Further Development.

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Chapter 2

BACKGROUND

2.1 Preliminaries/Terminologies

Our project name is **Health Care Digitalization** Our Project will take appointment for user or patient. For to create this appointment system, at first I had collected a dataset from different online database. After collecting the dataset, I had processed the dataset. When I successfully completed the migration of this project Then
I send data to the SQLite database after connecting it with our Django framework for this system . To create this system I had used Python, HTML,
CSS and JavaScript.

2.2 Related Works

After I decided to make this system then I also think about what if I go for google to generate some idea that will be better and help me to my project so I go and find some of system which are related with our system

1. My Doctor Finder
2. Find your doctor - The Ibn Sina Trust

2.3 Comparative Analysis

If we compare our project with other projects such as Find your doctor - The Ibn Sina Trust and My Doctor Finder, our project has a little bit similarity both of project but it more similar with find your doctor – the ibn sina trust cause this site influenced me more and give me some simple and more clear idea than others though ours one not complete Picture of any of them. cause generate idea for appointment get from Find your doctor - The Ibn Sina Trust and the others like news tips some things like that get from others.

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2.4 Scope of the problem

When user use this system, they will have to input their original value like phone number with more details about them then they will get the appointment but if any user of this system want their appointment with wrong information it will check when staff confirm them about the appointment confirmation it will be considered as cancel. so user must have put their original information.

2.5 Challenges

My fast challenge was the front-end part. I was bit of confused about the user interface and after that the most difficult challenge was handling dataset of this project. so that's why I had

searched on google and find some site there was the data what I want.

After collecting data, I thought about to store that data in database. It seems like more difficult things what I thought but I go for the YouTube to watch how to store it . It helps me lot but It wasn't that much easy My next

Challenge was fetching data from database to web site.

But finally I make it happen.

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CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modeling

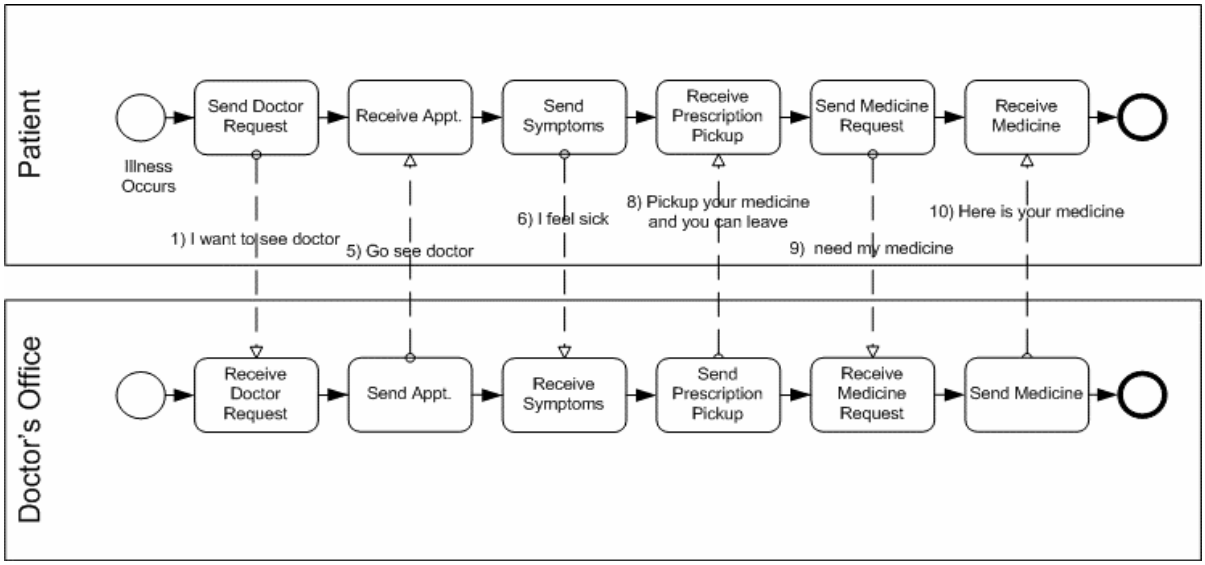

Figure 3.1: Business Process Modeling of Medicate

[https://www.stakeholdermap.com/bpm/doctor-to-patient-bpm.html]

3.2 Requirement Collection and Analysis

Necessity assortment and investigation is exceptionally pivotal piece of any venture. Without investigation,

gathering information or a decent preparation, a task won't ever finish as expected. At the point when we are

creating on a task, a conveyance season of the venture has previously given. That is the reason project

work should be arranged and executed to the convey time. Our venture is a web-based Web based regular checkup framework. Investigation and necessity

assortment was our enormous test, when we begin pondering this venture. After start investigation

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we sort out a few critical elements that help our venture.

This project required Django framework with some of language

So It has some Requirements. The Requirements are given below:

Hardware Configuration:

- Mobile
- Computer
- html 5 supported browser

Web Configuration:

- Internet Connection
- Tools: vs code and chrome
- Html, CSS, JavaScript and python

Features:

This project has those facilities.

- choose doctors
- category of diseases
- set time
- consults with doctors
- Get information about health

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3.3 Use Case Modeling and Description

