



## **SMART Doctor Tracking Appointment System**

### **SUBMITTED BY:**

GIAN ANDREI B. LERIA

ANNA GEORGINA R. LORENZO

CARLO S. MANGALI

CARA BEATRICE L. ROÑO

LOUISE KATHRENE H. ROQUE

**IT135-8L - BM1**

GROUP - MALTA

### **SUBMITTED TO:**

PROF. GELDOF B. RESUELLO

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## Introduction

The “Smart Doctor Tracking Appointment System” being introduced for doctors, medical clinics, and hospitals would make the booking appointment with the patients easier and develop a better environment for both doctor and patient. The system provides an online appointment booking to avail of the medical services of doctors.

This system is exclusively designed to make the life of doctors easy by keeping track and strictly monitoring their day-to-day tasks and activities of their hectic life. It also contains a booking online for patients who can be accepted, rescheduled, or referred to another specialist by the doctor based on the doctor’s line-up of activities.

This system also aims to offer a “*Patient Booking Appointment System* ” for doctors that would make it easy for patient users in their appointment-scheduling journey and create a better doctor-patient experience. This proposed system can also eliminate confusion about the customary appointment services, especially now that many people are afraid to visit hospitals because of the ongoing pandemic and resort to making online transactions.

The patient upon login will be available to check the available member doctors, search for available appointment schedules, book an appointment, post reviews and manage booking were making payment, and reschedule appointments are the extended functions.

The doctor and admin on the other hand can verify the patient, patient records, appointments, and personal information, update the schedule of doctors, update/control the medical records of patients, set reminders to patients, and update and delete records of patients.

The appointment system was created from PHP, JavaScript, and CSS. To run the system, a virtual server, XAMPP for Windows on our computer. For the test strategies, the test suite was applied for the various functionalities of the patient/doctor and for the admin.

### **Background of the Chosen Company/Organization**



***Figure 1. - Logo of the SMART Doctor Tracking Appointment System***

This Smart Doctor Appointment System is a contemporary appointment reservation service for both doctors and patients and they are the major benefit holders. Easy tracking and strict monitoring of the day-to-day tasks and activities of the doctors can make their life easy based on their busy schedules. It was also created for the main purpose of the Covid-19 pandemic. There is a significant turnaround in how outpatient treatment is delivered in hospitals and clinics brought about by the Covid-19 pandemic. Providers are deferring preventive and discretionary appointments, such as annual physical check-ups and routine check-ups, to reduce the risk of transmitting the virus to patients or healthcare staff within their practice. They are also transforming in-person visits into telemedicine visits whenever possible. Many patients are also hesitant on their visits because they are afraid to leave their homes and risk being exposed. National and government guidelines restricting travel and non-essential services are also controlling the behaviors of both provider and patient. A good appointment management process could be utilized in hospitals and medical clinics covering only the portions

of CAMANAVA. It includes systematic monitoring and control of the doctors' schedule and effective and fast booking of appointments for patients. This system is very essential now, especially for most doctors who are fully occupied with addressing the health concerns of patients. Keeping track of the daily activities, meetings, and appointments of doctors now remains a big challenge for them. The booking of appointments for patients on the other hand can be accepted, given another schedule, or be referred to another specialist depending on their health concerns, degree of urgency for medical attention, and availability of the doctors.

### **Working Link to the Website**

<http://smartdoctor.epizy.com/>

### **Needs Analysis**

Most medical centers and hospitals remain the standard method of scheduling an appointment by attending a doctor to a hospital and clinics. The patient is then required to introduce himself/herself to his/her preferred doctor on the date and time of the appointment. This system is essential because the patients can book quickly and essentially because the system records the doctors' schedules with this system. Most of the doctors' plan is now hectic because of the pandemic, so this system can track and monitor their schedule. Also, the doctors need to manage and know their plans. With that said, the system provides schedule management to help the doctors to arrange their schedules. The customer will have satisfaction with their appointment, and it can reduce the doctors' workloads and chaotic schedules. The patients can also pay online when it comes to their fees in the hospital and doctor, and it can reduce their contact with the people in the hospital, especially with the pandemic ongoing.

