Project Name: "Carepoint: Doctor
Appointment System"
Branch PG-DAC Aug-2025

Documentation On
"Carepoint: Doctor Appointment
System**"**

PG-DAC August 2025

Guided By: Bakul Joshi

Submitted By:
Group No: 11

- **Samarth Abak**   **250843020002**
- **Abhijeet Mele**   **250843020003**
- **Digvijay Lohar**   **250843020030**
- **Gaurav Shiromani**   **250843020035**

Table of Contents

1. Introduction

1.1 Document Purpose

This document outlines the business requirements and scope for developing a web-based Doctor Appointment System that integrates User & Access Management, Appointment & Scheduling, and Medical Records services. The objective is to define the features, functionalities, and constraints required to deliver a secure, reliable, and user-friendly doctor appointment application. The scope of this document is to specify the functional and non-functional requirements, along with business rules and system constraints, necessary for the successful implementation of the system.

1.2 Project Background

There is a growing demand for **digital healthcare solutions** that simplify access to medical services and improve patient experience. With increasing dependence on online platforms, patients and healthcare providers seek efficient tools for **doctor discovery, appointment scheduling, and medical record management**. This Doctor Appointment System aims to address these needs by providing a **comprehensive, secure, and user-centric platform** that streamlines healthcare interactions between patients, doctors, and administrators.

1.3 Aim & Objective

The aim of this project is to develop a **user-friendly, web-based Doctor Appointment System** that enables patients to easily connect with healthcare professionals and manage medical interactions efficiently.

- Develop a **secure and user-friendly web-based application**.
- Enable **patient, doctor, and admin registration and login**.
- Allow patients to **search doctors based on specialization and availability**.
- Provide **online appointment booking, rescheduling, and cancellation**.
- Manage **doctor availability and appointment slots** efficiently.
- Maintain **patient appointment history and medical records**.
- Allow doctors to **view appointments and update patient medical records**.
- Ensure **role-based access control** for system security.
- Collect user feedback to enhance system usability.
- Continuously **improve and scale the application** based on user needs.

1.4 Customers and Stakeholders

- **Customers:**
  - Patients seeking **medical consultation and appointment booking** through an online platform.
  - Individuals looking for **easy access to doctors and healthcare services**.
  - Patients who want to **manage appointments and view medical records digitally**.

- **Stakeholders:**
  - **Health Professionals (doctors, specialists, and clinic staff).**

- Hospital, clinics, and healthcare service providers.
- System administrators responsible for managing users and system operations.
- Technology team involved in development, maintenance, and support of the application.

2. Business Requirements Overview

- Target platform: Web Application
- User interface: User-friendly, intuitive, and visually appealing interface.
- Monetization strategy: Freemium model with optional premium features or subscription plans

3. Functional Requirements Overview

1. User Service
2. Appointment & Scheduling Service
3. Medical Record Service

3.1 User Service:

- Supports user roles: **Admin, Patient, and Doctor**.
- Enables secure user registration and login.
- Provides password management (change and forgot password).
- Allows admin to verify and approve doctor accounts.
- Supports activation and deactivation of user accounts.
- Manages user profiles and role-based access control.

3.2 Appointment & Scheduling Service:

- Allows patients to search doctors based on specialization and availability.
- Enables booking, rescheduling, and cancellation of appointments.
- Manages doctor availability and appointment slots.
- Prevents double booking through conflict validation.
- Tracks appointment lifecycle (scheduled, completed, cancelled, rescheduled).
- Allows doctors to accept or reject appointment requests.
- Enables admin to monitor overall appointment activities.

