

DATABASE AND MANAGEMENT SYSTEM – MINI PROJECT

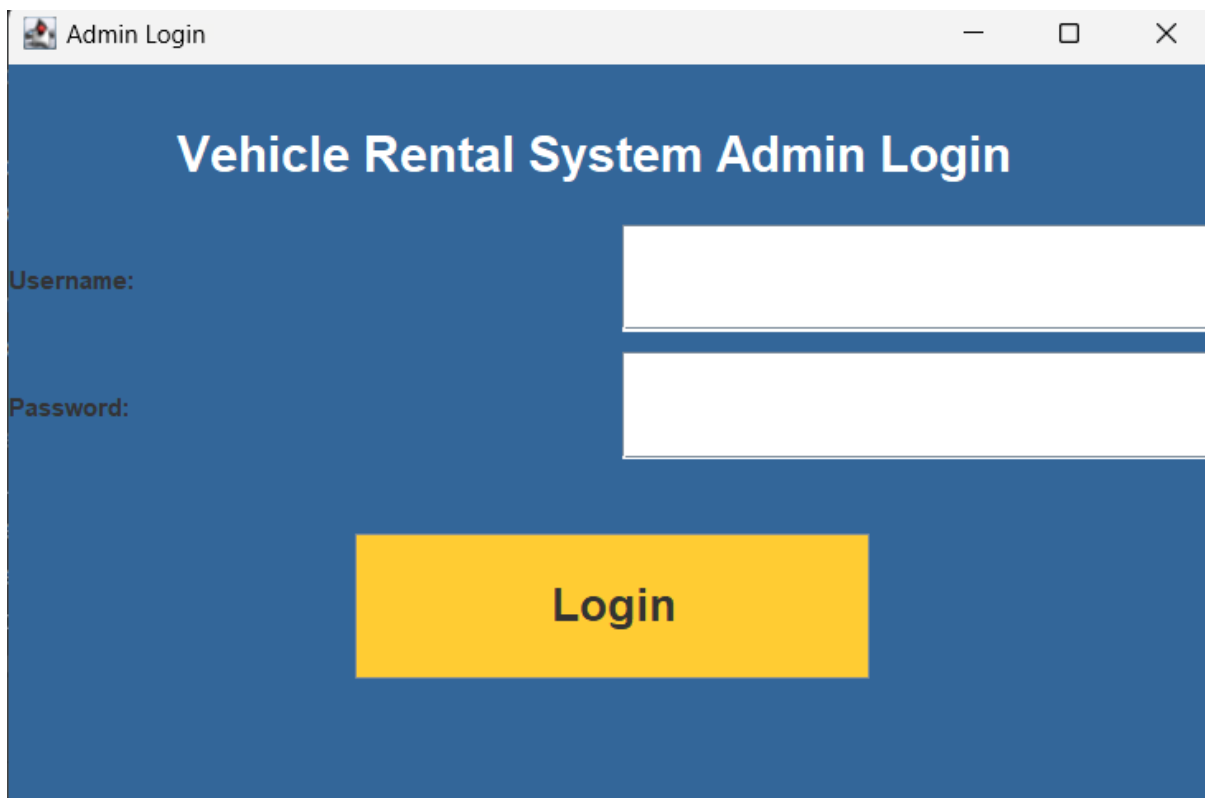
VEHICLE RENTAL SYSTEM

INTRODUCTION/OVERVIEW:

The **Vehicle Rental System** is a comprehensive Java-based project developed to simplify and automate vehicle rental operations. Designed with a robust Swing-based graphical user interface, it provides secure admin login and an intuitive dashboard for managing key functionalities such as vehicle availability, reservations, maintenance records, customer details, and billing. By integrating MySQL for backend data management, the system ensures reliable storage and retrieval of information. Its user-friendly design and well-organized menu options enable smooth navigation, making it an efficient tool for rental businesses to enhance their operational workflow and customer experience.

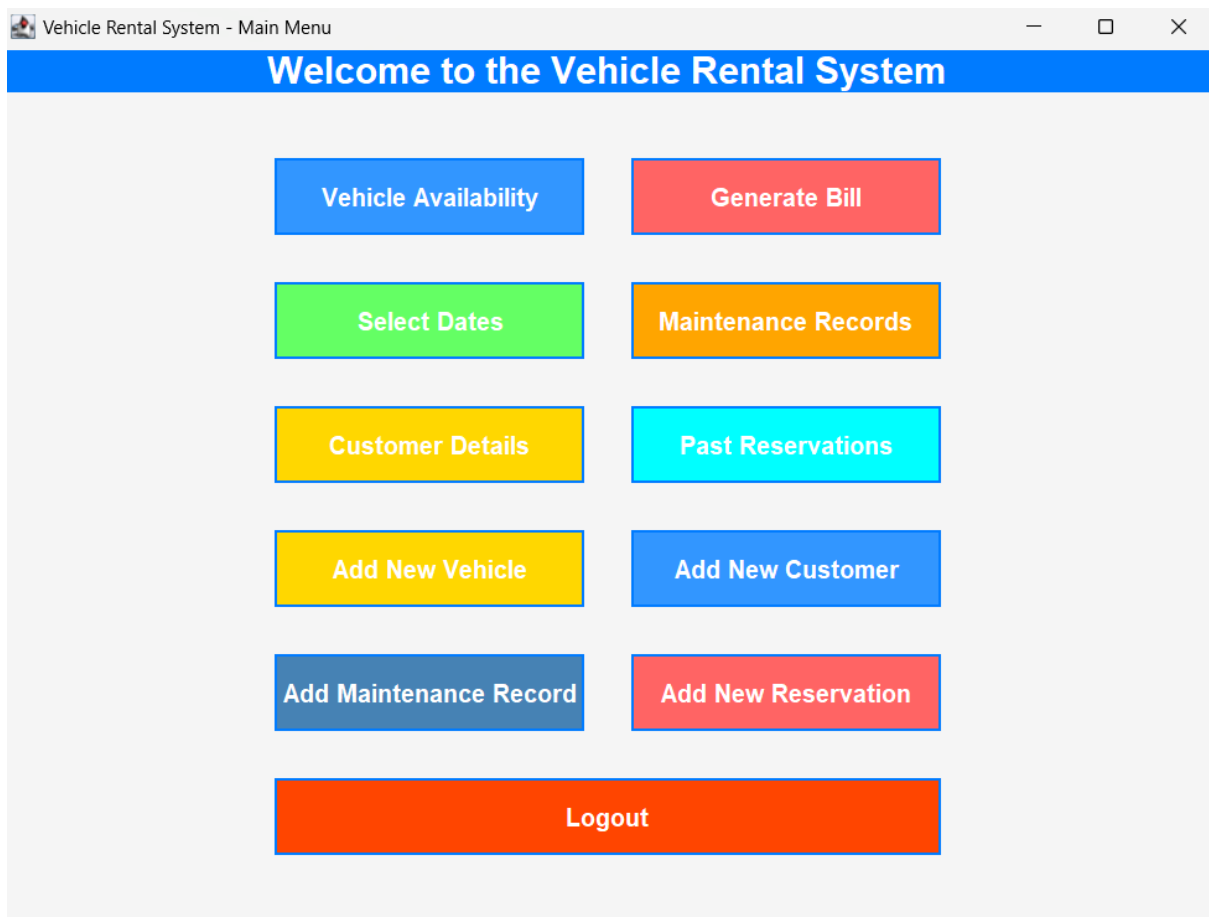
SCREENSHOTS OF PROJECT:

