Software Requirements Specification (SRS) for Hospital Management System

1. Introduction

1.1 Purpose

The purpose of this document is to define the software requirements for a Hospital Management System. The system will facilitate patient management, appointment scheduling, medical record-keeping, billing, and hospital administration.

1.2 Scope

The Hospital Management System will be a web-based application accessible by hospital staff, patients, and administrators. It will support the following functionalities:

- Patient registration and management

- Appointment scheduling

- Electronic medical record (EMR) management

- Billing and payment processing

- Hospital administration and reporting

1.3 Definitions, Acronyms, and Abbreviations

- **Patient:** A person receiving medical treatment at the hospital.

- **Doctor:** A medical professional providing treatment to patients.

- **Administrator:** A user responsible for managing hospital operations.

- **Appointment:** A scheduled meeting between a patient and a doctor.

- **Electronic Medical Record (EMR):** A digital version of a patient's medical history.

1.4 Overview

This document is organized to outline the system's functionalities, user requirements, system requirements, and design constraints. Each requirement is defined to provide a comprehensive understanding of the system's intended operations.

2. Overall Description

2.1 Product Perspective

The Hospital Management System is a comprehensive application that supports the hospital's administrative, clinical, and financial needs. It will provide an integrated

platform for managing patients, appointments, and medical records, with interfaces for both patients and hospital staff.

2.2 Product Functions

- **Patient Functions:**
    - Online registration and profile management
    - Appointment scheduling
    - Access to medical records and prescriptions
    - Billing and payment processing

- **Doctor Functions:**
    - Access to patient information and medical records
    - Update patient treatment details and prescriptions
    - Appointment management

- **Administrator Functions:**
    - Patient record management
    - Appointment and scheduling management
    - Staff and resource management
    - Billing, invoicing, and payment processing
    - Access to hospital reports and analytics

2.3 User Characteristics

- **Patients:** Individuals seeking medical services at the hospital. Should be familiar with basic web navigation.

- **Doctors:** Healthcare professionals who require access to patient information and medical history.

- **Administrators:** Hospital staff managing day-to-day operations. Should be familiar with using software for administrative purposes.

2.4 Constraints

- The system should ensure compliance with healthcare regulations, such as HIPAA, for data privacy and security.

- It should be accessible on various devices, including desktops and mobile devices.

- The system should operate in both online and offline modes to ensure continuous service in case of network issues.

2.5 Assumptions and Dependencies

- The system assumes the availability of a reliable internet connection for regular operations.

- A third-party payment gateway will be integrated for billing and payment processing.

- It assumes that patients, doctors, and administrators will have unique login credentials to access the system.

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3. Specific Requirements

3.1 Functional Requirements

3.1.1 Patient Registration and Login

- **FR1:** Patients shall be able to register by providing personal information, contact details, and health insurance details.

- **FR2:** Patients shall be able to log in using their registered email and password.

- **FR3:** Password recovery functionality shall be available for patients.

3.1.2 Appointment Scheduling

- **FR4:** Patients shall be able to view available doctors, along with their specialties and availability.

- **FR5:** Patients shall be able to schedule appointments based on doctor availability.

- **FR6:** Patients shall receive appointment confirmation notifications via email and SMS.

3.1.3 Medical Record Management

- **FR7:** Doctors shall have access to patients' electronic medical records, including medical history, test results, and prescriptions.

- **FR8:** Doctors shall be able to update patients' medical records after each consultation.

- **FR9:** Patients shall have read-only access to their medical records.

3.1.4 Billing and Payment Processing

- **FR10:** The system shall generate bills based on consultations, treatments, and services provided.

- **FR11:** Patients shall be able to make payments online using a payment gateway.

- **FR12:** Payment receipts shall be emailed to patients upon successful payment.

3.1.5 Hospital Administration

- **FR13:** Administrators shall be able to manage doctor and staff profiles, including contact details and schedules.

- **FR14:** Administrators shall have access to reports on patient admissions, doctor consultations, and hospital resources.

- **FR15:** Administrators shall be able to view and manage hospital billing and payment information.

3.1.6 Notifications and Alerts

- **FR16:** The system shall send reminders to patients for upcoming appointments.

- **FR17:** The system shall alert administrators in case of resource shortages or system issues.

3.2 Non-Functional Requirements

3.2.1 Performance Requirements

- **NFR1:** The system shall support up to 500 concurrent users without performance degradation.

- **NFR2:** The system should load pages within 3 seconds under standard load conditions.

3.2.2 Security Requirements

- **NFR3:** All patient and hospital data exchanges shall be encrypted using SSL.

- **NFR4:** The system shall enforce multi-factor authentication (MFA) for doctors and administrators.

- **NFR5:** The system shall comply with HIPAA and other relevant healthcare regulations.

3.2.3 Usability Requirements

- **NFR6:** The user interface should be intuitive, easy to navigate, and accessible on both desktop and mobile devices.

- **NFR7:** The system shall support multiple languages to accommodate patients and staff from different backgrounds.

3.2.4 Reliability Requirements

- **NFR8:** The system shall have an uptime of 99.9% with failover capabilities.

- **NFR9:** Data backups shall be performed hourly to ensure data recovery in case of system failure.

3.3 Interface Requirements

3.3.1 User Interfaces

- The patient interface should facilitate easy registration, appointment booking, and access to medical records.

- The doctor interface should allow quick access to patient information and medical record updates.

- The administrator interface should support efficient hospital management and reporting.

3.3.2 Hardware Interfaces

- The system shall be hosted on cloud infrastructure with sufficient storage and processing power.

3.3.3 Software Interfaces

- The system shall integrate with third-party services for payment processing and SMS/email notifications.

- The system shall support integration with laboratory and pharmacy management systems.

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4. Appendices

4.1 Glossary

- **HIPAA (Health Insurance Portability and Accountability Act):** A U.S. law that ensures data privacy and security for medical information.

- **SSL (Secure Socket Layer):** A standard security technology for encrypting data transmission between a server and a client.

This SRS provides a detailed overview of the Hospital Management System's functional and non-functional requirements. It ensures that the system will support hospital operations while maintaining compliance with healthcare regulations and standards. Let me know if you need further elaboration on any specific section!