



# **CLINIC APPOINTMENT SYSTEM**

A Project Presented to the Faculty of  
College of Computer, Information and Communications Technology  
Cebu Technological University-Main Campus

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of the Requirements of Programming II for the degree  
Bachelor of Science in Information Technology

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## CHAPTER 1

### Introduction

In the fast-paced world of health, technology plays a pivotal role in enhancing patient care and streamlining administrative tasks. One of the most recent technological advancements in this field is the Clinic Appointment System. This introductory sentence sets the stage for a detailed discussion on the Clinic Appointment System, a topic that intersects the crucial realms of health and technology.

The Clinic Appointment System stands out for its unique integration of a calendar feature, which significantly simplifies the scheduling process for both doctors and administrators. By providing an intuitive interface to view and manage appointments, this feature greatly enhances the user experience and contributes to better time management for medical professionals and staff.

Another notable aspect of this system is its comprehensive approach to doctor registration. During the registration process, doctors can select their specialties from a predefined list or input their specific fields of expertise. This functionality ensures that

patients are matched with the appropriate specialists for their particular needs, thereby improving the overall quality of care provided.

A critical security measure embedded in the Clinic Appointment System is the requirement for doctors to input their license ID during registration. This step is crucial in verifying the authenticity of medical practitioners, ensuring that only licensed professionals are granted access to the system. This measure helps maintain high standards of trust and reliability within the healthcare system.

This paper aims to provide an in-depth explanation of the system's features, its numerous benefits, and its potential impact on the healthcare sector. The research presented here aligns with ongoing efforts to digitize healthcare services and enhance the quality of care delivered to patients. By examining the intricacies of the Clinic Appointment System, this study seeks to contribute to the broader goal of integrating advanced technology into healthcare, thereby fostering improved outcomes and efficiency in medical practices.

## Rationale of the Study

The rationale of this study lies in addressing the challenges encountered by healthcare providers due to the surge in patient influx resulting from heightened individual awareness of health status amidst increasingly erratic climatic conditions. This phenomenon leads to overcrowded clinic environments and prolonged waiting periods, posing significant difficulties for healthcare providers in promptly and effectively accommodating all patients. Notably, Vissers (1979) identified the lack of well-designed appointment systems as a primary contributor to waiting time in outpatient departments.

The outpatient department functions as a complex system through which numerous patients with diverse needs pass each day (Harper & Gamlin, 2003). Such circumstances necessitate the development and implementation of optimized appointment systems within clinics. By streamlining the appointment process, clinics can mitigate overcrowding, alleviate patient wait times, and enhance the overall efficiency of healthcare delivery. Furthermore, an enhanced appointment system

facilitates better resource allocation, enabling healthcare professionals to allocate sufficient time for each patient encounter, thereby optimizing the quality of care provided.

Hence, this study aims to investigate the efficacy of implementing a sophisticated clinic appointment system as a strategic intervention to address these pressing issues. Through an exploration of the feasibility, effectiveness, and potential benefits of such a system, this study endeavors to contribute valuable insights to the ongoing discourse surrounding healthcare management and patient-centered care delivery.

#### Objective of the Study:

The primary objective of this research study is to develop an advanced appointment management system tailored to address the prevalent challenges encountered within our local clinic. This system aims to streamline appointment scheduling processes for both medical practitioners and patients, while enhancing the clinic's operational efficiency in managing patient and doctor affairs.

The proposed system will also offer patients the following functionalities:

#### **Admin:**

1. Facilitate the addition of doctors through approving and declining.
2. Can View Total Doctors and Patients Registered.
3. Add descriptions to doctors' specializations and view images of license IDs for verification
4. Monitor and oversee all activities within the system.
5. Maintain comprehensive records of patients, doctors, categories, appointment times, and allocated rooms in an organized manner.
6. Enable search for doctors and view their ongoing appointments on a calendar; in short, we have a monitoring schedule feature in our admin.
7. Approve doctors' appointments.
8. Change password.

## **Doctor**

1. Manage availability and appointment slots in the calendar.
2. Access and view appointment records, dashboards, and schedules.
3. Communicate with patients by viewing and leaving messages.
4. Access patient records for comprehensive care management.
5. Manage patients' appointments: can view, complete, and cancel appointments.  
Can also input and view reasons for cancellations. Can also view patients's review
6. Set appointments.
7. Edit appointments.
8. View appointments by calendar.
9. Change the doctor's password.
10. Receive a notification if a patient cancels an appointment.
11. View patients who cancel their appointments.

## **Patients**

1. View available doctors categorized by specialty.
2. Book appointments, selecting preferred doctors, and view doctor reviews.
3. Cancel appointments.
4. Access appointment history.
5. Receive reminders of scheduled appointments for enhanced convenience.
6. Review doctor performance.
7. Provide reasons for appointment cancellations.
8. Change password.

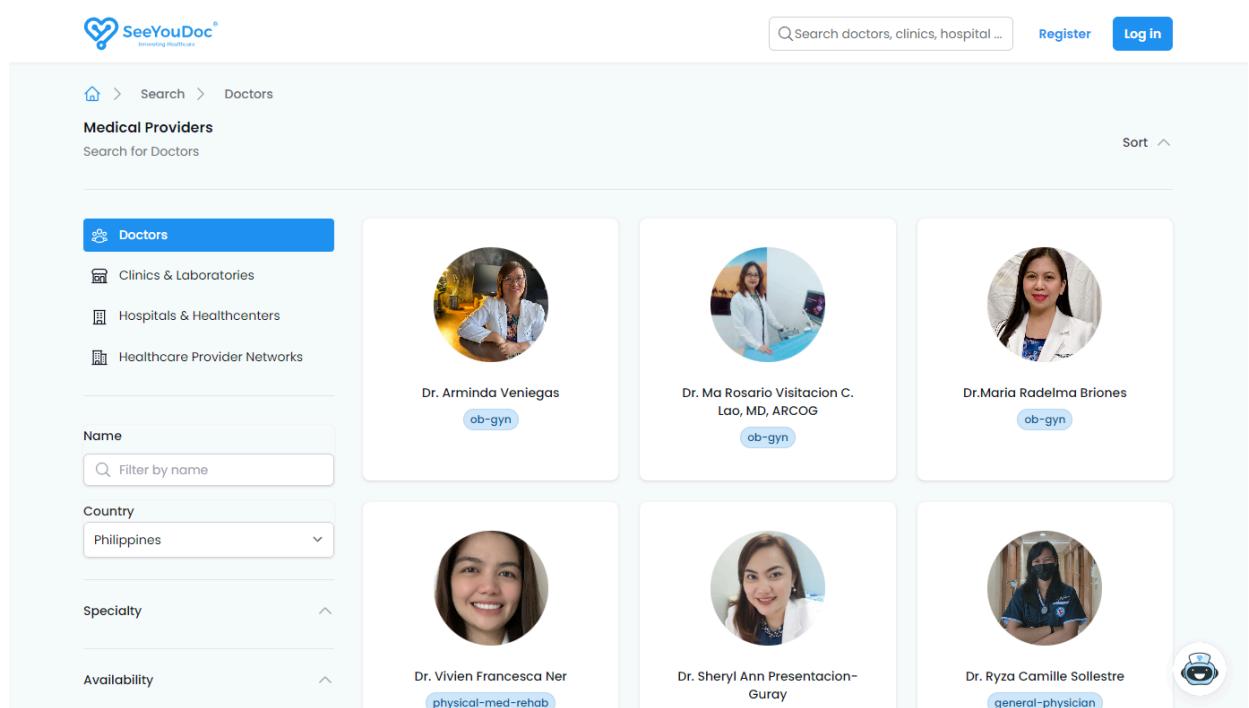
Through comprehensive research and systematic development, this study endeavors to provide an innovative solution that optimizes clinic operations and enhances the patient experience, contributing to the advancement of healthcare delivery systems.

## Related Literature

This chapter meticulously examines a collection of articles and research papers that researchers have scrutinized to gain a better understanding of the clinic appointment system. These papers are being analyzed for several purposes: firstly, to assess the impact of appointment systems on clinic operations; secondly, to understand the advantages of using appointment systems; and thirdly, to identify the most efficient methods for scheduling appointments in healthcare settings.

### SeeYouDoc

SeeYouDoc is an integrated healthcare platform specializing in providing telemedicine solutions for healthcare providers and a marketplace of healthcare services for patients in the Philippines. SeeYouDoc offers a full suite of solutions for healthcare provider networks, hospitals, clinics, doctors, and patients within a secure and patent-pending proprietary technology. They also offer services in different specialties, including booking appointments. It also allows patients to select healthcare provider networks, hospitals, clinics, and doctors.



**Figure 1:** Screenshot for [seeyoudoc.com](http://seeyoudoc.com)

## **Brain Mind Clinic**

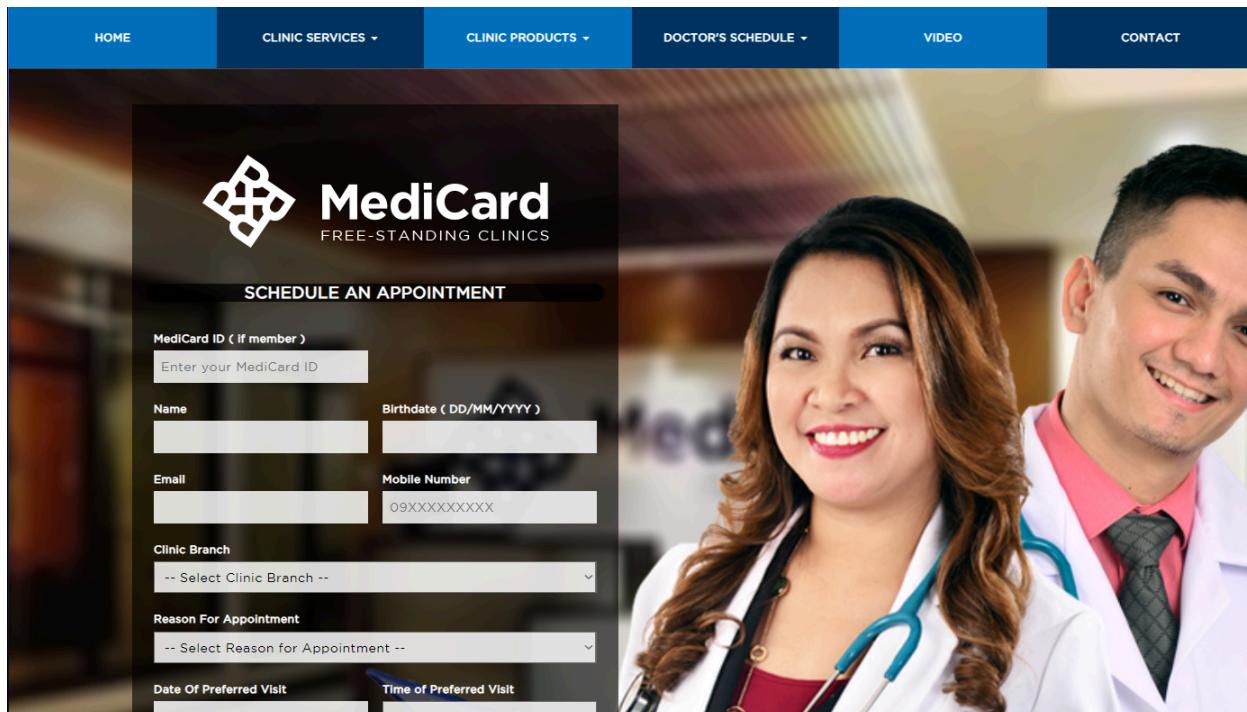
NEUROLOGY AND PSYCHIATRY CONSULTATION SERVICES PHILIPPINES, located within The Medical City, offers specialized neurological and psychiatric consultation services. As part of one of the premiere hospitals in the Philippines, our facility ensures access to quality healthcare with over 1000 physicians covering various specialties. Our Neurologic Services include the Acute Stroke Unit and Neurological Intensive Care Unit (ICU), while our Psychiatric Services cater to mental health needs through the Center for Behavioral Health.