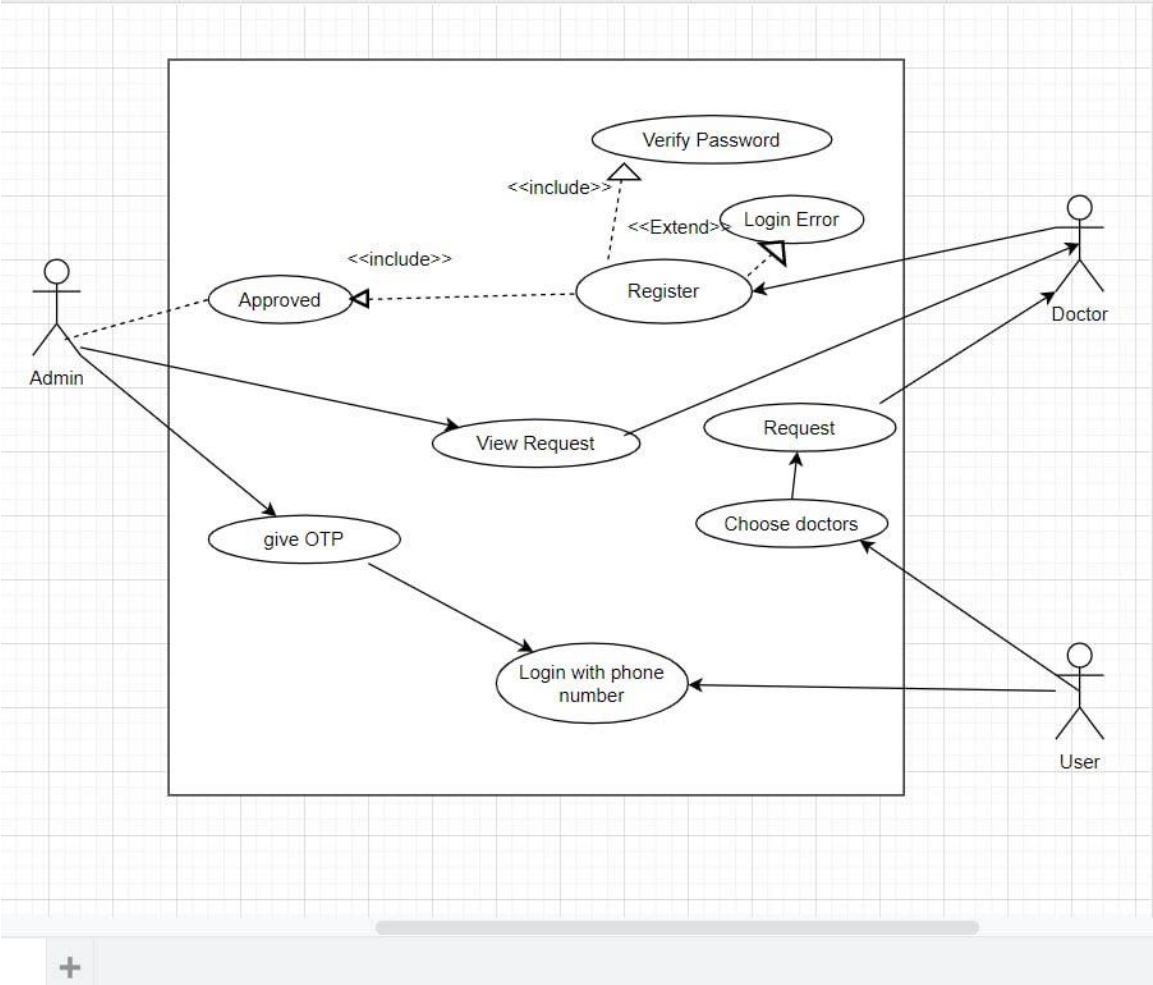

Figure 3.2. Use case diagram for the proposed Patient Appointment and Scheduling System

3.4 Logical Data Model:

we had used the back-end for data handling and for that we use Postgresql as database where we create table to store data and create a model inside the back-end part so that we can push our data in database easily from admin site and user site. we using database management in this project because this is important for this project and most work in back-end all about data.

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3.5 Design Requirement

When we start to design our system, we consider some requirements to make our project more efficient. We have attempted to construct an easy to use web application. Our framework UI is exceptionally straightforward that everybody can utilize it without dealing with any issue. For better knowing, we have
drawn business process model, use case chart and consistent information model. We have used to POSTGRESQL for planning our information base. For front end plan we have utilized
HTML,CSS. JS We have utilized OOP, Django system and PYTHON for back end design.

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CHAPTER 4
DESIGN SPECIFICATION

4.1 Front-end Design

For the front end design, We use HTML, CSS and Java-Script. These incorporate things like textual styles, drop-down menus, contract structures and so forth. In this segment we incorporate some page with home page for front end design.

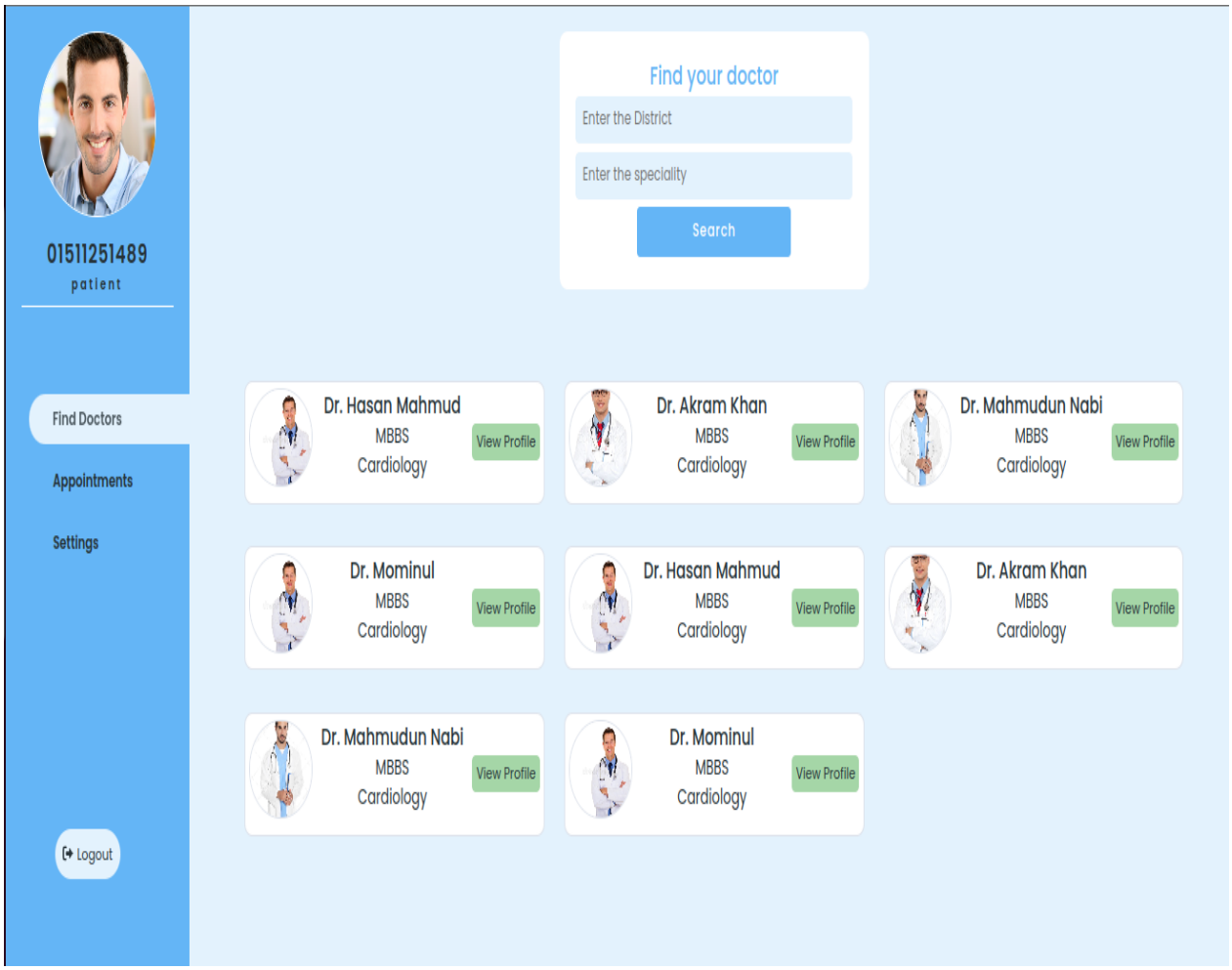

Figure 4.1

. 4.2 Back End Design

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The back-end part normally designed by two part where we can generate our data from admin site by creating super user and also manage data from database . And the other part is user can submit their information from UI . For back-end the framework we used is Django.

