OOPS MINI PROJECT

AIM:
To design and develop a Student Management System using Java, which will provide a user- friendly, efficient, and reliable solution for managing student-related data in educational institutions

Algorithm:
1. Start the Program. Initialize database (list, file, or other storage).
2. Display Menu Options Add Student View Students Search Student Update Student Delete Student Manage Attendance Manage Grades Exit
3. Process User Input: Perform the selected action
Add: Collect and store new student details.
View: Display all student records.
Search: Find and show specific student details.
Update: Modify and save student details.
Delete: Remove student record.
Attendance: Record/view attendance. Grades: Add/view grades.
4. Loop Menu.Return to menu until user selects “Exit.”
5. Save Data.Save all changes to persistent storage (if applicable).give correct allignment

Program:
```
import javax.swing.*;
import java.sql.*;

public class StudentManagement {
    public static void main(String[] args) throws Exception {
        // Step 1: Establish database connection
        Connection c =
DriverManager.getConnection("jdbc:mysql://localhost:3306/student_mana
gement", "root", "password");

        // Step 2: Create JFrame and components
        JFrame f = new JFrame("Student Management");
```

```
        // Create input fields for Name, Age, and Course
        JTextField n = new JTextField(10); // Name text field
        JTextField a = new JTextField(5);  // Age text field
        JTextField co = new JTextField(10); // Course text field

        // Create a text area to display student data
        JTextArea d = new JTextArea(5, 30);
        d.setEditable(false); // Make the text area non-editable

        // Step 3: Set up the layout of the frame
        f.setLayout(new BoxLayout(f.getContentPane(),
BoxLayout.Y_AXIS)); // Set vertical layout

        // Step 4: Add components to the frame
        // Adding labels and input fields for Name, Age, and Course
        f.add(new JLabel("Name:"));
        f.add(n);
        f.add(new JLabel("Age:"));
        f.add(a);
        f.add(new JLabel("Course:"));
        f.add(co);

        // Step 5: Add 'Add' button with ActionListener to insert data into the
database
        JButton addButton = new JButton("Add");
        addButton.addActionListener(e -> {
            try {
                // Retrieve values from input fields
                String name = n.getText();
                String age = a.getText();
                String course = co.getText();

                // Prepare SQL query to insert data into the database
                String query = "INSERT INTO students (name, age, course)
VALUES ('" + name + "', " + age + ", '" + course + "')";

                // Execute the query to insert data
```

```
            c.createStatement().executeUpdate(query);

            // Clear the input fields after adding the student
            n.setText("");
            a.setText("");
            co.setText("");

            // Show success message
            JOptionPane.showMessageDialog(f, "Student added
successfully!");

        } catch (SQLException ex) {
            ex.printStackTrace();
            JOptionPane.showMessageDialog(f, "Error adding student: " +
ex.getMessage());
        }
    });

    // Step 6: Add 'View' button with ActionListener to fetch and display
student data
    JButton viewButton = new JButton("View");
    viewButton.addActionListener(e -> {
        try {
            // Clear the text area before displaying new data
            d.setText("");

            // Execute SQL query to fetch all student records
            ResultSet rs = c.createStatement().executeQuery("SELECT *
FROM students");

            // Iterate through the result set and display data in the text area
            while (rs.next()) {
                int id = rs.getInt(1); // Assuming the first column is the student
ID
                String name = rs.getString(2); // Second column is the name
                int age = rs.getInt(3); // Third column is the age
                String course = rs.getString(4); // Fourth column is the course
```

