

# Mini Project – Train Booking System

DONE BY

Sudharshan S,Udaya sankar C,Ram Haygrev

AIM:

To Create a java swing project on train booking system with login and registration with database connection.

DatabaseConnection.java (used to make connection to MYSQL database with mysql\_connector\_9.0.1.jar file)

CODE:

```
import javax.swing.*;
import java.awt.*;
import java.awt.event.*;
import java.sql.*;
import java.util.List;
import java.util.ArrayList;

public class TrainBookingSystem extends JFrame {
    private Connection connection;

    public TrainBookingSystem() {
        // Initialize the database connection
        try {
            connection = DriverManager.getConnection(
                "jdbc:mysql://localhost:3306/train_booking_system", "root",
                "Udaya@2006");
        } catch (SQLException e) {
            e.printStackTrace();
            JOptionPane.showMessageDialog(this, "Database connection failed!");
            System.exit(1);
        }
    }
}
```

```

    // Show the login form initially
    showLoginForm();
}

// Method to show Login Form
private void showLoginForm() {
    JPanel panel = new JPanel(new GridBagLayout());
    GridBagConstraints gbc = new GridBagConstraints();
    gbc.insets = new Insets(5, 5, 5, 5);

    // Set background image for the login page
    JLabel background = new JLabel(new ImageIcon("login_background.jpg"));
    background.setLayout(new BorderLayout());

    JLabel titleLabel = new JLabel("Train Booking System - Login",
SwingConstants.CENTER);
    titleLabel.setFont(new Font("Arial", Font.BOLD, 20));
    titleLabel.setForeground(Color.WHITE);

    JTextField usernameField = new JTextField(15);
    JPasswordField passwordField = new JPasswordField(15);
    JButton loginButton = new JButton("Login");
    JButton signUpButton = new JButton("Sign Up");

    // Set font and styling for fields and buttons
    usernameField.setFont(new Font("Arial", Font.PLAIN, 14));
    passwordField.setFont(new Font("Arial", Font.PLAIN, 14));
    loginButton.setFont(new Font("Arial", Font.BOLD, 14));
    signUpButton.setFont(new Font("Arial", Font.BOLD, 14));

    gbc.gridx = 0;
    gbc.gridy = 0;
    gbc.gridwidth = 2;
    background.add(titleLabel, BorderLayout.NORTH);

    gbc.gridwidth = 1;
    gbc.gridy++;
    panel.add(new JLabel("Username:"), gbc);
    gbc.gridx = 1;
    panel.add(usernameField, gbc);

    gbc.gridx = 0;
    gbc.gridy++;
    panel.add(new JLabel("Password:"), gbc);

```

```

gbc.gridx = 1;
panel.add(passwordField, gbc);

gbc.gridx = 0;
gbc.gridy++;
panel.add(loginButton, gbc);
gbc.gridx = 1;
panel.add(signupButton, gbc);

loginButton.addActionListener(e -> {
    String username = usernameField.getText();
    String password = new String(passwordField.getPassword());

    if (authenticateUser(username, password)) {
        JOptionPane.showMessageDialog(this, "Login Successful!");
        showTrainSelectionForm(); // Go to train selection after login
    } else {
        JOptionPane.showMessageDialog(this, "Invalid Credentials!");
    }
});

signupButton.addActionListener(e -> showSignupForm());

background.add(panel, BorderLayout.CENTER);
setContentPane(background);
setSize(600, 400);
setLocationRelativeTo(null);
setDefaultCloseOperation(EXIT_ON_CLOSE);
setVisible(true);
}

// Method to show the Signup Form
private void showSignupForm() {
    JPanel panel = new JPanel(new GridBagLayout());
    GridBagConstraints gbc = new GridBagConstraints();
    gbc.insets = new Insets(5, 5, 5, 5);

    // Set background image for signup page
    JLabel background = new JLabel(new ImageIcon("signup_background.jpg"));
    background.setLayout(new BorderLayout());

    JLabel titleLabel = new JLabel("Train Booking System - Sign Up",
SwingConstants.CENTER);
    titleLabel.setFont(new Font("Arial", Font.BOLD, 20));