**Figure 2: Screenshot for brainmindclinicph.com**

## **MediCard**

MediCard is a prominent Health Maintenance Organization (HMO) known for its robust healthcare programs tailored to the needs of its members. These programs encompass a wide range of services, including emergency care, hospitalization, preventive healthcare measures, dental services, and outpatient consultations. Additionally, MediCard operates 17 free-standing clinics strategically located across various regions. These clinics offer comprehensive healthcare services comparable to those provided by hospitals, with the exception of inpatient confinement.



**Figure 3:** [fsc.medicardphils.com](http://fsc.medicardphils.com)

## Shinagawa Diagnostic & Preventive Care

Shinagawa Diagnostic & Preventive Care Center is the first and only medical facility in the Philippines offering Japanese-standard medical check-up services with advanced screening, and diagnostic imaging for early detection and prevention of diseases. This website offers services that are categorized in Health Packages, Specialized Care, Individual Services, Corporate Health Solutions. It also has features to book appointments in different services and also has a portal for patient to view their appointments booked.

The screenshot shows the website's header with contact information (Landline: +632 7368-5241, Globe: +63 917-864-6762, Smart: +63 962-067-3669) and clinic hours (Monday - Saturday, 7:30 AM to 5:00 PM). The main navigation menu includes About Us, Our Services, Promos, HealthHub, Book Appointment, Patient Portal, and Contact Us. A large banner image of a modern medical facility lobby is displayed. Below the banner, the section title "INDIVIDUAL SERVICES" is prominently shown in blue. A sub-section titled "Allergy" lists various test options: Adult – Asthma Rhinitis Panel Allergy Test, Group – Food/Gastro Panel Allergy Test, Pediatric – Eczema Panel Allergy Test; Adult – Eczema Panel Allergy Test, Pediatric – Asthma Panel Allergy Test, Pediatric – Rhinitis Panel Allergy Test; and Group – Aero Panel Allergy Test. Another section titled "Anemia" lists Ferritin, Total Iron Binding Capacity (TIBC), Vitamin B12; Iron, Transferrin, Vitamin D deficiency test. At the bottom right, there is a live chat window with a message: "We're offline Please leave a message" and a small icon.

**Figure 4:** Screenshot for shinagawa-healthcare.ph

## COMPARATIVE MATRIX

The Comparative Matrix is a tool designed to evaluate various facets of research and existing systems that are similar. It allows for a comparison and calculation of percentages based on the number of features offered by competing systems. It examines specific characteristics that may or may not be present in other competitors. A list of relevant research is compiled based on the attributes of the system.

<b>Features</b>	SeeYouDoc	Brain Mind Clinic	MediCard	Shinagawa Diagnostic & Preventive Care	Clinic Appointment System	<b>Total %</b>
Registration	✓		✓	✓	✓	80%
Approval For Doctors	✓				✓	40%
Calendar View for booked Appointments			✓	✓	✓	60%
Biographical information for each doctor	✓	✓	✓	✓	✓	100%

Facilitating appointment bookings, with the option to select preferred doctors.	✓				✓	40%
Presenting available doctors based on specified categories.	✓	✓	✓	✓	✓	100%
Patients Monitor				✓	✓	40%
Total %	71.43%	28.57%	57.14%	71.43%	100%	

**Figure 5: Evolutionary Model**

## Program Workflow

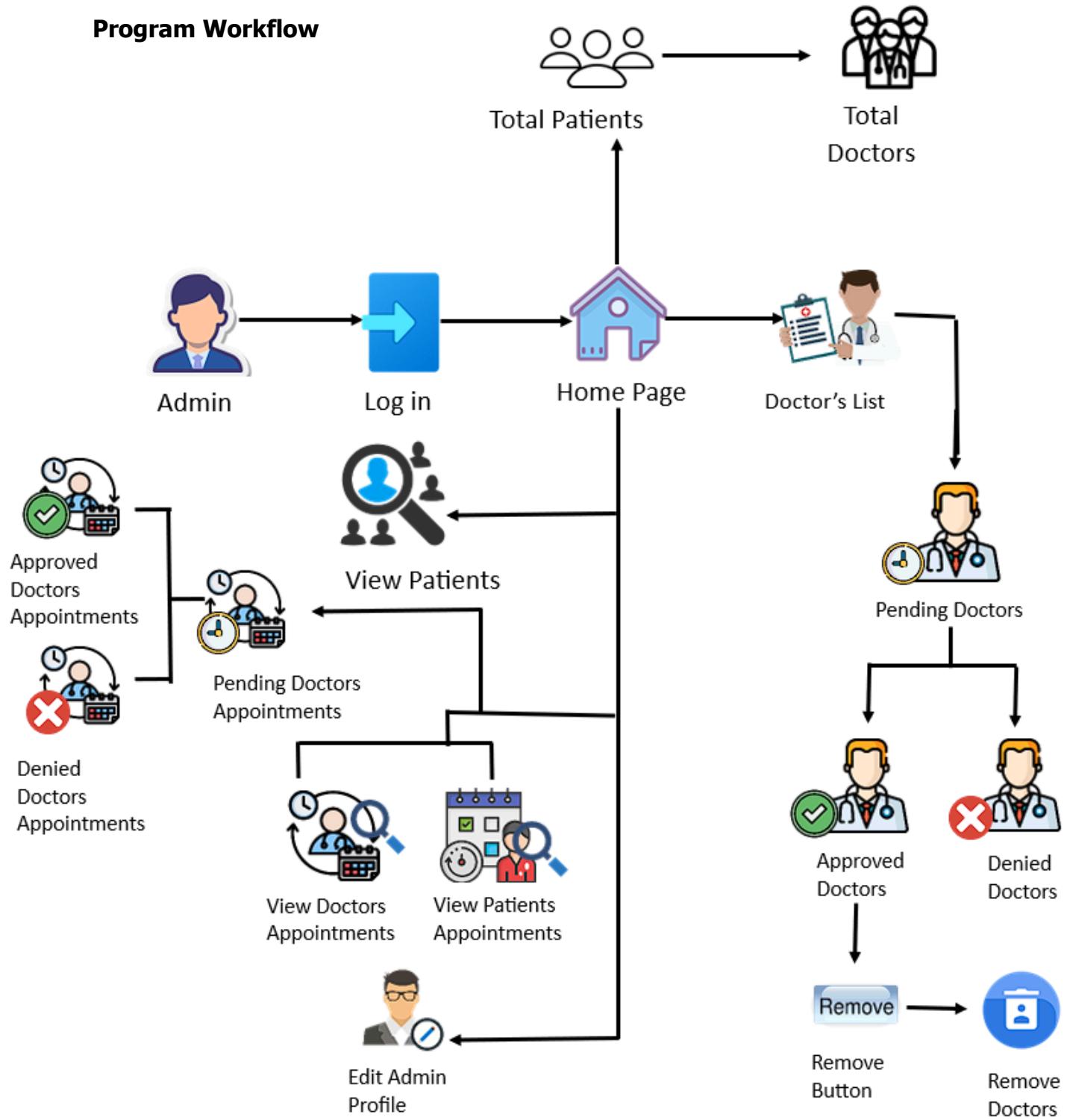
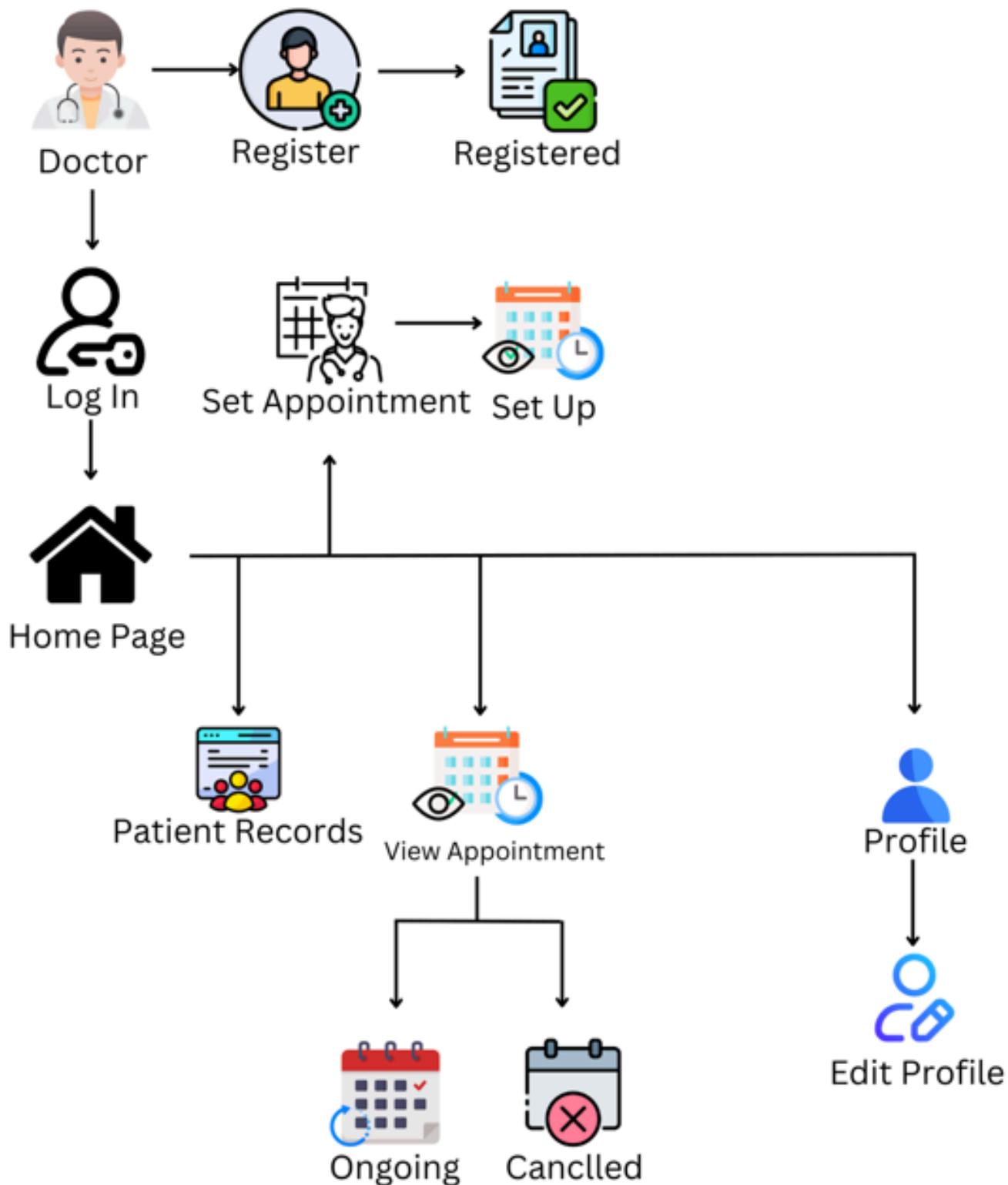
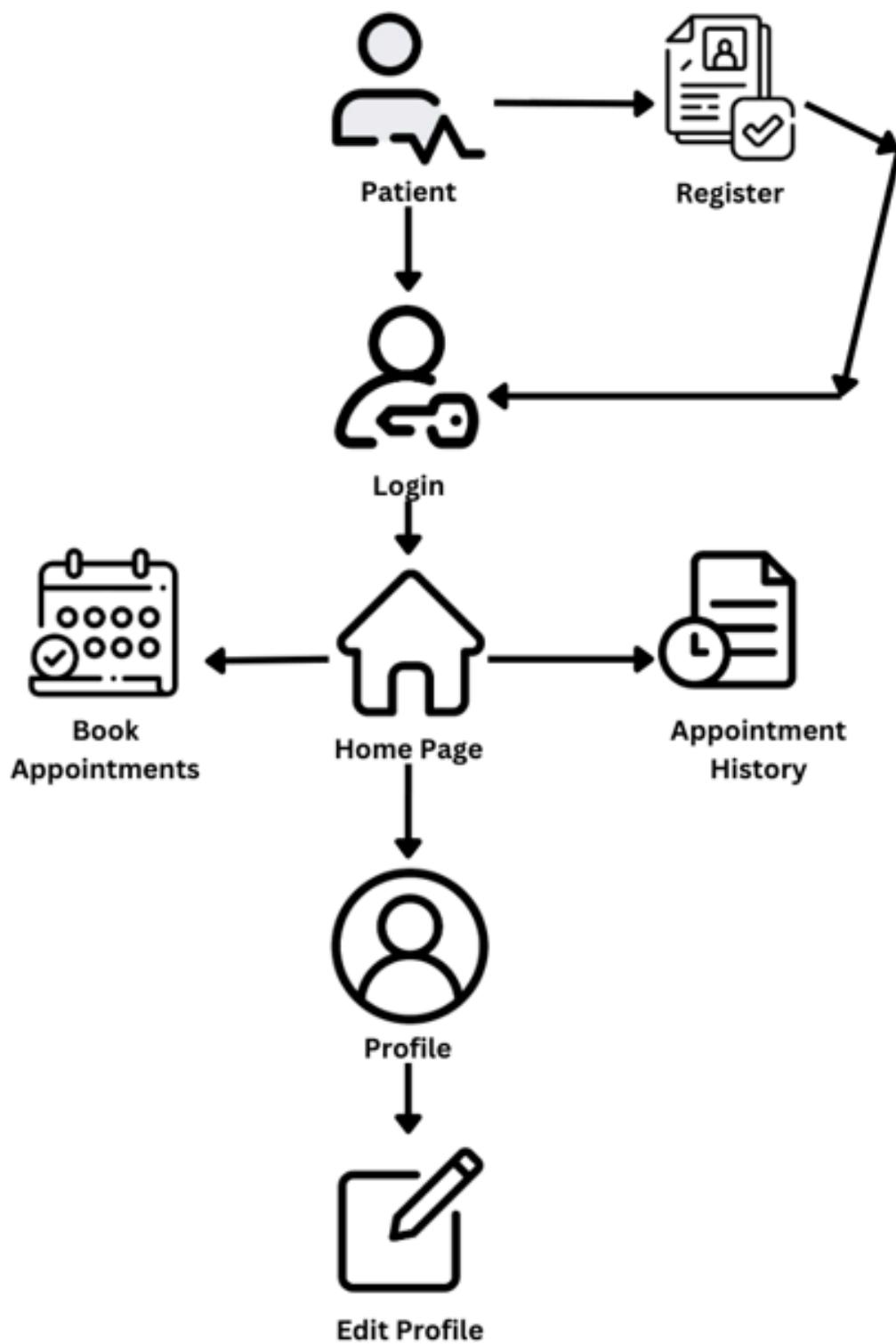