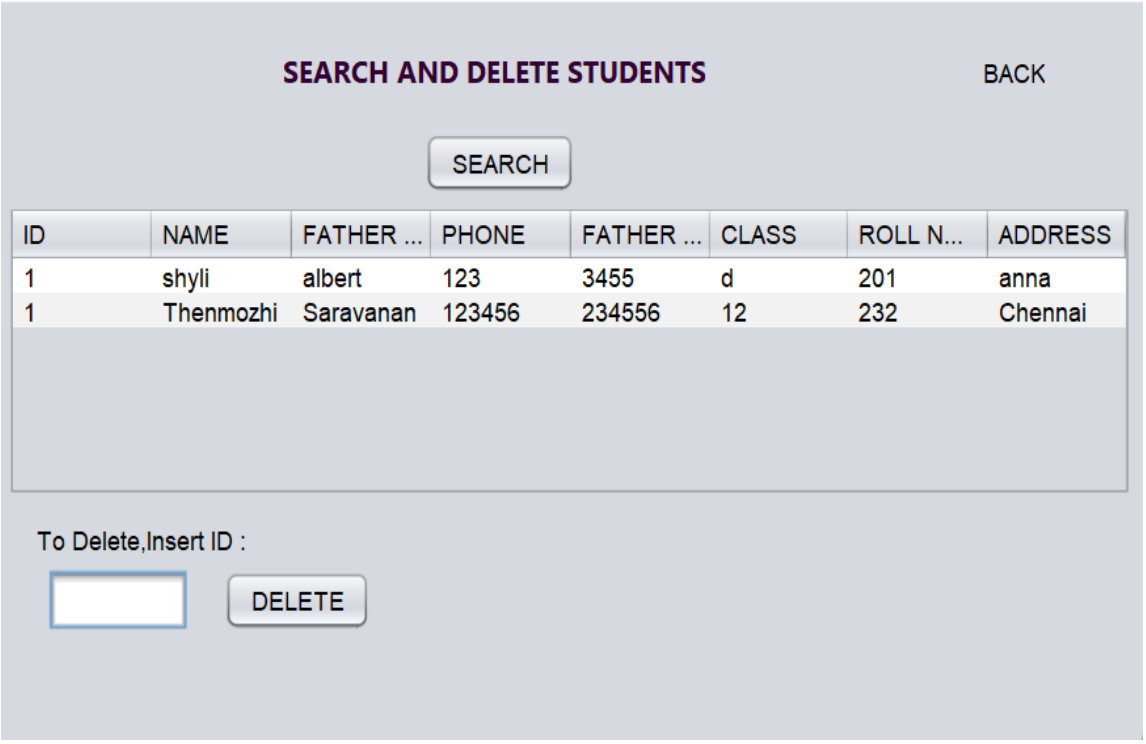
```
                // Append student data to the text area
                d.append(id + " " + name + " " + age + " " + course + "\n");
            }
        } catch (SQLException ex) {
            ex.printStackTrace();
            JOptionPane.showMessageDialog(f, "Error fetching students: " +
ex.getMessage());
        }
    });

    // Step 7: Add the buttons and text area to the frame
    f.add(addButton);
    f.add(viewButton);
    f.add(new JScrollPane(d)); // Wrap text area with JScrollPane for
scrolling

    // Step 8: Frame settings
    f.setSize(400, 300); // Set the size of the window
    f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE); // Close the
application when the window is closed
    f.setVisible(true); // Make the frame visible
  }
```