```

```
titleLabel.setForeground(Color.WHITE);

JTextField usernameField = new JTextField(15);
JPasswordField passwordField = new JPasswordField(15);
JTextField emailField = new JTextField(15);
JButton registerButton = new JButton("Register");
JButton backButton = new JButton("Back");

// Set font and styling for fields and buttons
usernameField.setFont(new Font("Arial", Font.PLAIN, 14));
passwordField.setFont(new Font("Arial", Font.PLAIN, 14));
emailField.setFont(new Font("Arial", Font.PLAIN, 14));
registerButton.setFont(new Font("Arial", Font.BOLD, 14));
backButton.setFont(new Font("Arial", Font.BOLD, 14));

gbc.gridx = 0;
gbc.gridy = 0;
gbc.gridwidth = 2;
background.add(titleLabel, BorderLayout.NORTH);

gbc.gridwidth = 1;
gbc.gridy++;
panel.add(new JLabel("Username:"), gbc);
gbc.gridx = 1;
panel.add(usernameField, gbc);

gbc.gridx = 0;
gbc.gridy++;
panel.add(new JLabel("Password:"), gbc);
gbc.gridx = 1;
panel.add(passwordField, gbc);

gbc.gridx = 0;
gbc.gridy++;
panel.add(new JLabel("Email:"), gbc);
gbc.gridx = 1;
panel.add(emailField, gbc);

gbc.gridx = 0;
gbc.gridy++;
panel.add(registerButton, gbc);
gbc.gridx = 1;
panel.add(backButton, gbc);
```

```

registerButton.addActionListener(e -> {
    String username = usernameField.getText();
    String password = new String(passwordField.getPassword());
    String email = emailField.getText();

    if (registerUser(username, password, email)) {
        JOptionPane.showMessageDialog(this, "Registration Successful!");
        showLoginForm();
    } else {
        JOptionPane.showMessageDialog(this, "Registration Failed!");
    }
});

backButton.addActionListener(e -> showLoginForm());

background.add(panel, BorderLayout.CENTER);
setContentPane(background);
revalidate();
}

// Method to show the Train Selection Form (Ticket Booking)
private void showTrainSelectionForm() {
    JPanel panel = new JPanel(new BorderLayout());
    JLabel titleLabel = new JLabel("Train Selection", SwingConstants.CENTER);
    titleLabel.setFont(new Font("Arial", Font.BOLD, 20));

    // Query to fetch available trains (you should have this table in your database)
    String query = "SELECT * FROM trains";
    try (Statement stmt = connection.createStatement();
        ResultSet rs = stmt.executeQuery(query)) {

        String[] columnNames = {"Train ID", "Train Name", "Departure", "Arrival",
"Fare"};
        Object[][] data = new Object[10][5]; // Assuming 10 trains for now

        int i = 0;
        while (rs.next() && i < 10) {
            data[i][0] = rs.getInt("train_id");
            data[i][1] = rs.getString("train_name");
            data[i][2] = rs.getString("departure");
            data[i][3] = rs.getString("arrival");
            data[i][4] = rs.getDouble("fare");
            i++;
        }
    }
}

