Project Design Phase-II
Solution Requirements (Functional & Non-functional)

Date	26-06-2025
Team ID	LTVIP2025TMID58998
Project Name	DocSpot: Seamless appointment Booking for Health
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

Functional Requirements – Music Streaming App

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Authentication	Sign up, Login, Password Reset
		OAuth login using Google / GitHub
FR-2	**Appointment Booking**	Search doctors by specialty, location, and availability
		Book, reschedule, and cancel appointments
FR-3	**Calendar & Schedule Management**	Freelancers apply to jobs
		View upcoming and past appointments
FR-4	**Notifications & Reminders**	Automated SMS/email reminders for upcoming appointments

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

NFR No.	Non-Functional Requirement	Description

NFR-1	**Usability**	The platform should provide a simple, clean UI for all users, incl healthcare providers.
NFR-2	**Security**	All patient and appointment data must be encrypted. Implement role-based access and secure authentication
NFR-3	**Reliability**	Appointment booking, notifications, and telehealth services must be available and dependable at all times.
NFR-4	**Performance**	Pages and booking actions should load within 2 seconds; reminders and notifications should be timely.
NFR-5	**Availability**	The system should ensure 99.9% uptime with minimal downtime.
NFR-6	**Scalability**	Support a growing number of users, providers, and concurrent bookings without degradation.

Key Features: Functional and Non-Functional Requirements

Functional Requirements (Core Capabilities)

Functional requirements describe the essential actions or services the system must perform. These are directly related to how the users interact with the system. In DocSpot, the functional requirements are designed to make the healthcare appointment process smooth, secure, and efficient.

1. User Authentication and Access Control

One of the first and most critical requirements is the user authentication process. This includes:

- **Sign Up / Registration**: New users (patients or healthcare providers) can create an account by entering necessary details.
- **Login**: Existing users can securely log in using their credentials.
- **Password Reset**: Users can reset forgotten passwords using email or SMS verification.
- **OAuth Login**: Supports single sign-on via trusted platforms like Google or GitHub, ensuring quick and secure access without manual account creation.

2. Appointment Booking and Management

The platform allows users to search and book medical appointments with ease.

- **Search Functionality**: Users can filter doctors based on:
- **Booking Appointments**: Once a suitable doctor is found, users can book a time slot.
- **Rescheduling or Canceling**: Flexibility to change or cancel appointments based on user preferences or emergencies.

3. Calendar and Schedule Integration

- **Appointment Calendar**: Displays upcoming and past appointments for easy reference.
- **Freelancer Integration**: Freelance doctors or consultants can apply for jobs or shifts, and view them via a personalized calendar.
- **Admin Control**: Healthcare providers can block slots or manage working hours.

4. Notifications and Automated Reminders

Effective communication is key in healthcare scheduling:

- **SMS & Email Alerts**: The system sends timely reminders for upcoming appointments.
- **Follow-up Alerts**: After appointments, patients may receive health tips, feedback forms, or prescription reminders.
- **Real-time Status Updates**: Notifications about booking confirmations, reschedules, or doctor delays.

Non-Functional Requirements (System Behavior & Quality Attributes)

Non-functional requirements define how the system performs its tasks rather than what it does. These ensure that the solution is usable, secure, and robust in real-world scenarios.

1. Usability

The platform is designed with a focus on user-friendly interaction.

- **Simple Interface:** Clean design that is easy to understand, even for users with low digital literacy.
- **Accessible Design**: Works well across devices (mobile, tablet, desktop) and supports accessibility features (e.g., text resizing, screen readers).
- **Multilingual Support (optional)**: Consideration for multiple languages to reach a wider audience.

2. Security

Security is crucial due to the sensitive nature of health data.

- **Data Encryption:** All patient records, messages, and appointment data are encrypted in transit and at rest.
- **Role-Based Access**: Different access levels for patients, doctors, and admins to prevent unauthorized actions.
- **Secure Authentication:** Includes measures like CAPTCHA, 2-factor authentication, and login attempt limits.

3. Reliability

A healthcare platform must operate dependably at all times.

- **High Service Uptime**: Booking and reminder services must function without interruption.
- **Error Recovery**: In case of technical failure, the system should recover gracefully and notify users.
- **Redundancy**: Backup servers or cloud redundancy ensures continuity of service.

4. Performance

Performance ensures that users do not experience delays or lags.

- **Fast Response Time:** Pages should load within 2 seconds under normal conditions.
- **Real-Time Reminders**: Notifications must be sent promptly, ensuring appointments aren’t missed.
- **Optimized Search:** Doctor search and filter functionality should work without noticeable delay.

5. Availability

High availability is essential for user trust and system usefulness.

- **99.9% Uptime Guarantee**: Minimal downtime to avoid missed appointments or booking failures.
- **Scheduled Maintenance Notifications**: Any planned downtime should be communicated in advance.
- **Failover Mechanism:** If one part of the system goes down, others should continue working.

6. Scalability

The system should grow with user demand.

- **User Volume Handling**: Support for thousands of users (patients and doctors) simultaneously.
- **Data Scaling**: Efficient storage and retrieval of large numbers of appointments, messages, and records.
- **Cloud Readiness**: Designed to scale using cloud-based infrastructure (like AWS, Azure).