3.3 Medical Records Service:

- Allows doctors to add diagnoses, prescriptions, and medical notes.
- Stores and manages patient medical history securely.
- Enables patients to view diagnoses, prescriptions, and medical reports.
- Supports generation and viewing of medical reports by doctors.
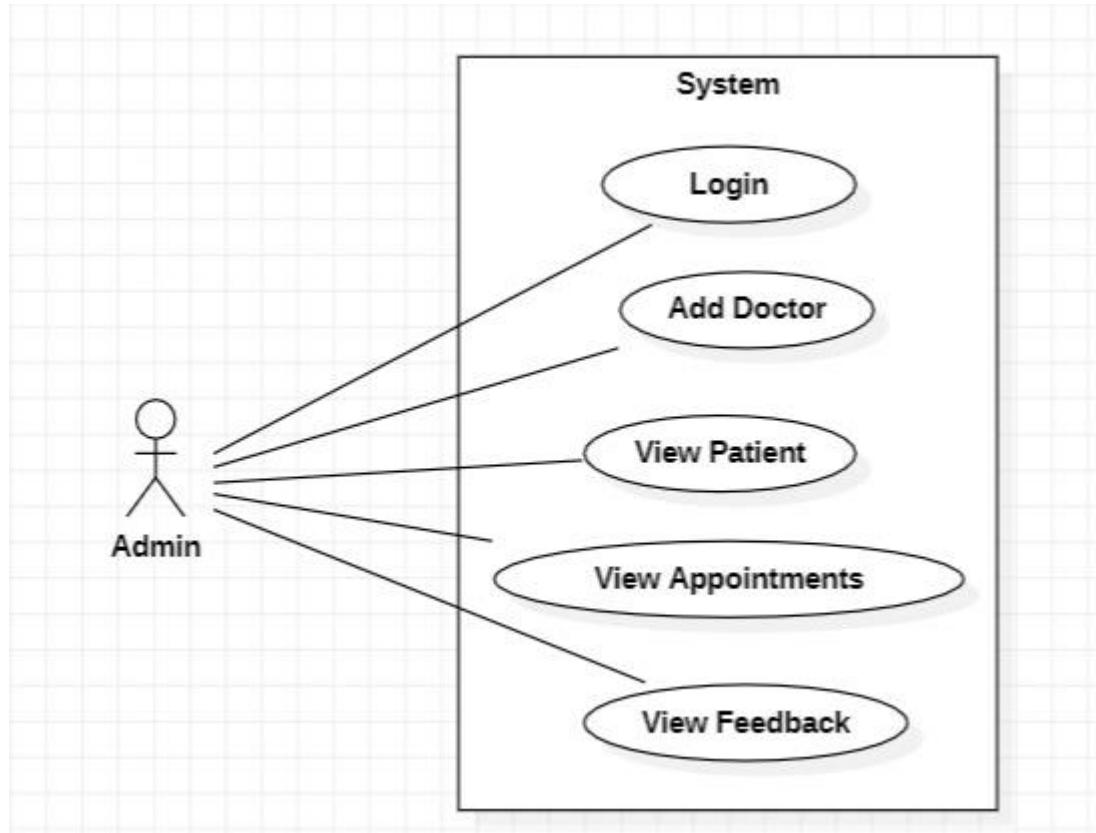
- Ensures role-based access to sensitive medical data.
- Maintains secure linkage of medical records to patient profiles.

4. Non-Functional Requirement

- **Performance:** The system should be responsive and efficient, handling multiple users and appointments without delays or failures.

- **Scalability:** The application should support future growth in users, doctors, and services without performance degradation.

- **Security:** The system should ensure secure access, data confidentiality, and role-based authorization for all users.

- **Availability:** The application should be available with minimal downtime to support continuous healthcare access.

- **Usability:** The interface should be intuitive and easy to use for patients, doctors, and administrators.

- **Reliability:** The system should ensure data consistency and accurate appointment and medical record management.

