Hospital Management System (HMS)

Project Overview

The **Hospital Management System (HMS)** is a web-based or desktop-based software designed to streamline and automate hospital operations. It enables efficient management of patient records, doctor schedules, appointments, billing, inventory, and staff details, ensuring smooth hospital workflow.

Key Modules and Features

1. Patient Management

- Register new patients with personal details and medical history.
- Search, update, and delete patient records.
- Assign patients to doctors and departments.
- Maintain inpatient and outpatient details.

2. Doctor and Staff Management

- Maintain doctor profiles, specializations, and availability schedules.
- Assign doctors to patients based on specialization and availability.
- Manage hospital staff details, including nurses and administrative staff.

3. Appointment Management

- Patients can book, reschedule, and cancel appointments.
- Automatic appointment notifications via email/SMS.
- View doctor-wise appointment schedules.

4. Billing and Payments

- Generate invoices for patient consultations, treatments, and medications.
- Manage payment records and issue receipts.
- Support for multiple payment methods (cash, card, insurance).

5. Pharmacy and Inventory Management

- Manage stock of medicines and medical supplies.
- Track medicine usage and expiration dates.
- Automated alerts for low stock and reorders.

6. Laboratory & Diagnostic Management

- Record and store patient lab test reports.
- Manage lab technician schedules.
- Generate and print diagnostic reports.

7. Ward and Bed Management

- Track availability of hospital beds.
- Assign beds to admitted patients.
- Manage ICU, general, and private ward allocations.

8. Reporting & Analytics

- Generate daily, weekly, and monthly hospital performance reports.
- Monitor patient visits, revenue, and expenses.
- Dashboard with real-time insights.

9. User Roles & Authentication

- Role-based access for admin, doctors, nurses, and receptionists.
- Secure login system with password encryption.
- Multi-factor authentication for added security.

Technology Stack

Web-Based HMS

- **Frontend:** HTML, CSS, JavaScript, Bootstrap
- **Backend:** Django/Python, Node.js, or PHP
- **Database:** PostgreSQL, MySQL, or MongoDB
- **APIs:** RESTful APIs for third-party integrations (e.g., SMS notifications, payment gateways)

Desktop-Based HMS

- **Programming Language:** Java, C#, or Python (Tkinter/PyQt)
- **Database:** SQLite, MySQL
- **Frameworks:** Java Swing, .NET, or Django for backend