**Report of mini project**

**Title of project:** **Hospital Management System**

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**Aim:** To design and develop a GUI-based Hospital Management System for efficiently managing patient, doctor, appointment, and billing records with add, view, and delete features using a MySQL database.

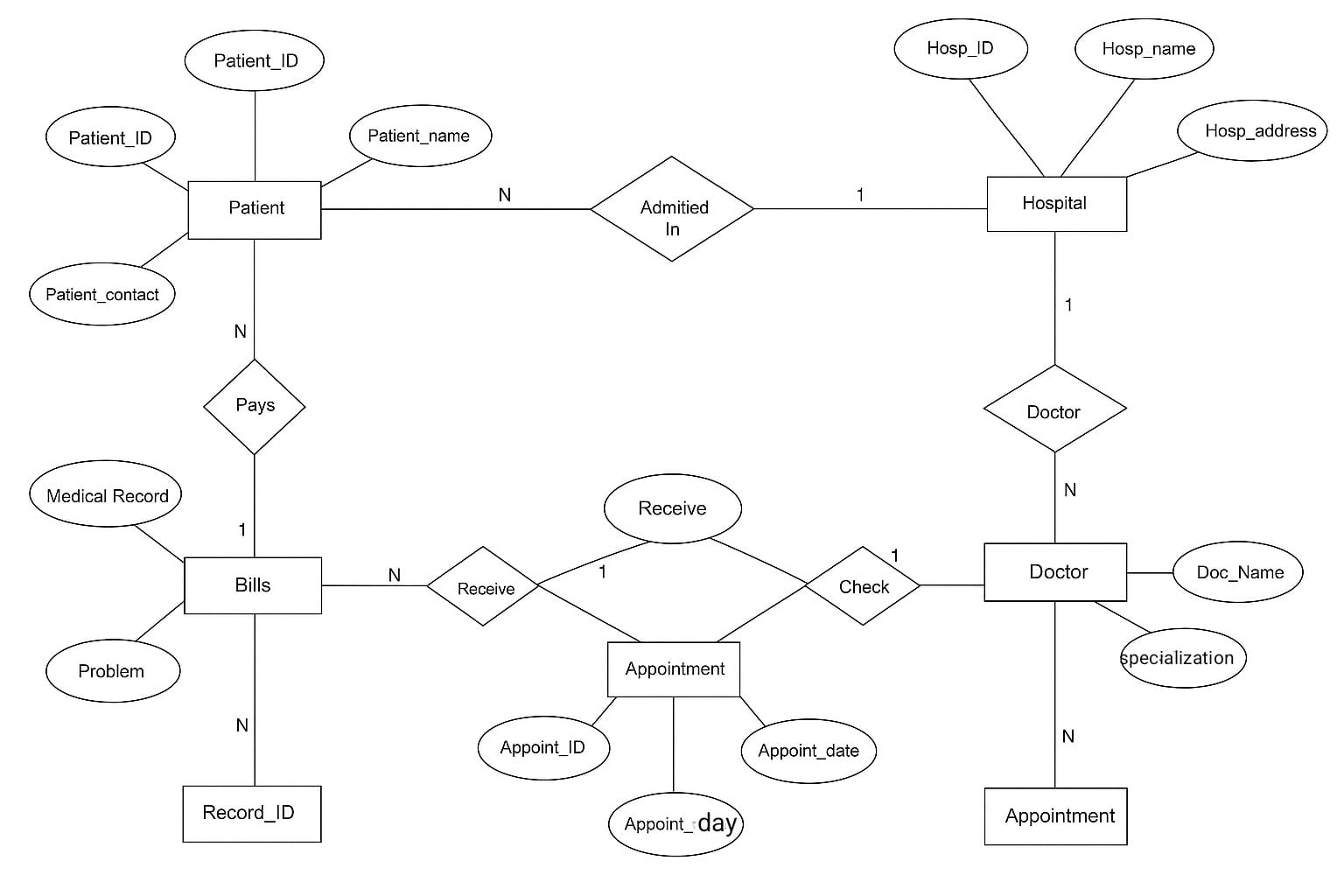
**Use Case:** This system is used by hospital administrators and staff to efficiently store, view, and manage patient, doctor, appointment, and billing records.