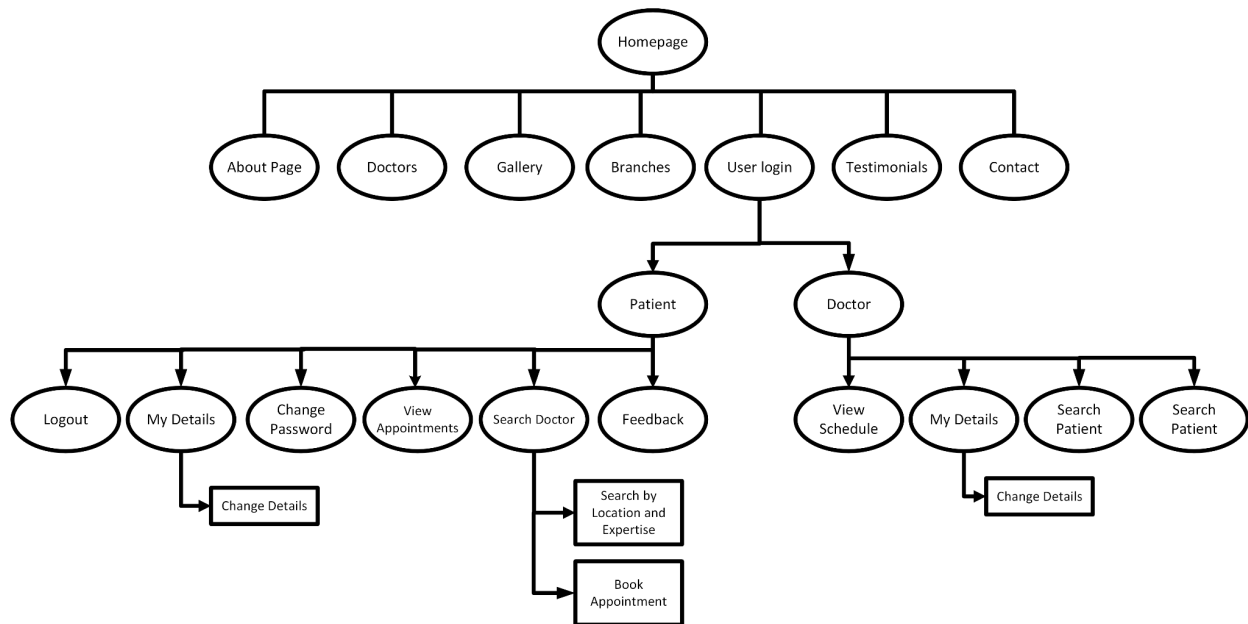
## Project Features

Regular User	
<b>Doctor</b>	<b>Manage Appointments</b> <ul style="list-style-type: none"> <li>- View appointments with patients and their medical information</li> <li>- View appointments booked by patients <ul style="list-style-type: none"> <li>- Doctors can cancel appointments from patients</li> </ul> </li> </ul>
	<b>View Patient Details</b> <ul style="list-style-type: none"> <li>- Doctors can view patient details from the database</li> </ul>
	<b>Check Personal Details</b> <ul style="list-style-type: none"> <li>- Doctors can view and update their personal details</li> </ul>
<b>Patient</b>	<b>Sign up</b> <ul style="list-style-type: none"> <li>- Fill up basic information like name, address, blood type, etc.</li> </ul>
	<b>My Details Page</b> <ul style="list-style-type: none"> <li>- Users can update their information like name, address, blood type, etc.</li> </ul>
	<b>Appointments page</b> <ul style="list-style-type: none"> <li>- View upcoming with their doctor</li> <li>- View profile of their chosen doctor.</li> <li>- Cancel an appointment</li> <li>- View appointment status (either paid or unpaid)</li> </ul>
	<b>Catalog of doctors</b> <ul style="list-style-type: none"> <li>- Patients can choose doctors depending on specific specialty <ul style="list-style-type: none"> <li>- Ex. cardiologist, neurologist, general physician.</li> </ul> </li> <li>- Patients can view doctor profile information including the doctor's location, price range, experience, and time availability.</li> <li>- Patients can book appointments with the doctor and choose an available appointment time.</li> </ul>
	<b>Change Password Page</b> <ul style="list-style-type: none"> <li>- Users can reset their account password</li> </ul>
	<b>Send Feedback</b> <ul style="list-style-type: none"> <li>- Patients can send feedbacks and comments to the admin</li> </ul>

