SOFTWARE REQUIREMENTS SPECIFICATION

for

CLINICAL MANAGEMENT SYSTEM

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1 Introduction

1.1 Purpose

The purpose of this document is to present a detailed description of the "Clinical Management System (CMS)" – an innovative web-based system designed to streamline healthcare management within a clinical setting, by facilitating the scheduling of appointments, management of patient records, allocation of doctor resources, processing of lab tests, dispensing of medicines, and administration of website features. CMS aims to enhance operational efficiency and patient care while providing a user-friendly interface for administrators, doctors, and patients. It will explain the purpose and features of the system, the interfaces of the system, what the system will do, the constraints under which it must operate, and how the system will react to external stimuli. This document is intended for both the stakeholders and the developers of the system and will be proposed to the relevant healthcare authority for its approval.

1.2 Intended Audience

The primary audience for this web project includes:

- Clinic administrators responsible for system oversight and resource management.
- Doctors and medical staff managing patient appointments and records.
- Patients engaging with the system for appointments, lab tests, and billing.

1.3 Intended Use

The "Clinical Management System" web-based application aims to facilitate the management of clinical operations, including appointment scheduling, patient record maintenance, lab test ordering, medicine dispensing, and website administration. Patients can book appointments and order lab tests via the system, while administrators and doctors manage resources and records. The system stores patient and administrative data in centralized SQLite databases (‘users.db‘ for authentication and ‘clinic.db‘ for clinical data). Patients can view billing details and make payments, with the system automatically updating their records. Additionally, the system supports website management features such as content updates and analytics, enhancing user experience and operational oversight.

1.4 Scope

The "Clinical Management System" aims to establish an efficient platform for managing healthcare services, including appointment scheduling, patient record management, lab test processing, medicine inventory, and website administration. The system provides a user-friendly interface for patients to book appointments and access medical services, while administrators and

doctors manage resources and records. Data is stored in centralized SQLite databases, enabling seamless access and updates. The system automates billing and payment processes, ensuring accurate record-keeping. It also includes website management features to maintain content, track analytics, and gather user feedback, promoting operational efficiency. The scope emphasizes secure data handling, integration with clinical workflows, and future enhancements to improve healthcare delivery. Adherence to budget constraints and healthcare regulations (e.g., HIPAA) is crucial for successful development and maintenance.

1.5 Definitions And Acronyms

- **CMS**: The "Clinical Management System," a web-based application for managing healthcare operations.
- **Appointment**: A scheduled visit between a patient and a doctor, managed through the system.
- **Patient Records**: Detailed medical history and prescriptions stored for each patient.
- **Lab Tests**: Diagnostic tests ordered and processed via the system, with results recorded.
- **Medicines**: Inventory of medications managed and dispensed through the system.
- **Website Management**: Administrative features for updating content, customizing UI, and analyzing usage.
- **SQLite Databases**: ‘users.db‘ for authentication data and ‘clinic.db‘ for clinical and administrative data.
- **Healthcare Compliance**: Adherence to regulations like HIPAA for patient data security.
- **User Feedback**: Input from patients and staff to improve system functionality.
- **Billing**: Financial transactions for medical services, automated within the system.

2 Overall Description

2.1 User Needs

The "Clinical Management System" project is a web-based application designed to streamline healthcare management by facilitating appointment scheduling, patient record maintenance, lab test processing, medicine dispensing, and website administration. Patients can book appointments and access services, while administrators and doctors manage resources and records stored in SQLite databases. The system automates billing and provides website management features to enhance operational oversight. Overall, the project aims to improve healthcare efficiency, ensure data accuracy, and provide a user-friendly experience for all stakeholders.

- **Convenience**: Patients need a convenient way to schedule appointments and access medical services.
- **Efficiency**: Doctors and administrators require efficient tools to manage records and resources.
- **Data Management**: Users need a system to store and retrieve patient and administrative data securely.
- **Healthcare Quality**: The project aims to enhance patient care through accurate record-keeping and timely services.
- **Security**: Patients and staff expect secure handling of sensitive medical data.
- **Transparency**: Users require clear visibility of appointment schedules, billing, and system updates.
- **Usability**: The system should be intuitive for patients, doctors, and administrators of varying technical proficiency.

2.2 Assumption And Dependencies

- **User Participation**: The success of the system relies on active engagement from patients, doctors, and administrators.
- **Data Accuracy**: The system assumes accurate input of patient and clinical data.
- **Database Reliability**: The SQLite databases (‘users.db‘ and ‘clinic.db‘) must be reliable and secure to prevent data loss.
- **System Integration**: The project depends on integration with existing clinical workflows and tools.
- **Staff Cooperation**: Effective operation relies on the cooperation of medical and administrative staff.
- **User Interface Usability**: The interface must be intuitive to encourage adoption.
- **Sufficient Resources**: The project assumes adequate funding, personnel, and infrastructure.
- **Regulatory Compliance**: Compliance with healthcare regulations (e.g., HIPAA) is assumed.
- **Continuous Support**: Ongoing maintenance is required to address technical issues and updates.

3 System Features And Requirements

3.1 Functional Requirements

- **User Registration and Profile Management**: Users (patients, doctors, administrators) should register and update their profiles.
- **Appointment Scheduling**: Patients should book and manage appointments with doctors.
- **Lab Test Ordering**: Patients should order lab tests, with results recorded by administrators.
- **Record Management**: Doctors and administrators should maintain and update patient records.
- **Medicine Dispensing**: Administrators should manage medicine inventory and dispense to patients.
- **Billing and Payment**: The system should calculate and process payments for services, deducting from patient accounts.
- **Website Administration**: Administrators should update content, customize UI, and analyze usage.

3.2 External Interface Requirements

- **User Interface**: The system should have a user-friendly web interface for all users.
- **Integration with Clinic Systems**: The system should integrate with existing clinic databases and tools.
- **Integration with Labs**: The system should communicate with lab systems for test results.

3.3 System Features

- **User Authentication**: Secure login for registered users.
- **Record Management Module**: Handles patient and clinical data.
- **Scheduling Engine**: Manages appointment booking and updates.
- **Database Management**: Maintains ‘users.db‘ and ‘clinic.db‘.
- **Transaction Processing**: Handles billing and payment transactions.

3.4 Nonfunctional Requirements

- **Performance**: The system should handle multiple simultaneous users without degradation.
- **Security**: Robust measures to protect sensitive medical data (e.g., HIPAA compliance).
- **Scalability**: The system should scale with growing patient and data volume.
- **Reliability**: Minimal downtime to ensure continuous service.
- **Usability**: Intuitive interface for users of varying technical skills.