**Software Requirements:**

**1.1. Front-End (User Interface)**

* Language: Java (Swing/AWT for GUI)
* **IDE:**
  + NetBeans IDE / IntelliJ IDEA / Eclipse
* **JDK Version:**
  + JDK 8 or above

**ER diagram:**



**Mysql tables:**

**Hospital Management System: Backend Mysql Database Creation and Table Creation**

Microsoft Windows [Version 10.0.26200.6725]

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C:\Program Files\MySQL\MySQL Server 8.0\bin>mysql -h localhost -u root -p

Enter password: \*\*\*\*\*\*\*\*\*

Welcome to the MySQL monitor. Commands end with ; or \g.

Your MySQL connection id is 13

Server version: 8.0.43 MySQL Community Server - GPL

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> create database hms;

Query OK, 1 row affected (0.06 sec)

mysql> use hms;

Database changed

mysql> create table patient(id int auto\_increment PRIMARY KEY,name varchar(20),age int,disease varchar(50));

Query OK, 0 rows affected (0.12 sec)

mysql> create table doctor(id int auto\_increment primary key,name varchar(20),specialization varchar(20));

Query OK, 0 rows affected (0.16 sec)

mysql> create table appointment ( id int auto\_increment PRIMARY KEY, patient\_id INT, doctor\_id INT, `date` DATE, FOREIGN KEY (patient\_id) REFERENCES patient(id),FOREIGN KEY (doctor\_id) REFERENCES doctor(id));

Query OK, 0 rows affected (0.09 sec)

mysql> CREATE TABLE bill ( id int auto\_increment PRIMARY KEY, patient\_id INT, amount DOUBLE, date DATE, FOREIGN KEY (patient\_id) REFERENCES patient(id) );

Query OK, 0 rows affected (0.07 sec)

**Front end code:**

**Hospital Management System: Frontend Java Code**

**import** javax.swing.\*;

**import** javax.swing.table.DefaultTableModel;

**import** java.awt.\*;

**import** java.awt.event.\*;

**import** java.sql.\*;

**public** **class** HospitalManagement **extends** JFrame {

**static** **final** String ***URL*** = "jdbc:mysql://localhost:3306/hms";

**static** **final** String ***USER*** = "root";

**static** **final** String ***PASSWORD*** = "laxmi2005";

Connection con;

PreparedStatement pst;

ResultSet rs;

DefaultTableModel patientModel, doctorModel, appointmentModel, billModel;

**public** HospitalManagement() {

setTitle(" Hospital Management System");

setSize(850, 600);

setDefaultCloseOperation(JFrame.***EXIT\_ON\_CLOSE***);

setLocationRelativeTo(**null**);

JTabbedPane tabs = **new** JTabbedPane();

tabs.addTab("Patient", createPatientPanel());

tabs.addTab("Doctor", createDoctorPanel());

tabs.addTab("Appointment", createAppointmentPanel());

tabs.addTab("Bill", createBillPanel());

add(tabs);

**try** {

con = DriverManager.*getConnection*(***URL***, ***USER***, ***PASSWORD***);

System.***out***.println("Connected to Database Successfully!");

} **catch** (Exception e) {

JOptionPane.*showMessageDialog*(**this**, "Database Connection Failed: " + e.getMessage());

}

setVisible(**true**);

}

JPanel createPatientPanel() {

JPanel panel = **new** JPanel(**null**);

JLabel lblName = **new** JLabel("Name:");

lblName.setBounds(30, 30, 100, 25);

JTextField txtName = **new** JTextField();

txtName.setBounds(130, 30, 150, 25);

JLabel lblAge = **new** JLabel("Age:");

lblAge.setBounds(30, 70, 100, 25);

JTextField txtAge = **new** JTextField();

txtAge.setBounds(130, 70, 150, 25);

JLabel lblDisease = **new** JLabel("Disease:");

lblDisease.setBounds(30, 110, 100, 25);

JTextField txtDisease = **new** JTextField();

txtDisease.setBounds(130, 110, 150, 25);

JButton btnAdd = **new** JButton("Add");

btnAdd.setBounds(30, 150, 80, 30);

JButton btnDelete = **new** JButton("Delete");

btnDelete.setBounds(120, 150, 80, 30);

JButton btnView = **new** JButton("View");

btnView.setBounds(210, 150, 80, 30);

patientModel = **new** DefaultTableModel(**new** String[]{"ID", "Name", "Age", "Disease"}, 0);

JTable table = **new** JTable(patientModel);