Login page:



The screenshot shows a Java Swing window titled "Admin Login". The window has a blue background and a white title bar. The main content area has a blue background with the text "Vehicle Rental System Admin Login" in white. Below this text, there are two white input fields. The first field is labeled "Username:" and the second field is labeled "Password:". Below the input fields, there is a yellow button with the text "Login" in black.

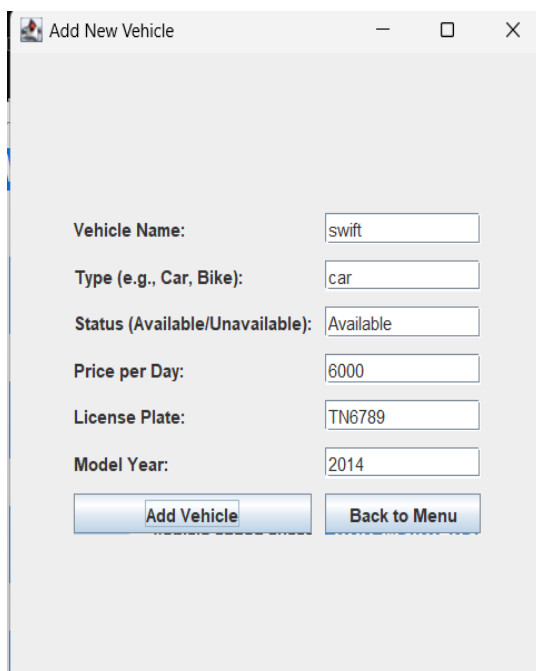
Main menu:



The screenshot shows a window titled "Vehicle Rental System - Main Menu". The window has a blue header bar with the text "Welcome to the Vehicle Rental System". Below the header, there is a grid of buttons. The buttons are arranged in two columns and five rows. The first row contains "Vehicle Availability" (blue) and "Generate Bill" (red). The second row contains "Select Dates" (green) and "Maintenance Records" (orange). The third row contains "Customer Details" (yellow) and "Past Reservations" (cyan). The fourth row contains "Add New Vehicle" (yellow) and "Add New Customer" (blue). The fifth row contains "Add Maintenance Record" (blue) and "Add New Reservation" (red). At the bottom of the grid is a large orange button labeled "Logout".

Welcome to the Vehicle Rental System	
Vehicle Availability	Generate Bill
Select Dates	Maintenance Records
Customer Details	Past Reservations
Add New Vehicle	Add New Customer
Add Maintenance Record	Add New Reservation
Logout	

Adding vehicle:



The screenshot shows a window titled "Add New Vehicle". The window contains a form with several input fields and two buttons at the bottom. The input fields are labeled "Vehicle Name:", "Type (e.g., Car, Bike):", "Status (Available/Unavailable):", "Price per Day:", "License Plate:", and "Model Year:". The values entered in the fields are "swift", "car", "Available", "6000", "TN6789", and "2014" respectively. The buttons are labeled "Add Vehicle" and "Back to Menu".

Add New Vehicle	
Vehicle Name:	swift
Type (e.g., Car, Bike):	car
Status (Available/Unavailable):	Available
Price per Day:	6000
License Plate:	TN6789
Model Year:	2014
<input type="button" value="Add Vehicle"/> <input type="button" value="Back to Menu"/>	

VEHICLE AVAILABILITY:

Vehicle Availability

ID	Name	Type	Status	Price/Day
1	audi	car	available	1000.0
2	SCross	Sedan	Available	2000.0
5	ktm	bike	unavailable	500.0
6	swift	car	Available	6000.0
7	honda amaze	car	Unavailable	8000.0

Delete Selected Vehicle

Back to Main Menu

BILL GENERATING:

Generate Bill

Customer ID:

Vehicle ID:

Rental Days:

Additional Charges:

Discount (%):