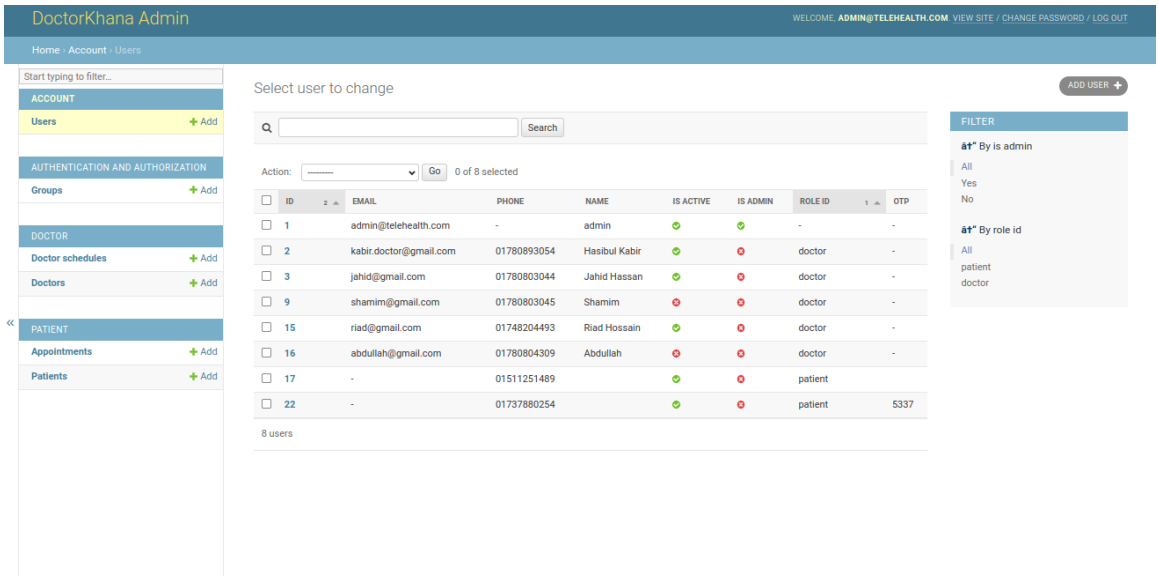

Figure 4.2.1

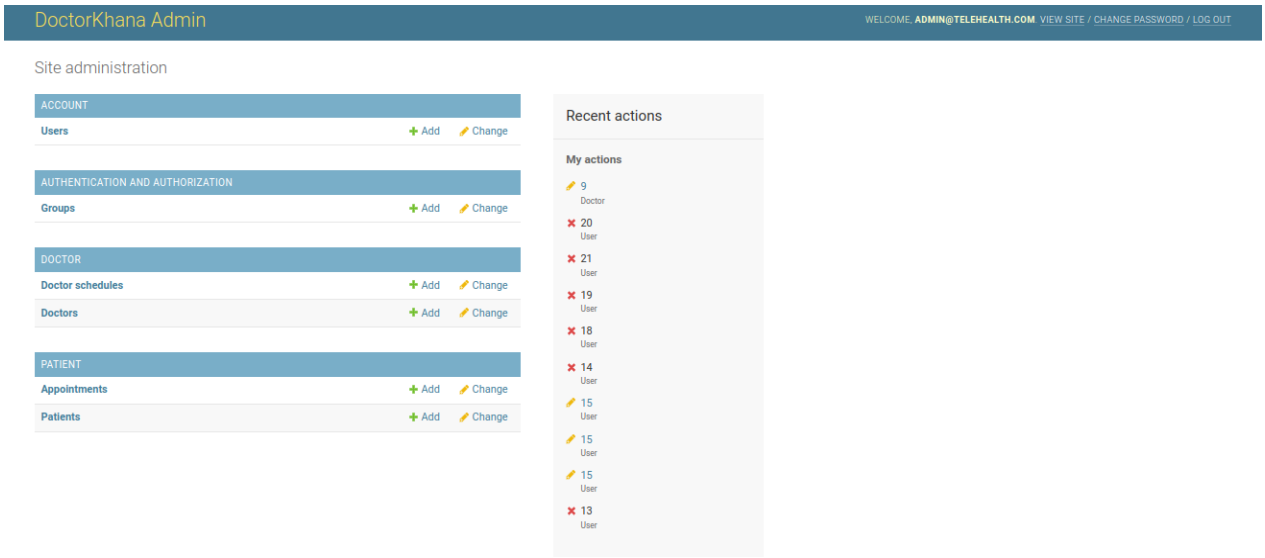

Figure 4.2.2

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4.3Interaction Design and User Experience (UX)

Interaction designers are focused on the moment whilst a user interacts with a product and their purpose is to enhance the interactive revel in. For ux designers, the instant of interaction is just part of the adventure that a consumer goes thru while they interact with a product. Consumer enjoy or ux is defined as any interaction a consumer makes with a product or service. The ux design takes into consideration each and every element concerned that facilitates in shaping the revel in, how it makes the person sense and the way easy it's far to satisfy the responsibilities

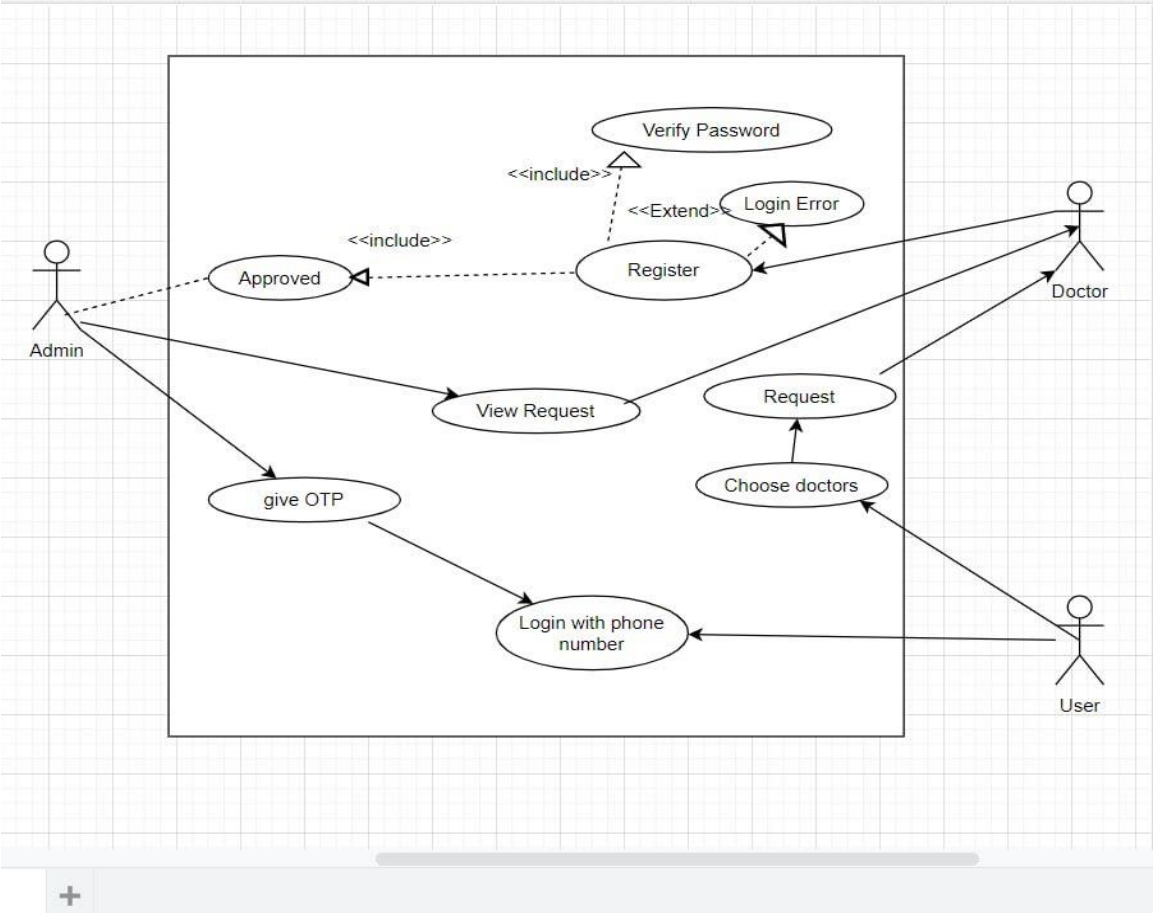

Figure 4.3 Interaction Design and User Experience (UX)

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4.4 Implementation Requirements

The principal assignment of this part is to ensure or make everything simpler, useful and easy to understand. The execution Requirement was given us an excellent thought. The rundown of execution
prerequisite is given below:

- ❑ More straightforward to make
- ❑ Easier to interact
- ❑ Easy to understand
- ❑ Easier to manage
- ❑ Dynamic content

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CHAPTER 5
IMPLEMENTATION AND TESTING

5.1 Implementation of Database

We have utilized "SQLITE" for planning our database. SQLITE is serious areas of strength for a, source object-social database framework that reasons and expands the SQL language got together with many features that safely store and scale the most jumbled data obligations. . It runs as a server and permits various clients to oversee and make various database.