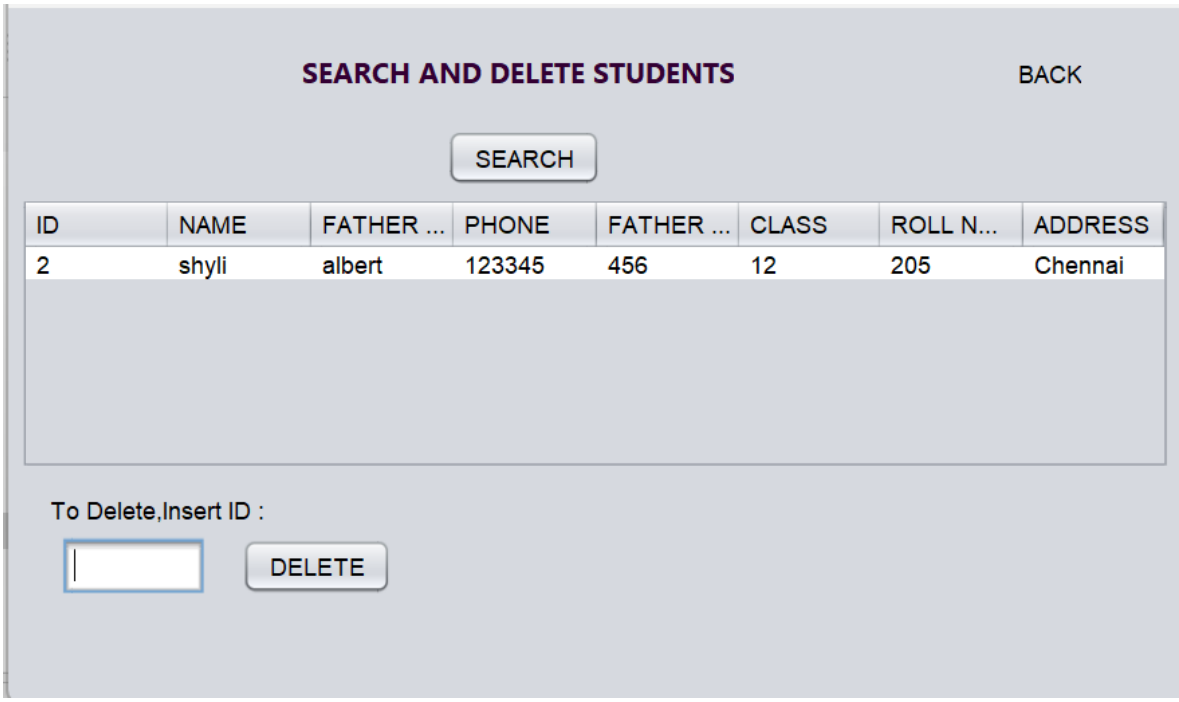
RESULT:

Login Page

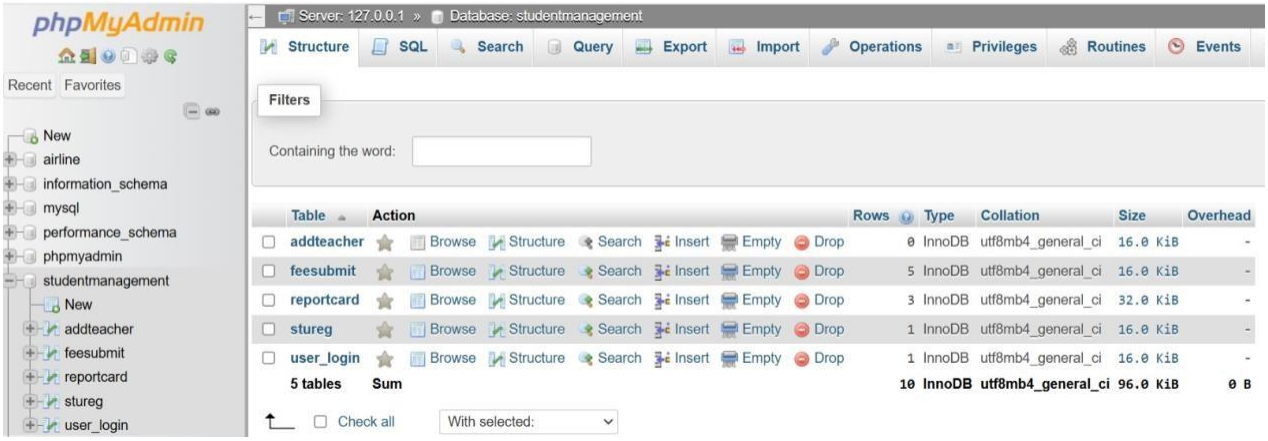


ID	NAME	FATHER ...	PHONE	FATHER ...	CLASS	ROLL N...	ADDRESS
1	shyli	albert	123	3455	d	201	anna
1	Thenmozhi	Saravanan	123456	234556	12	232	Chennai