JScrollPane scroll = **new** JScrollPane(table);

scroll.setBounds(320, 20, 480, 400);

panel.add(lblName); panel.add(txtName);

panel.add(lblAge); panel.add(txtAge);

panel.add(lblDisease); panel.add(txtDisease);

panel.add(btnAdd); panel.add(btnDelete); panel.add(btnView);

panel.add(scroll);

btnAdd.addActionListener(e -> {

**try** {

pst = con.prepareStatement("INSERT INTO patient(name, age, disease) VALUES (?, ?, ?)");

pst.setString(1, txtName.getText());

pst.setInt(2, Integer.*parseInt*(txtAge.getText()));

pst.setString(3, txtDisease.getText());

pst.executeUpdate();

JOptionPane.*showMessageDialog*(**this**, "Patient Added!");

} **catch** (Exception ex) {

JOptionPane.*showMessageDialog*(**this**, ex.getMessage());

}

});

btnView.addActionListener(e -> loadTable("patient", patientModel));

btnDelete.addActionListener(e -> deleteRow("patient", table, patientModel));

**return** panel;

}

JPanel createDoctorPanel() {

JPanel panel = **new** JPanel(**null**);

JLabel lblName = **new** JLabel("Name:");

lblName.setBounds(30, 30, 100, 25);

JTextField txtName = **new** JTextField();

txtName.setBounds(130, 30, 150, 25);

JLabel lblSpec = **new** JLabel("Specialization:");

lblSpec.setBounds(30, 70, 100, 25);

JTextField txtSpec = **new** JTextField();

txtSpec.setBounds(130, 70, 150, 25);

JButton btnAdd = **new** JButton("Add");

btnAdd.setBounds(30, 110, 80, 30);

JButton btnDelete = **new** JButton("Delete");

btnDelete.setBounds(120, 110, 80, 30);

JButton btnView = **new** JButton("View");

btnView.setBounds(210, 110, 80, 30);

doctorModel = **new** DefaultTableModel(**new** String[]{"ID", "Name", "Specialization"}, 0);

JTable table = **new** JTable(doctorModel);

JScrollPane scroll = **new** JScrollPane(table);

scroll.setBounds(320, 20, 480, 400);

panel.add(lblName); panel.add(txtName);

panel.add(lblSpec); panel.add(txtSpec);

panel.add(btnAdd); panel.add(btnDelete); panel.add(btnView);

panel.add(scroll);

btnAdd.addActionListener(e -> {

**try** {

pst = con.prepareStatement("INSERT INTO doctor(name, specialization) VALUES (?, ?)");

pst.setString(1, txtName.getText());

pst.setString(2, txtSpec.getText());

pst.executeUpdate();

JOptionPane.*showMessageDialog*(**this**, " Doctor Added!");

} **catch** (Exception ex) {

JOptionPane.*showMessageDialog*(**this**, ex.getMessage());

}

});

btnView.addActionListener(e -> loadTable("doctor", doctorModel));

btnDelete.addActionListener(e -> deleteRow("doctor", table, doctorModel));

**return** panel;

}

JPanel createAppointmentPanel() {

JPanel panel = **new** JPanel(**null**);

JLabel lblPid = **new** JLabel("Patient ID:");

lblPid.setBounds(30, 30, 100, 25);

JTextField txtPid = **new** JTextField();

txtPid.setBounds(130, 30, 150, 25);

JLabel lblDid = **new** JLabel("Doctor ID:");

lblDid.setBounds(30, 70, 100, 25);

JTextField txtDid = **new** JTextField();

txtDid.setBounds(130, 70, 150, 25);

JLabel lblDate = **new** JLabel("Date (YYYY-MM-DD):");

lblDate.setBounds(30, 110, 150, 25);

JTextField txtDate = **new** JTextField();

txtDate.setBounds(180, 110, 100, 25);

JButton btnAdd = **new** JButton("Schedule");

btnAdd.setBounds(30, 150, 100, 30);

JButton btnView = **new** JButton("View");

btnView.setBounds(140, 150, 80, 30);

appointmentModel = **new** DefaultTableModel(**new** String[]{"ID", "Patient ID", "Doctor ID", "Date"}, 0);

JTable table = **new** JTable(appointmentModel);