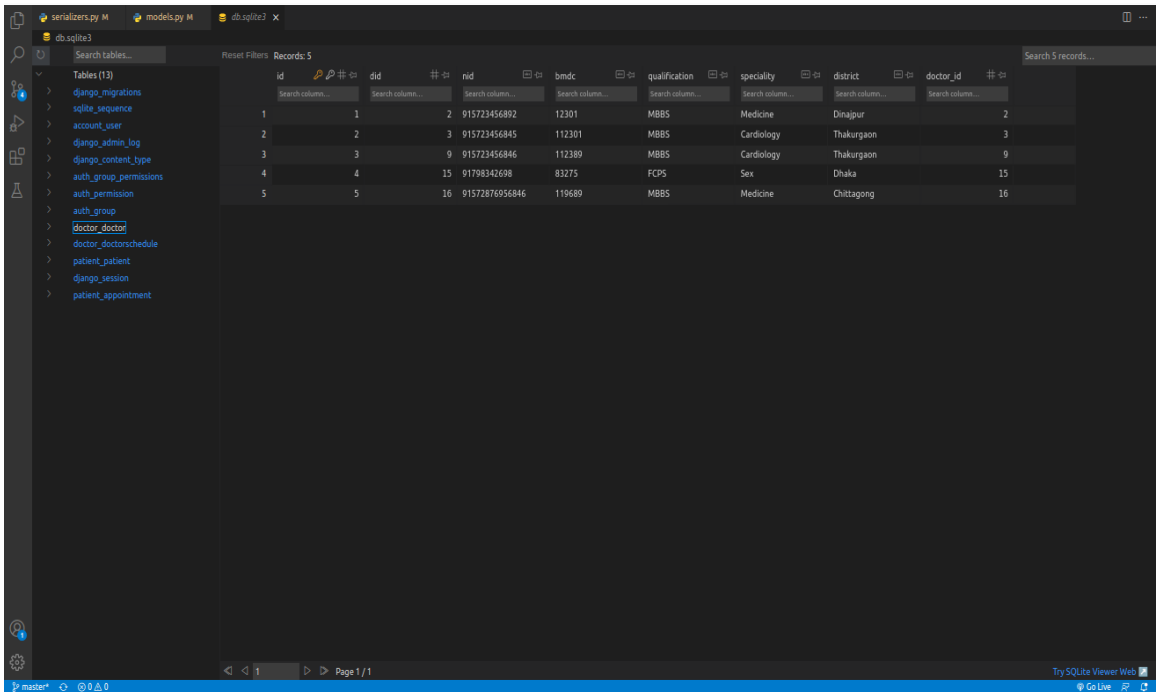

Figure 5.1.1: Database Implementation

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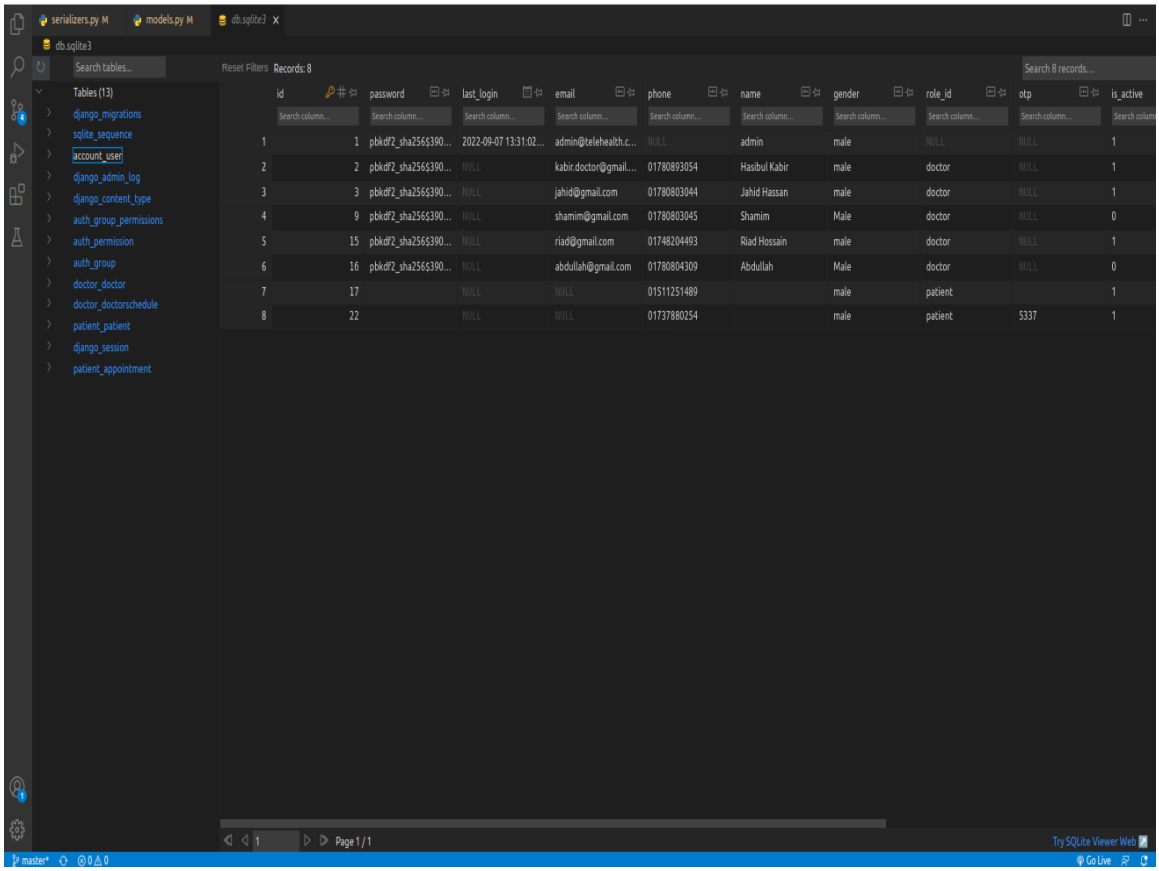

Figure 5.1.2

5.2 Implementations of Front-end Design

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Home page of system for user

