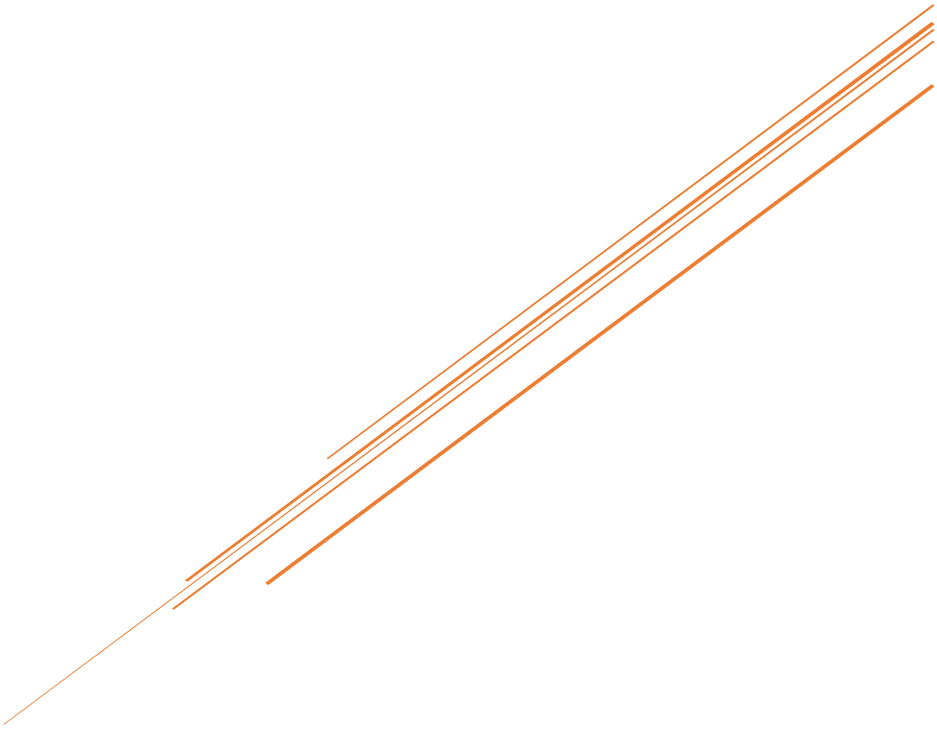
ONLINE APPOINTMENT FOR HEALTHCARE CLINIC

Technical Design Document (TDD)



Author	Version	Date	Description
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1. System Architecture Overview

The system is structured as a traditional MVC (Model-View-Controller) web application. It is organized as follows:

1.1. **Frontend:** Server-rendered web pages using HTML/CSS/JavaScript using Razor syntax.

1.2. **Backend:** A monolithic backend using a web framework that adheres to MVC architecture (e.g. ASP.NET Core MVC).

1.3. **Database:** Microsoft SQL Server used for data persistence.

1.4. **APIs:** Currently, no RESTful APIs are exposed externally.

2. Component Breakdown

Module	Responsibility
Register	Allows new users (patients, doctors, staff) to create accounts.
Login	Authenticates users and provides role-based access to the system.
Appointment Booking	Allows users (patients) to view available slots and book appointments.
Appointment History	Enables logged-in users to view past and upcoming appointments.
Profile	Displays and allows editing of user information (available only after login).
Schedule Availability	Enables doctors to set their available times for appointments.
Create Schedule	Enables staff to define time slots and manage availability calendars for doctors.
Reports	Allows admin/staff to generate reports (e.g., total appointments, no-shows, etc.).

3. Data Design

3.1. User

Field	Type	Notes
UserID	INT (PK)	Auto-increment
GovtID	VARCHAR	Unique identifier for login
PhoneNumber	VARCHAR	
PasswordHash	VARCHAR	Store securely
Role	VARCHAR	'Patient', 'Doctor', 'Staff'

3.2. Profile

Field	Type	Notes
ProfileID	INT (PK)	
UserID	INT (FK)	Linked to User
FirstName	VARCHAR	
LastName	VARCHAR	

3.3. Appointment

Field	Type	Notes
AppointmentID	INT (PK)	
PatientID	INT (FK)	Refers to UserID (Role: Patient)
DoctorID	INT (FK)	Refers to UserID (Role: Doctor)
Contact	VARCHAR	Patient contact
DateTime	DATETIME	Appointment date/time
Status	VARCHAR	'Booked', 'Completed', 'No-show'

3.4. ScheduleAvailability (Doctor)

Field	Type	Notes
AvailabilityID	INT (PK)	
DoctorID	INT (FK)	Refers to UserID
Date	DATE	
TimeSlot	VARCHAR	e.g., '9:00 AM - 11:00 AM'

3.5. Schedule (Created by Staff)

Field	Type	Notes
ScheduleID	INT (PK)	
DoctorID	INT (FK)	
Date	DATE	
RoomNumber	VARCHAR	

3.6. ClinicStaffDetails

Field	Type	Notes
StaffID	INT (FK)	From User (Role: Staff)
Experience	INT	In years
Qualification	VARCHAR	
EmploymentType	VARCHAR	'Full-time', 'Part-time'