Figure 6: Program Workflow for Admin

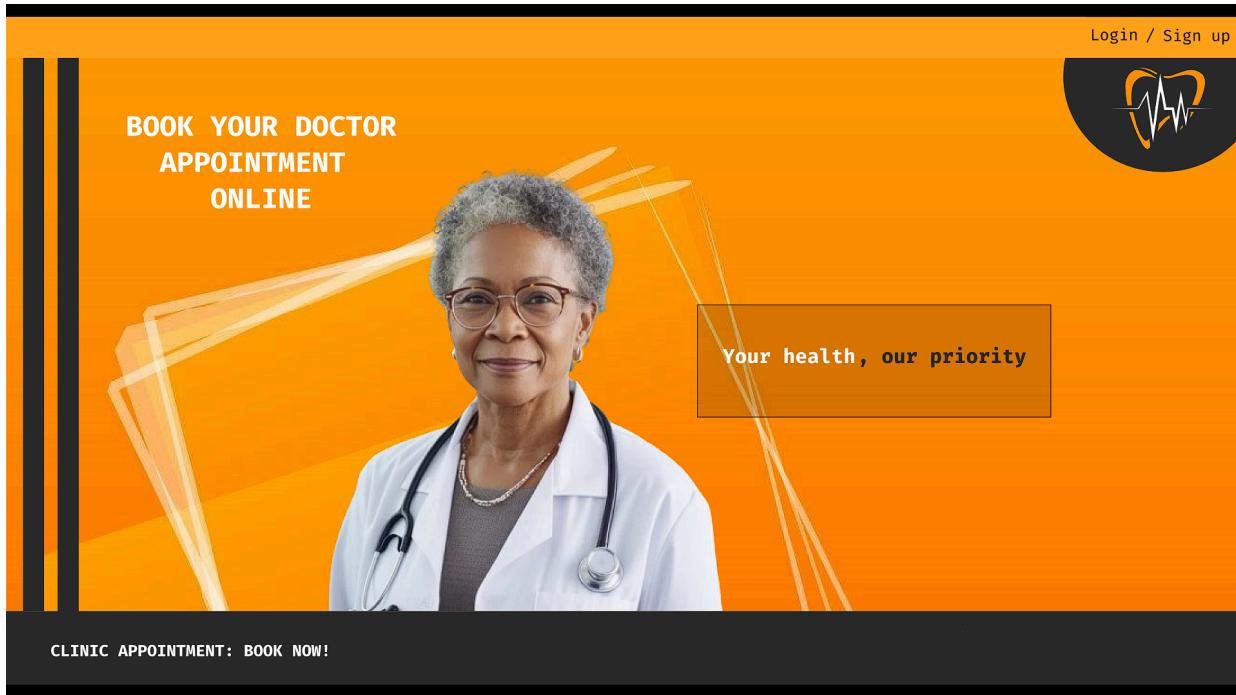


**Figure 7: Program Workflow for Doctor**



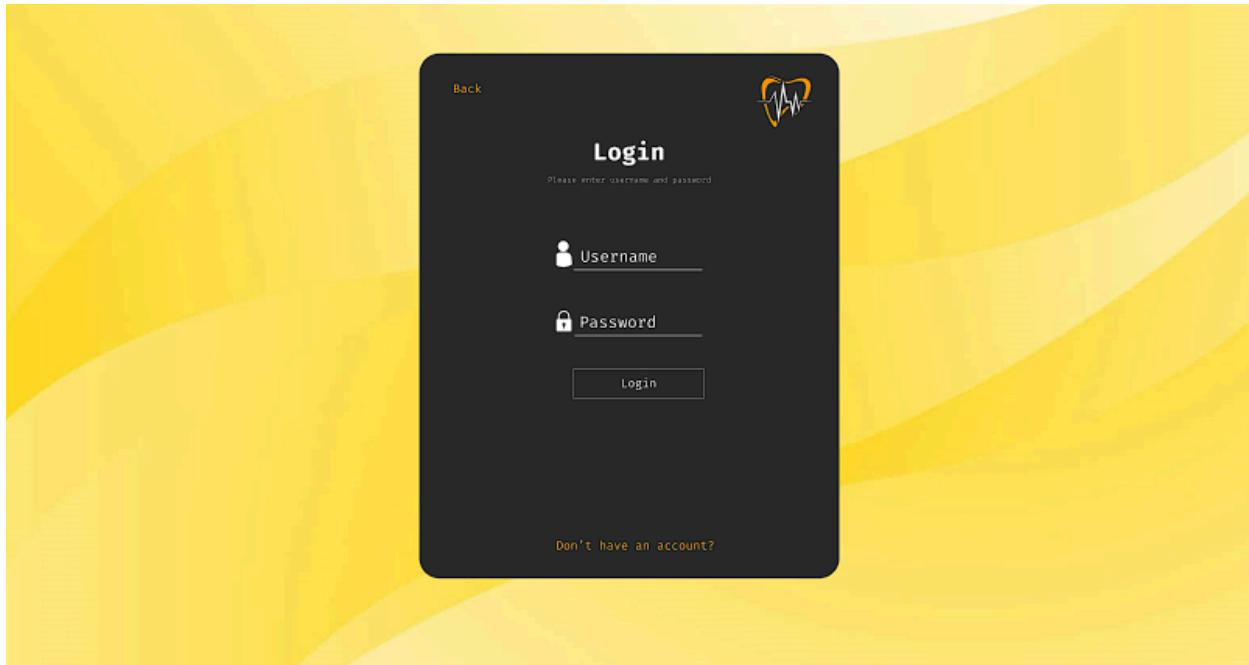
**Figure 8: Program Workflow for Patient**