Calculate

Save Bill

View Bills

View Bills

Bill ID: 1

Customer ID: 1

Vehicle ID: 1

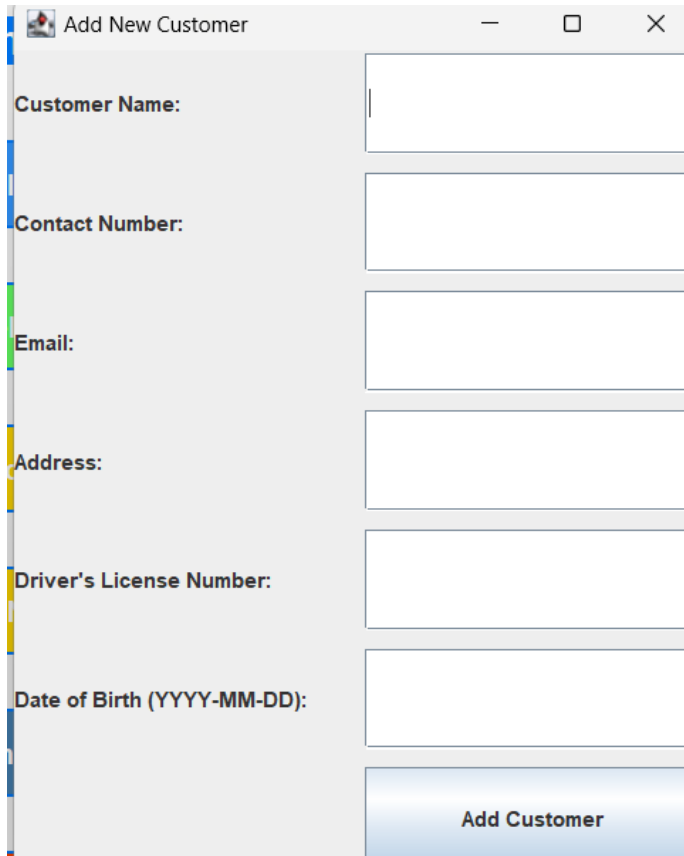
Rental Days: 4

Additional Charges: 500.0

Discount: 0.0

Final Amount: 4500.0

Bill Date: 2024-11-09

NEW CUSTOMER:

A screenshot of a web form titled "Add New Customer". The form has a light gray background and a white border. It contains six input fields, each with a label to its left: "Customer Name:", "Contact Number:", "Email:", "Address:", "Driver's License Number:", and "Date of Birth (YYYY-MM-DD):". Each input field is a white rectangle with a thin gray border. Below the input fields is a blue button with the text "Add Customer" in white. The form is displayed in a browser window with standard window controls (minimize, maximize, close) at the top.

MYSQL TABLES USED:

```
+-----+
| Tables_in_vehicle_rental |
+-----+
| admin                     |
| bills                     |
| customers                 |
| maintenance_records      |
| reservations              |
| vehicles                  |
+-----+
```