5. Use Case Diagram
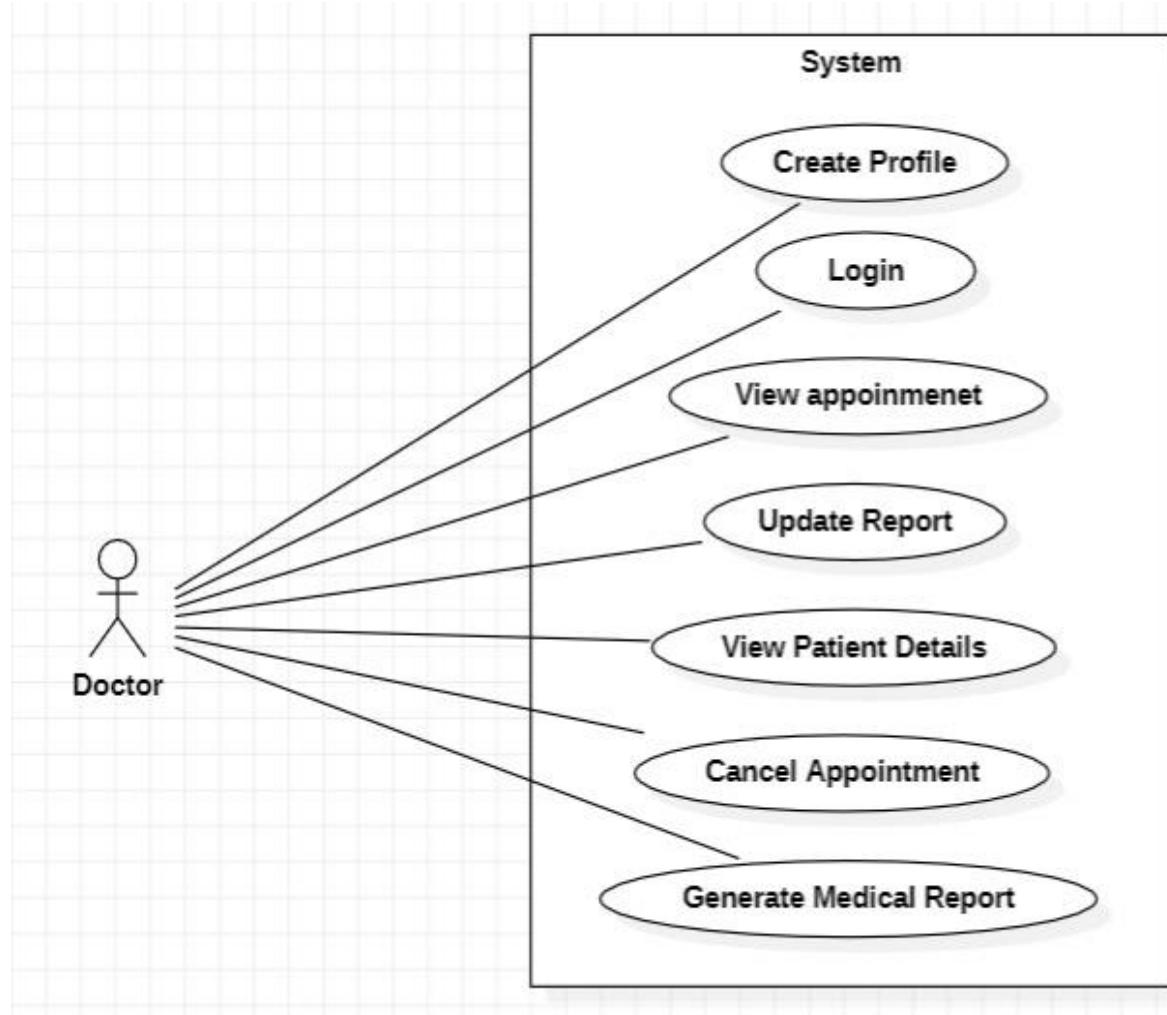
1. Admin:

Admin:

1. In the Admin Use Case Diagram, **Admin** is the primary actor.
2. Admin can handle the following use cases:
   a. Login
   b. Manage users (patients and doctors)
   c. Verify and approve doctor accounts
   d. Activate or deactivate user accounts
   e. Monitor appointments and medical records
   f. Generate system reports
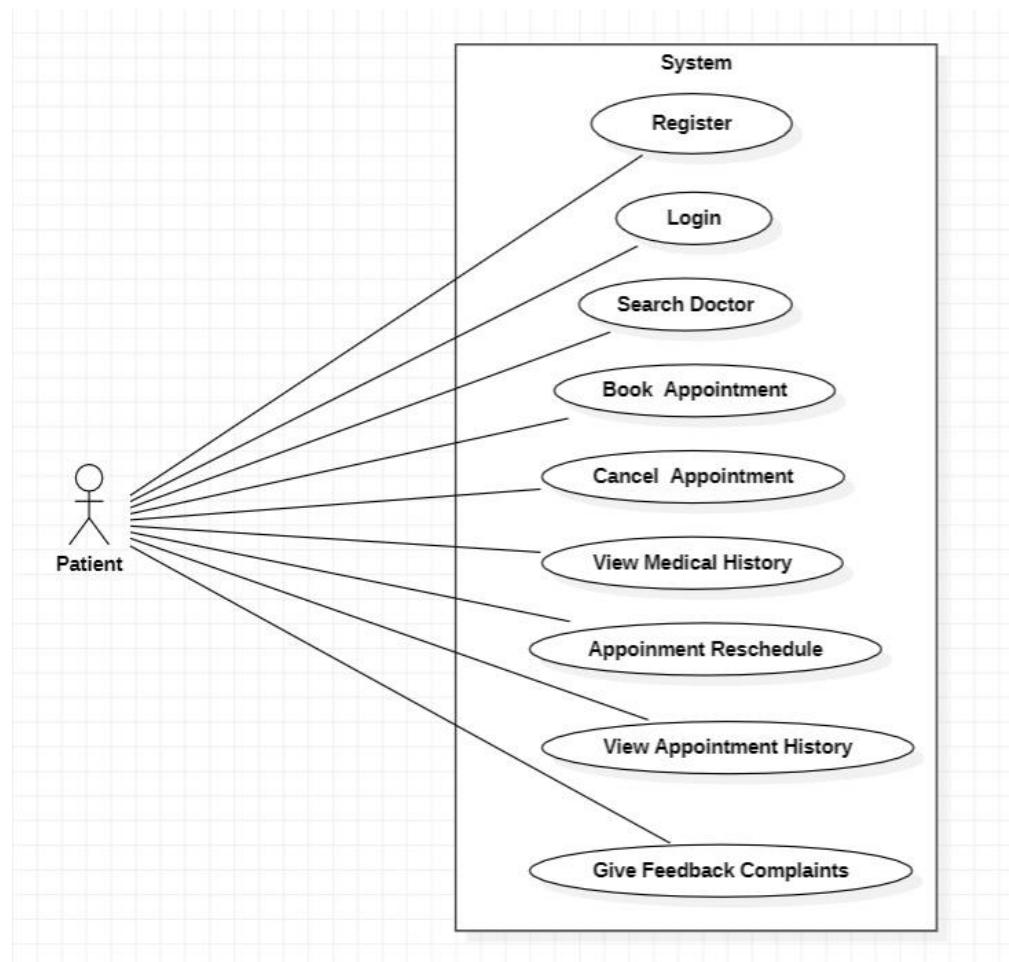
2. Doctor:

Doctor:
1. In the Doctor use case diagram, **Doctor** is the Actor.
2. Doctor can handle following use cases:

      a. Create Profile
      b. Login
      c. View Appointments
      d. View Patient Details
      e. Update Medical Report
      f. Generate Medical Report
      g. Cancel Appointment

3. Patient:

Patient:
1. In the Patient use case diagram, **Patient** is the Actor.
2. Patient can handle following use cases:

        a. Register
        b. Login
        c. Search Doctor
        d. Book Appointment
        e. Reschedule Appointment
        f. Cancel Appointment
        g. View Medical History
        h. View Appointment History
        i. Give Feedback / Complaints

6. Database Design

I. User Table

Field	Type	Null	Key	Default	Extra	
uid	int	NO	PRI		auto_increment	
rid	int	YES	MUL			
uname	varchar(50)	NO	UNI			
firstname	varchar(50)	NO				
lastname	varchar(50)	NO				
password	varchar(255)	NO				
phone	varchar(15)	NO	UNI			
email	varchar(100)	NO	UNI			
address	text	YES				
aadhaar	varchar(12)	YES	UNI			

II. Role Table

Field	Type	Null	Key	Default	Extra	
rid	int	NO	PRI		auto_increment	
role_name	varchar(50)	NO				

III. Patient Table

Field	Type	Null	Key	Default	Extra	
patient_id	int	NO	PRI		auto_increment	
uid	int	YES	MUL			
gender	varchar(10)	YES				
dob	date	YES				
registration_date	date	YES				
emergency_contact	varchar(15)	NO				
allergy	text	YES				
disease	varchar(100)	YES				
blood_group	varchar(5)	YES				

IV. Doctor Table

Field	Type	Null	Key	Default	Extra	
doctor_id	int	NO	PRI		auto_increment	
uid	int	NO	MUL			
specialization_id	int	NO	MUL			
base_qualification	varchar(100)	NO				
post_qualification	varchar(100)	YES				
experience	int	YES				
consultation_fee	decimal(10,2)	NO				
status	enum	NO		Inactive		

V. Specialization Table

Field	Type	Null	Key	Default	Extra	
specialization_id	int	NO	PRI		auto_increment	
specialization_name	varchar(100)	NO	UNI			

VI. Doctor Availability Table

Field	Type	Null	Key	Default	Extra
doctor_id	int	NO	PRI		
day	enum	NO	PRI		
available_from	time	NO			
available_to	time	NO			