## Prototype



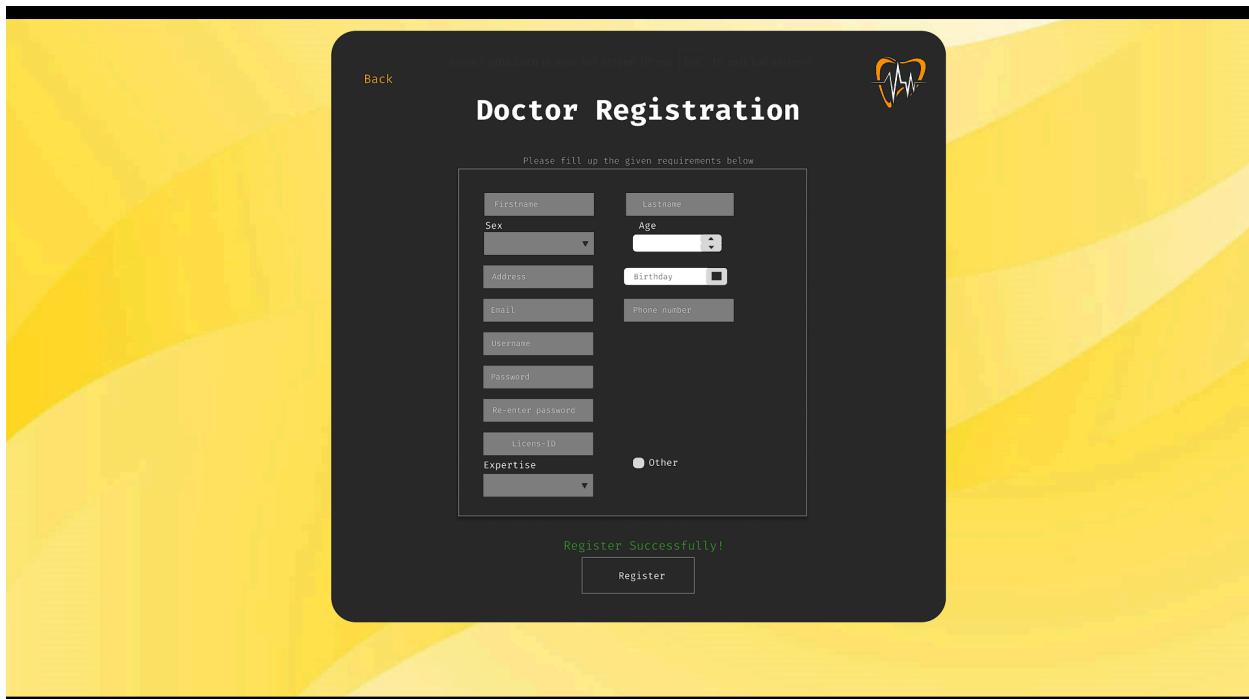
**Figure 9: Main Page**

Figure 9: This is the primary interface that all users (Admin, Doctor, and Patient) will encounter upon accessing the system. It serves as the entry point where users can either log into their existing accounts or create a new account. The page is designed to be intuitive and user-friendly, ensuring a seamless experience for all types of users.



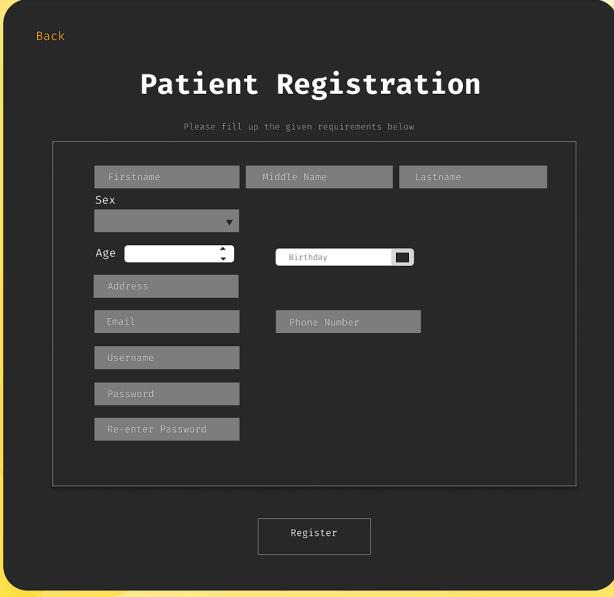
**Figure 10: Login**

Figure 9: This page serves as the login interface for all users. It displays choice buttons to log into accounts, depending on the type of user.



**Figure 11: Registration for Doctor**

Figure 12: This interface allows new doctors to register and create an account within the system. It collects essential information required for account setup and verification, ensuring that only qualified healthcare professionals can access the system.



The image shows a mobile application interface titled "Patient Registration". At the top left is a "Back" button. The title "Patient Registration" is centered at the top. Below the title is a instruction: "Please fill up the given requirements below". The form consists of several input fields arranged in a grid:

Firstname	Middle Name	Lastname
Sex		
Age	Birthday	
Address		
Email	Phone Number	
Username		
Password		
Re-enter Password		

At the bottom right of the form is a "Register" button.

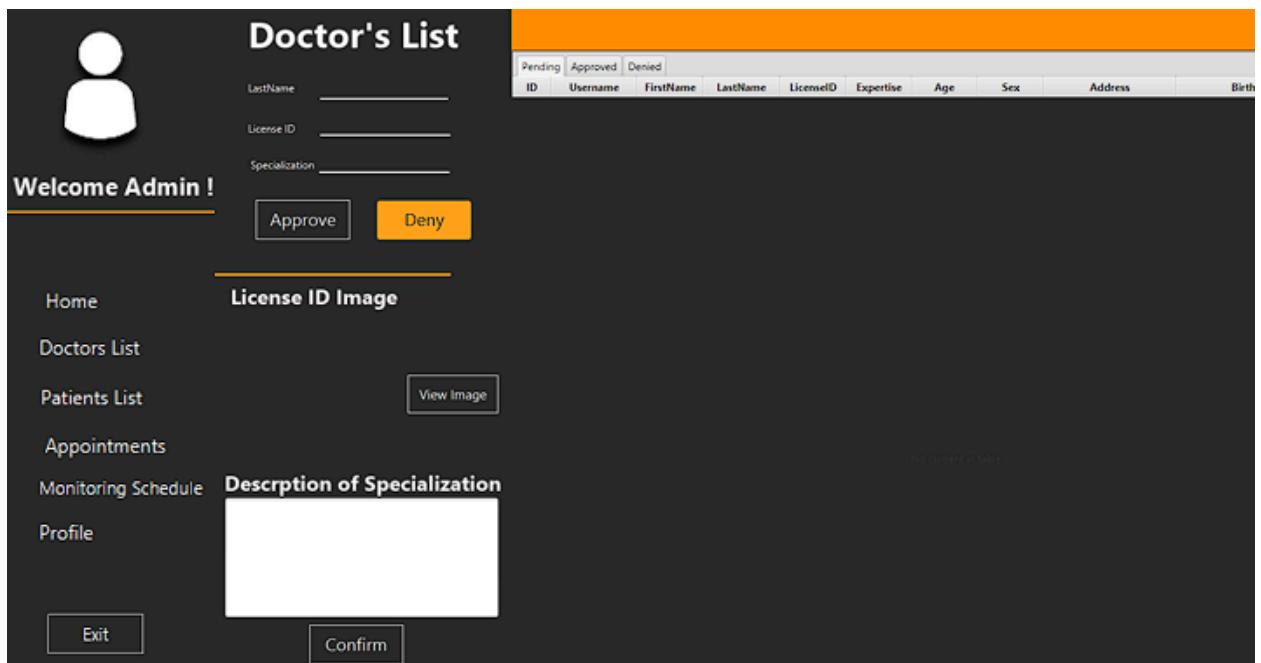
**Figure 12: Registration for Patient**

Figure 14: This interface is designed for new patients who do not have existing records in the system. It allows them to register and create an account, providing essential information.



**Figure 13: Admin Home Page**

Figure 15: This figure shows the main page of the admin note that the admin can log in the doctor and patients' log in interface. It shows the total number approved doctors and total number of patients.



**Figure 14: Show the Doctor's List**

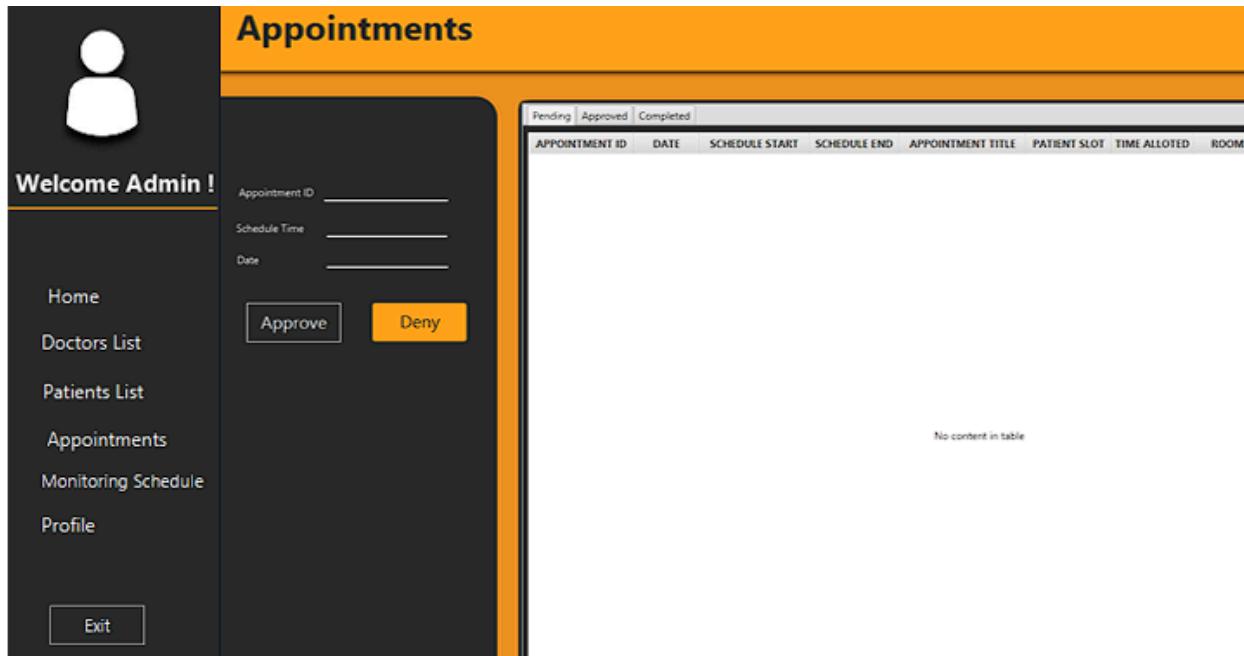
Figure 16: This image showcases one of the features available to administrators. This page serves as a display of the list of registered doctors. Within this feature, administrators can view the lists of doctors categorized as pending, approved, and denied. Administrators also have the capability to approve or deny doctors based on the information presented in a table view.

