

Hospital Management System – Using Java Development Kit (JDK)

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1. Introduction

This system developed with Java Swing is meant to be used on a computer and can handle tasks such as keeping patient and doctor records for a hospital. It uses a MySQL database to keep track of the data and supports some Create and Read operations.

2.Database Connection and Login

First, the user needs to log in and key in a MySQL database username and password. If the code is legitimate, it links to the database and makes the `hospital_db` database (provided it is absent).It will also set up two tables (`patients` and `doctors`) in the database if they do not exist yet. The login screen uses “GridBagLayout” so that its elements are properly set up and organized.

3.Main Application Interface

When login is successful, the application switches to the main interface with a “CardLayout” that lets you see different panels. When you access the main menu, you can handle patients’ and doctors’ files, or close the application. Once the application is opened, you can use the buttons ‘Manage Patients’, ‘Manage Doctors’, or ‘Exit’ from the welcome screen. All the buttons lead you to the appropriate management area.

4. Patient Management

Two buttons are included in this part, one for adding new patients and another for showing all existing patient records from the database.

The 'Add Patient' tab has fields for name, age, gender, and phone number. On clicking 'Add Patient', the application validates the input and inserts the record into the database using a Prepared Statement.

The 'List Patients' tab displays a table of patients retrieved from the database using a SELECT query and shown via Default Table Model.

5. Doctor Management

The doctor management section can also be accessed via the tabbed interface just like the patients section. The 'Add Doctor' tab takes name, specialty, and phone number inputs, which are validated and stored in the database upon confirmation. The 'List Doctors' tab fetches doctor records from the database and displays them in a read-only JTable using DefaultTableModel.

6. Technical Summary

- Language: Java
- GUI Toolkit: Swing
- Database: MySQL
- Database Access: JDBC (Java Database Connectivity)
- Layouts: GridBagLayout, BorderLayout, FlowLayout, CardLayout

7. Features Overview

- Login system with DB credential validation
- Automatic creation of database and tables if not present
- Add and list patient records
- Add and list doctor records
- Data input validation and error messaging
- JDBC exception handling
- Use of Swing UI components (JTabbedPane, JTable, JLabel, JTextField, JButton)