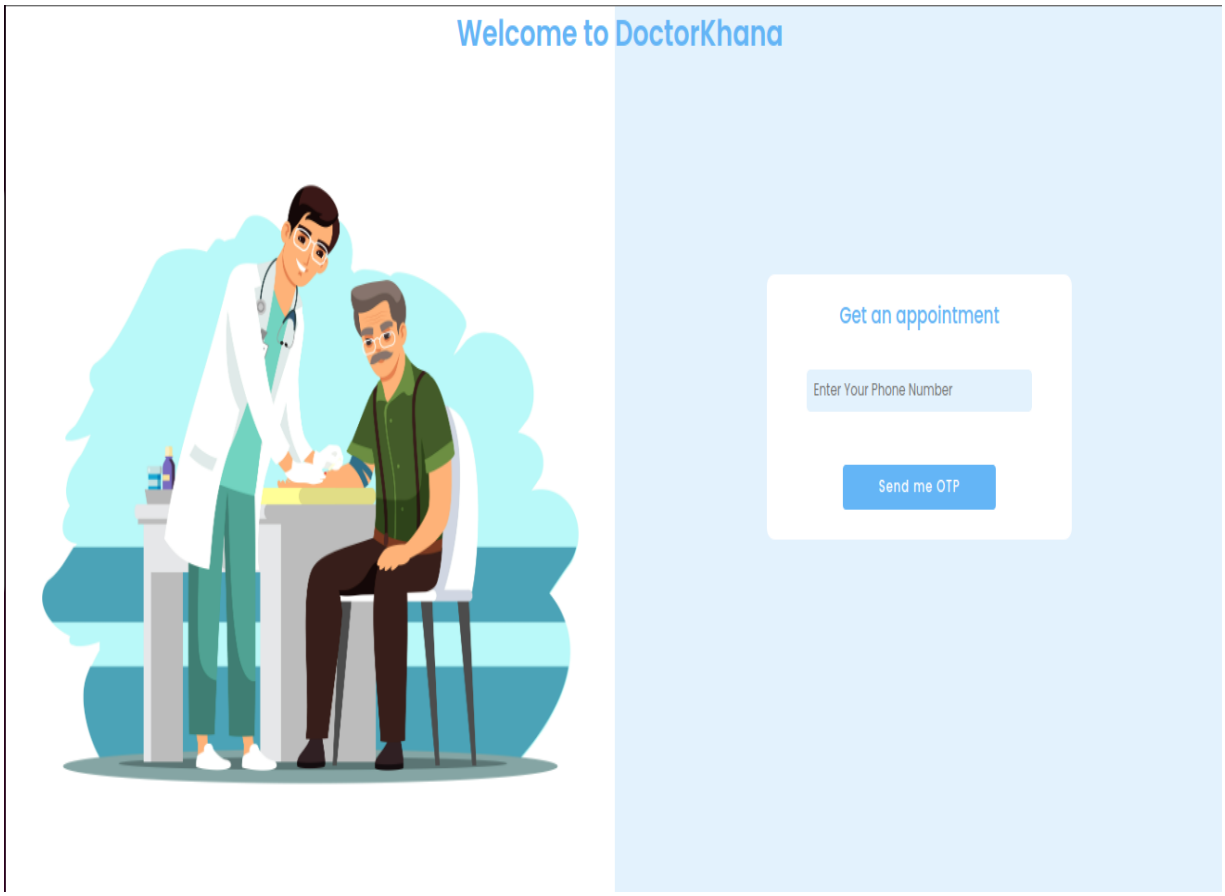

Figure 5.2.1: Home page

This is landing page for user where user of this system can get into the system by login their number. The process is user have input their phone number and after that will get another section like below

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This is OTP page of this system

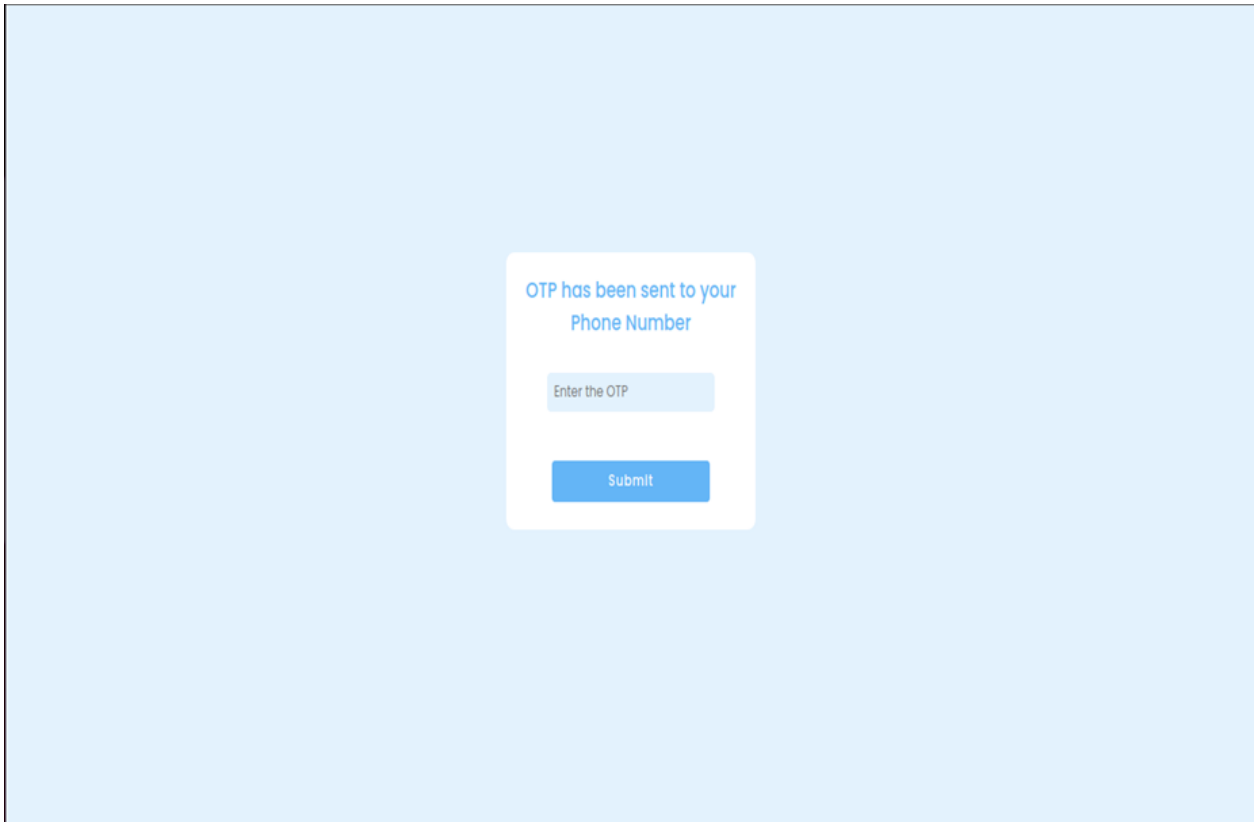

Figure 5.2.2: OTP page

OTP will send them from admin panel and when they get their OTP, they have to submit OPT then can search their desirable doctor.