The screenshot shows a user interface for managing doctors. On the left is a dark sidebar with a user icon at the top, followed by the text "Welcome Admin !". Below this are several menu items: "Home", "Doctors List" (which is currently selected and highlighted in orange), "Patients List", "Appointments", "Monitoring Schedule", and "Profile". At the bottom of the sidebar is a button labeled "Exit". The main content area has a header "Patient List" and a search bar with fields for "Name", "ID", and "Sex". To the right is a table displaying a list of doctors with columns for ID, UserName, FirstName, MiddleName, LastName, Age, Sex, Address, and Birthday. The table contains 10 rows of data.

ID	UserName	FirstName	MiddleName	LastName	Age	Sex	Address	Birthday	
1	asda	asda	Cuadra	sdad	12	male	sada	2024-04-02	
2	Roy123	Roy	Adrian	Cuadra	Rondina	19	Male	Cagon	2004-06-18
3	asda	roy		cuadras	rondina	20	male	sdad	2024-04-03
4	asda	wasd	asda	sda	12	male	sdad	2024-04-04	
5	jayson	Jayson	Limon	Gav	20	Male	Mingila	2024-04-18	
1000	Mark	Ed	Mark	Talingting	18	Male	Lahug Jones	2024-05-07	
1002	enco	John	Lorenzo	Flores	25	Male	Pasil Cebu City	2024-05-23	
1003	gwapo	Jayson	ladores	limosnero	18	Male	Mingila	2005-08-11	
1004	roy	Roy	Adrian	Rondina	19	Male	Daanlungiod	2024-05-09	
1006	roy22	Royy	weee	asadad	19	Male	adad	2005-05-11	

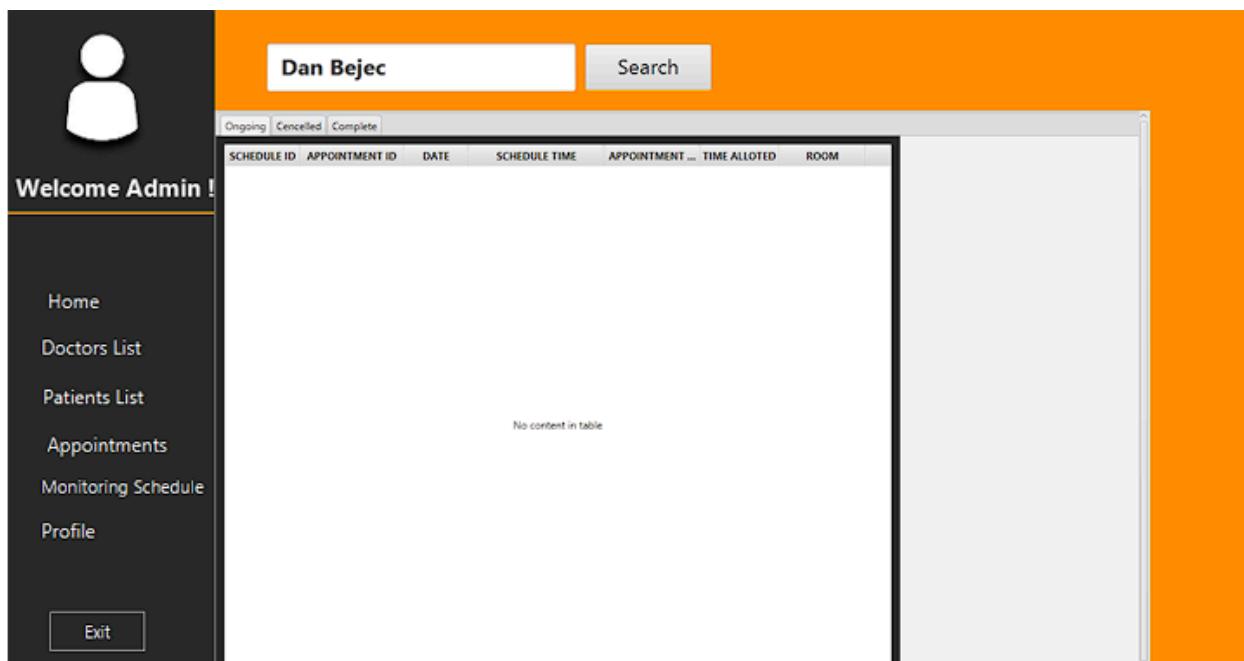
**Figure 15: Show the Patients List**

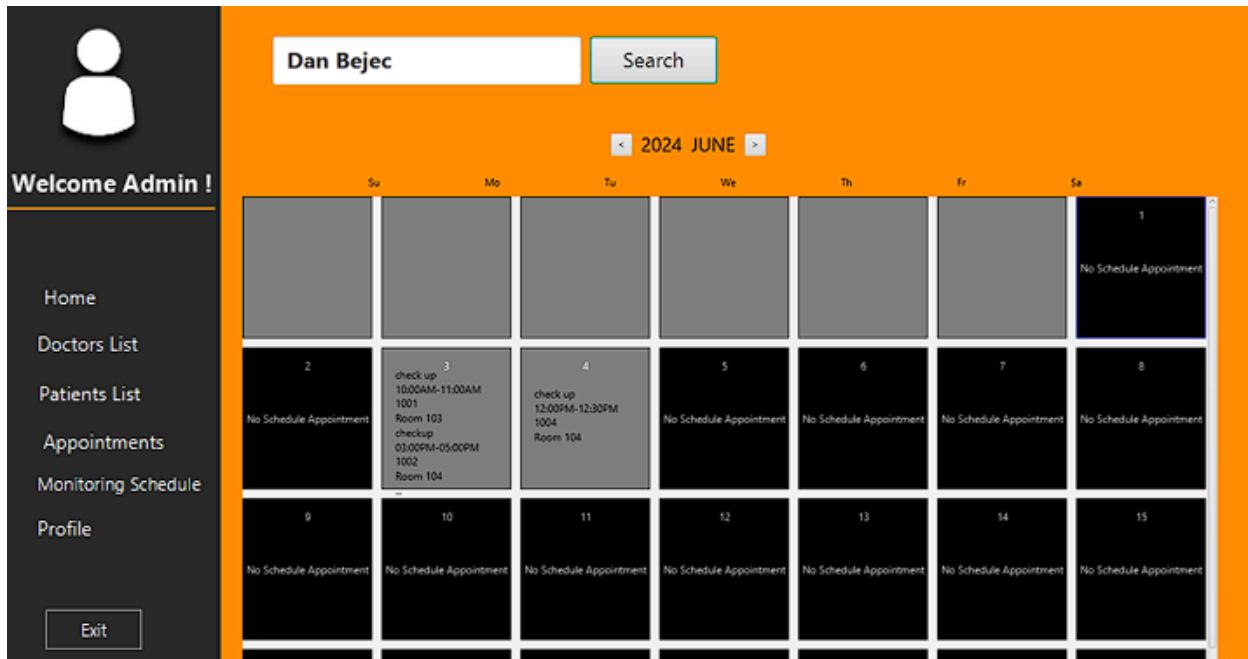
Figure 17: This interface is designed for the administrator to view a list of all registered patients in the system. It provides an overview of patient information, allowing administrators to manage patient records efficiently.



**Figure 16: Admin Approval of Appointments**

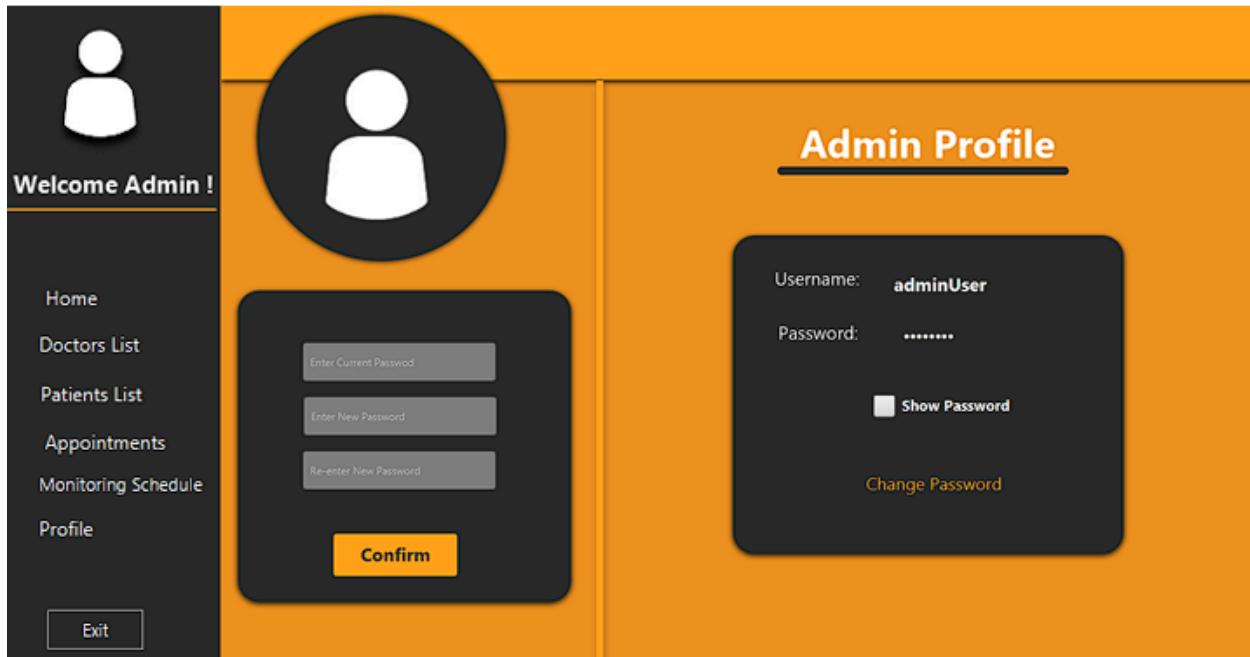
Figure 18: This interface is designed for administrators to review and approve appointments requested by doctors on behalf of patients.





