**Software Requirements Specification (SRS)**

**Project Title:** HealthHub

**Document Title:** Software Requirements Specification (SRS)

**Version:** 1.0

**Date:** 08.08.2024

**1. Introduction**

**1.1 Purpose:** The purpose of this document is to define the requirements for HealthHub, a healthcare management system designed to streamline healthcare processes, enhance patient care, and integrate various aspects of healthcare management into a unified platform.

**1.2 Scope:** HealthHub will cater to patients, doctors, and administrative staff, offering features like patient management, appointment scheduling, telemedicine, medical record handling, and predictive analytics.

**1.3 Definitions, Acronyms, and Abbreviations:**

* SRS: Software Requirements Specification
* JWT: JSON Web Token
* MFA: Multi-Factor Authentication
* RBAC: Role-Based Access Control
* HIPAA: Health Insurance Portability and Accountability Act

**1.4 References:**

* NestJS Documentation: https://docs.nestjs.com/
* Prisma Documentation: https://www.prisma.io/docs/
* React Documentation: https://reactjs.org/docs/getting-started.html
* React Native Documentation: https://reactnative.dev/docs/getting-started
* HIPAA Compliance: https://www.hhs.gov/hipaa/for-professionals/security/laws-regulations/index.html

**2. Overall Description**

**2.1 Product Perspective:** HealthHub is a new, independent system designed to improve healthcare delivery by integrating various healthcare processes into a single platform.

**2.2 Product Functions:**

* User Authentication and Authorization
* Patient Management
* Appointment Scheduling
* Telemedicine Integration
* Medical Records and Reports
* Predictive Analytics
* Admin Dashboard

**2.3 User Classes and Characteristics:**

* **Patients:** Users who need to manage their medical records, schedule appointments, and consult with doctors.
* **Doctors:** Healthcare professionals who need to manage patient records, schedule appointments, conduct telemedicine consultations, and provide prescriptions.
* **Admin Staff:** Administrative users who manage the overall system, including user management, analytics, and reports.

**2.4 Operating Environment:** The system will be deployed on AWS and will be accessible via web browsers for the web application and iOS/Android devices for the mobile application.

**2.5 Design and Implementation Constraints:**

* Must comply with healthcare regulations such as HIPAA.
* Ensure data security and privacy through encryption and secure authentication.
* System should be scalable to handle a growing number of users and data.

**2.6 Assumptions and Dependencies:**

* Users will have access to the internet to use the web and mobile applications.
* The system will rely on third-party services for notifications (WATI for WhatsApp, Twilio for SMS).

**3. Specific Requirements**

**3.1 Functional Requirements:**

**3.1.1 User Authentication and Authorization:**

* The system shall provide secure user registration and login.
* The system shall use JWT for session management.
* The system shall support role-based access control (RBAC) for patients, doctors, and admin staff.

**3.1.2 Patient Management:**

* The system shall allow CRUD operations for patient records.
* The system shall manage medical history and personal details for each patient.
* The system shall ensure secure handling of medical records with encryption.

**3.1.3 Appointment Scheduling:**

* The system shall provide a real-time calendar for booking appointments.
* The system shall send automated reminders via email, SMS, and WhatsApp.
* The system shall detect and resolve scheduling conflicts.

**3.1.4 Telemedicine Integration:**

* The system shall support video consultations using WebRTC.
* The system shall allow secure messaging between patients and doctors.
* The system shall enable doctors to generate and share prescriptions electronically.

**3.1.5 Medical Records and Reports:**

* The system shall allow uploading and storing of medical reports and images.
* The system shall integrate with external lab services to fetch lab reports.
* The system shall provide functionality to export medical records to PDF.

**3.1.6 Predictive Analytics:**

* The system shall analyze patient data to predict health trends.
* The system shall provide personalized health recommendations based on the analysis.

**3.1.7 Admin Dashboard:**

* The system shall provide analytics and reports on system usage.
* The system shall allow admin users to manage patients, doctors, and other staff.
* The system shall allow customization of system settings and preferences.

**3.2 Non-Functional Requirements:**

**3.2.1 Security:**

* The system shall use SSL/TLS for secure data transmission.
* The system shall encrypt sensitive data in storage.
* The system shall implement measures to comply with HIPAA regulations.

**3.2.2 Scalability:**

* The system shall be scalable to handle an increasing number of users and data.
* The system architecture shall support horizontal scaling.

**3.2.3 Performance:**

* The system shall ensure fast and responsive interactions.
* The system shall handle a high volume of simultaneous users without performance degradation.

**3.2.4 Maintainability:**

* The system shall have a clear code structure and documentation.
* The system shall be easy to maintain and update.

**3.2.5 Usability:**

* The system shall provide an intuitive and user-friendly interface.
* The system shall be accessible on web browsers and mobile devices (iOS and Android).

**4. Appendices**

**4.1 Glossary:**

* JWT: JSON Web Token, a compact, URL-safe means of representing claims to be transferred between two parties.
* HIPAA: Health Insurance Portability and Accountability Act, a US law designed to provide privacy standards to protect patients' medical records and other health information.

**4.2 References:**

* HIPAA Compliance: https://www.hhs.gov/hipaa/for-professionals/security/laws-regulations/index.html