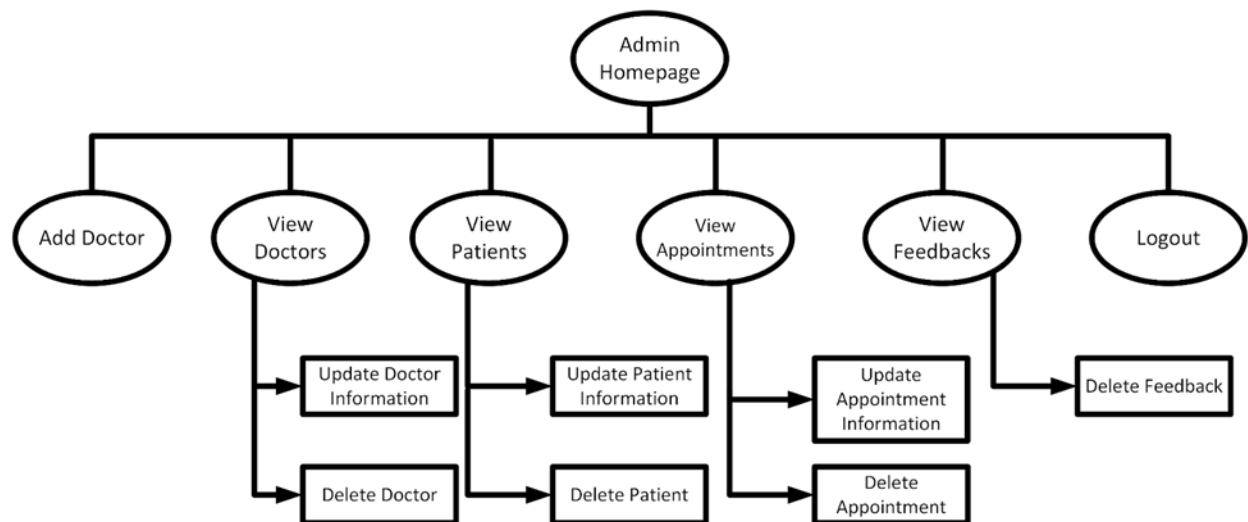
<b>Admin</b>	<b>Add Doctor Page</b> <ul style="list-style-type: none"> <li>- Create a new doctor account and fill up doctor information like name, Contact number, E-mail, Password, hospital, expertise, and fee.</li> </ul>
	<b>View Doctors Page</b> <ul style="list-style-type: none"> <li>- View all the doctor's profile information</li> <li>- Edit and Update doctor profile information</li> <li>- Admin can select a doctor's availability (either active or inactive)</li> <li>- Delete a doctor profile</li> </ul>
	<b>View Patients Page</b> <ul style="list-style-type: none"> <li>- View all the patient's profile information</li> <li>- Edit and Update patient's profile information</li> <li>- Delete a patient's profile</li> </ul>
	<b>View Appointments Page</b> <ul style="list-style-type: none"> <li>- View all appointments</li> <li>- Edit and Update information of an appointment</li> <li>- Delete an appointment</li> </ul>
	<b>View Feedback Page</b> <ul style="list-style-type: none"> <li>- View all patients feedbacks</li> <li>- Delete a patients feedback</li> </ul>