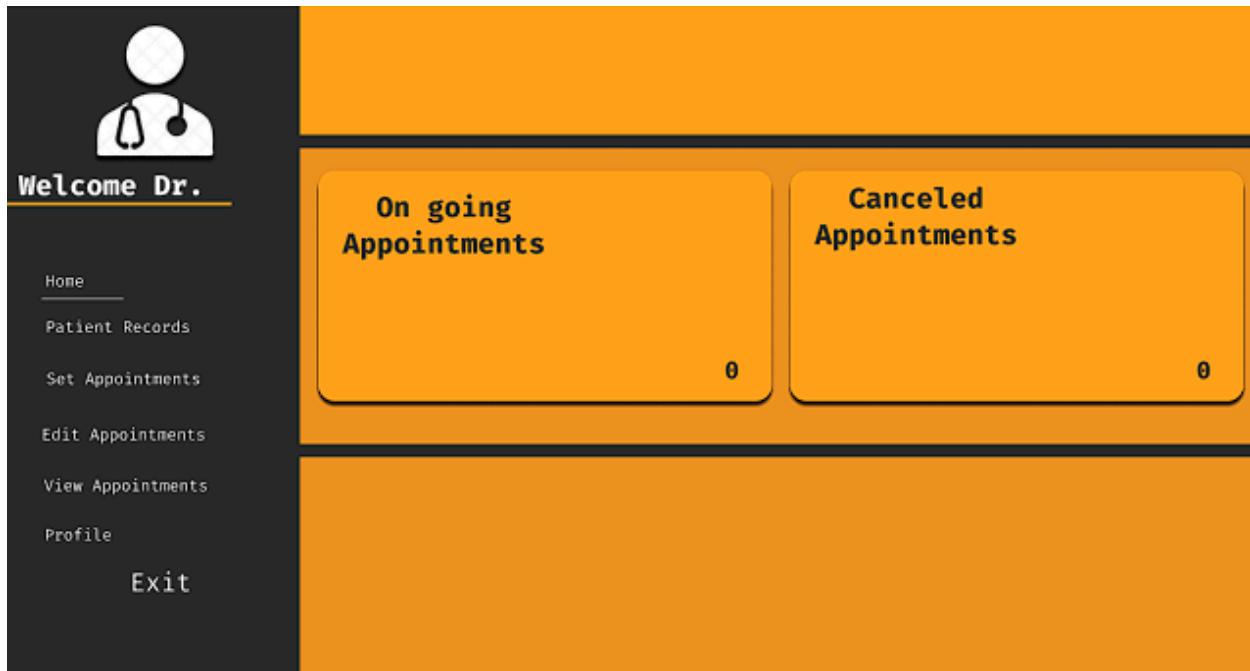
**Figure 17: Monitoring Schedule**

Figure 17: Shows all the appointments and admin can also search for the doctors name and will let the admin see his/her appointments in a calendar.



**Figure 18: Admin Profile**

Figure 19: This figure shows the profile of the admin, specifically the username and password. The admin has the choose to change the password.



**Figure 19: Doctor Dashboard**

Figure 20: This is the dashboard for the doctor, it shows the total on going appointments and also the canceled appointments.

The screenshot shows the 'Appointments' section of the 'CLINIC APPOINTMENT SYSTEM'. On the left, a sidebar lists navigation options: Home, Patient Records, Set Appointments, View Appointments, Edit Schedule, Profile, and Exit. The main area displays a table of appointments with columns: SCHEDULE ID, APPOINTMENT ID, DATE, SCHEDULE TIME, APPOINTMENT TITLE, TIME ALLOTED, ROOM, and PATIENT. The table shows five rows of data. Below the table, a 'Reviews' section contains a scrollable list of patient reviews for a doctor named Ed Talingting.

SCHEDULE ID	APPOINTMENT ID	DATE	SCHEDULE TIME	APPOINTMENT TITLE	TIME ALLOTED	ROOM	PATIENT
1	1005	2024-05-22	01:00AM - 01:30AM	Check Up	30	Room 101	John Flores
3	1005	2024-05-22	02:00AM - 02:30AM	Check Up	30	Room 101	Ed Talingting
5	1005	2024-05-22	01:30AM - 02:00AM	Check Up	30	Room 104	Ed Talingting
80	1011	2024-05-30	08:00AM - 08:30AM	Check Up	30	Room 105	Ed Talingting
41	1012	2024-05-31	08:00AM - 08:30AM	Check Up	30	Room 105	Ed Talingting

Reviews:

- Ed Talingting : clue
- Ed Talingting : clue
- Ed Talingting : "Friendly and approachable."
- Ed Talingting : ed
- Ed Talingting : ed gwapo
- Ed Talingting : This doctor is very good
- Ed Talingting : "Exceptional care and attention."
- Ed Talingting : "Highly knowledgeable and professional."
- Ed Talingting : "Friendly and approachable."
- Ed Talingting : "Exceptional care and attention."

**Figure 20: Patient Records**

Figure 21: This interface is specifically designed for doctors to access patient records of those who have booked appointments with them. They can also see the reason of cancellation of the patient and also their reviews

Welcome Dr.

Home  
Patient Records  
Set Appointments  
Edit Appointments  
View Appointments  
Profile  
Exit

**Set Appointments**

Doctor: \_\_\_\_\_

Appointment ID: \_\_\_\_\_

Appointment Title: \_\_\_\_\_

Days:

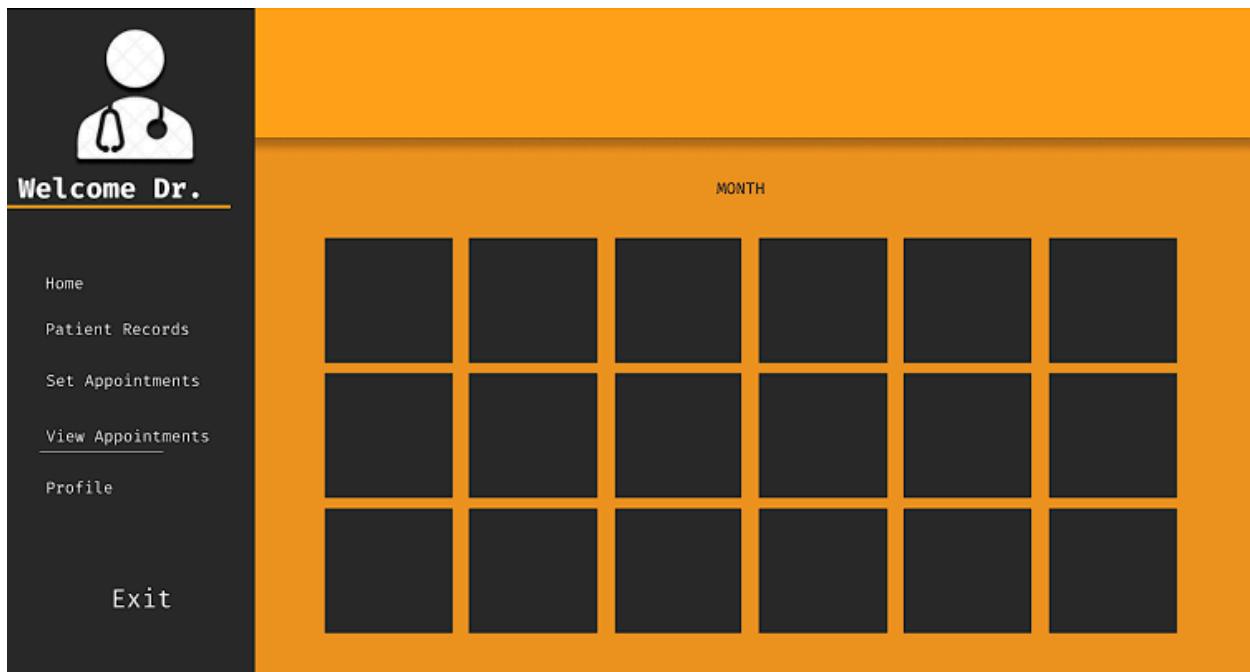
Schedule Starts:

Schedule Ends:

Time Allotted Minutes Per Patient:

**Figure 21: Setting of Appointments**

Figure 22: This interface lets the doctor set an appointment to be approved by the administrator and later on can be book by the patients.



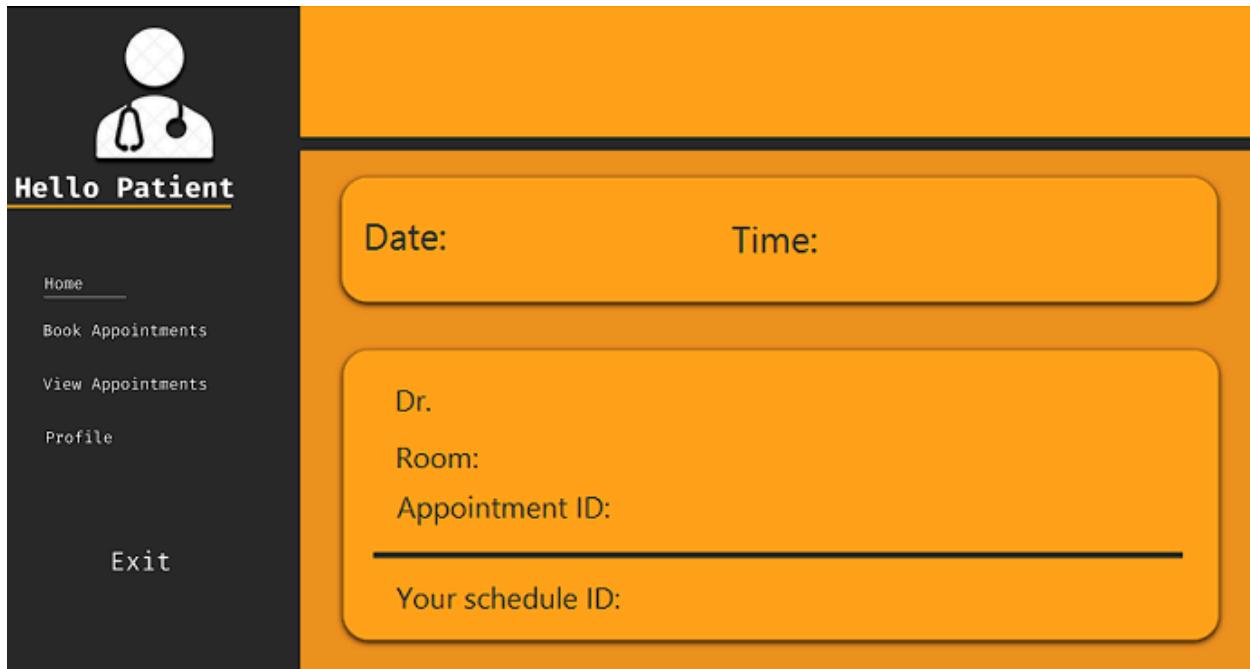
**Figure 22: View Appointments**

Figure 22: This interface is designed to display ongoing and canceled appointments for doctors.