3.7. Entity Relationships

From Entity	To Entity	Relationship Type	Cardinality
User	Profile	One-to-One	1 : 1
User (Patient)	Appointment	One-to-Many	1 : ∞
User (Doctor)	Appointment	One-to-Many	1 : ∞
User (Doctor)	ScheduleAvailability	One-to-Many	1 : ∞
User (Doctor)	Schedule	One-to-Many	1 : ∞
User (Staff)	ClinicStaffDetails	One-to-One	1 : 1

3.7.3. One **User** has one **Profile** containing personal data

3.7.4. One **User (Patient)** can book multiple **Appointments** with doctors

3.7.5. One **User (Doctor)** can have many appointments booked by **User (Patient)**

3.7.6. One **User (Doctor)** can set multiple **ScheduleAvailability** time slots

3.7.7. A **User (Doctor)** can be assigned to multiple **Schedule** slots by staff

3.7.8. A **User (Staff)** has one record detailing to **ClinicStaffDetails**

For a visual representation of the system's data structure and entity relationships, please refer to **Appendix A: Entity Relationship Diagram (ERD)**.

4. Technology Stack

Layer	Technology
Frontend	HTML, CSS, JavaScript (or Razor if ASP.NET)
Backend	ASP.NET Core MVC (or similar MVC Framework)
Database	Microsoft SQL Server
ORM (if any)	Entity Framework or ADO.NET
Reporting Tools	In-app export features
Authentication	Form-based login with role-based access

5. Assumptions & Constraints

5.1 Only registered users can access Appointment History, Doctors Scheduling & Report, Finance Reports

5.2 System roles are predefined: Patient, Doctor, Staff and Admin

5.3 Doctors can only set their own availability

5.4 Double-booking will be prevented via backend validation

5.5 No external API integration is currently planned

5.6 Reports are assumed to be downloadable in PDF/Excel formats.

Appendix 'A'

ENTITY RELATIONSHIP DIAGRAM

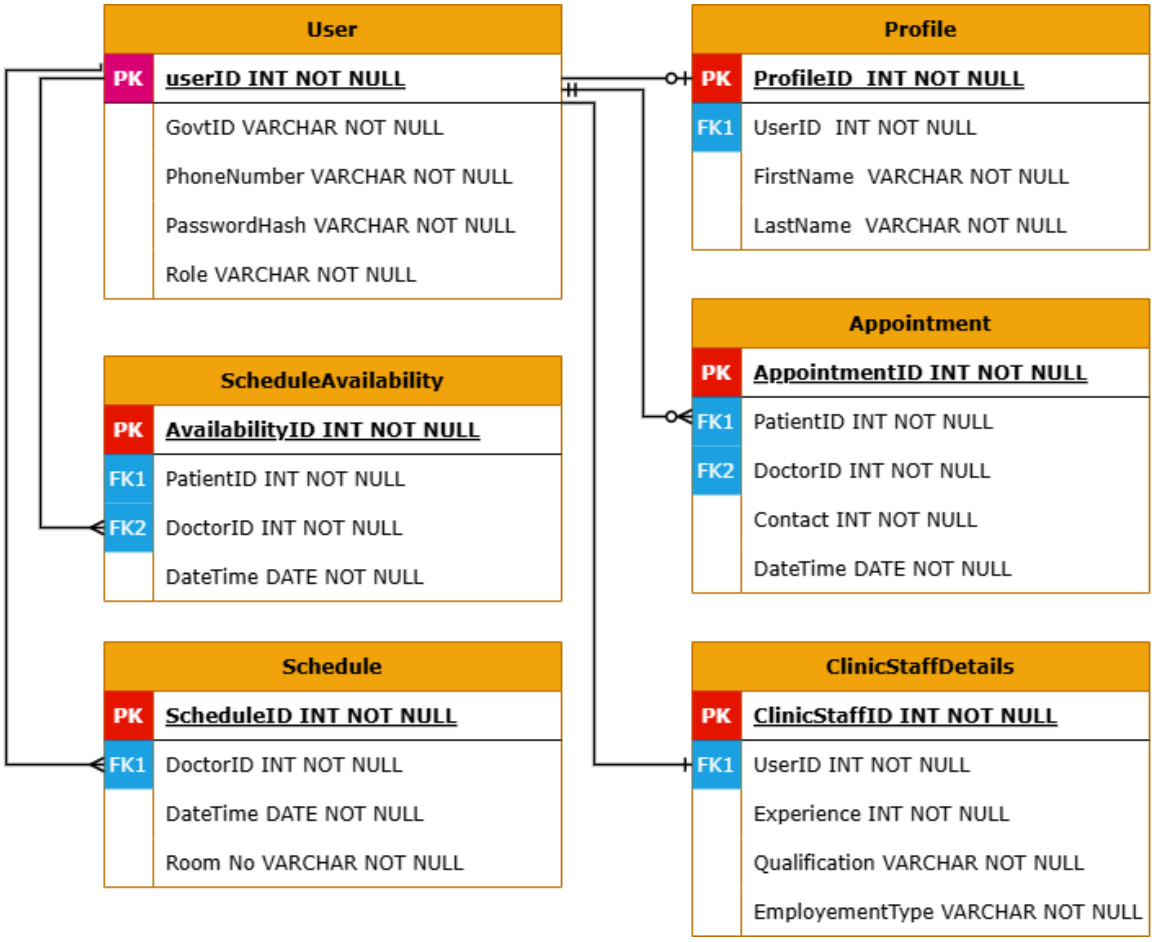

Figure A1 *- This diagram illustrates the core entities of the Online Appointment Booking System and their relationships.*