JScrollPane scroll = **new** JScrollPane(table);

scroll.setBounds(320, 20, 480, 400);

panel.add(lblPid); panel.add(txtPid);

panel.add(lblDid); panel.add(txtDid);

panel.add(lblDate); panel.add(txtDate);

panel.add(btnAdd); panel.add(btnView);

panel.add(scroll);

btnAdd.addActionListener(e -> {

**try** {

pst = con.prepareStatement("INSERT INTO appointment(patient\_id, doctor\_id, date) VALUES (?, ?, ?)");

pst.setInt(1, Integer.*parseInt*(txtPid.getText()));

pst.setInt(2, Integer.*parseInt*(txtDid.getText()));

pst.setString(3, txtDate.getText());

pst.executeUpdate();

JOptionPane.*showMessageDialog*(**this**, " Appointment Scheduled!");

} **catch** (Exception ex) {

JOptionPane.*showMessageDialog*(**this**, ex.getMessage());

}

});

btnView.addActionListener(e -> loadTable("appointment", appointmentModel));

**return** panel;

}

JPanel createBillPanel() {

JPanel panel = **new** JPanel(**null**);

JLabel lblPid = **new** JLabel("Patient ID:");

lblPid.setBounds(30, 30, 100, 25);

JTextField txtPid = **new** JTextField();

txtPid.setBounds(130, 30, 150, 25);

JLabel lblAmt = **new** JLabel("Amount:");

lblAmt.setBounds(30, 70, 100, 25);

JTextField txtAmt = **new** JTextField();

txtAmt.setBounds(130, 70, 150, 25);

JButton btnAdd = **new** JButton("Generate Bill");

btnAdd.setBounds(30, 110, 130, 30);

JButton btnView = **new** JButton("View Bills");

btnView.setBounds(170, 110, 100, 30);

billModel = **new** DefaultTableModel(**new** String[]{"ID", "Patient ID", "Amount", "Date"}, 0);

JTable table = **new** JTable(billModel);

JScrollPane scroll = **new** JScrollPane(table);

scroll.setBounds(320, 20, 480, 400);

panel.add(lblPid); panel.add(txtPid);

panel.add(lblAmt); panel.add(txtAmt);

panel.add(btnAdd); panel.add(btnView);

panel.add(scroll);

btnAdd.addActionListener(e -> {

**try** {

pst = con.prepareStatement("INSERT INTO bill(patient\_id, amount, date) VALUES (?, ?, CURDATE())");

pst.setInt(1, Integer.*parseInt*(txtPid.getText()));

pst.setDouble(2, Double.*parseDouble*(txtAmt.getText()));

pst.executeUpdate();

JOptionPane.*showMessageDialog*(**this**, "Bill Generated!");

} **catch** (Exception ex) {

JOptionPane.*showMessageDialog*(**this**, ex.getMessage());

}

});

btnView.addActionListener(e -> loadTable("bill", billModel));

**return** panel;

}

**void** loadTable(String tableName, DefaultTableModel model) {

**try** {

model.setRowCount(0);

pst = con.prepareStatement("SELECT \* FROM " + tableName);

rs = pst.executeQuery();

ResultSetMetaData rsmd = rs.getMetaData();

**int** cols = rsmd.getColumnCount();

**while** (rs.next()) {

Object[] row = **new** Object[cols];

**for** (**int** i = 0; i < cols; i++) row[i] = rs.getObject(i + 1);

model.addRow(row);

}

} **catch** (Exception e) {

JOptionPane.*showMessageDialog*(**this**, e.getMessage());

}

}

**void** deleteRow(String tableName, JTable table, DefaultTableModel model) {

**int** row = table.getSelectedRow();

**if** (row == -1) {

JOptionPane.*showMessageDialog*(**this**, "Select a record to delete!");

**return**;

}

**int** id = (**int**) model.getValueAt(row, 0);

**try** {

pst = con.prepareStatement("DELETE FROM " + tableName + " WHERE id = ?");

pst.setInt(1, id);

pst.executeUpdate();

model.removeRow(row);

JOptionPane.*showMessageDialog*(**this**, "Record Deleted!");

} **catch** (Exception e) {

JOptionPane.*showMessageDialog*(**this**, e.getMessage());