```

```

JTable table = new JTable(data, columnNames);
JScrollPane scrollPane = new JScrollPane(table);
panel.add(scrollPane, BorderLayout.CENTER);

// Add button to book tickets
JButton bookButton = new JButton("Book Ticket");
panel.add(bookButton, BorderLayout.SOUTH);

bookButton.addActionListener(e -> {
    int selectedRow = table.getSelectedRow();
    if (selectedRow != -1) {
        // Get the train details from the selected row
        int trainId = (int) table.getValueAt(selectedRow, 0);
        String trainName = (String) table.getValueAt(selectedRow, 1);
        double fare = (double) table.getValueAt(selectedRow, 4);

        // Now you can show a ticket booking form or proceed with booking
        JOptionPane.showMessageDialog(this,
            "You selected train: " + trainName + "\nFare: " + fare);
    } else {
        JOptionPane.showMessageDialog(this, "Please select a train.");
    }
});

} catch (SQLException e) {
    e.printStackTrace();
    JOptionPane.showMessageDialog(this, "Failed to load train data.");
}

setContentPane(panel);
revalidate();
}

// Authentication logic
private boolean authenticateUser(String username, String password) {
    String query = "SELECT * FROM users WHERE username = ? AND password =
?";

    try (PreparedStatement stmt = connection.prepareStatement(query)) {
        stmt.setString(1, username);
        stmt.setString(2, password);

        ResultSet rs = stmt.executeQuery();
        return rs.next();
    }
}

```

```

    } catch (SQLException e) {
        e.printStackTrace();
        return false;
    }
}

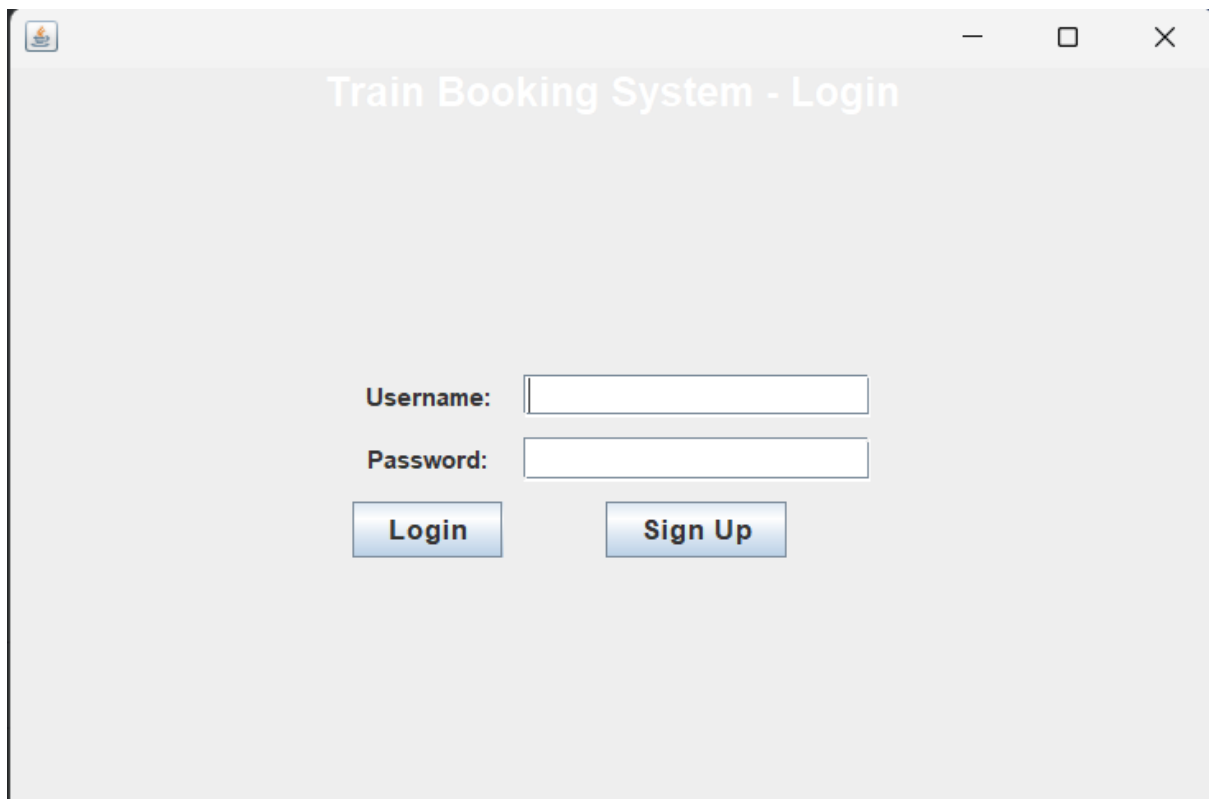
// Registration logic
private boolean registerUser(String username, String password, String email) {
    String query = "INSERT INTO users (username, password, email) VALUES (?, ?, ?)";
    try (PreparedStatement stmt = connection.prepareStatement(query)) {
        stmt.setString(1, username);
        stmt.setString(2, password);
        stmt.setString(3, email);

        stmt.executeUpdate();
        return true;
    } catch (SQLException e) {
        e.printStackTrace();
        return false;
    }
}

public static void main(String[] args) {
    SwingUtilities.invokeLater(new TrainBookingSystem());
}
}