VII. Appointment Table

Field	Type	Null	Key	Default	Extra	
appointment_id	int	NO	PRI		auto_increment	
patient_id	int	NO	MUL			
doctor_id	int	NO	MUL			
appointment_date	date	NO				
slot_time	time	NO				
status	enum	NO				
created_at	timestamp	YES		CURRENT_TIMESTAMP		

VIII. **Bill Table**

Field	Type	Null	Key	Default	Extra	
bill_id	**int**	**NO**	**PRI**		**auto_increment**	
appointment_id	**int**	**NO**	**MUL**			
total_amount	**decimal(10,2)**	**NO**				
billing_date	**date**	**NO**				
transaction_id	**int**	**NO**				
payment_mode	**varchar(20)**	**NO**				

IX. **Report Table**

Field	Type	Null	Key	Default	Extra	
report_id	int	NO	PRI		auto_increment	
appointment_id	int	NO	MUL			
symptoms	text	YES				
diagnosis	text	YES				
prescription	text	YES				
remarks	text	NO				
report_date	date	NO				

X. **Feedback Table**

Field	Type	Null	Key	Default	Extra	
feedback_id	**int**	**NO**	**PRI**		**auto_increment**	
appointment_id	**int**	**NO**	**MUL**			
rating	**int**	**YES**				
comments	**text**	**YES**				
feedback_date	**date**	**NO**				
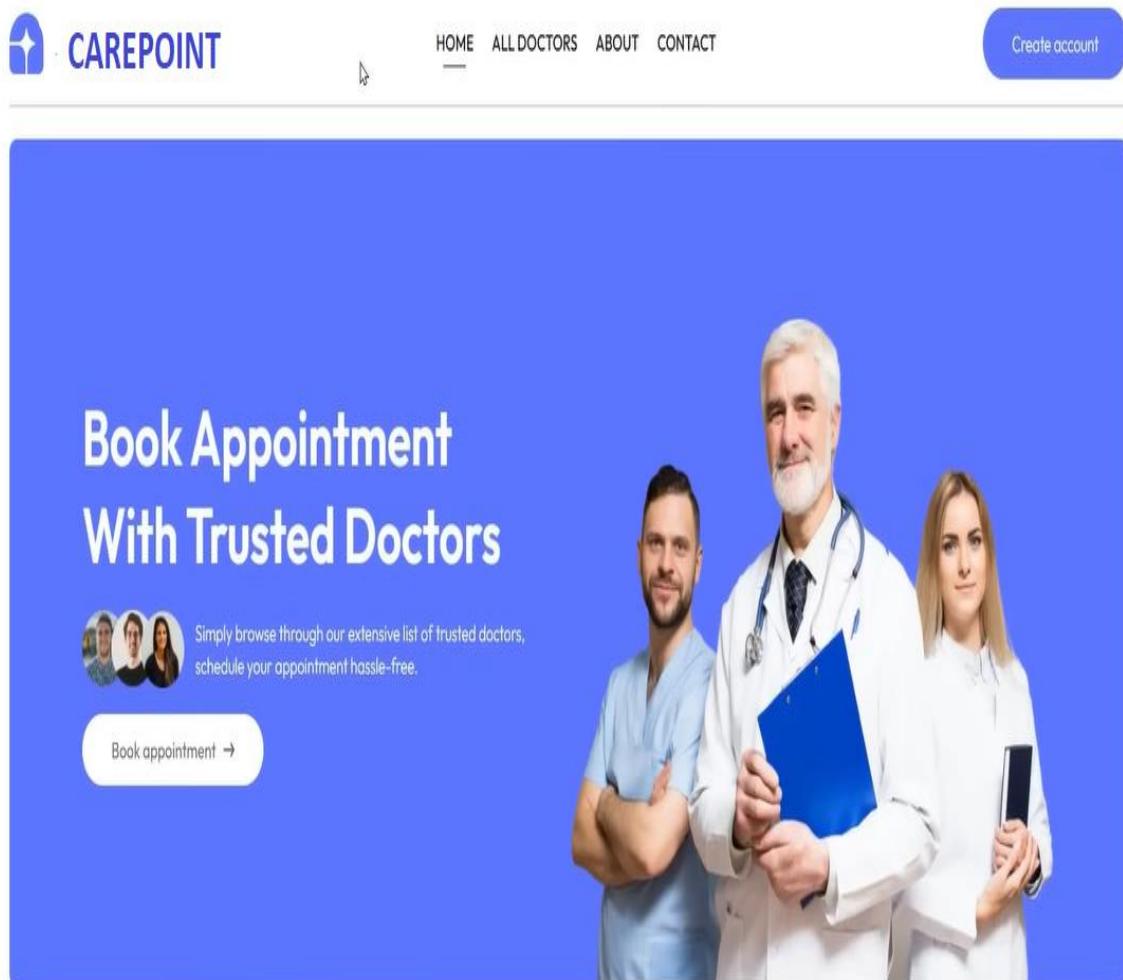
XI. **History Table**