}

}

**public** **static** **void** main(String[] args) {

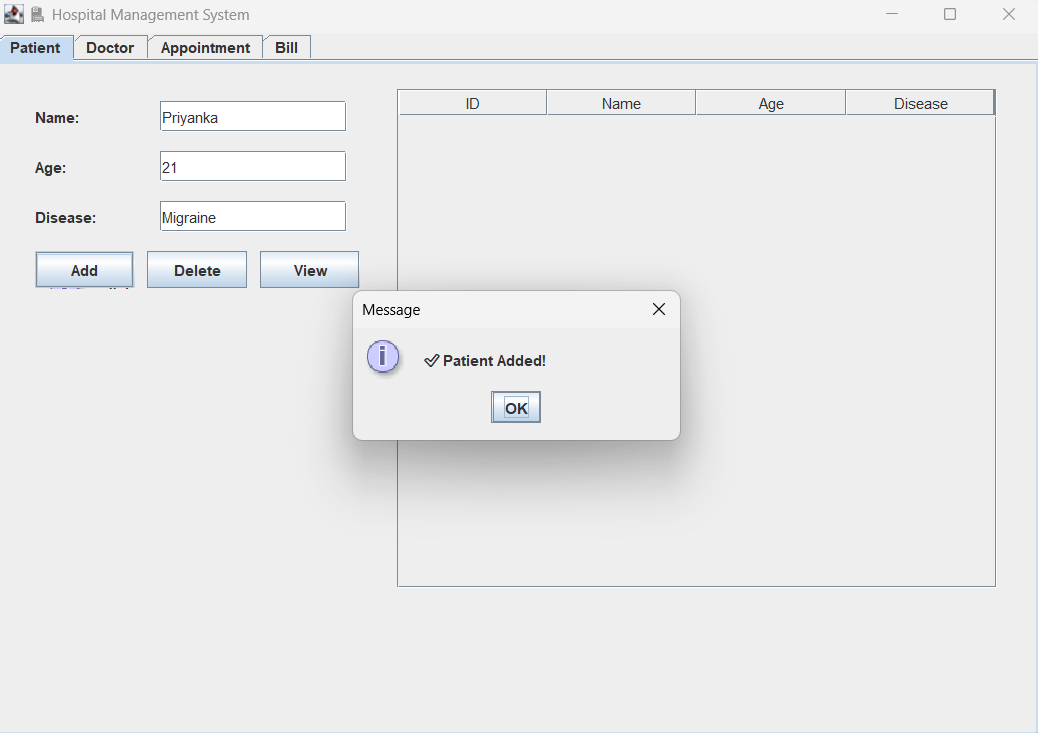
SwingUtilities.*invokeLater*(() -> **new** HospitalManagement());

