

Project Report

Hospital Management System (HMS)

1. Introduction

The **Hospital Management System (HMS)** is a comprehensive software solution designed to manage various hospital operations efficiently. It integrates **patient registration, appointment scheduling, electronic health records (EHR), billing and invoicing, inventory management, and staff management**. Developed using **Java Swing** for the user interface and **MySQL** for database management, the system ensures smooth hospital administration.

2. Objectives

- To **automate hospital operations**, reducing paperwork and manual errors.
- To ensure **efficient patient care** by streamlining appointment and record management.
- To maintain **inventory control** for medical supplies.
- To provide **role-based access** for hospital staff to manage their specific tasks.

3. System Modules

3.1 Patient Registration

- Allows receptionists to register new patients.
- Stores patient details such as **name, age, gender, contact information, and medical history**.
- Generates a unique **Patient ID** for future reference.

3.2 Appointment Scheduling

- Enables patients to book appointments with **doctors based on availability**.
- Doctors can view their scheduled appointments.
- Appointment reminders sent to patients.

3.3 Electronic Health Records (EHR)

- Stores patient medical records securely.
- Doctors can update and access **diagnoses, prescriptions, and treatment history**.
- Improves patient care by maintaining a digital health record.

3.4 Billing and Invoicing

- Generates **invoices for medical services, treatments, and medications**.
- Supports **insurance processing and payment tracking**.
- Provides financial reports for hospital management.

3.5 Inventory Management

- Tracks stock levels of **medicines, equipment, and consumables**.
- Alerts for low stock and expiry dates.
- Manages **supplier details and purchase orders**.

3.6 Staff Management

- Admin can add, update, and remove hospital staff.
- Assigns **roles** (Doctor, Nurse, Receptionist, Inventory Manager, Billing Manager, Admin).
- Ensures **secure access** to system modules based on roles.

4. Database Design (MySQL)

Key Tables:

- **patients** – Stores patient details.
- **appointments** – Manages doctor-patient appointments.
- **ehr** – Contains patient medical records.
- **billing** – Stores financial transactions.
- **inventory** – Manages medical supplies.
- **users** – Manages hospital staff accounts and roles.

5. Technology Stack

- **Front-end:** Java Swing (GUI Framework)
- **Back-end:** Java (JDBC for database connection)
- **Database:** MySQL

7. User Roles & Permissions

Role	Permissions
Admin	Full access to the system
Doctor	Access to patient records, appointments
Nurse	Access to patient history, prescriptions

Receptionist Patient registration, appointment booking

Inventory Manager Manage medical supplies

Billing Manager Handle invoicing and payments

9. Future Enhancements

- **Web-based version** for remote access.
- **AI-powered diagnostics** for patient analysis.
- **Mobile application** for patients and staff.
- **Integration with government health databases.**

10. Conclusion

The **Hospital Management System** is a powerful tool for **streamlining hospital operations**, ensuring **efficient patient care, financial management, and inventory control**. By using Java Swing and MySQL, the system offers a **scalable, secure, and user-friendly** solution for hospitals and healthcare facilities.

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