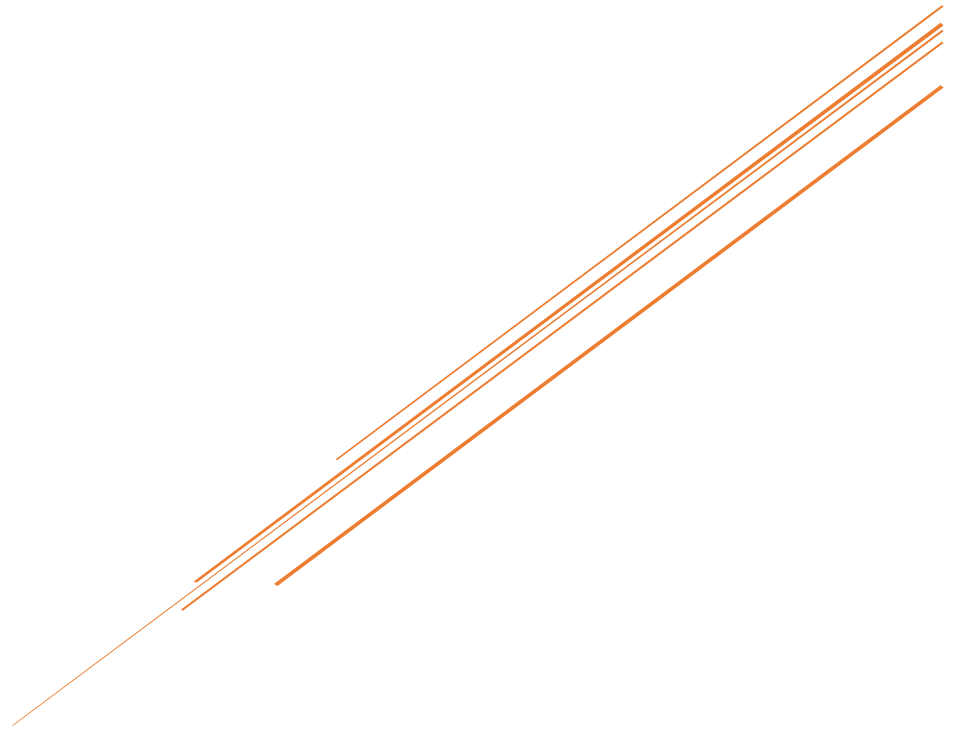


ONLINE APPOINTMENT FOR HEALTHCARE CLINIC

Functional Requirements Document (FRD)



Author	Version	Date	Description
Zohaib Waqar	1.0		

Table of Contents

Introduction	2
Purpose.....	2
Scope	2
Functional Requirements	2
Overview	2
Functional Requirements Table	2
User Roles & Permissions.....	4
UI Behavior & Validations.....	4
Register.....	4
Login	4
Profile	5
Manage User.....	5
Schedule Availability.....	5
Create Schedule	5
Appointment Booking	6
Appointment History.....	6
Report and Analysis	7
Business Rules	8
Non-Functional Requirements	8
Assumptions & Dependencies.....	8
Appendices	9

1. Introduction

1.1. Purpose

This document defines the functional requirements for the Online Appointment Booking System for the Healthcare Clinic. It expands upon the high-level business requirements outlined in the BRD.

1.2. Scope

This system will allow patients to book, reschedule, and cancel appointments online. It includes role-based access for patients, doctors, and clinic admins. Reporting and notification features are also part of the scope.

2. Functional Requirements

2.1. Overview

The Online Healthcare Appointment Booking System will deliver a range of features designed to enhance the patient experience and optimize the scheduling workflow for clinic staff and doctors. The following sections outline the detailed functionalities the system must support, as derived from the Business Requirements Document (BRD).