Insert Page

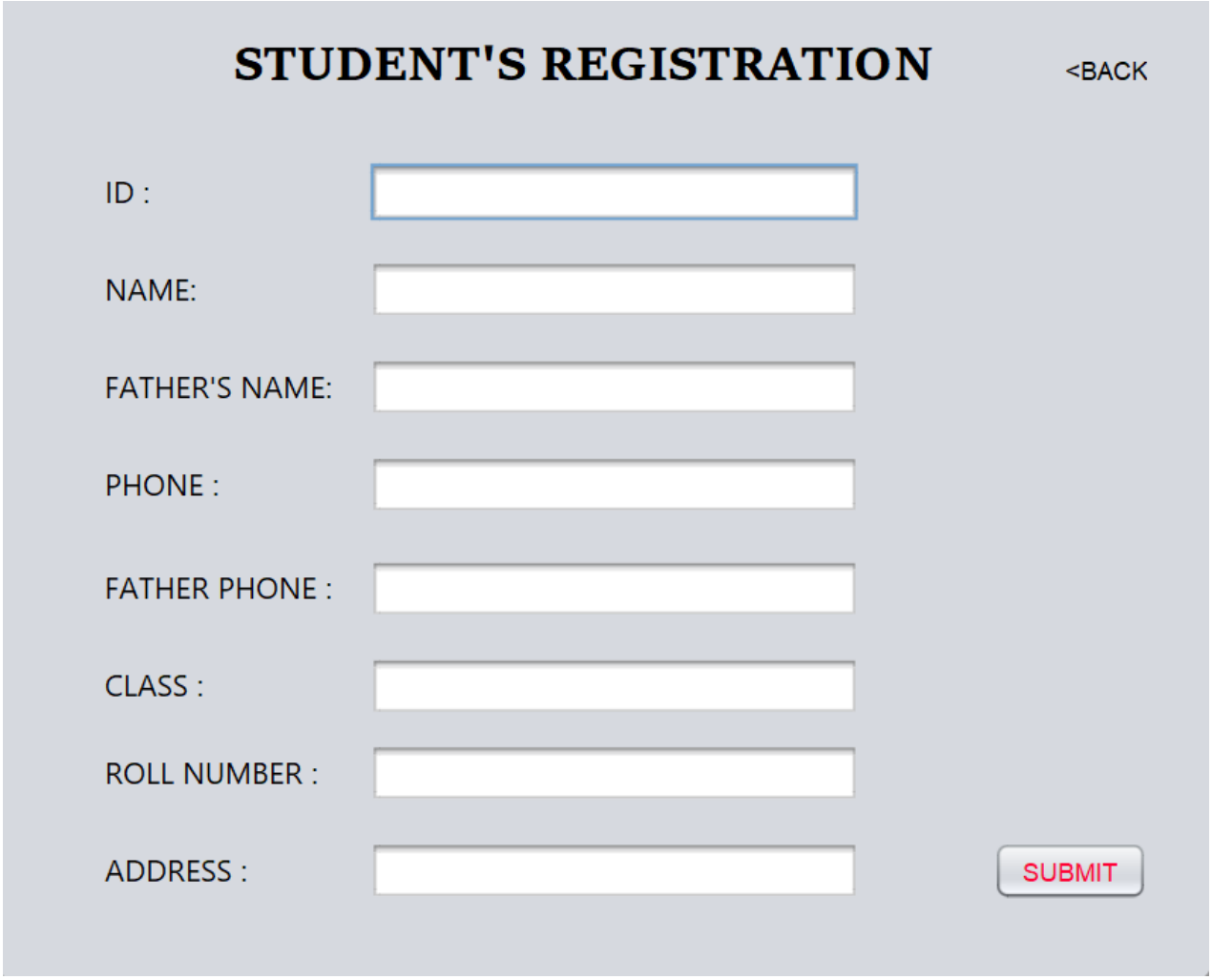


Delete page



SQL Database

Registration Page



Registration Page

RESULT:

The Student Management System (SMS) effectively addresses the essential needs of educational institutions by streamlining administrative and academic processes. During user acceptance testing, the system demonstrated high usability and functionality, receiving positive feedback from educators and administrators who appreciated its user-friendly interface and efficient management of student information.