Field	Type	Null	Key	Default	Extra	
history_id	int	NO	PRI		auto_increment	
patient_id	int	NO	MUL			
disease_name	varchar(100)	NO				
start_date	date	NO				

8.Snapshots:

8.1 Home Page:

Following snapshot shows the **Home Page** for Carepoint application before Login.
Guest user can navigate to Registration and Login page from Home Page.

8.2 Registration Page:

Customer can register himself by navigating to registration page.

Patient Registration

Username

First Name

Last Name

Email

**Doctor Registration**

Username

First Name

Last Name

mm/dd/yyyy
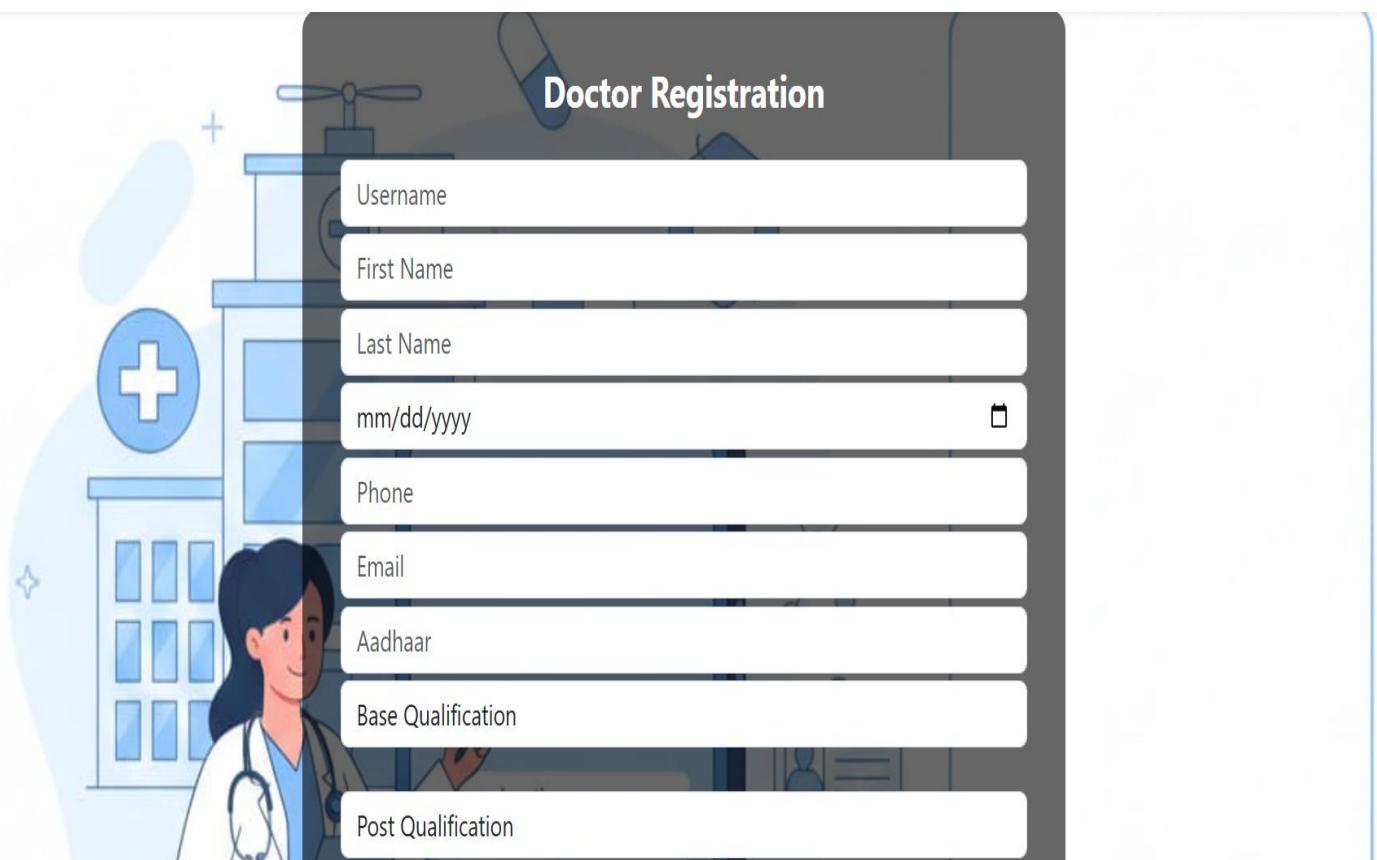
Phone

Email
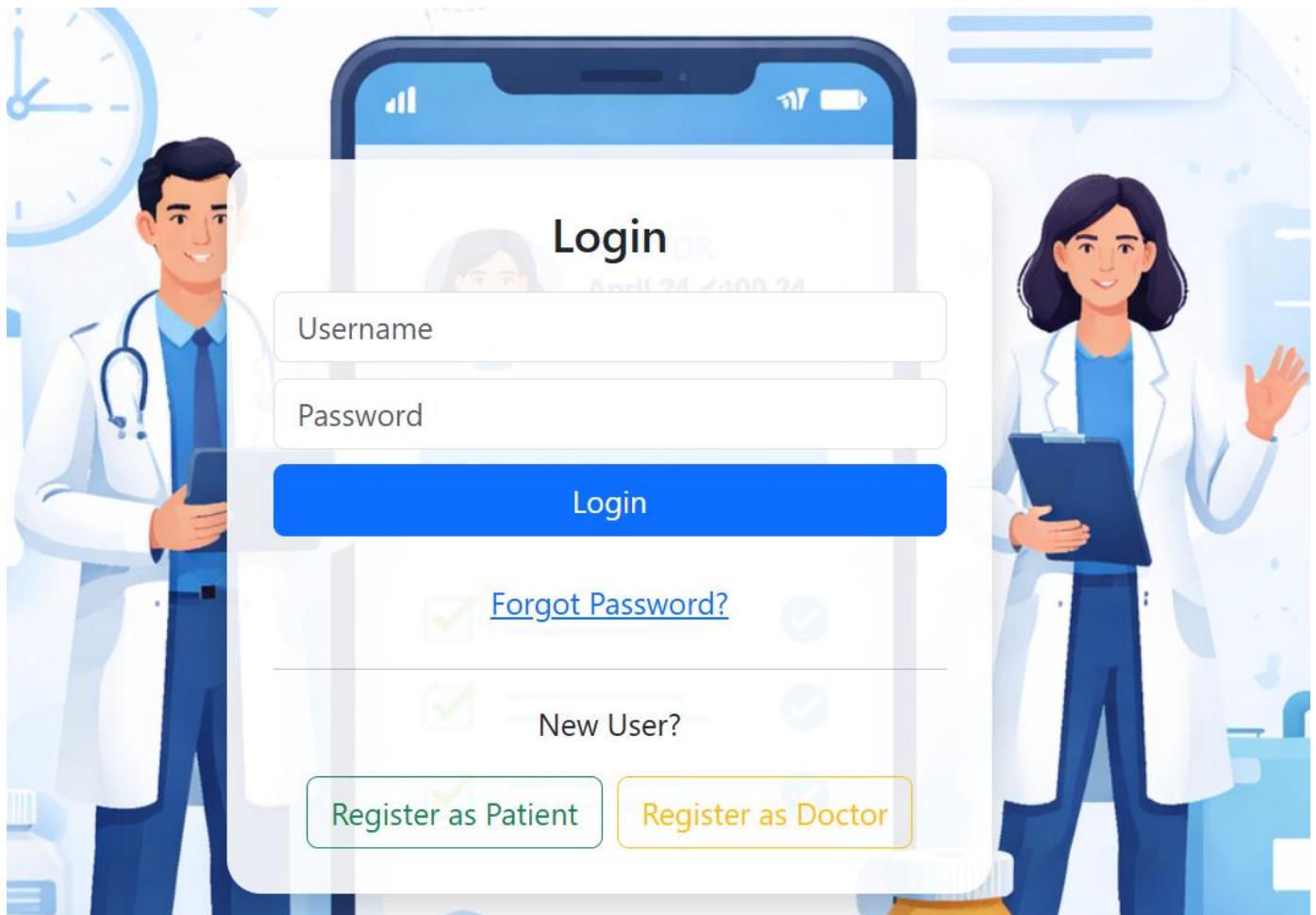
Aadhaar

Base Qualification

Post Qualification

8.3 Login Page:

8.4 Admin Dashboard

Admin Dashboard

Doctor Approvals

Name	Specialization	Experience	Fee	Status	Action
Dr Ramesh Kumar	Cardiology	12 yrs	₹700	ACTIVE	
Dr Sunita Rao	Dermatology	8 yrs	₹600	ACTIVE	
rajas dhake	Cardiology	2 yrs	₹100	INACTIVE	
sham patil	Neurology	20 yrs	₹700	INACTIVE	
abhijeeet jadhav	Cardiology	12 yrs	₹500	ACTIVE	
Gaurav Shiromani	Cardiology	10 yrs	₹100	INACTIVE	

Registered Patients

Name	Gender	DOB	Blood Group	Emergency Contact
Amit Shah	Male	1985-05-09T18:30:00.000Z	O+	9111111111
Neha Verma	Female	1990-08-19T18:30:00.000Z	A+	9222222222
Rahul Mehta	Male	1988-03-14T18:30:00.000Z	B+	9333333333