PROJECT CODE:

```
import javax.swing.*.*;
import java.awt.*.*;
import java.awt.event.*;
import java.sql.*;
import java.util.Date;
import javax.swing.table.DefaultTableModel;
import com.toedter.calendar.JDateChooser;
import java.awt.event.ActionListener;
import java.awt.event.MouseAdapter;
import java.awt.event.MouseEvent;

import java.text.SimpleDateFormat;

public class VehicleRentalSystem {
    private JFrame mainFrame;
    private Connection connection;

    public VehicleRentalSystem() {

        // Establish the database connection
        try {
            Class.forName("com.mysql.cj.jdbc.Driver");
            connection = DriverManager.getConnection("jdbc:mysql://localhost:3306/vehicle_rental",
"root", "janu0309");
            System.out.println("Database connected successfully.");
        } catch (Exception e) {
            e.printStackTrace();
        }

        // Initialize the GUI
        createAdminLogin();
    }
    private void createAdminLogin() {
        // Create the main frame and set its size
        JFrame frame = new JFrame("Admin Login");
        frame.setSize(600, 400); // Increased size for better UI
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setLayout(new BorderLayout());

        // Create a panel to hold the form elements
        JPanel panel = new JPanel();
```

```
panel.setLayout(new BorderLayout(panel, BorderLayout.Y_AXIS)); // Use BorderLayout for vertical alignment
panel.setBackground(new Color(51, 102, 153)); // Set the background color

// Add spacing at the top
panel.add(Box.createVerticalStrut(30)); // Space between the top and title

// Title label with a larger font size and centered
JLabel titleLabel = new JLabel("Vehicle Rental System Admin Login", JLabel.CENTER);
titleLabel.setForeground(Color.WHITE);
titleLabel.setFont(new Font("Arial", Font.BOLD, 24)); // Larger font for the title
panel.add(titleLabel);

// Add space between the title and input fields
panel.add(Box.createVerticalStrut(20));

// Create the input fields for username and password
JTextField userText = new JTextField(20);
JPasswordField passwordText = new JPasswordField(20);
userText.setFont(new Font("Arial", Font.PLAIN, 16));
passwordText.setFont(new Font("Arial", Font.PLAIN, 16));

// Input panel for username and password, aligned centrally
JPanel inputPanel = new JPanel();
inputPanel.setLayout(new GridLayout(2, 2, 10, 10)); // Grid layout with padding
inputPanel.setBackground(new Color(51, 102, 153));
inputPanel.add(new JLabel("Username:"));
inputPanel.add(userText);
inputPanel.add(new JLabel("Password:"));
inputPanel.add(passwordText);

// Add the input panel to the main panel
panel.add(inputPanel);

// Add space before the login button
panel.add(Box.createVerticalStrut(30));

// Create a stylish login button with increased size and color
JButton loginButton = new JButton("Login");
loginButton.setBackground(new Color(255, 204, 51)); // Bright yellow color for the button
loginButton.setFont(new Font("Arial", Font.BOLD, 22)); // Larger font for better visibility
loginButton.setPreferredSize(new Dimension(250, 70)); // Larger button size
loginButton.setFocusPainted(false); // Remove focus border

// Add button hover effect
loginButton.addMouseListener(new MouseAdapter() {
    public void mouseEntered(MouseEvent e) {
        loginButton.setBackground(new Color(255, 140, 0)); // Darker color on hover
    }
});
```

```
    }
    public void mouseExited(MouseEvent e) {
        loginButton.setBackground(new Color(255, 204, 51)); // Original color
    }
});

// Center the login button by creating a panel with a FlowLayout
JPanel buttonPanel = new JPanel();
buttonPanel.setLayout(new FlowLayout(FlowLayout.CENTER)); // Center-align the button
buttonPanel.setBackground(new Color(51, 102, 153)); // Set the background color of the button
panel
    buttonPanel.add(loginButton);

// Add the button panel to the main panel
panel.add(buttonPanel);

// Add the panel to the frame and center it
frame.add(panel, BorderLayout.CENTER);
frame.setLocationRelativeTo(null); // Center the frame on the screen
frame.setVisible(true);

// Action listener for the login button
loginButton.addActionListener(e -> {
    String username = userText.getText();
    String password = new String(passwordText.getPassword());
    if (authenticateAdmin(username, password)) {
        JOptionPane.showMessageDialog(null, "Login successful!");
        frame.dispose(); // Close the login window
        showMainMenu(); // Navigate to the main menu
    } else {
        JOptionPane.showMessageDialog(null, "Invalid credentials!");
    }
});
}

private boolean authenticateAdmin(String username, String password) {
    try {
        String query = "SELECT * FROM admin WHERE username = ? AND password = ?";
        PreparedStatement statement = connection.prepareStatement(query);
        statement.setString(1, username);
        statement.setString(2, password);
        ResultSet resultSet = statement.executeQuery();
        return resultSet.next(); // Return true if credentials match
    } catch (SQLException e) {
        e.printStackTrace();
        return false;
    }
}
```

```
private void showMainMenu() {
    mainFrame = new JFrame("Vehicle Rental System - Main Menu");
    mainFrame.setSize(800, 600);
    mainFrame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    mainFrame.setLayout(new BorderLayout());

    // Title Panel with a gradient background
    JPanel titlePanel = new JPanel();
    titlePanel.setLayout(new BorderLayout());
    titlePanel.setBackground(new Color(0, 123, 255)); // Stylish blue color

    JLabel titleLabel = new JLabel("Welcome to the Vehicle Rental System", JLabel.CENTER);
    titleLabel.setFont(new Font("Arial", Font.BOLD, 24));
    titleLabel.setForeground(Color.WHITE);
    titlePanel.add(titleLabel, BorderLayout.CENTER);

    // Add a decorative icon or logo
    JLabel logoLabel = new JLabel(new ImageIcon("path_to_logo.png")); // Add logo image here
    titlePanel.add(logoLabel, BorderLayout.WEST); // Position logo on the left

    // Main Panel with GridBagLayout for better control over the layout
    JPanel mainPanel = new JPanel(new GridBagLayout());
    mainPanel.setBackground(new Color(245, 245, 245)); // Light background for the grid

    GridBagConstraints gbc = new GridBagConstraints();
    gbc.fill = GridBagConstraints.HORIZONTAL;
    gbc.insets = new Insets(15, 15, 15, 15); // Add padding around each button

    // Create buttons with larger size, different colors, and hover effects
    JButton availabilityButton = createStyledButton("Vehicle Availability", new Color(50, 150, 255),
    new Color(30, 100, 180), e -> showAvailability());
    JButton billButton = createStyledButton("Generate Bill", new Color(255, 100, 100), new
    Color(200, 70, 70), e -> generateBill());