## Database Structure (include ERD)

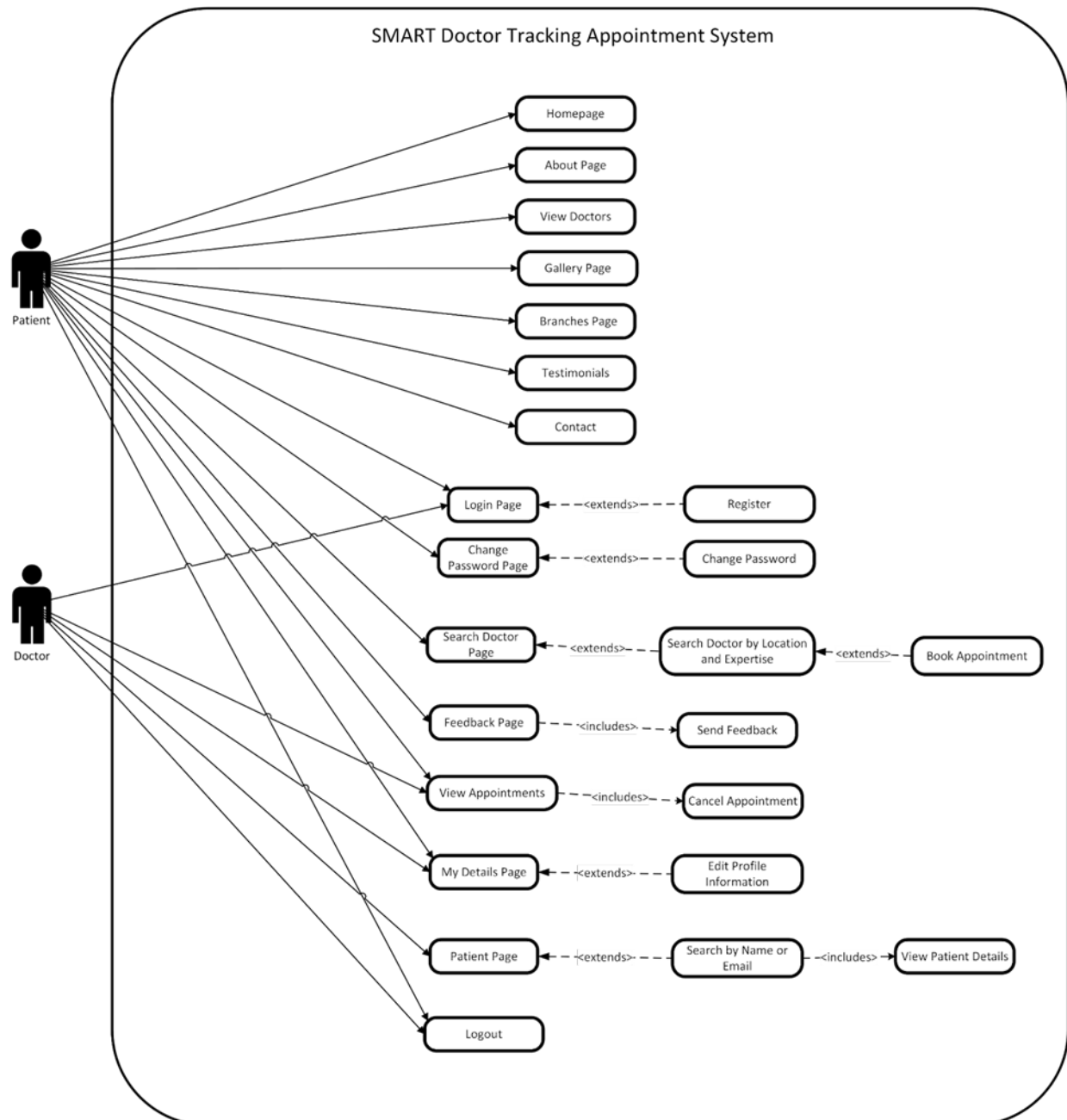
## Site Map



*Figure 2 - Site Map Diagram*

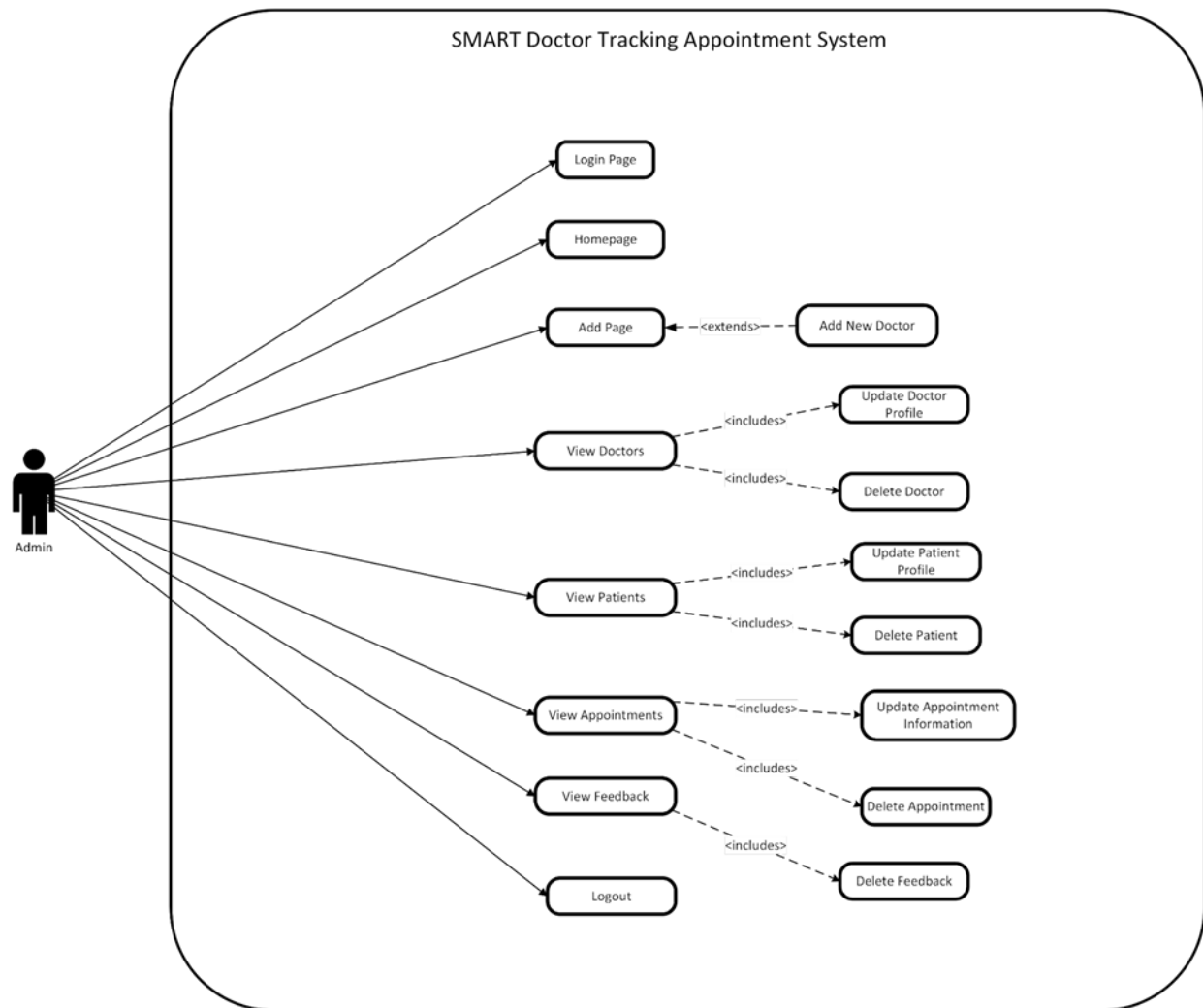


**Figure 3 - Admin Site Map Diagram**



**Figure 4 - Use Case Diagram for Patient and Doctor**





**Figure 5 - Use Case Diagram for Admin**

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/> 1	admin_id	int(11)			No	None		AUTO_INCREMENT	Change  Drop  More
<input type="checkbox"/> 2	admin_email	varchar(200)	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/> 3	admin_password	varchar(100)	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/> 4	admin_name	varchar(200)	utf8_unicode_ci		No	None			Change  Drop  More

**Figure 6 - Structure of Admin\_table**

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/>	1 <b>appointment_id</b>	int(11)			No	None		AUTO_INCREMENT	Change  Drop  More
<input type="checkbox"/>	2 <b>doctor_id</b>	int(11)			No	None			Change  Drop  More
<input type="checkbox"/>	3 <b>reason</b>	mediumtext	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/>	4 <b>appointment_time</b>	varchar(22)	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/>	5 <b>doctor_comment</b>	mediumtext	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/>	6 <b>doctor_name</b>	varchar(22)	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/>	7 <b>doctor_contact</b>	varchar(22)	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/>	8 <b>doctor_expertise</b>	varchar(30)	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/>	9 <b>fee</b>	int(255)			No	None			Change  Drop  More
<input type="checkbox"/>	10 <b>patient_name</b>	varchar(22)	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/>	11 <b>patient_contact</b>	int(30)			No	None			Change  Drop  More