8.5 Doctor Dashboard

Doctor Dashboard

Patient Appointments

Patient ID	Date	Time	Status	Update
1	2026-02-01	10:00	Completed	Completed ⌄
3	2026-02-02	10:30	Cancelled	Cancelled ⌄
5	2026-02-03	09:30	Scheduled	Scheduled ⌄
5	2026-02-04	09:30	Completed	Completed ⌄
6	2026-02-05	11:00	Scheduled	Scheduled ⌄

Weekly Availability

Monday

--:-- --   🕐   --:-- --   🕐

+ Add Slot

Doctor can Add Diagnosis.

Add Diagnosis

Appointment ID

Symptoms

Diagnosis

Prescription

Remarks

Report Date

mm/dd/yyyy

Add Diagnosis

Doctor can view full patient details

8.6 Patient

CarePoint   About Services Contact Login

Patient Dashboard

[Book Appointment] [View Appointments] [Medical History] [Reports] [Diagnosis]

Doctors for Cardiology

Dr. Dr Ramesh Kumar

Email: ramesh@care.com

Specialization: Cardiology

Experience: 12 years

Fee: ₹700

Dr. rajas dhake

Email: rajas@gmail.com

Specialization: Cardiology

Experience: 2 years

Fee: ₹100

Patient can book appointment

CarePoint   About Services Contact Login

Patient Dashboard

[Book Appointment] [View Appointments] [Medical History] [Reports] [Diagnosis]

Dr. Dr Ramesh Kumar
Fee: ₹700

Select Date

[Tue Feb 03 2026] [Wed Feb 04 2026]

[Thu Feb 05 2026] [Fri Feb 06 2026] [Sat Feb 07 2026]

[Sun Feb 08 2026] [Mon Feb 09 2026]

Available Slots
Select Time Slot

[10:00] [10:30 Booked] [11:00 Booked] [11:30]