2.2. Functional Requirements Table

ID	Description	Priority	Dependencies
FR-001	Appointment Booking	Must Have	FR-005
FR-002	Rescheduling & Cancellation	Must Have	FR-001, FR-006
FR-003	Doctor Manual Override	Must Have	FR-006
FR-004	Appointment Reminders	Must Have	FR-001
FR-005	Real-time Doctor Availability	Must Have	Doctor Schedules
FR-006	Role-Based Access	Must Have	User Management
FR-007	Reporting & Analytics	Should Have	FR-001, FR-002
FR-008	Audit Logs	Must Have	FR-002, FR-003

Each requirement listed above is described in more detail in the subsections below.

2.2.1. **FR-001 Appointment Booking**

- 2.2.1.1. Patients can book appointments via a web interface.
- 2.2.1.2. Only available time slots are shown based on doctor availability.
- 2.2.1.3. Overlapping or duplicate appointments are not allowed.
- 2.2.1.4. Confirmation via SMS/email is sent after booking.

2.2.2. **FR-002 Rescheduling & Cancellation**

- 2.2.2.1. Patients can reschedule or cancel their appointments.
- 2.2.2.2. Rescheduling is allowed only if done at least 24 hours in advance.
- 2.2.2.3. System logs all changes with timestamps.

2.2.3. **FR-003 Doctor Manual Override**

- 2.2.3.1. Doctors can manually adjust their schedules.
- 2.2.3.2. Overrides are logged in the audit trail.

2.2.4. **FR-004 Appointment Reminders**

- 2.2.4.1. SMS and email reminders are sent 24 hours and 1 hour before the appointment.
- 2.2.4.2. Configurable based on user preference.

2.2.5. **FR-005 Real-time Doctor Availability**

- 2.2.5.1. The system shows available time slots based on doctor's working hours and existing bookings.

2.2.6. **FR-006 Role-Based Access**

- 2.2.6.1. **Admin:** Full access to scheduling, reporting, and system settings.
- 2.2.6.2. **Doctor:** View/edit personal schedule, view patient appointments.

2.2.6.3. **Patient:** Book/reschedule/cancel own appointments.

2.2.7. FR-007 Reporting & Analytics

2.2.7.1. Daily/weekly appointments report.

2.2.7.2. No-show rates report.

2.2.7.3. Peak booking hours report.

2.2.8. FR-008 Audit Logs

2.2.8.1. Every change to appointment status, user role updates, and manual overrides is logged with user, timestamp, and action.

3. User Roles & Permissions

Role	Access Rights
Admin	Full system control, reporting, user management
Doctor	Manage schedule, view appointments
Finance	Finance reports
Staff	Create schedule, appointment reports
Patient	Book/manage own appointments

4. UI Behavior & Validations

Field	Type	Validations
Register		
1 Govt ID	Mandatory	Must be alphanumeric, min 6–20 characters. No special characters allowed
2 Phone Number	Mandatory	Must be a 10-digit numeric value.
3 Password	Mandatory	Minimum 8 characters, must include 1 uppercase, 1 lowercase, 1 digit, and 1 special character
4 Confirm Password	Mandatory	Must match the Password field
Login		
1 User Name	Mandatory	Must match format used during registration
2 Password	Mandatory	Must match the one registered

Profile			
1	First Name	Mandatory	Only letters, 2–30 characters
2	Last Name	Mandatory	Only letters, 2–30 characters
3	Phone Number	Mandatory	10-digit numeric value
4	Govt ID	Read Only	-
5	Existing Password	Mandatory	Must match current password in system
6	New Password	Optional	Minimum 8 characters, must include 1 uppercase, 1 lowercase, 1 digit, and 1 special character
7	Confirm Password	Optional	Must match the Password field
Manage User			
1	First Name	Mandatory	Only letters, 2–30 characters
2	Last Name	Mandatory	Only letters, 2–30 characters
3	Phone Number	Mandatory	10-digit numeric value
4	Experience	Mandatory	Only positive whole numbers (0–50)
5	Qualification	Mandatory	Dropdown (Must select from predefined options)
6	Employment Type	Mandatory	Dropdown (Must select from predefined options)
Schedule Availability			
1	Year Control	Mandatory	Must be a valid year (e.g., current year or future years)
2	Scheduler Control	Mandatory	Only current or future dates are selectable Past dates are disabled (grayed out and non-clickable) Dates should belong to the selected year
Create Schedule			
1	Doctor Selection	Mandatory	Displays all available doctors as selectable cards with picture, name, and specialization Only one doctor can be selected at a time.
2	Date Control	Mandatory	Allows selection of a date from the calendar