```

OUTPUT:



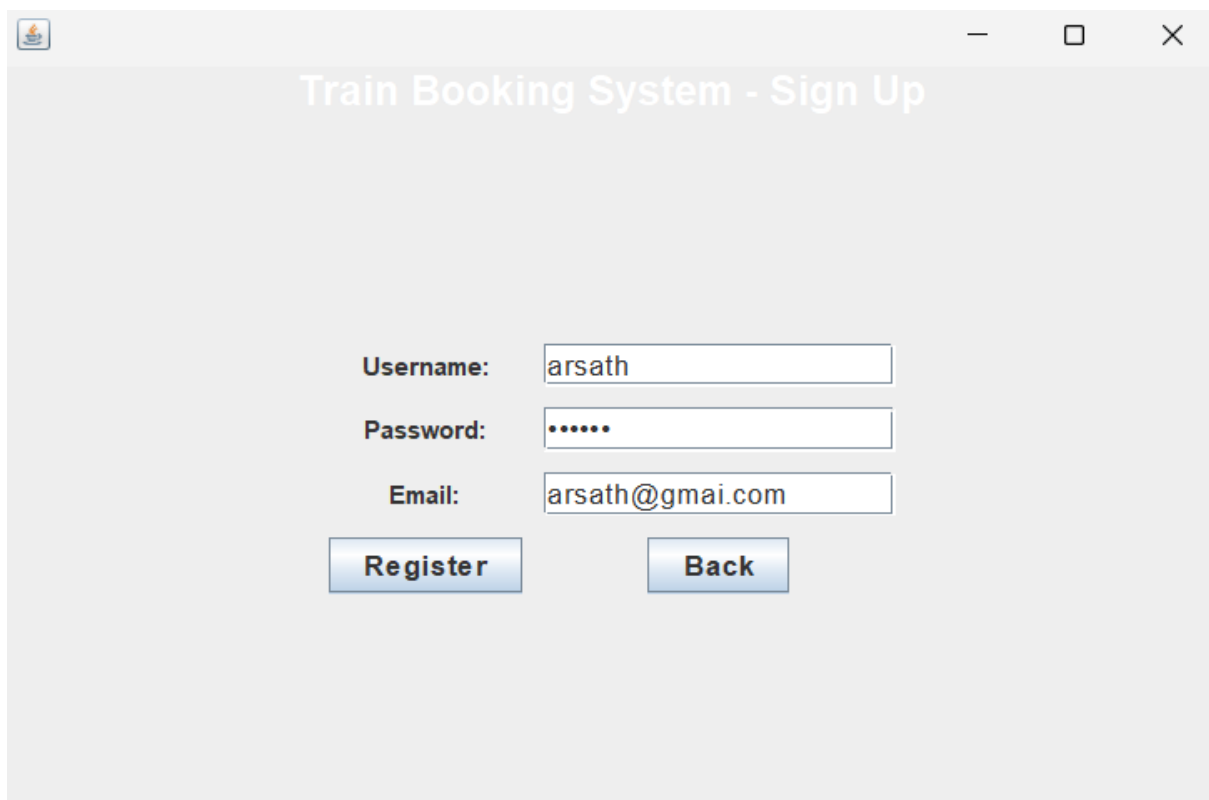
A screenshot of a Java Swing window titled "Train Booking System - Login". The window has a standard title bar with a small icon on the left and minimize, maximize, and close buttons on the right. The background is a light gray. In the center, there are two text labels: "Username:" and "Password:". To the right of each label is a white rectangular text input field. Below the "Username:" field is a blue button with the text "Login". To the right of the "Login" button is another blue button with the text "Sign Up".