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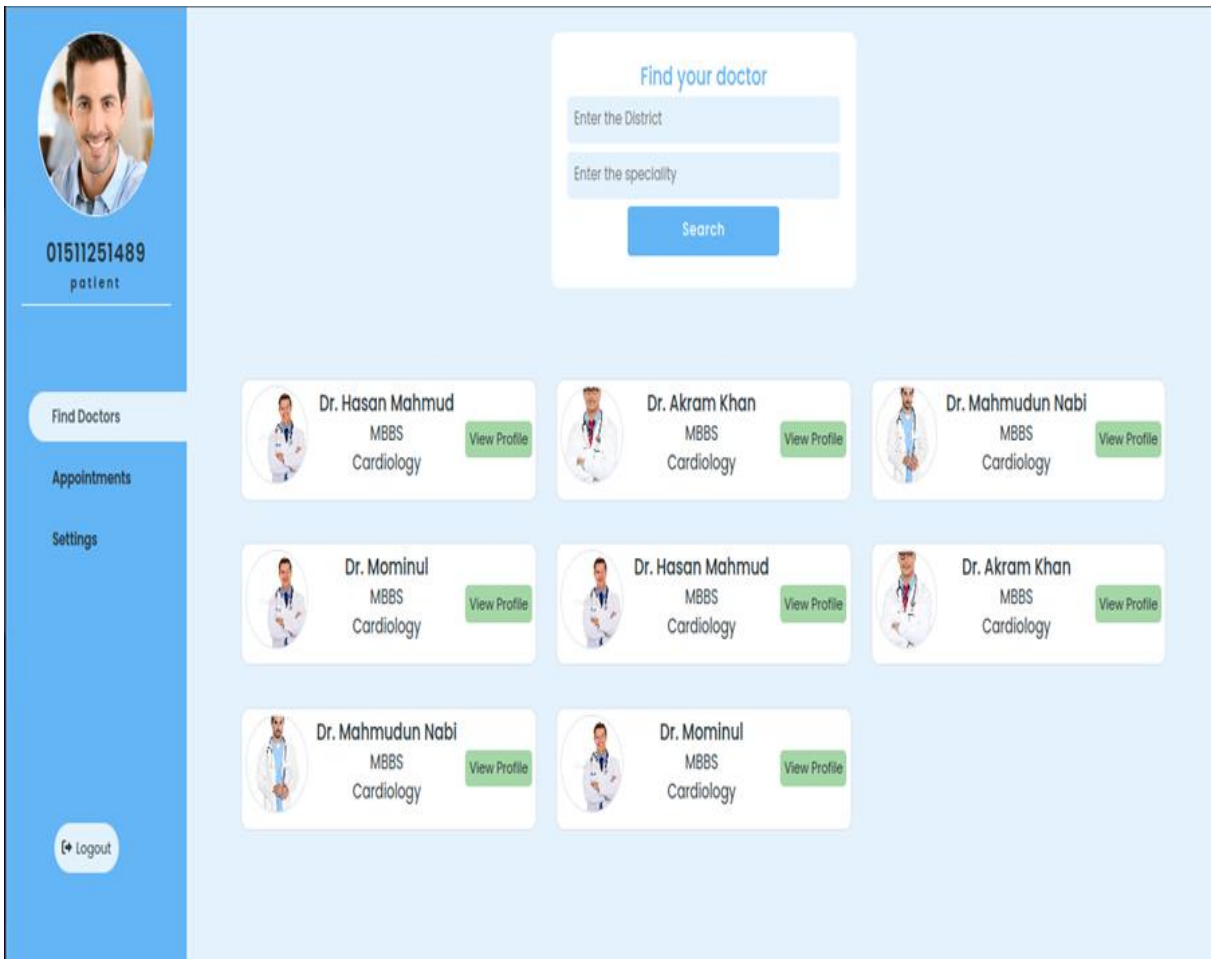

Figure: 5.2.3

find the doctor page they can apply for the appointment and they can check the status of their appointment

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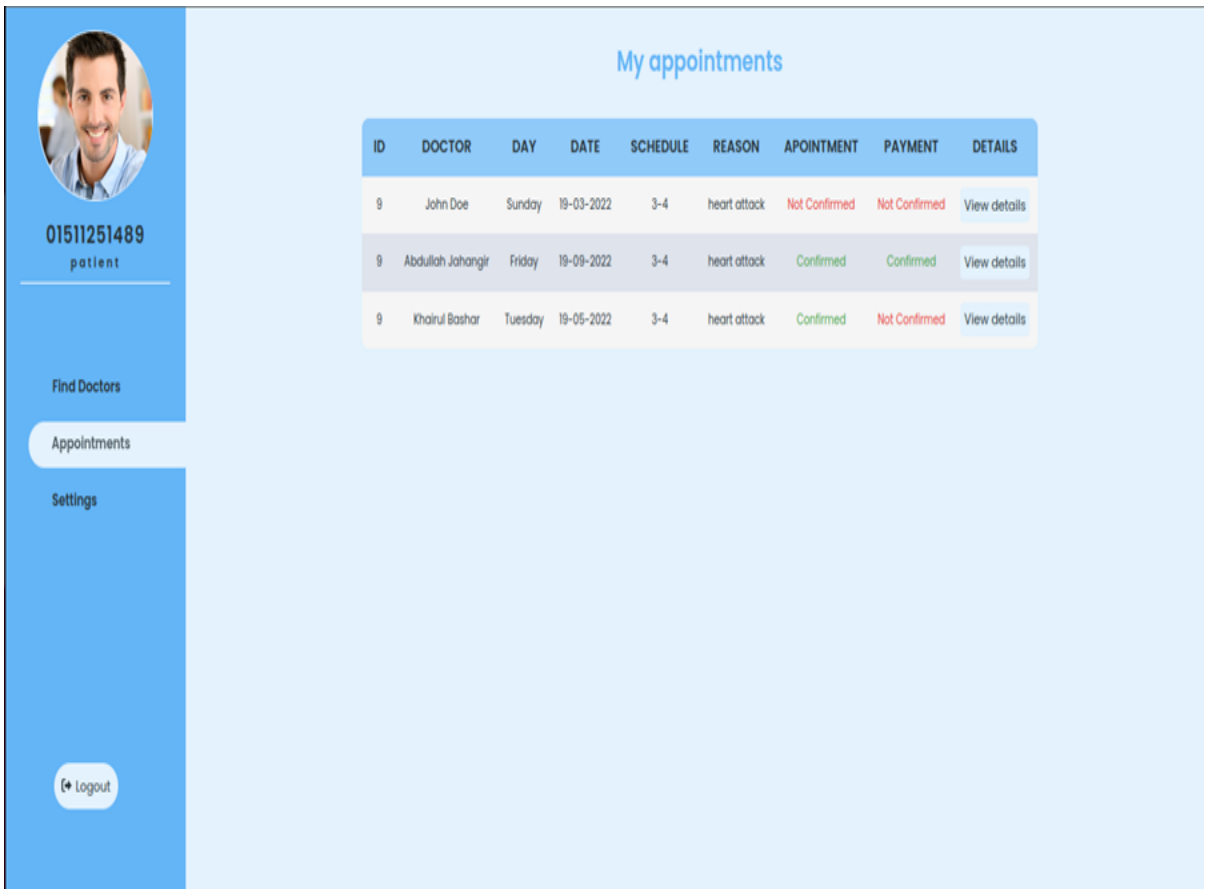