    JButton calendarButton = createStyledButton("Select Dates", new Color(100, 255, 100), new
    Color(70, 200, 70), e -> selectDates());
    JButton maintenanceButton = createStyledButton("Maintenance Records", new Color(255, 165,
    0), new Color(200, 130, 0), e -> showMaintenanceRecords());
    JButton customerButton = createStyledButton("Customer Details", new Color(255, 215, 0), new
    Color(220, 170, 0), e -> showCustomerDetails());
    JButton reservationsButton = createStyledButton("Past Reservations", new Color(0, 255, 255),
    new Color(0, 200, 200), e -> showPastReservations());
    JButton addVehicleButton = createStyledButton("Add New Vehicle", new Color(255, 215, 0), new
    Color(220, 170, 0), e -> addNewVehicle());
    JButton addCustomerButton = createStyledButton("Add New Customer", new Color(50, 150,
    255), new Color(30, 100, 180), e -> addNewCustomer());
    JButton maintenanceRecordButton = createStyledButton("Add Maintenance Record", new
    Color(70, 130, 180), new Color(50, 100, 150), e -> addMaintenanceRecord());
```



```
JButton addReservationButton = createStyledButton("Add New Reservation", new Color(255, 100, 100), new Color(200, 70, 70), e -> addNewReservation());
```

```
// Add buttons to the main panel using GridBagLayout
```

```
gbc.gridx = 0;
```

```
gbc.gridy = 0;
```

```
mainPanel.add(availabilityButton, gbc);
```

```
gbc.gridx = 1;
```

```
gbc.gridy = 0;
```

```
mainPanel.add(billButton, gbc);
```

```
gbc.gridx = 0;
```

```
gbc.gridy = 1;
```

```
mainPanel.add(calendarButton, gbc);
```

```
gbc.gridx = 1;
```

```
gbc.gridy = 1;
```

```
mainPanel.add(maintenanceButton, gbc);
```

```
gbc.gridx = 0;
```

```
gbc.gridy = 2;
```

```
mainPanel.add(customerButton, gbc);
```

```
gbc.gridx = 1;
```

```
gbc.gridy = 2;
```

```
mainPanel.add(reservationsButton, gbc);
```

```
gbc.gridx = 0;
```

```
gbc.gridy = 3;
```

```
mainPanel.add(addVehicleButton, gbc);
```

```
gbc.gridx = 1;
```

```
gbc.gridy = 3;
```

```
mainPanel.add(addCustomerButton, gbc);
```

```
gbc.gridx = 0;
```

```
gbc.gridy = 4;
```

```
mainPanel.add(maintenanceRecordButton, gbc);
```

```
gbc.gridx = 1;
```

```
gbc.gridy = 4;
```

```
mainPanel.add(addReservationButton, gbc);
```

```
// Add title panel and main panel to the frame
```

```
mainFrame.add(titlePanel, BorderLayout.NORTH);
```

```
mainFrame.add(mainPanel, BorderLayout.CENTER);
```

```
mainFrame.setVisible(true);
```

```
        JButton logoutButton = createStyledButton("Logout", new Color(255, 69, 0), new Color(200, 50, 0), e -> {
            int confirm = JOptionPane.showConfirmDialog(mainFrame, "Are you sure you want to
logout?", "Logout Confirmation", JOptionPane.YES_NO_OPTION);
            if (confirm == JOptionPane.YES_OPTION) {
                mainFrame.dispose(); // Close the main menu window
                createAdminLogin(); // Show the login screen again
            }
        });
```

```
// Add the Logout button to the bottom of the main panel
```

```
    gbc.gridx = 0;
    gbc.gridy = 5;
    gbc.gridwidth = 2; // Span the button across two columns
    mainPanel.add(logoutButton, gbc);
}
```

```
// Method to create a stylish button with hover effects, custom colors, and larger size
private JButton createStyledButton(String text, Color backgroundColor, Color hoverColor,
ActionListener action) {
    JButton button = new JButton(text);
    button.setFont(new Font("Arial", Font.BOLD, 16)); // Increased font size for bigger buttons
    button.setPreferredSize(new Dimension(200, 50)); // Increased button size
    button.setBackground(backgroundColor); // Custom background color
    button.setForeground(Color.WHITE);
    button.setFocusPainted(false); // Remove focus outline
    button.setBorder(BorderFactory.createLineBorder(new Color(0, 123, 255), 2)); // Blue border

    // Add hover effect
    button.addMouseListener(new MouseAdapter() {
        public void mouseEntered(MouseEvent e) {
            button.setBackground(hoverColor); // Change background on hover
        }
        public void mouseExited(MouseEvent e) {
            button.setBackground(backgroundColor); // Reset to original color
        }
    });

    button.addActionListener(action);
    return button;
}
```

```
// Method to show vehicle availability
```

```
private void showAvailability() {
    JFrame availabilityFrame = new JFrame("Vehicle Availability");
```

```
availabilityFrame.setSize(800, 500);
availabilityFrame.setDefaultCloseOperation(JFrame.DISPOSE_ON_CLOSE);

// Panel to hold the table and buttons
JPanel panel = new JPanel(new BorderLayout());

// Table columns
String[] columnNames = {"ID", "Name", "Type", "Status", "Price/Day"};
DefaultTableModel model = new DefaultTableModel(columnNames, 0);
JTable availabilityTable = new JTable(model);
JScrollPane scrollPane = new JScrollPane(availabilityTable);

// Fetch vehicle data from the database and populate the table
try {
    String query = "SELECT * FROM vehicles";
    Statement statement = connection.createStatement();
    ResultSet resultSet = statement.executeQuery(query);

    while (resultSet.next()) {
        Object[] row = new Object[5];
        row[0] = resultSet.getInt("id");
        row[1] = resultSet.getString("name");
        row[2] = resultSet.getString("type");
        row[3] = resultSet.getString("status");
        row[4] = resultSet.getDouble("price_per_day");
        model.addRow(row);
    }
    resultSet.close();
    statement.close();
} catch (SQLException e) {
    e.printStackTrace();
    JOptionPane.showMessageDialog(availabilityFrame, "Error fetching vehicle data.");
}

// Button to delete the selected vehicle
JButton deleteButton = new JButton("Delete Selected Vehicle");
deleteButton.addActionListener(e -> {
    int selectedRow = availabilityTable.getSelectedRow();
    if (selectedRow != -1) { // Ensure a row is selected
        int vehicleId = (int) model.getValueAt(selectedRow, 0); // Get the vehicle ID from the first
column

        // Confirm deletion
        int confirm = JOptionPane.showConfirmDialog(
            availabilityFrame,
            "Are you sure you want to delete this vehicle?",
            "Confirm Deletion",
            JOptionPane.YES_NO_OPTION
```

```
);

if (confirm == JOptionPane.YES_OPTION) {
    // Delete the selected vehicle from the database
    try {
        String deleteQuery = "DELETE FROM vehicles WHERE id = ?";
        PreparedStatement deleteStatement = connection.prepareStatement(deleteQuery);
        deleteStatement.setInt(1, vehicleId);
        deleteStatement.executeUpdate();
        deleteStatement.close();

        // Remove the row from the table
        model.removeRow(selectedRow);
        JOptionPane.showMessageDialog(availabilityFrame, "Vehicle deleted successfully.");