}

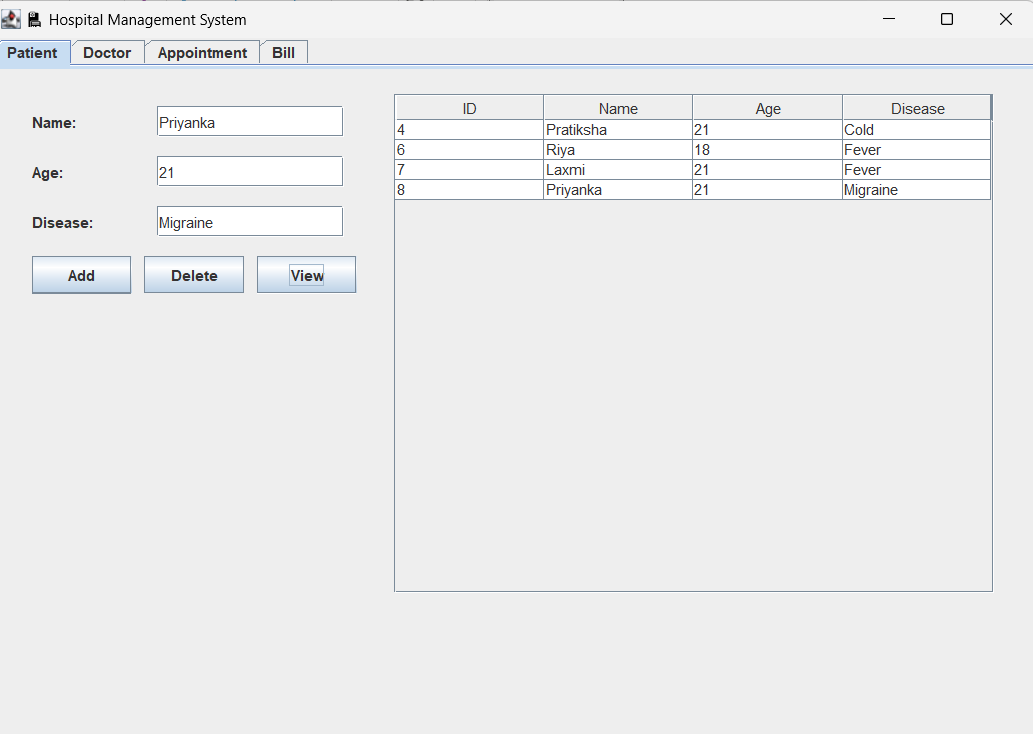
}

**Screenshots:**

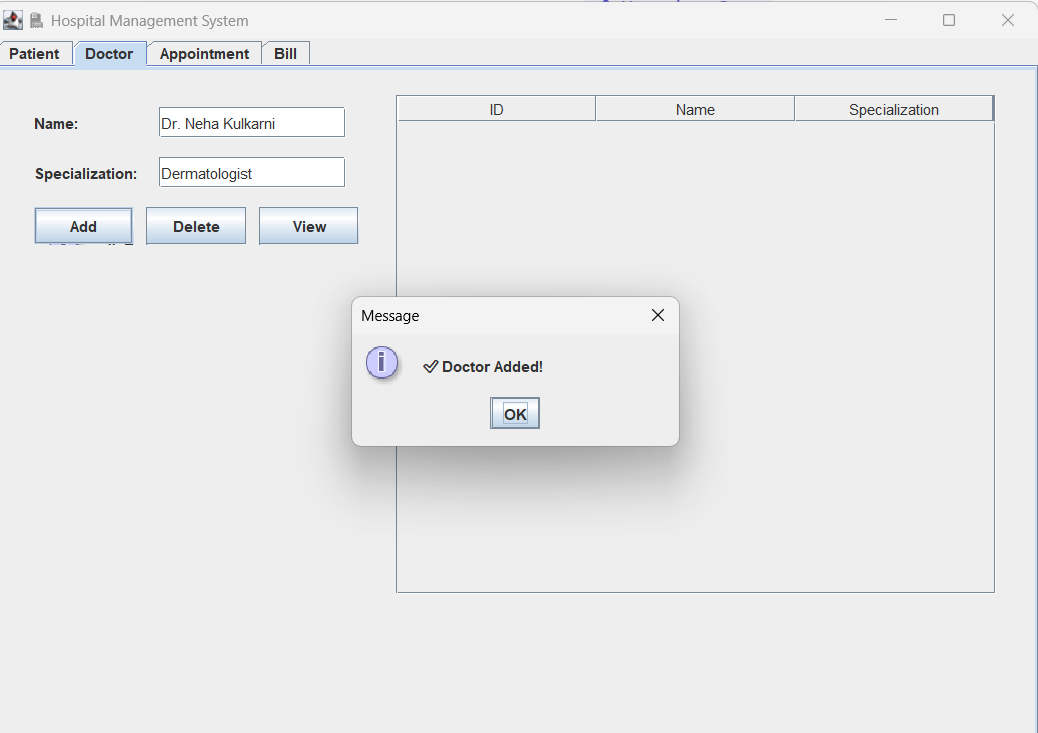
**Patient Details:**



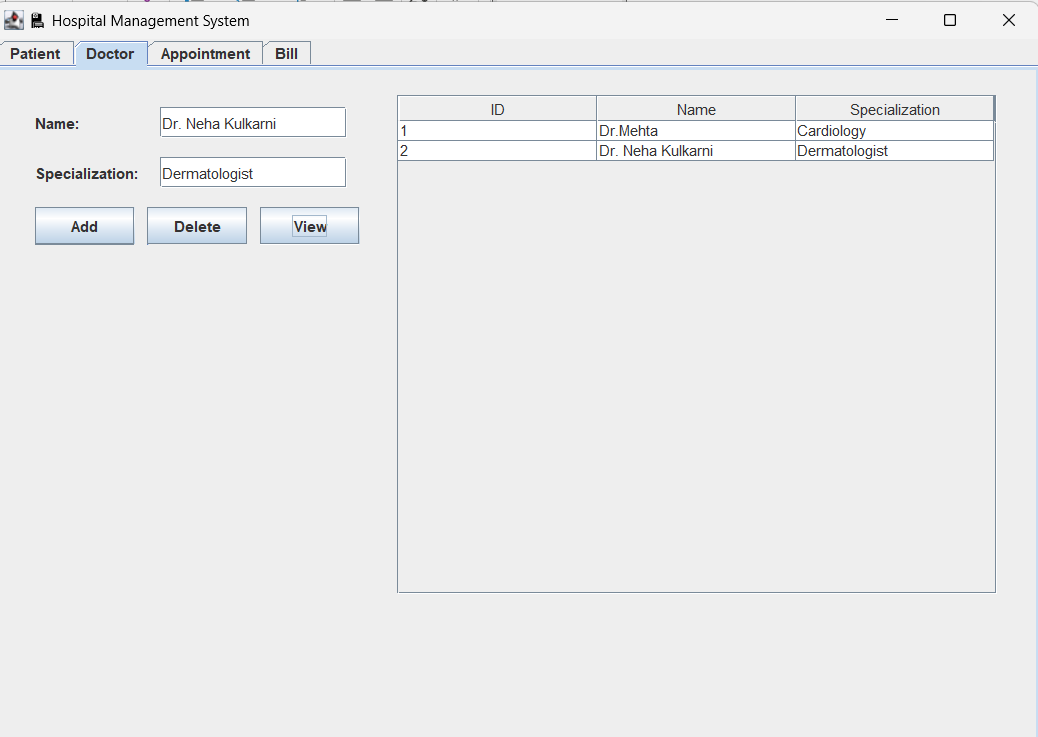