			Past dates are disabled (cannot be selected)
3	Grid Layout	Mandatory	<p>Rooms × Time Slots</p> <p>Room Numbers (101 to 105)</p> <p>Time slots from 09:00 to 18:00, in 30-minute intervals</p> <p>Break Time (13:00–13:30) is greyed out and disabled (unavailable for scheduling)</p>
Appointment Booking			
1	Patient Name	Mandatory	<p>Only letters, 2–30 characters</p> <p>Prefilled if user has profile and logged in</p>
2	Contact	Mandatory	<p>10-digit numeric value</p> <p>Prefilled if user has profile and logged in</p>
3	Calendar	Mandatory	<p>Only current and future dates are selectable</p> <p>Past dates are disabled</p> <p>On selecting a date, the system fetches and displays available time slots for that date from the existing schedule</p>
4	Time Slot Selector	Mandatory	<p>Loads time slots based on selected date and pre-created schedule</p> <p>Time slots already booked or outside of schedule are disabled and non-selectable</p> <p>Users can only select one time slot</p> <p>Upon selection, available doctors for that slot are fetched and displayed</p>
5	Doctor Cards	Mandatory	<p>Displays doctors who are available for the selected time slot</p> <p>Only one doctor can be selected</p> <p>If no doctors are available, display a message</p>
Appointment History			
1	Calendar Picker	Mandatory	<p>Allows user to select a date within any month</p>

			<p>Upon selecting a date, all appointments for that month are retrieved and shown in the grid</p> <p>Defaults to current month on load</p> <p>If no appointments are found for the selected month, display message</p>
2	Grid View	Mandatory	<p>Columns (Serial No, Date Time, and Doctor name)</p> <p>Grid shows all appointments in the selected month, sorted by date</p> <p>Appointments in the past and future are visually distinguishable</p> <p>Selection of a row highlights it and enables the appropriate action buttons</p>
3	Reschedule	Button	<p>Enabled only when a future-dated appointment is selected</p> <p>Redirect to Appointment Booking Form to pick a new time/doctor based on availability</p>
4	Cancel	Button	<p>Enabled only for future-dated appointments</p> <p>Cancels the appointment but keeps a record (status changed to "Cancelled")</p>
5	Delete	Button	<p>Enabled for both past and future appointments</p> <p>Prompts confirmation</p> <p>If a future appointment is deleted, it is also considered cancelled (if not already)</p>
Report and Analysis			
1	Date Range Picker	Mandatory	<p>Allows users to select a custom start and end date</p> <p>Defaults to the current month if no range is selected</p> <p>End date must be greater than or equal to start date</p>

2	Button Group	Mandatory	<p>Buttons are role-based:</p> <p>Finance: Visible only to Finance Users</p> <p>Doctors: Visible only to Doctor</p> <p>Appointment Booking: Visible only to Staff</p> <p>Admin: Can see and access all buttons</p> <p>Unauthorized users should not see or access buttons not related to their role</p>
3	Report Viewer	Mandatory	<p>Displays the selected report dynamically in a structured, readable format</p> <p>Supports interactive or tabular layouts depending on report type.</p> <p>Exports report to PDF, Excel, or CSV</p> <p>Opens print dialog with print-optimized version of the report</p> <p>Save/Print options are only enabled when a report is displayed</p>

5. Business Rules

- 5.1. Patients cannot book overlapping appointments.
- 5.2. Rescheduling must be done 24+ hours in advance.
- 5.3. Admins manage waitlists and urgent requests.
- 5.4. All schedule changes are logged.

