Project Proposal



**Project Proposal**  
**Fundamentals of Software Engineering**

**Project Title**  
**Hospital Management System**

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### **Introduction**

The Hospital Management System is designed to streamline the administrative, clinical, and operational functions of a healthcare facility. It aims to improve efficiency, enhance patient care, and simplify the management of medical records, staff information, and inventory.

### **Features**

1. **Patient Management**: The system will allow for two types of patient entries:
   * **Outpatient**: Patients who only visit the doctor for consultation.
   * **Inpatient**: Patients who undergo surgery and are admitted to the hospital. Their admission and discharge times will be recorded, along with the assigned room, based on symptoms and doctor recommendations.
2. **Doctor Management**: Enables the management of doctor information, including specialization, schedule, and patient prescriptions.
3. **Receptionist Interface**: The receptionist will enter patient details, set appointments, select doctors, and assign rooms based on the patient's symptoms and needs.
4. **Store Manager Module**: Manages inventory, orders, and supplies for the hospital.
5. **Access Control**: Implements role-based access control to ensure data security and privacy.
6. **User-Friendly Interface**: Features an intuitive user interface with menus, prompts, and error handling for ease of use.
7. **Web-Based Application**: The system will be developed as a website with a backend and frontend for a seamless user experience.
8. **Flask-Based UI**: The backend will be powered by Flask, allowing smooth interaction between the database and the user interface.

### **Proposal Overview**

The proposed Hospital Management System is a comprehensive software solution developed in C++ and Python (Flask) to address the diverse needs of modern healthcare facilities. The system incorporates modules for managing patient records, doctor appointments, staff information, inventory control, and more. It provides an intuitive user interface for different stakeholders, including administrators, doctors, receptionists, and store managers. The system will be developed as a web-based platform with a dynamic backend and a responsive frontend.

### **Implementation Approach**

* **Development Model**: The project will follow the Agile Development Model to ensure iterative progress, continuous feedback, and adaptability.
* **Technologies Used**:
  + **Frontend**: HTML, CSS, JavaScript (React or Vue.js)
  + **Backend**: Python (Flask)
  + **Database**: MySQL or PostgreSQL
  + **Authentication**: JWT-based authentication for secure access
  + **Hosting**: Deployed using cloud services like AWS, Heroku, or Firebase
* **System Architecture**: The application will be structured in an MVC (Model-View-Controller) pattern for better maintainability and scalability.

### **Resources Required**

* **Development Tools**: VS Code, Flask Framework, MySQL Workbench, Postman for API testing
* **Server Requirements**: A cloud hosting platform with database support
* **Team Roles**:
  + **Frontend Developer** – UI/UX and design implementation
  + **Backend Developer** – API development and database integration
  + **Tester** – Ensuring bug-free deployment
  + **Project Manager** – Coordinating tasks and maintaining project timeline

### **Conclusion**

The proposed Hospital Management System aims to modernize healthcare administration, improve patient care, and enhance operational efficiency. By leveraging technology and automation, it seeks to streamline workflows, reduce manual errors, and empower healthcare professionals to focus on delivering quality care. The use of a web-based architecture with Flask and Agile methodology ensures flexibility, scalability, and a user-friendly experience.