**View Patients:**



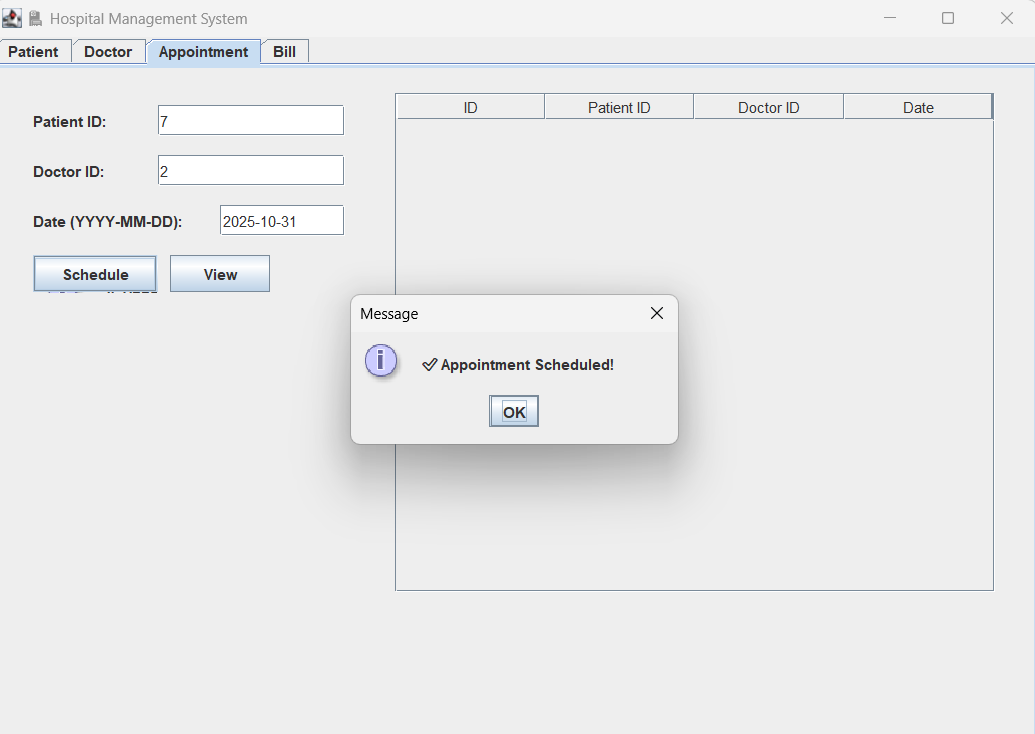
**Doctor Details:**



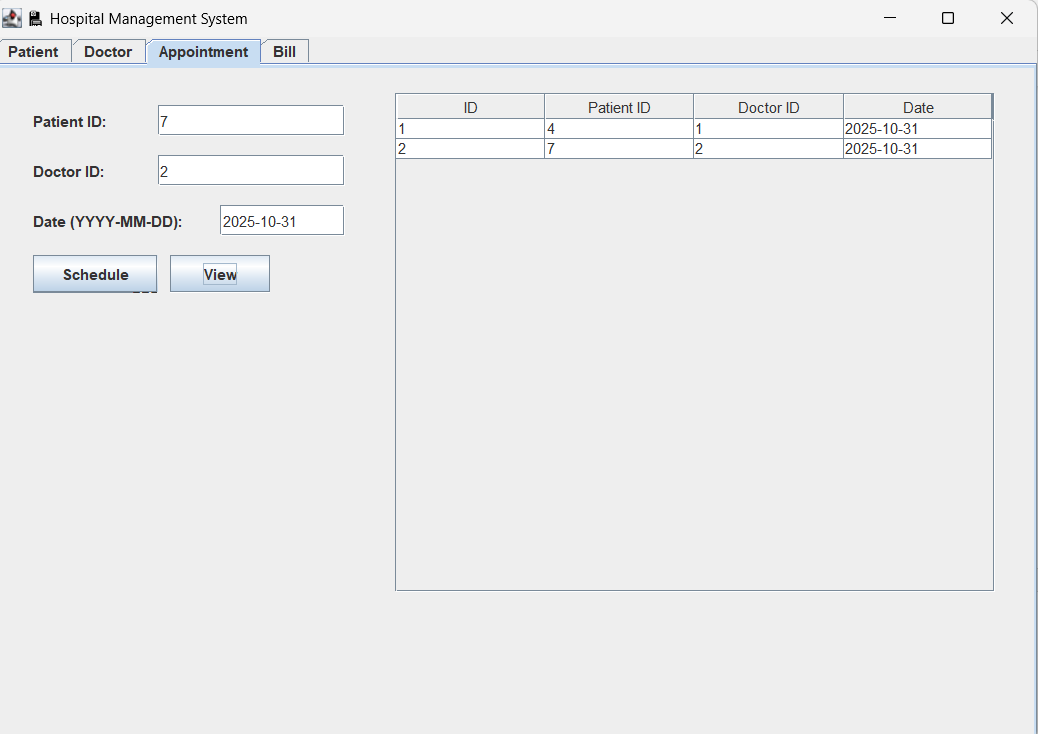