<input type="checkbox"/>	12 <b>patient_address</b>	varchar(22)	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/>	13 <b>patient_email</b>	varchar(111)	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/>	14 <b>payment</b>	varchar(22)	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/>	15 <b>date</b>	date			Yes	NULL			Change  Drop  More
<input type="checkbox"/>	16 <b>doctor_email</b>	varchar(22)	utf8_unicode_ci		No	None			Change  Drop  More

**Figure 7 - Structure of Appointment\_table**

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/>	1 <b>contact_id</b>	int(11)			No	None			Change  Drop  More
<input type="checkbox"/>	2 <b>firstname</b>	int(11)			No	None			Change  Drop  More
<input type="checkbox"/>	3 <b>lastname</b>	int(11)			No	None			Change  Drop  More
<input type="checkbox"/>	4 <b>email</b>	int(11)			No	None			Change  Drop  More
<input type="checkbox"/>	5 <b>comment</b>	varchar(100)	utf8mb4_general_ci		No	None			Change  Drop  More

**Figure 8 - Structure of Contact**

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/> 1	<b>doctor_schedule_id</b>	int(11)			No	None		AUTO_INCREMENT	Change  Drop  More
<input type="checkbox"/> 2	<b>doctor_id</b>	int(11)			No	None			Change  Drop  More
<input type="checkbox"/> 3	<b>doctor_schedule_date</b>	date			No	None			Change  Drop  More
<input type="checkbox"/> 4	<b>doctor_schedule_day</b>	enum('Sunday', 'Monday', 'Tuesday', 'Wednesday', 'Thursday', 'Friday', 'Saturday')	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/> 5	<b>doctor_schedule_start_time</b>	varchar(20)	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/> 6	<b>doctor_schedule_end_time</b>	varchar(20)	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/> 7	<b>average_consulting_time</b>	int(5)			No	None			Change  Drop  More
<input type="checkbox"/> 8	<b>doctor_schedule_status</b>	enum('Active', 'Inactive')	utf8_unicode_ci		No	None			Change  Drop  More