    } catch (SQLException ex) {
        ex.printStackTrace();
        JOptionPane.showMessageDialog(availabilityFrame, "Error deleting vehicle.");
    }
} else {
    JOptionPane.showMessageDialog(availabilityFrame, "Please select a vehicle to delete.");
}
});

// Button to go back to the main menu
JButton backButton = new JButton("Back to Main Menu");
backButton.addActionListener(e -> availabilityFrame.dispose());

// Panel for buttons
JPanel buttonPanel = new JPanel();
buttonPanel.add(deleteButton);
buttonPanel.add(backButton);

// Add components to the main panel
panel.add(scrollPane, BorderLayout.CENTER);
panel.add(buttonPanel, BorderLayout.SOUTH);

availabilityFrame.add(panel);
availabilityFrame.setVisible(true);
}

// Method to generate a bill
// Declare finalAmount as a class-level variable
private double finalAmount = 0.0; // Default value
```

```
public void generateBill() {
    JFrame billFrame = new JFrame("Generate Bill");
    billFrame.setSize(500, 400);
    billFrame.setLayout(new BorderLayout());

    JPanel inputPanel = new JPanel(new GridLayout(6, 2, 10, 10));

    JLabel customerLabel = new JLabel("Customer ID:");
    JTextField customerField = new JTextField();

    JLabel vehicleLabel = new JLabel("Vehicle ID:");
    JTextField vehicleField = new JTextField();

    JLabel rentalDaysLabel = new JLabel("Rental Days:");
    JTextField rentalDaysField = new JTextField();

    JLabel additionalChargesLabel = new JLabel("Additional Charges:");
    JTextField additionalChargesField = new JTextField();

    JLabel discountLabel = new JLabel("Discount (%):");
    JTextField discountField = new JTextField();

    JButton calculateButton = new JButton("Calculate");
    JButton saveButton = new JButton("Save Bill");
    JButton viewBillsButton = new JButton("View Bills"); // New button to view saved bills

    JTextArea billArea = new JTextArea();
    billArea.setEditable(false);

    // Add fields to panel
    inputPanel.add(customerLabel);
    inputPanel.add(customerField);
    inputPanel.add(vehicleLabel);
    inputPanel.add(vehicleField);
    inputPanel.add(rentalDaysLabel);
    inputPanel.add(rentalDaysField);
    inputPanel.add(additionalChargesLabel);
    inputPanel.add(additionalChargesField);
    inputPanel.add(discountLabel);
    inputPanel.add(discountField);
    inputPanel.add(new JLabel()); // Empty space
    inputPanel.add(calculateButton);

    // Add panels to frame
    billFrame.add(inputPanel, BorderLayout.NORTH);
    billFrame.add(new JScrollPane(billArea), BorderLayout.CENTER);
    JPanel buttonPanel = new JPanel();
    buttonPanel.add(saveButton);
```

```
buttonPanel.add(viewBillsButton); // Add view bills button to panel
billFrame.add(buttonPanel, BorderLayout.SOUTH);

// Action listener to calculate bill
calculateButton.addActionListener(e -> {
    try {
        int vehicleID = Integer.parseInt(vehicleField.getText());
        int rentalDays = Integer.parseInt(rentalDaysField.getText());
        double additionalCharges = Double.parseDouble(additionalChargesField.getText());
        double discountPercentage = Double.parseDouble(discountField.getText());

        // Fetch the vehicle's daily price from database
        String query = "SELECT price_per_day FROM vehicles WHERE id = ?";
        PreparedStatement statement = connection.prepareStatement(query);
        statement.setInt(1, vehicleID);
        ResultSet resultSet = statement.executeQuery();

        if (resultSet.next()) {
            double dailyPrice = resultSet.getDouble("price_per_day");
            double totalRentalCost = rentalDays * dailyPrice;
            double discountAmount = totalRentalCost * (discountPercentage / 100);
            finalAmount = totalRentalCost + additionalCharges - discountAmount; // Store
finalAmount

            // Display the bill details
            StringBuilder billBuilder = new StringBuilder();
            billBuilder.append("Customer ID: ").append(customerField.getText()).append("\n");
            billBuilder.append("Vehicle ID: ").append(vehicleID).append("\n");
            billBuilder.append("Rental Days: ").append(rentalDays).append("\n");
            billBuilder.append("Daily Price: ").append(dailyPrice).append("\n");
            billBuilder.append("Total Rental Cost: ").append(totalRentalCost).append("\n");
            billBuilder.append("Additional Charges: ").append(additionalCharges).append("\n");
            billBuilder.append("Discount: ").append(discountAmount).append("\n");
            billBuilder.append("Final Amount: ").append(finalAmount).append("\n");

            billArea.setText(billBuilder.toString());
        } else {
            JOptionPane.showMessageDialog(billFrame, "Vehicle not found.");
        }

        resultSet.close();
        statement.close();

    } catch (NumberFormatException ex) {
        JOptionPane.showMessageDialog(billFrame, "Please enter valid numbers.");
    } catch (SQLException ex) {
        ex.printStackTrace();
    }
}
```

```
});

// Action listener to save the bill to the database
saveButton.addActionListener(e -> {
    try {
        java.sql.Date billDate = new java.sql.Date(new java.util.Date().getTime());

        String insertQuery = "INSERT INTO bills (customer_id, vehicle_id, rental_days,
additional_charges, discount, final_amount, bill_date) VALUES (?, ?, ?, ?, ?, ?, ?)";
        PreparedStatement insertStatement = connection.prepareStatement(insertQuery);

        insertStatement.setInt(1, Integer.parseInt(customerField.getText()));
        insertStatement.setInt(2, Integer.parseInt(vehicleField.getText()));
        insertStatement.setInt(3, Integer.parseInt(rentalDaysField.getText()));
        insertStatement.setDouble(4, Double.parseDouble(additionalChargesField.getText()));
        insertStatement.setDouble(5, Double.parseDouble(discountField.getText()));
        insertStatement.setDouble(6, finalAmount);
        insertStatement.setDate(7, billDate);

        insertStatement.executeUpdate();
        JOptionPane.showMessageDialog(billFrame, "Bill saved successfully!");

        insertStatement.close();

    } catch (SQLException | NumberFormatException ex) {
        ex.printStackTrace();
        JOptionPane.showMessageDialog(billFrame, "Error saving the bill.");
    }
});

// Action listener for the View Bills button
viewBillsButton.addActionListener(e -> {
    try {
        // Fetch all saved bills from the database
        String viewQuery = "SELECT * FROM bills";
        PreparedStatement viewStatement = connection.prepareStatement(viewQuery);
        ResultSet resultSet = viewStatement.executeQuery();

        StringBuilder billsBuilder = new StringBuilder();
        while (resultSet.next()) {
            billsBuilder.append("Bill ID: ").append(resultSet.getInt("bill_id")).append("\n");