**View Doctors Details:**



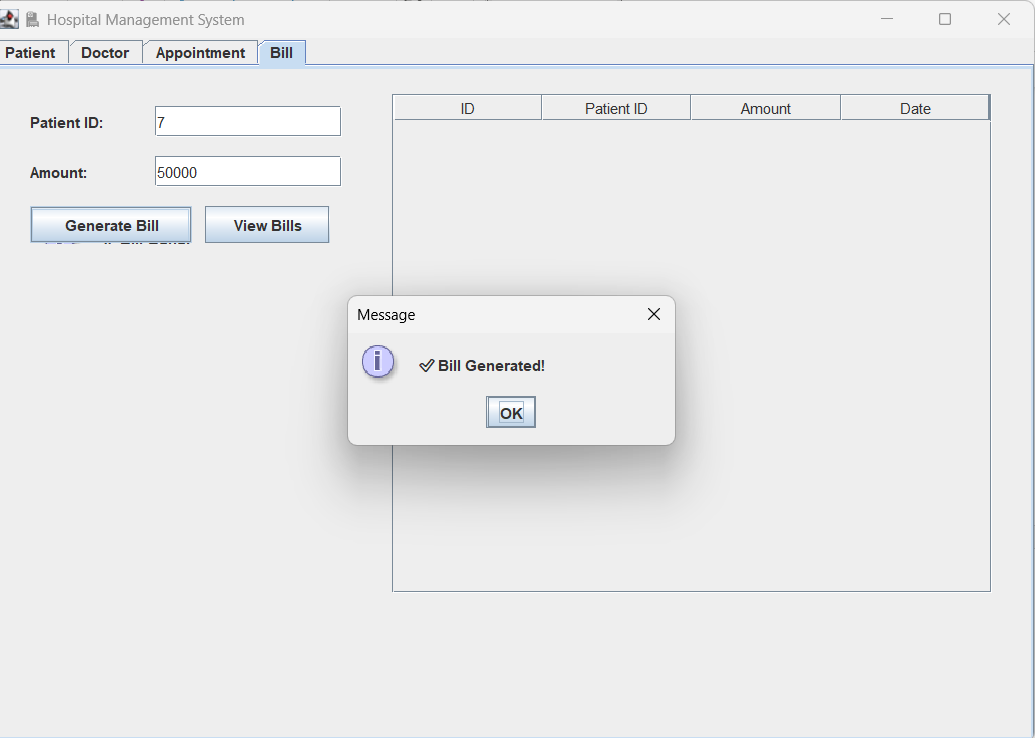
**Appointment:**



**View Appointment:**



**Generates Bills:**



**View Bills:**