**Figure 8 - Structure of doctor\_schedule\_table**

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/> 1	<b>doctor_id</b>	int(11)			No	None		AUTO_INCREMENT	Change  Drop  More
<input type="checkbox"/> 2	<b>doctor_email</b>	varchar(200)	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/> 3	<b>doctor_password</b>	varchar(100)	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/> 4	<b>doctor_name</b>	varchar(100)	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/> 5	<b>doctor_profile_image</b>	varchar(100)	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/> 6	<b>doctor_phone_no</b>	varchar(30)	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/> 7	<b>doctor_address</b>	mediumtext	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/> 8	<b>doctor_date_of_birth</b>	date			No	None			Change  Drop  More
<input type="checkbox"/> 9	<b>doctor_degree</b>	varchar(200)	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/> 10	<b>doctor_expert_in</b>	varchar(100)	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/> 11	<b>doctor_status</b>	enum('Active', 'Inactive')	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/> 12	<b>doctor_added_on</b>	datetime			No	None			Change  Drop  More
<input type="checkbox"/> 13	<b>doctor_fee</b>	int(255)			No	None			Change  Drop  More

**Figure 9 - Structure of doctor\_table**

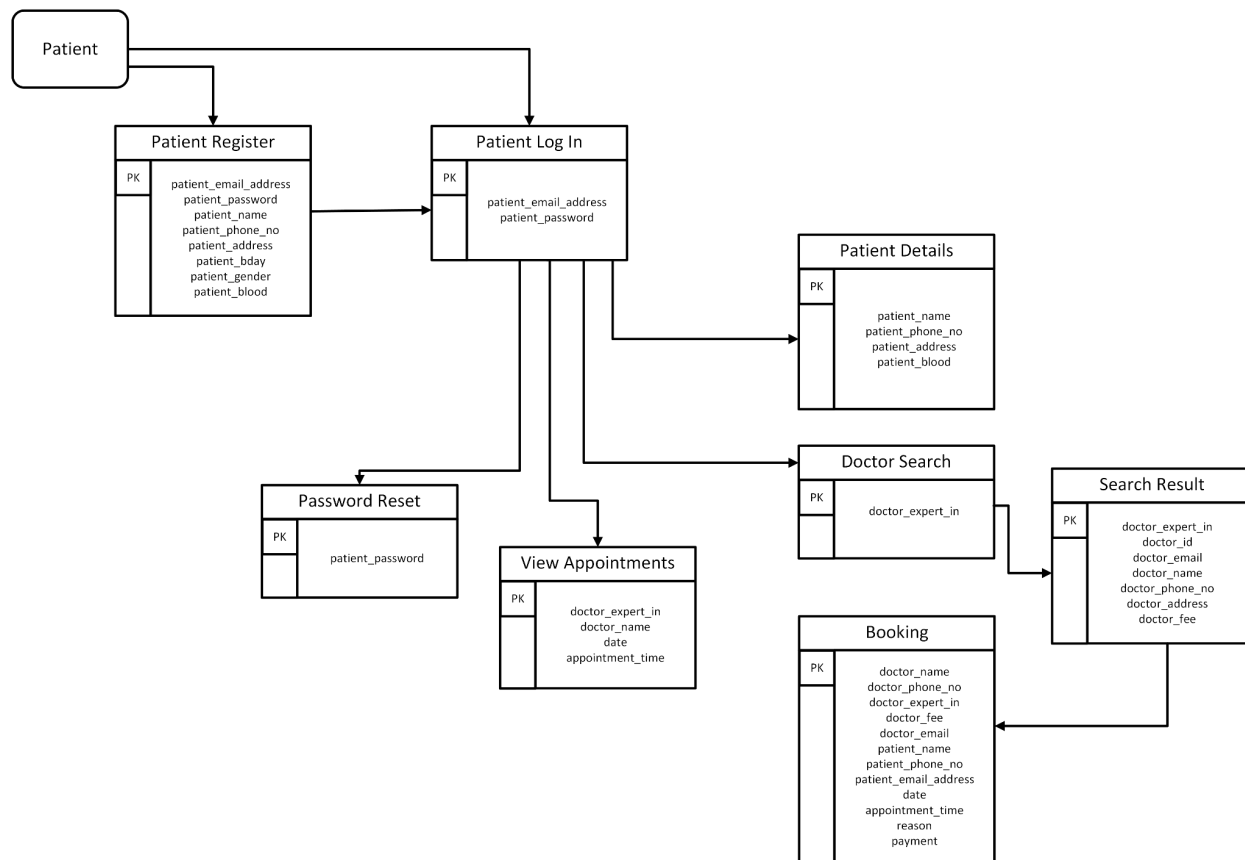
#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/> 1	<b>id</b>	int(11)			No	None			Change  Drop  More
<input type="checkbox"/> 2	<b>email</b>	varchar(22)	utf8mb4_general_ci		No	None			Change  Drop  More
<input type="checkbox"/> 3	<b>feedback</b>	varchar(22)	utf8mb4_general_ci		No	None			Change  Drop  More