[12:00] [12:30] [13:00 Booked] [13:30]

[14:00] [14:30]

[Proceed to Payment]

Patient can see the report.

Patient Name: Karan Patel											
Report ID	Report Date	Gender	DOB	Blood Group	Appointment Date	Slot Time	Status	Symptoms	Diagnosis	Prescription	Remarks
5	2026-01-20	Male	1992-09-18	O-	2026-02-03	09:30:00	Completed	High BP	Heart Disease	BP meds	Monitor BP
13	2026-01-22	Male	1992-09-18	O-	2026-02-03	09:30:00	Completed	Fever, cough	Flu	Paracetamol	Drink fluids
15	2026-01-24	Male	1992-09-18	O-	2026-02-03	09:30:00	Completed	headache	flu	Cenerest	Take care

9. ER Diagram

Conclusion

The "CarePoint" application aims to provide a comprehensive and efficient digital healthcare management solution. By integrating user services, appointment and scheduling services, and medical record services, the system addresses the challenges of traditional healthcare systems such as manual record handling, scheduling conflicts, and limited scalability. CarePoint is designed for patients, doctors, and administrators to ensure seamless interaction, secure data management, and improved operational efficiency. With a user-friendly interface, role-based access control, and scalable microservices architecture, the application strives to enhance healthcare accessibility, reliability, and overall patient care experience.