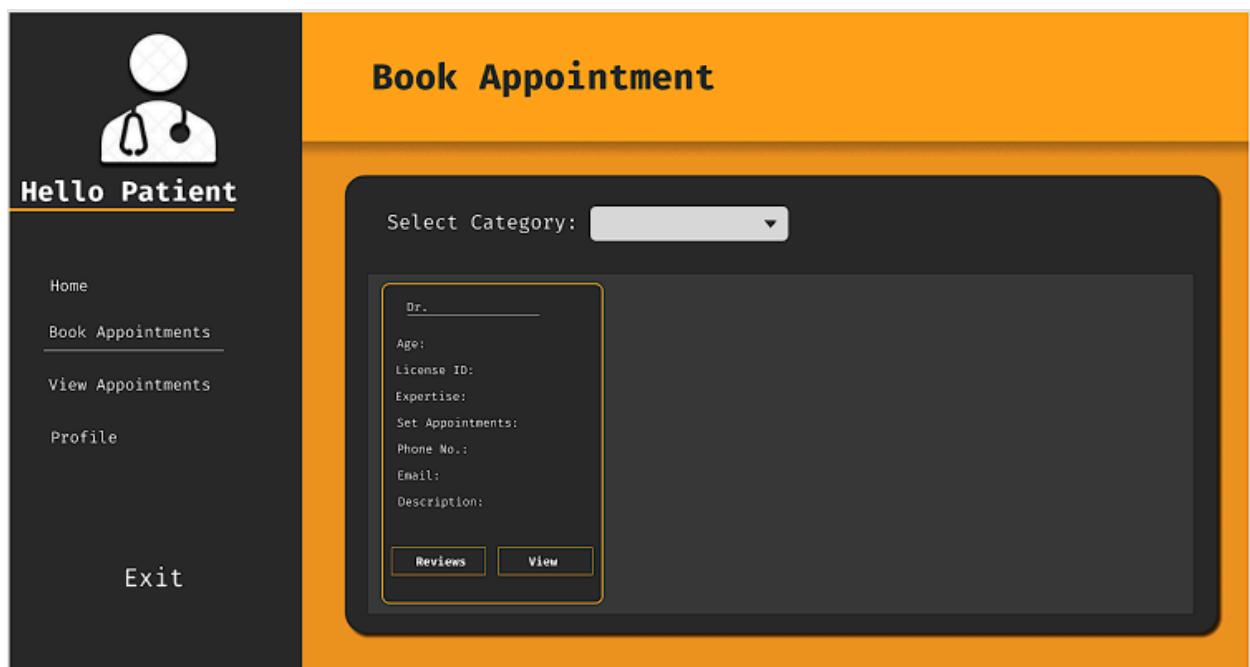
**Figure 23: Doctor Profile**

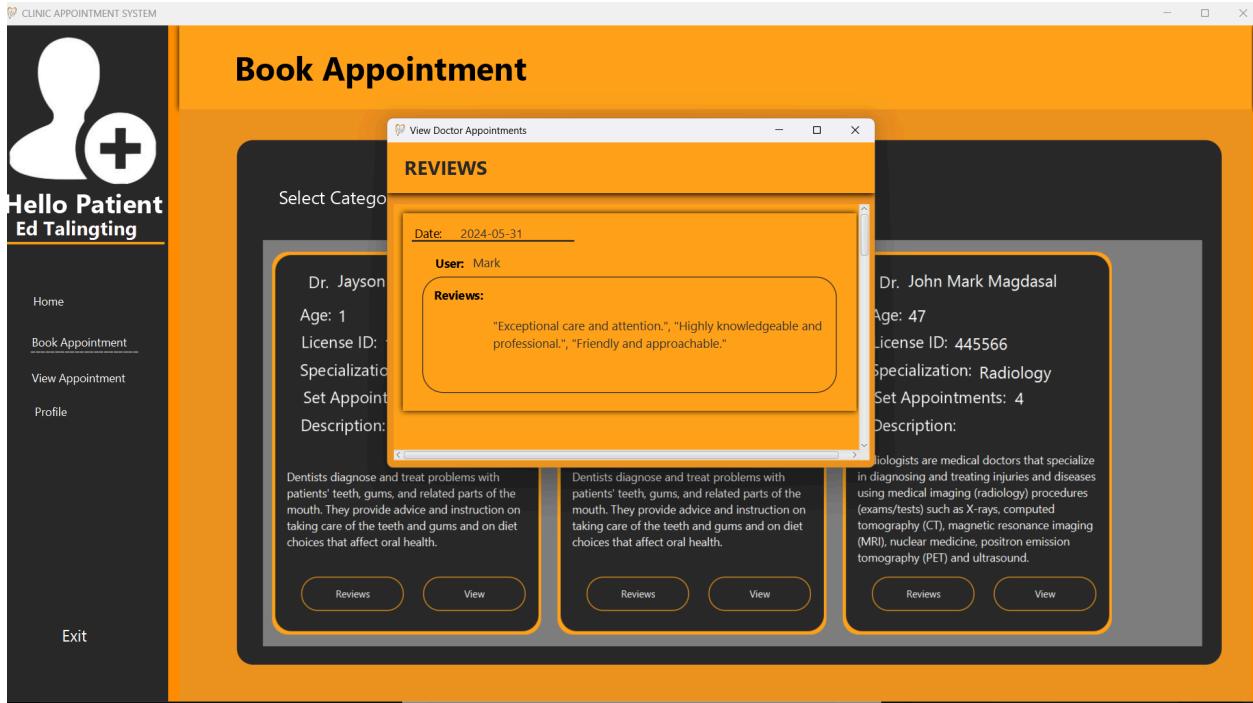
Figure 24: This figure displays the doctor's details, focusing on the doctor's information. The doctor has the option to decide whether they want to change their password.



**Figure 24: Patient Home Page**

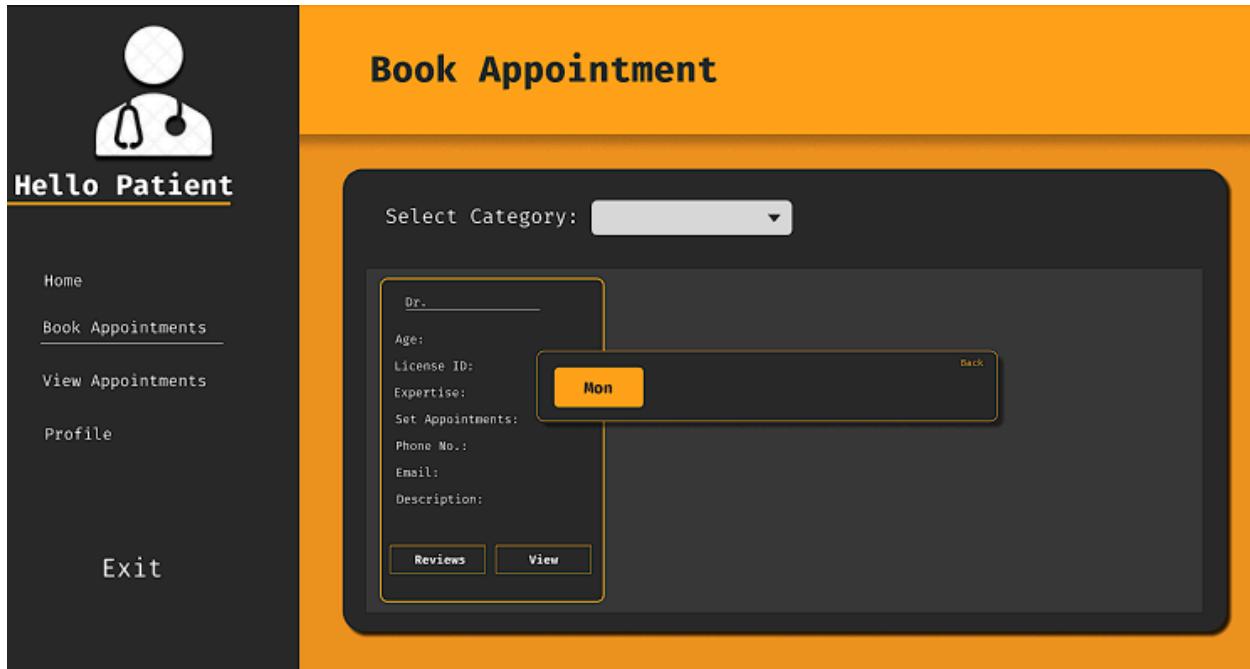
Figure 25: This figure depicts the patient's main page, providing access to view appointments and the assigned doctor for each appointment.





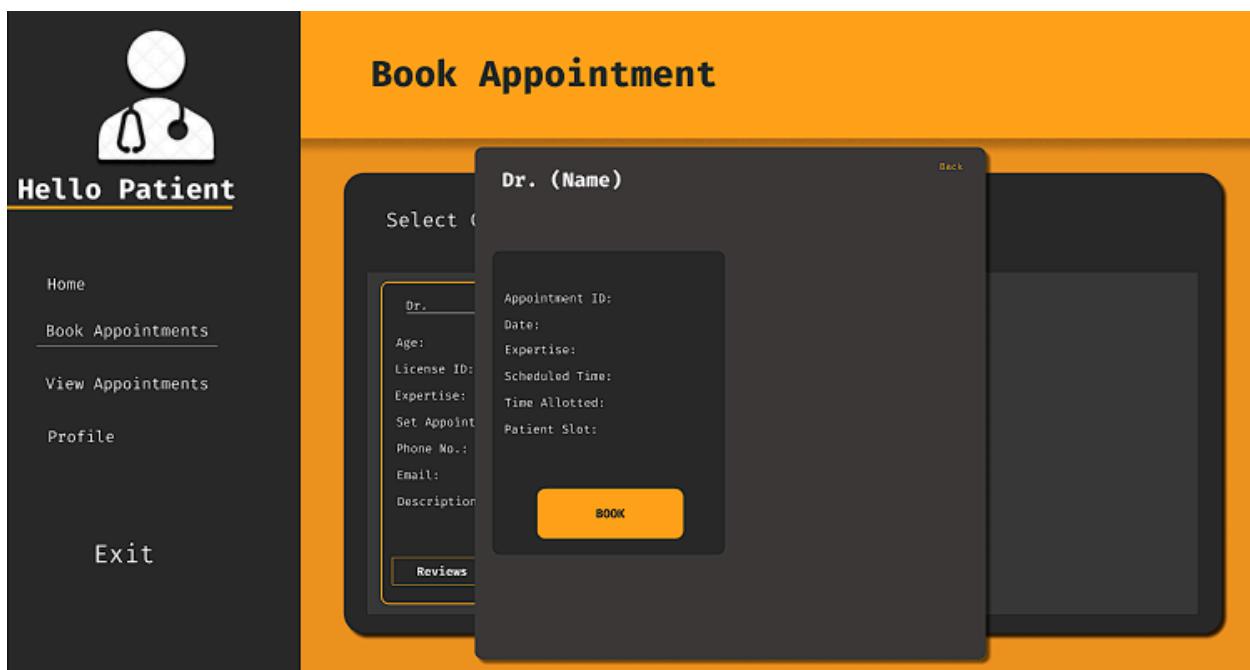
**Figure 25: View Available Doctors & Reviews**

Figure 26: This interface allows patients to browse available doctors, select a preferred physician, and schedule an appointment with ease. They can also see the reviews / comments of the doctor to help them who to choose. Reviews help the patients know that the doctor is good.