            billsBuilder.append("Customer ID: ")
            billsBuilder.append(resultSet.getInt("customer_id")).append("\n");
            billsBuilder.append("Vehicle ID: ").append(resultSet.getInt("vehicle_id")).append("\n");
            billsBuilder.append("Rental Days: ")
            billsBuilder.append(resultSet.getInt("rental_days")).append("\n");
            billsBuilder.append("Additional Charges: ")
            billsBuilder.append(resultSet.getDouble("additional_charges")).append("\n");
        }
    }
});
```

```
        billsBuilder.append("Discount: ").append(resultSet.getDouble("discount")).append("\n");
        billsBuilder.append("Final Amount:
").append(resultSet.getDouble("final_amount")).append("\n");
        billsBuilder.append("Bill Date: ").append(resultSet.getDate("bill_date")).append("\n");
        billsBuilder.append("-----\n");
    }

    JTextArea billsArea = new JTextArea();
    billsArea.setEditable(false);
    billsArea.setText(billsBuilder.toString());

    // Create a new frame to display the bills
    JFrame viewBillsFrame = new JFrame("View Bills");
    viewBillsFrame.setSize(600, 400);
    viewBillsFrame.add(new JScrollPane(billsArea));
    viewBillsFrame.setVisible(true);

    resultSet.close();
    viewStatement.close();

    } catch (SQLException ex) {
        ex.printStackTrace();
        JOptionPane.showMessageDialog(billFrame, "Error fetching bills.");
    }
    });

    billFrame.setVisible(true);
}
```

```
// Method to show select dates page with start and end date pickers
private void selectDates() {
    JFrame dateFrame = new JFrame("Select Rental Dates");
    dateFrame.setSize(400, 300);
    dateFrame.setDefaultCloseOperation(JFrame.DISPOSE_ON_CLOSE);

    JPanel panel = new JPanel();
    panel.setLayout(new GridLayout(3, 2, 10, 10));

    // Create labels for Start Date and End Date
    JLabel startLabel = new JLabel("Start Date:");
    JLabel endLabel = new JLabel("End Date:");
}
```



```
// Create date pickers (JDateChooser) for selecting dates
JDateChooser startDateChooser = new JDateChooser();
JDateChooser endDateChooser = new JDateChooser();

// Create button to proceed with the selected dates
JButton proceedButton = new JButton("Proceed");
proceedButton.addActionListener(new ActionListener() {
    public void actionPerformed(ActionEvent e) {
        Date startDate = startDateChooser.getDate();
        Date endDate = endDateChooser.getDate();

        // Validate if the dates are selected and if end date is after start date
        if (startDate != null && endDate != null) {
            if (endDate.after(startDate)) {
                SimpleDateFormat dateFormat = new SimpleDateFormat("yyyy-MM-dd");
                String startDateStr = dateFormat.format(startDate);
                String endDateStr = dateFormat.format(endDate);

                // Display the selected dates or you could process them (e.g., check availability)
                JOptionPane.showMessageDialog(dateFrame, "Start Date: " + startDateStr + "\nEnd
Date: " + endDateStr);
            } else {
                JOptionPane.showMessageDialog(dateFrame, "End Date must be after Start Date!");
            }
        } else {
            JOptionPane.showMessageDialog(dateFrame, "Please select both start and end
dates.");
        }
    }
});

// Add components to the panel
panel.add(startLabel);
panel.add(startDateChooser);
panel.add(endLabel);
panel.add(endDateChooser);
panel.add(new JLabel()); // Empty label for spacing
panel.add(proceedButton);

// Add the panel to the frame
dateFrame.add(panel);
dateFrame.setVisible(true);
}

// Method to show maintenance records with a table view
private void showMaintenanceRecords() {
```

```
JFrame maintenanceFrame = new JFrame("Maintenance Records");
maintenanceFrame.setSize(1000, 600);
maintenanceFrame.setDefaultCloseOperation(JFrame.DISPOSE_ON_CLOSE);

// Panel to hold the table
JPanel panel = new JPanel(new BorderLayout());

// Updated table columns based on your MySQL table structure
String[] columnNames = {
    "ID", "Vehicle ID", "Service Date", "Description",
    "Cost", "Mechanic Name", "Next Service Date"
};
DefaultTableModel model = new DefaultTableModel(columnNames, 0);
JTable maintenanceTable = new JTable(model);
maintenanceTable.setFillsViewportHeight(true);
JScrollPane scrollPane = new JScrollPane(maintenanceTable);

// Fetch maintenance records from the database
try {
    String query = "SELECT id, vehicle_id, service_date, description, cost, mechanic_name,
next_service_date FROM maintenance_records";
    Statement statement = connection.createStatement();
    ResultSet resultSet = statement.executeQuery(query);

    while (resultSet.next()) {
        Object[] row = new Object[7];
        row[0] = resultSet.getInt("id");
        row[1] = resultSet.getInt("vehicle_id");
        row[2] = resultSet.getDate("service_date");
        row[3] = resultSet.getString("description");
        row[4] = resultSet.getDouble("cost");
        row[5] = resultSet.getString("mechanic_name");
        row[6] = resultSet.getDate("next_service_date");
        model.addRow(row);
    }
    resultSet.close();
    statement.close();
} catch (SQLException e) {
    e.printStackTrace();
    JOptionPane.showMessageDialog(maintenanceFrame, "Error fetching maintenance records.");
}

// Add the table to the panel
panel.add(scrollPane, BorderLayout.CENTER);

// Adding a "Back" button to return to the main menu
JPanel buttonPanel = new JPanel(new FlowLayout(FlowLayout.RIGHT));
JButton backButton = new JButton("Back to Main Menu");
```

```
        backButton.addActionListener(e -> maintenanceFrame.dispose());
        buttonPanel.add(backButton);

        panel.add(buttonPanel, BorderLayout.SOUTH);

        // Setting up the frame with an enhanced appearance
        maintenanceFrame.add(panel);
        maintenanceFrame.setVisible(true);
    }

    private void addMaintenanceRecord() {
        JFrame maintenanceFrame = new JFrame("Add Maintenance Record");
        maintenanceFrame.setSize(600, 500);
        maintenanceFrame.setDefaultCloseOperation(JFrame.DISPOSE_ON_CLOSE);
        maintenanceFrame.setLayout(new GridLayout(8, 2, 10, 10));

        // Labels and input fields
        JLabel vehicleIdLabel = new JLabel("Vehicle ID:");
        JTextField vehicleIdField = new JTextField();

        JLabel serviceDateLabel = new JLabel("Service Date (YYYY-MM-DD):");
        JTextField serviceDateField = new JTextField();

        JLabel descriptionLabel = new JLabel("Description:");
        JTextArea descriptionArea = new JTextArea(3, 20);
        JScrollPane descriptionScroll = new JScrollPane(descriptionArea);

        JLabel costLabel = new JLabel("Cost:");
        JTextField costField = new JTextField();