Train Booking System - Login

Username:

Password:

Login Sign Up



A screenshot of a Java Swing window titled "Train Booking System - Sign Up". The window has a standard title bar with a small icon on the left and minimize, maximize, and close buttons on the right. The background is a light gray. In the center, there are three text labels: "Username:", "Password:", and "Email:". To the right of each label is a white rectangular text input field. The "Username:" field contains the text "arsath". The "Password:" field contains six dots. The "Email:" field contains the text "arsath@gmai.com". Below the "Username:" field is a blue button with the text "Register". To the right of the "Register" button is another blue button with the text "Back".

Train Booking System - Sign Up

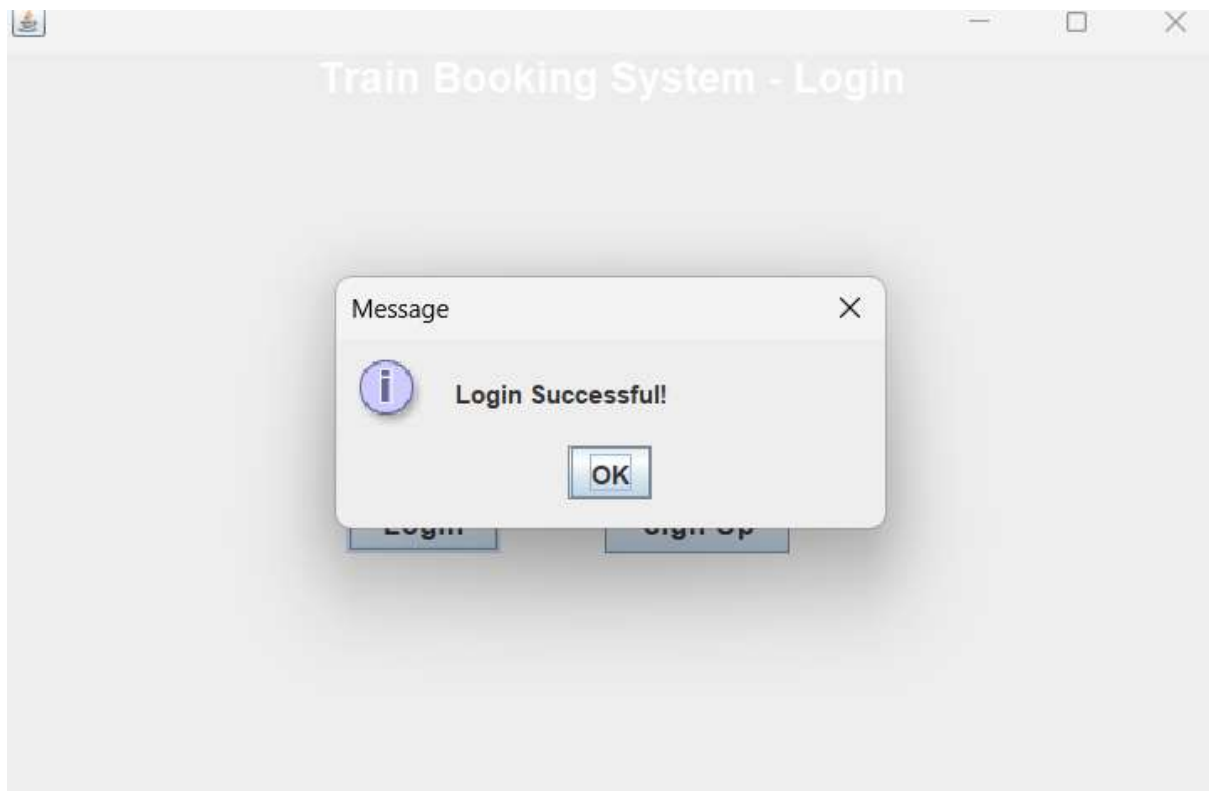
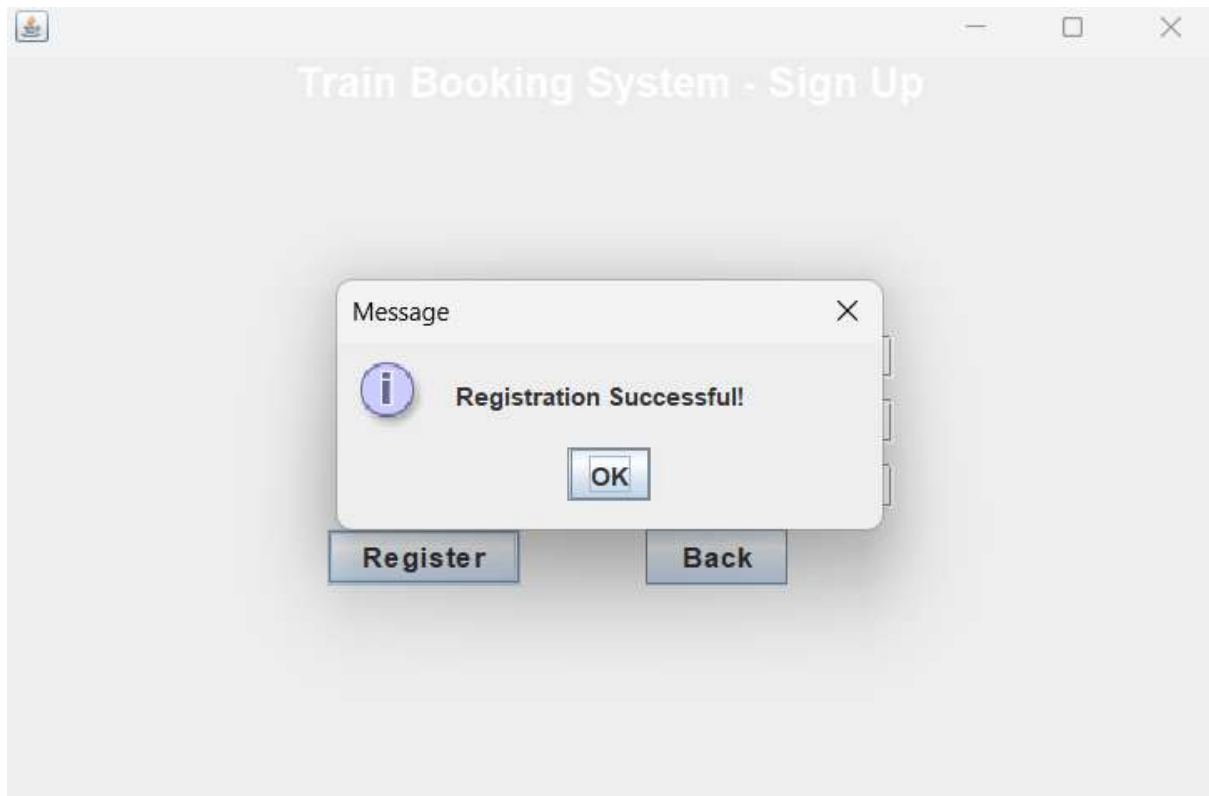
Username:

Password:

Email:

Register Back





Train ID	Train Name	Departure	Arrival	Fare
1	Express 101			0.0
2	FastTrack 202			0.0
3	CityLink 303			0.0

Book Ticket

[illegible]