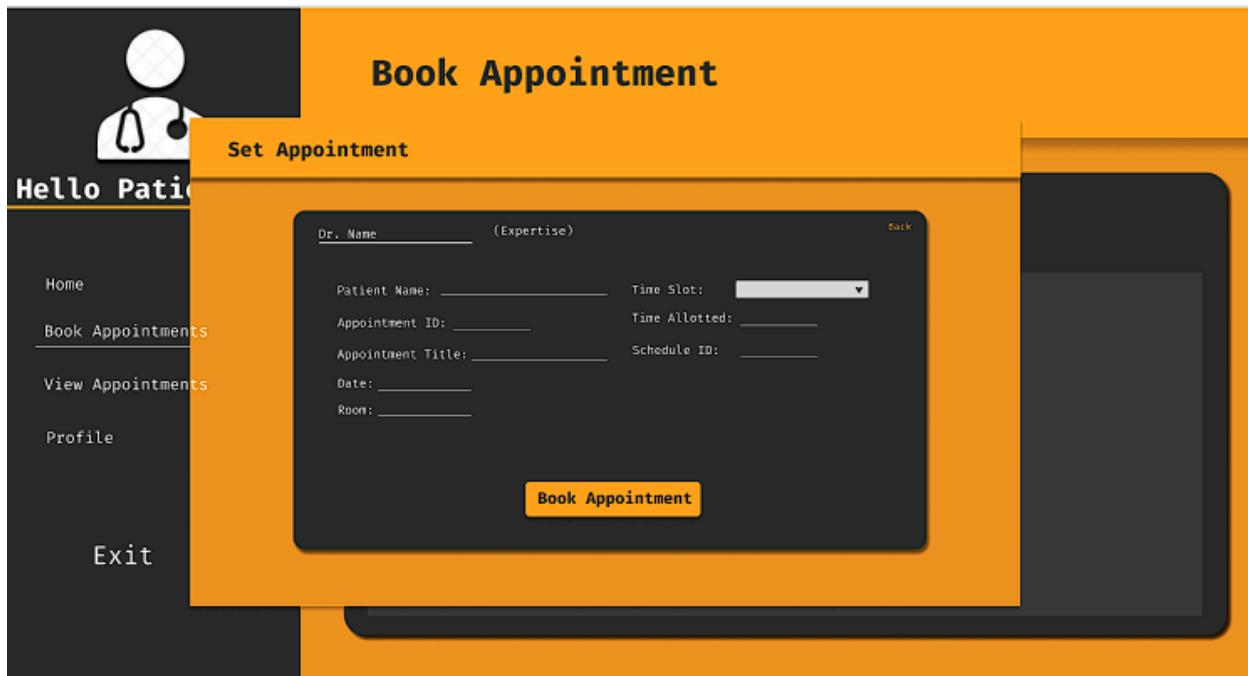
**Figure 26: Choosing the Set Day**

Figure 27: In this section, patients can select the date for their check-up based on the available appointments set by the doctor.



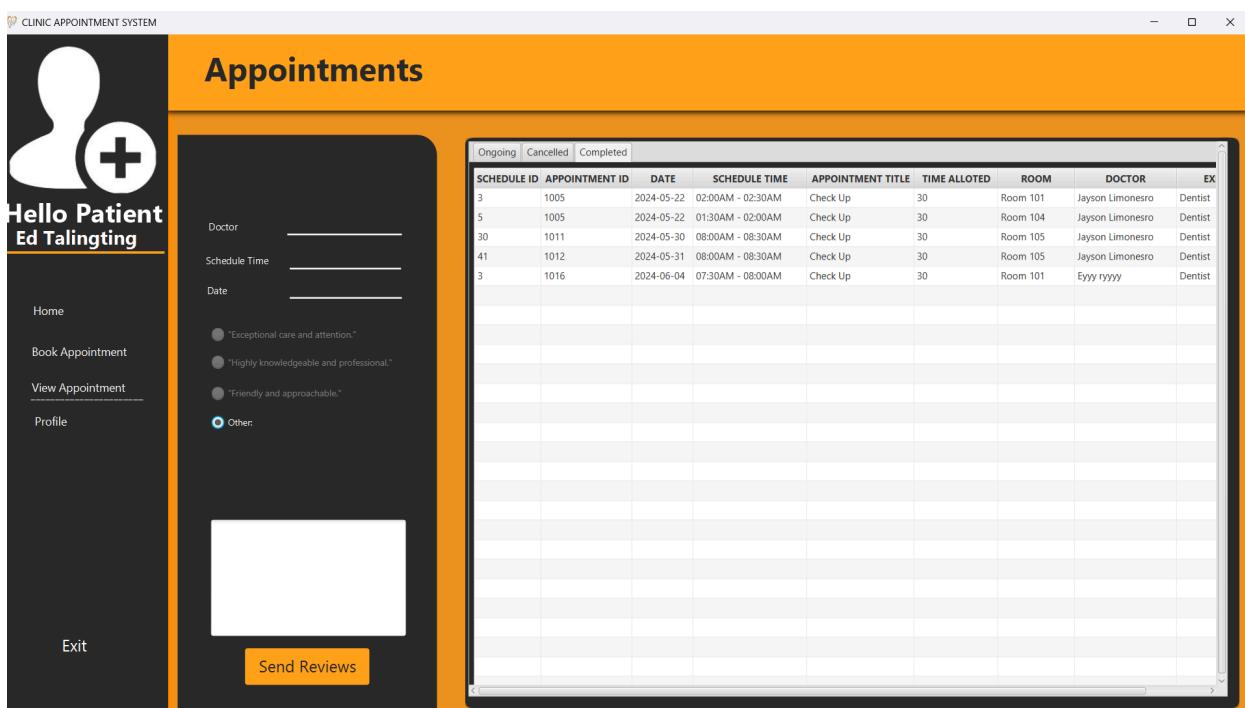
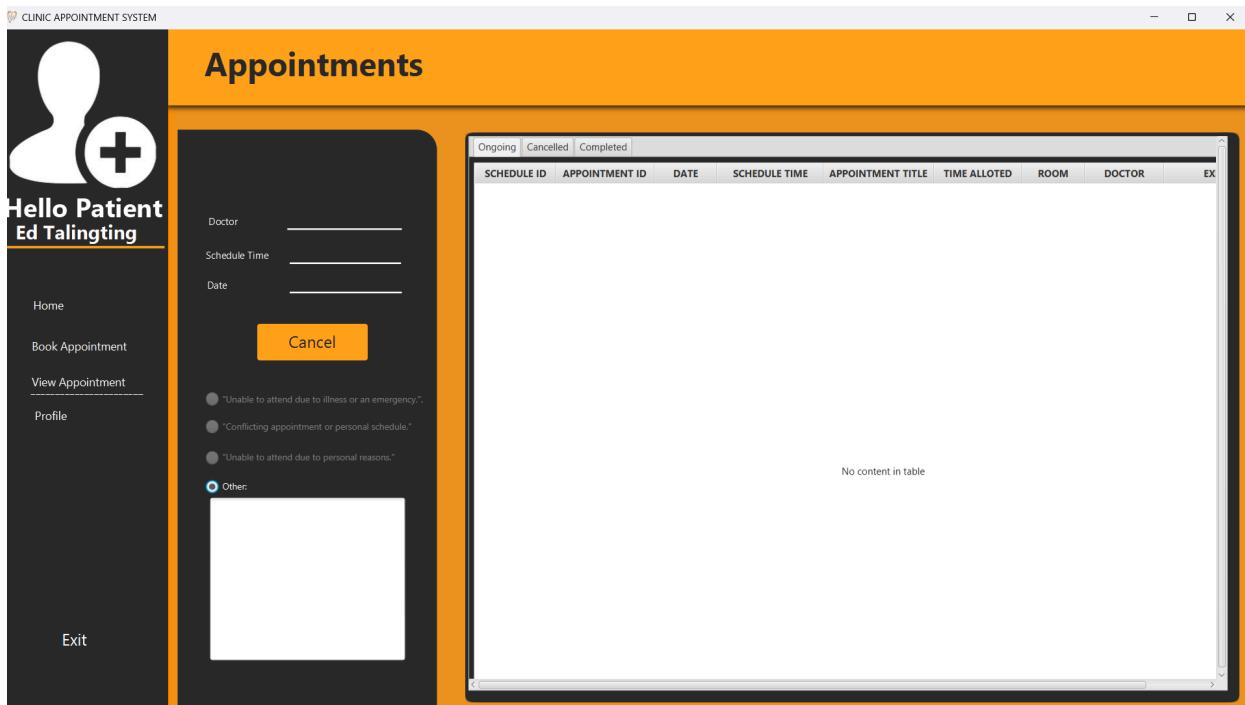
**Figure 27: Confirming the Appointment**

Figure 28: In this step, patients confirm their selected appointment details, including the chosen doctor, date, and time, ensuring everything is correct before finalizing the booking.



**Figure 28: Booking of Appointment**

Figure 29: This section enables patients to finalize their booking, confirming the selected date for their appointment with the chosen doctor.



**Figure 29: View Appointments**

Figure 30: This figure showcases all appointments booked by the patient, presenting crucial details such as date, time, and, whenever feasible, the attending doctor. They

can also give reviews and cancel ahead of time with the given reason, but they cannot cancel within the day of their appointment.



**Figure 30: Patient Profile**

Figure 31: This figure displays the patient's details, focusing on the patient's information. The patient has the option to decide whether they want to change their password.

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