**Figure 10 - Structure of Feedback**

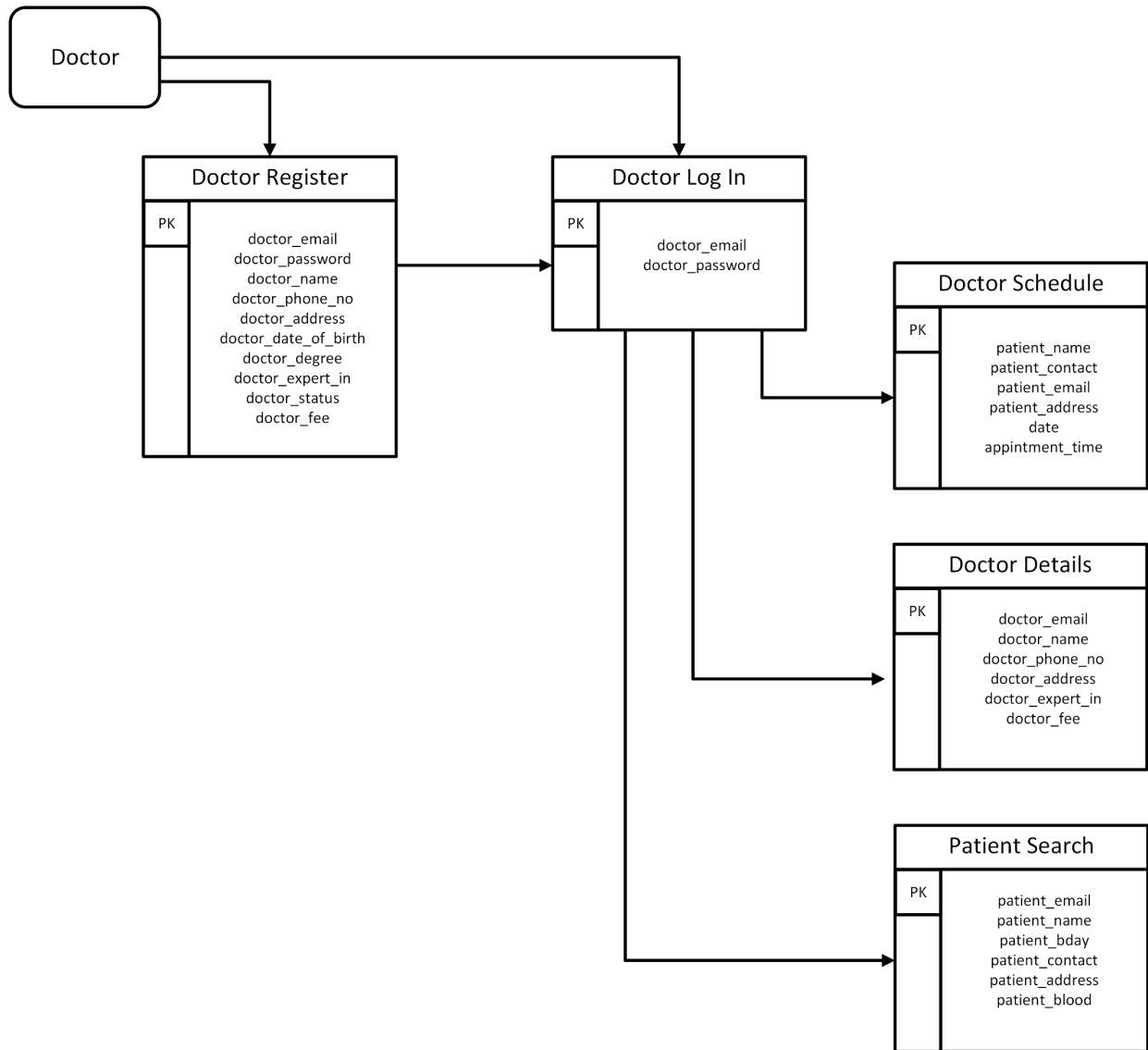
#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/> 1	<b>patient_id</b>	int(11)			No	None		AUTO_INCREMENT	Change  Drop  More
<input type="checkbox"/> 2	<b>patient_email_address</b>	varchar(200)	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/> 3	<b>patient_password</b>	varchar(100)	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/> 4	<b>patient_name</b>	varchar(100)	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/> 5	<b>patient_bday</b>	date			No	None			Change  Drop  More
<input type="checkbox"/> 6	<b>patient_gender</b>	enum('Male', 'Female', 'Other')	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/> 7	<b>patient_address</b>	mediumtext	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/> 8	<b>patient_phone_no</b>	varchar(30)	utf8_unicode_ci		No	None			Change  Drop  More
<input type="checkbox"/> 9	<b>patient_blood</b>	varchar(5)	utf8_unicode_ci		No	None			Change  Drop  More