Figure 5.2.4: appointment section

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Registration for doctors

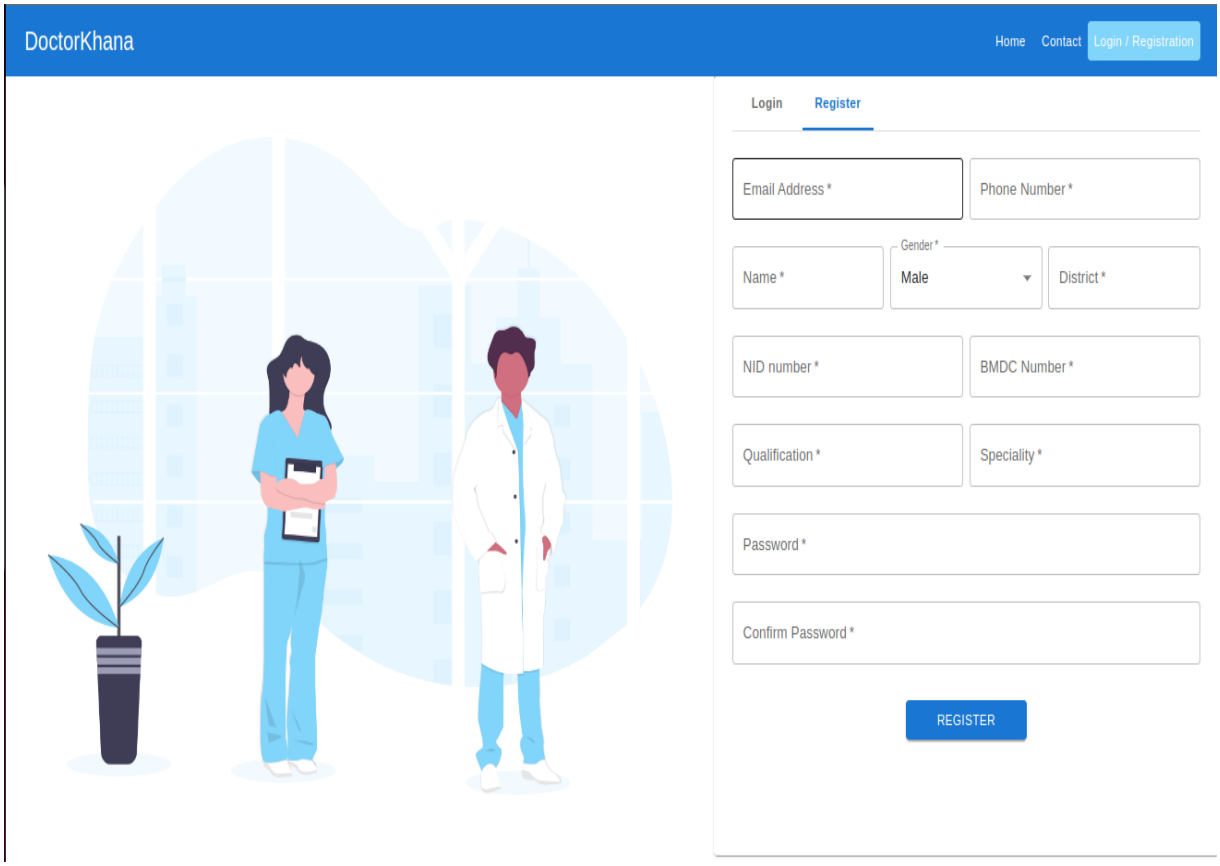

Figure: 5.2.5

After registration doctor have to wait for their verification. admin will verify the all doctors of this system

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Login page for doctors

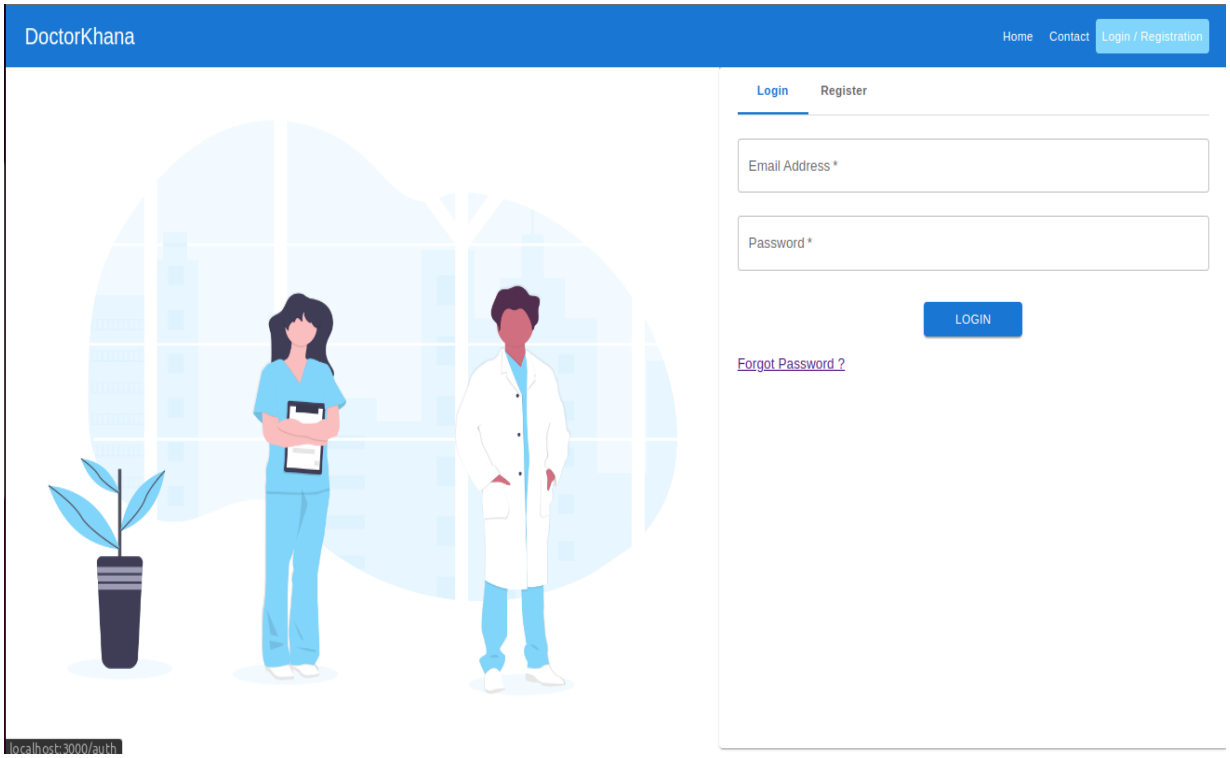

Figure: 5.2.6

After verification doctor can easily login and then they will find some of their page

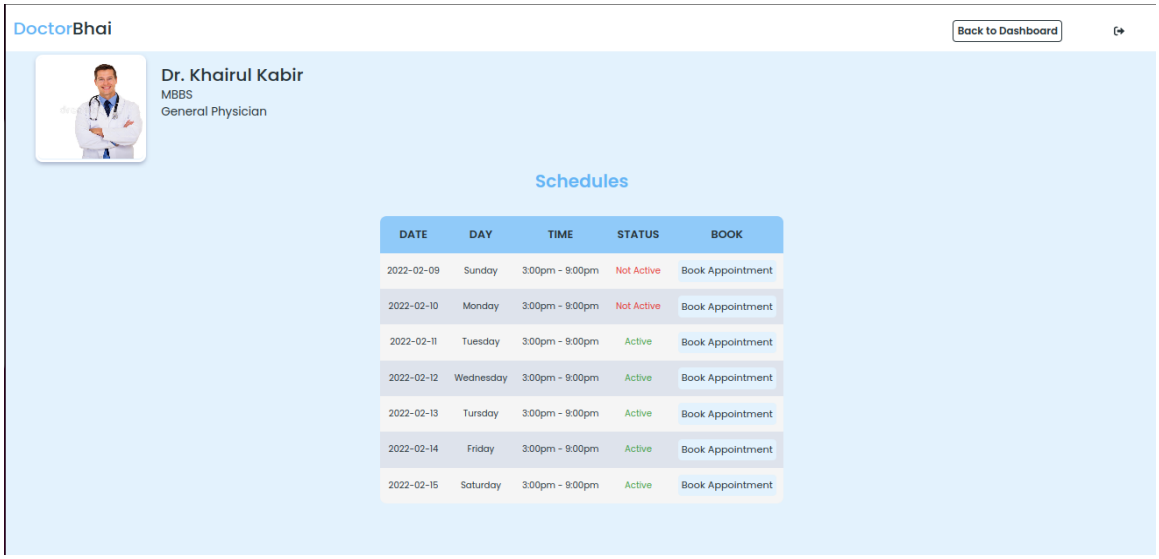

Figure : 5.2.7

From this section doctor can check also their all appointment

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5.3 Testing Implementation

The purpose of this take a look at to assess our system's compliance with the desired requirement. We tried to make this device secured. Each unmarried information that person enter on our device ought to skip the take a look at.

