HOSPITAL MANAGEMENT SYSTEM

CLI Based Application using Java, Maven, JDBC & MySQL

1. INTRODUCTION

Hospital Management System is a command-line based application developed to automate and manage hospital activities such as patient records, doctor details, appointments, laboratory tests, pharmacy, and billing. The system reduces manual work, improves accuracy, and provides faster access to data using a centralized database.

2. OBJECTIVES

• To automate hospital operations
• To reduce manual record keeping
• To implement CRUD operations
• To store and manage data using MySQL
• To provide a scalable and modular system

3. SCOPE OF THE PROJECT

The system covers department management, doctor management, patient management, appointment scheduling, laboratory tests, pharmacy management, and billing. It is suitable for small to medium hospitals and can be extended to GUI or web applications.

4. TECHNOLOGIES USED

Java (Core Java)
JDBC (Java Database Connectivity)
MySQL (Relational Database)
Maven (Build & Dependency Management)
Eclipse IDE
Command Line Interface

5. SYSTEM ARCHITECTURE

The system follows a layered architecture consisting of Presentation Layer (CLI), Business Logic Layer (DAO classes), and Database Layer (MySQL).

6. DATABASE DESIGN

The database consists of tables: department, doctor, patient, appointment, lab_test, medical_store, and billing. Each table uses AUTO_INCREMENT primary keys and foreign key relationships to maintain data integrity.

7. MODULE DESCRIPTION

Department Module: Add, view, update, delete departments.
Doctor Module: Manage doctor details.
Patient Module: Register and manage patients.
Appointment Module: Schedule and manage appointments.
Lab Test Module: Manage laboratory tests and results.
Pharmacy Module: Manage medicine stock.
Billing Module: Generate and manage bills.

8. CRUD OPERATIONS

All modules implement Create, Read, Update, and Delete operations using JDBC PreparedStatement to ensure secure database interaction.

9. JDBC CONNECTIVITY

JDBC is used to connect the Java application with MySQL database. A separate DBConnection class is used to establish and manage database connections.

10. FEATURES

• CLI based
• Modular design
• Auto-increment primary keys
• Secure database operations
• Easy to extend

11. ADVANTAGES

• Fast data access
• Reduced paperwork
• Improved accuracy
• Easy maintenance

12. LIMITATIONS

• No GUI
• No authentication
• Limited reporting

13. FUTURE ENHANCEMENTS

• Add login system
• Develop GUI or web version
• Add reporting features
• Role-based access control

14. CONCLUSION

The Hospital Management System successfully automates hospital operations using Java and MySQL. It demonstrates effective use of JDBC, CRUD operations, and modular programming concepts.

15. REFERENCES

Java Documentation
MySQL Documentation
Maven Official Documentation