**Figure 11 - Structure of patient\_table**

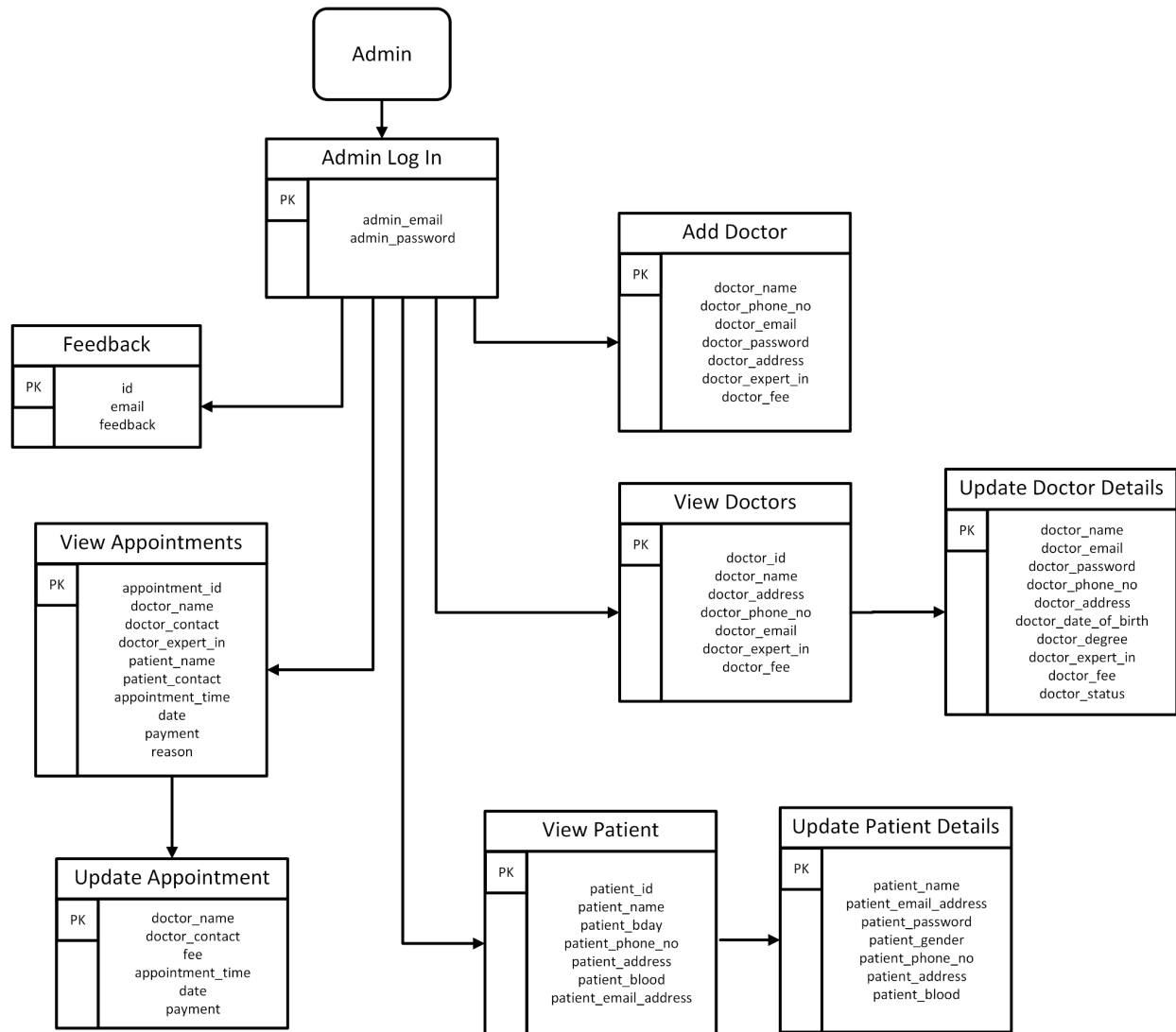
## Database Structures



**Figure 12 - ERD Diagram of patient**



**Figure 13 - ERD Diagram of doctor**



**Figure 14 - ERD Diagram of admin**