6. Non-Functional Requirements

- 6.1. System uptime: 99%.
- 6.2. Average response time < 2 seconds.
- 6.3. Mobile responsive UI.
- 6.4. Encrypted data in transit and at rest (HTTPS, HIPAA compliance if applicable).

7. Assumptions & Dependencies

- 7.1. Doctors update their availability regularly.

- 7.2. Internet access is available for patients to use the system.
- 7.3. Notifications are handled via integrated SMS/email service.

8. Appendices

This section contains supporting visuals and wireframes referenced throughout the Business Requirements Document. Each appendix corresponds to a key module or screen discussed in the main sections. These wireframes serve as visual guidance for layout, control behavior, and user interaction flow.

- 8.1. **Appendix “A”** – Register
- 8.2. **Appendix “B”** – Login
- 8.3. **Appendix “C”** – Profile
- 8.4. **Appendix “D”** – Manage User
- 8.5. **Appendix “E”** – Schedule Availability
- 8.6. **Appendix “F”** – Create Schedule
- 8.7. **Appendix “G”** – Appointment Booking
- 8.8. **Appendix “H”** – Appointment History
- 8.9. **Appendix “I”** – Report and Analysis

Register

The screenshot displays a web browser window with the URL <https://www.healthcare.com/Login>. The page features a blue navigation bar with a logo, links for Home, Doctors, and Contact Us, a 'Make an Appointment' button, and a 'Login' link with a user icon. The main content area has a 'Banner' placeholder on the left and a registration form on the right. The form has two tabs: 'Login' and 'Register'. The 'Register' tab is active, showing the following fields and validation messages:

- Enter Govt Identity Number**: A red error message below the field reads 'Identity No already exists'.
- Choose strong password**: A red error message below the field reads 'Password and Confirm Password do not match'.
- Confirm Password**: A red error message below the field reads 'Password and Confirm Password do not match'.
- Enter Phone No**: A red error message below the field reads 'Phone No is not valid'.

A blue 'Register' button is located at the bottom of the form.

Figure F1: User Registration with Validation

Login

The screenshot displays a web browser window with the title 'Login'. The address bar shows the URL 'https://www.healthcare.com/Login'. The page layout includes a blue header bar with a 'Logo' placeholder, navigation links for 'Home', 'Doctors', and 'Contact Us', a 'Make an Appointment' button, and a 'Login' link accompanied by a user icon. The main content area is divided into two sections: a large 'Banner' placeholder on the left and a login form on the right. The login form features two tabs, 'Login' and 'Register'. It contains input fields for 'User Name' and 'Password', each followed by a red error message: 'Username incorrect' and 'Password is incorrect' respectively. Below the password field is a blue 'Login' button and a link for 'Forget Password?'.

Figure F2: User Login with Validation

User Profile

The screenshot shows a web browser window titled 'Healthcare App' with the URL 'https://www.healthcare.com/Update-Profile'. The page has a blue header with a 'Logo' button, navigation links for 'Home', 'Doctors', and 'Contact Us', a 'Make an Appointment' button, and a 'Manager' profile icon. A dropdown menu for the Manager icon shows options: 'Manage Users', 'Profile', and 'Logout'. The main content area is titled 'Update Profile' and contains several input fields with validation errors:

- First Name:** Red border and error message 'First Name is not valid'.
- Last Name:** Blue border.
- Phone:** Red border.
- Mobile:** Blue border with a dropdown arrow.
- Govt Identity Number:** Blue border.
- Existing Password:** Red border and error message 'Existing Password is incorrect'.
- New password:** Red border and error message 'Please choose a string password (Atleast 1 Capital Letter and Special Characters (! @ # \$ _ - %))'.
- Confirm new password:** Red border and error message 'Password and Confirm Password do not match'.

At the bottom, there are two buttons: 'Update Profile' (blue) and 'Delete Profile' (maroon).