5.4 Test Result and Reports

Table 1: Registration and Login Test Case

Sl No	Test case	Input	Expected outcome	Actual output	Result
1	Email check	Input without @	Invalid email	Invalid email. Must have @	Passed
2	Valid phone number	Input numeric value	correct	Correct	Passed
3	Invalid phone number	Input character	Incorrect	Numeric value required	Passed
4	Special character	Input special character	Special character not allowed	Not allowed	Passed

Table 2: Input User Information Test Case

Sl No	Test case	Input	Expected outcome	Actual output	Result
1	Display the webpage	Tested on us browser, chrome	Display successful	Display successful	Passed
2	User name	Wrong	Login failed	Login failed	Passed
3	Blank or Incorrect pass	Wrong password	Login failed	Login failed	Passed
4	Username	Input character	Special character not allowed	Letter and whitespace allowed	Passed

Figure:5.4

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CHAPTER 6:
IMPACT ON SOCIETY, ENVIRONMENT AND SUSTAINABILITY

6.1 Impact on society

Our initiative has a significant social impact. All people is conscious that we are dwelling within the virtual age. So, a laptop whiz wants to digitize the whole lot. We want to digitize our u . S . Due to the fact we are computer engineers. Right here is the benefits of this kind of scheduling gadget encompass discount in scheduling delays, a discount in affected person ready time, advanced affected person through-put, improved scientific records data, and progressed billing accuracy and completeness.

6.2 Impact on Environment

This study confirms that virtual system, in particular virtual session and the digital appointment vs paper reviews, reduces the environmental impact of healthcare via lowering the wide variety of trips for a face-to-face visit and the quantity of published clinical reports, contributing to each populace and planet health. Similarly studies ought to encompass extra facts on other sustainable modes of delivery and encompass air pollutants inside the cost-effectiveness analysis of face-to-face visits in comparison to telemedicine.

6.3 Ethical Aspects

Balancing care pleasant and performance. ... Enhancing access to care. ... Constructing and maintaining the healthcare personnel of the destiny. ... Addressing quit-of existence issues. Fitness care ethics is the software of the middle standards of bioethics (autonomy, beneficence, no maleficence, justice) to clinical and fitness care selections. It's miles a

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multidisciplinary lens through which to view complicated problems and make pointers regarding a direction of action.

6.4 Sustainability Plan

In a health setting, social sustainability relates to the capability for hospitals and healthcare systems to beautify pleasant of lifestyles and enhance properly-being in a population. Healthcare structure enables connections, permits get admission to, improves fitness and complements fairness.

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CHAPTER 7
CONCLUSION AND FUTURE SCOPE

7.1 Discussion and Conclusion

Specialist and patient arrangement framework is an exceptionally thrilling point to work. In the wake of going through the work, we confronted many testing assignments. Step by step medical care framework become a significant part of our general public. So we have chosen to construct this framework. We explored so many framework that told us the course the best way to foster our framework. We communicate with individuals that what sort of issue they confronting. They were exceptionally glad to take this framework as it is give them some alleviation in current age. In spite of all that we accomplished, we confronted many difficulties to complete this undertaking. After all it's an internet based online framework so, in actuality, both specialist and patient need to follow the utilizing administers any other way its objective will be fizzled.

7.2 Scope of Further Development

It creates step by step, improving to simpler for people groups. This could be a progressive web application that might be useful to holding among specialist and patient. We accept we can make this framework further developed in future. Advance elements and User connection point will be refreshed in future. Our framework is now client amicable yet we will attempt to make this framework more easy to use in future.

Reference:

Figure 3.1: Business Process Modeling of Medicate [https://www.stakeholdermap.com/bpm/doctor-to-patient-bpm.html]

Figure5.4:

https://www.stakeholdermap.com/bpm/doctor-to-patient-bpm.html

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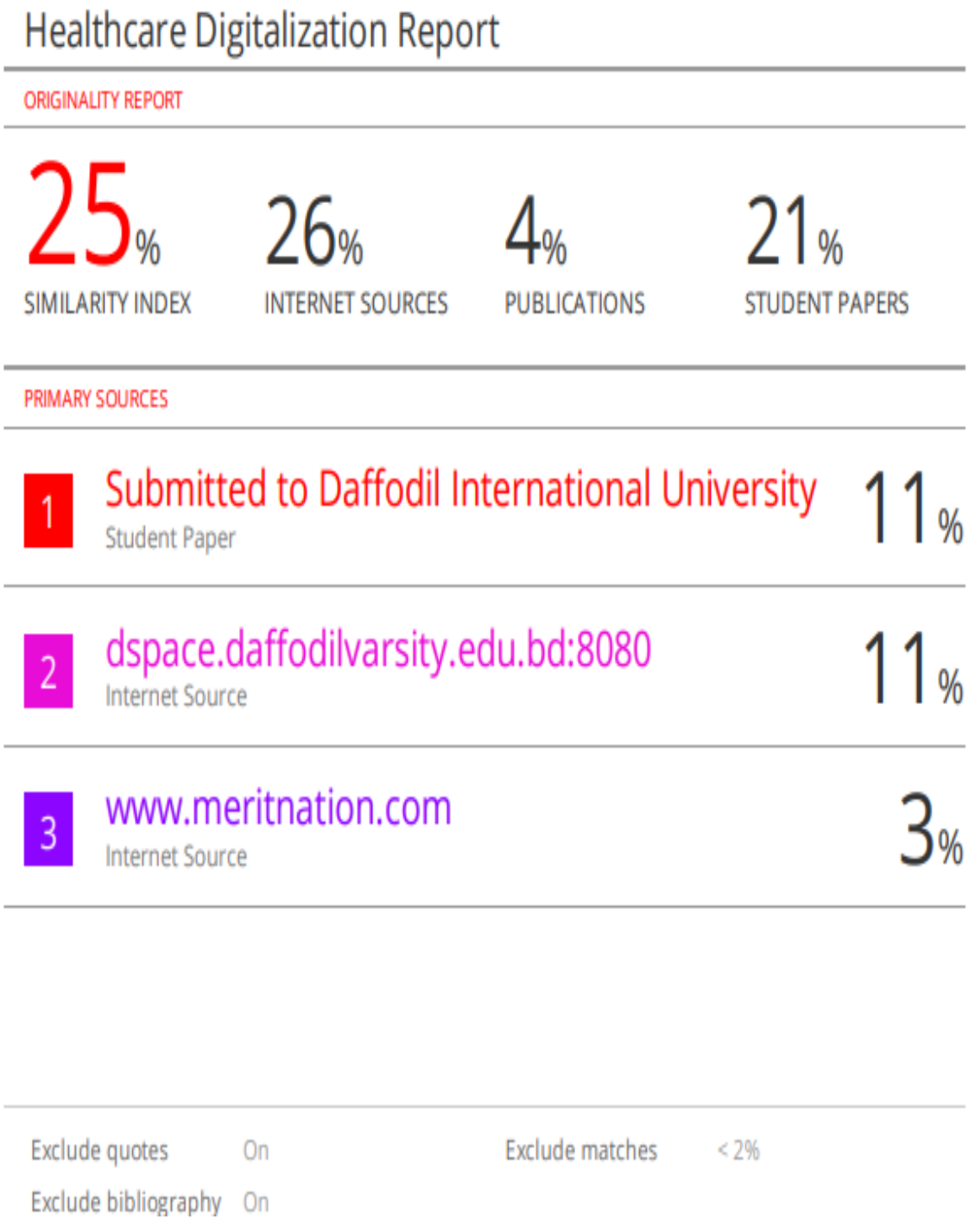

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