Figure F3: User Profile with validation

Manage User


Healthcare App

https://www.healthcare.com/Manage-User

Logo

Home Doctors Contact Us

Make an Appointment


Manager 

User Management

First Name

Last Name

First Name is not valid

 Phone






Mobile

Experience

Qualification

Employment Type

Create User

#	Name	Contact	Experience	Qualification	Employment Type
1	 Dr. Smith	555-123-4567	12 years	MBBS (General Medicine)	Doctor
2	 Dr. Brown	555-234-5678	8 years	MBBS - FCPS	Doctor
3	 Joseph	555-456-7890	6 years	High School	Staff
4	 Adams	555-678-9012	3 years	MBA	Accountant
5	 Dr. Lee	555-789-0123	9 years	MBBS-FCPS	Doctor

Edit User

Delete User

Figure F4: User Management with Validation

Schedule Availability

Healthcare App

https://www.healthcare.com/ScheduleAvailability

Logo Home Doctors Contact Us Make an Appointment Dr. Smith

Doctor's Availability Schedule

Previous 2025 Next

#	Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1	January																															
2	February																															
3	March																															
4	April																															
5	May																															
6	June																															
7	July																															
8	August																															
9	September																															
10	October																															
11	November																															
12	December																															

Mark selected dates as available Mark selected dates as unavailable

Figure F5: Doctor's Availability Schedule with disable fields for expired dates

Create Schedule

Healthcare App

https://www.healthcare.com/CreateSchedule

Logo
Home
Doctors
Contact Us
Make an Appointment
Joseph

Create Schedule

Select Doctor

Image
Dr. Smith
Department : General Medicine

Create Schedule
Profile
Logout

Date
17 April 2025

#	Room	09:00 09:30	09:30 10:00	10:00 10:30	10:30 11:00	11:00 11:30	11:30 12:00	12:00 12:30	12:30 13:00	13:00 13:30	13:30 14:00	14:00 14:30	14:30 15:00	15:00 15:30	15:30 16:00	16:00 16:30	16:30 17:00	17:00 17:30	17:30 18:00
1	Room 101																		
2	Room 102																		
3	Room 102																		
4	Room 104																		
5	Room 105																		

Break Time
Available

Figure F6: Create Room & Time Wise Doctors Schedule

Appointment Booking

Healthcare App

https://www.healthcare.com/appointment-booking

Logo Home Doctors Contact Us Make an Appointment Login

Name: First Name Last Name

Contact: +92123456789

2017 Thu, Apr 13

April 2017

S M T W T F S

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

CANCEL OK

09 : 00 AM

09 : 30 AM

10 : 00 AM

10 : 30 AM

11 : 00 AM

11 : 30 AM

12 : 00 PM

12 : 30 PM

02 : 00 PM

02 : 30

03 : 00

Preferred Doctor

Dr. Smith

Department : General Medicine

Room No : 102

Experience : 12 Years

Make an appointment

Figure F7: Appointment Booking with disable fields

Appointment History

Healthcare App

https://www.healthcare.com/appointment-history

Logo Home Doctors Contact Us Make an Appointment Mr Lea

Appointment History

Appointment History
Profile
Logout

Select month to view appointment history

Previous

January
February
March
April
May
June
July

2025

Next

#	Date	Doctor
1	1 April, 2025 09:00 AM	Dr. Smith
2	3 April, 2025 11:00 AM	Dr. Brown
3	10 April, 2025 09:00 AM	Dr. Smith
4	12 April, 2025 12:00 PM	Dr. Adams
5	14 April, 2025 12:00 PM	Dr. Lee

Reschedule Appointment Cancel Appointment Delete Appointment

Oops! Selected appointment can not be reschedule / cancel.

Figure F8: Appointment History along with Reschedule and Cancel Validation

Report & Analytics

Healthcare App

https://www.healthcare.com/Reports

Logo Home Doctors Contact Us Make an Appointment Manager

Select Date Range

2025

Thu, Apr 13

< April 2025 >

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

CANCEL OK

Finance Report Doctors Report Appointment Report No Shows Peak Booking

Print Save

Figure F9: Reports and Analytics for Manager with dates selection