        JLabel mechanicLabel = new JLabel("Mechanic Name:");
        JTextField mechanicField = new JTextField();

        JLabel nextServiceDateLabel = new JLabel("Next Service Date (YYYY-MM-DD):");
        JTextField nextServiceDateField = new JTextField();

        JButton saveButton = new JButton("Save Record");
        JButton clearButton = new JButton("Clear");

        // Add components to the frame
        maintenanceFrame.add(vehicleIdLabel);
        maintenanceFrame.add(vehicleIdField);
        maintenanceFrame.add(serviceDateLabel);
        maintenanceFrame.add(serviceDateField);
        maintenanceFrame.add(descriptionLabel);
        maintenanceFrame.add(descriptionScroll);
        maintenanceFrame.add(costLabel);
        maintenanceFrame.add(costField);
```

```
maintenanceFrame.add(mechanicLabel);
maintenanceFrame.add(mechanicField);
maintenanceFrame.add(nextServiceDateLabel);
maintenanceFrame.add(nextServiceDateField);
maintenanceFrame.add(saveButton);
maintenanceFrame.add(clearButton);

// Action listener for the Save button
saveButton.addActionListener(e -> {
    String vehicleId = vehicleIdField.getText();
    String serviceDate = serviceDateField.getText();
    String description = descriptionArea.getText();
    String cost = costField.getText();
    String mechanicName = mechanicField.getText();
    String nextServiceDate = nextServiceDateField.getText();

    // Validate input fields
    if (vehicleId.isEmpty() || serviceDate.isEmpty() || description.isEmpty() || cost.isEmpty()) {
        JOptionPane.showMessageDialog(maintenanceFrame, "Please fill in all required fields.",
"Error", JOptionPane.ERROR_MESSAGE);
        return;
    }

    // Save data to the database
    try {
        String query = "INSERT INTO maintenance_records (vehicle_id, service_date, description,
cost, mechanic_name, next_service_date) VALUES (?, ?, ?, ?, ?, ?)";
        PreparedStatement statement = connection.prepareStatement(query);
        statement.setInt(1, Integer.parseInt(vehicleId));
        statement.setDate(2, java.sql.Date.valueOf(serviceDate));
        statement.setString(3, description);
        statement.setDouble(4, Double.parseDouble(cost));
        statement.setString(5, mechanicName);
        statement.setDate(6, java.sql.Date.valueOf(nextServiceDate));

        int rowsInserted = statement.executeUpdate();
        if (rowsInserted > 0) {
            JOptionPane.showMessageDialog(maintenanceFrame, "Maintenance record added
successfully!");
            maintenanceFrame.dispose();
        }
        statement.close();
    } catch (Exception ex) {
        ex.printStackTrace();
        JOptionPane.showMessageDialog(maintenanceFrame, "Error saving record: " +
ex.getMessage());
    }
});
```

```
// Action listener for the Clear button
clearButton.addActionListener(e -> {
    vehicleIdField.setText("");
    serviceDateField.setText("");
    descriptionArea.setText("");
    costField.setText("");
    mechanicField.setText("");
    nextServiceDateField.setText("");
});

maintenanceFrame.setVisible(true);
}
```

```
// Method to create a date picker for selecting dates
```

```
// Method to show customer details
// Method to show customer details with a table view
// Method to show customer details with a table view
private void showCustomerDetails() {
    JFrame customerFrame = new JFrame("Customer Details");
    customerFrame.setSize(800, 600);
    customerFrame.setDefaultCloseOperation(JFrame.DISPOSE_ON_CLOSE);

    // Panel to hold the table
    JPanel panel = new JPanel(new BorderLayout());

    // Table to display customer data
    String[] columnNames = {"ID", "Name", "Contact Number", "Email", "Address", "Driver's License Number", "Date of Birth"};
    DefaultTableModel model = new DefaultTableModel(columnNames, 0);
    JTable customerTable = new JTable(model);
    JScrollPane scrollPane = new JScrollPane(customerTable);

    // Fetch customer data from the database
```

```
try {
    String query = "SELECT * FROM customers"; // Make sure "drivers_licence_number" exists in
the table
    Statement statement = connection.createStatement();
    ResultSet resultSet = statement.executeQuery(query);

    while (resultSet.next()) {
        Object[] row = new Object[7];
        row[0] = resultSet.getInt("id");
        row[1] = resultSet.getString("name");
        row[2] = resultSet.getString("contact_number");
        row[3] = resultSet.getString("email");
        row[4] = resultSet.getString("address");
        row[5] = resultSet.getString("drivers_license_number"); // Updated column name
        row[6] = resultSet.getDate("date_of_birth"); // java.sql.Date to display in a table cell
        model.addRow(row);
    }
    resultSet.close();
    statement.close();
} catch (SQLException e) {
    e.printStackTrace();
    JOptionPane.showMessageDialog(customerFrame, "Error fetching customer details.");
}

// Add the table to the panel
panel.add(scrollPane, BorderLayout.CENTER);

// Back button to go back to main menu
JButton backButton = new JButton("Back to Main Menu");
backButton.addActionListener(e -> customerFrame.dispose()); // Close the customer details
window
panel.add(backButton, BorderLayout.SOUTH);

customerFrame.add(panel);
customerFrame.setVisible(true);
}

// Method to show past reservations
private void showPastReservations() {
    JFrame reservationsFrame = new JFrame("Past Reservations");
    reservationsFrame.setSize(800, 600);
    reservationsFrame.setDefaultCloseOperation(JFrame.DISPOSE_ON_CLOSE);

    // Panel to hold the table
    JPanel panel = new JPanel(new BorderLayout());

    // Define column names based on your reservations table structure
```

```
String[] columnNames = {"Reservation ID", "Customer ID", "Vehicle ID", "Start Date", "End Date",
"Total Cost"};
DefaultTableModel model = new DefaultTableModel(columnNames, 0);
JTable reservationsTable = new JTable(model);
reservationsTable.setFillsViewportHeight(true);
JScrollPane scrollPane = new JScrollPane(reservationsTable);

// Fetch past reservations from the database
try {
    String query = "SELECT reservation_id, customer_id, vehicle_id, start_date, end_date,
total_cost FROM reservations";
    Statement statement = connection.createStatement();
    ResultSet resultSet = statement.executeQuery(query);

    while (resultSet.next()) {
        Object[] row = new Object[6];
        row[0] = resultSet.getInt("reservation_id");
        row[1] = resultSet.getInt("customer_id");
        row[2] = resultSet.getInt("vehicle_id");
        row[3] = resultSet.getDate("start_date");
        row[4] = resultSet.getDate("end_date");
        row[5] = resultSet.getDouble("total_cost");
        model.addRow(row);
    }
    resultSet.close();
    statement.close();
} catch (SQLException e) {
    e.printStackTrace();
    JOptionPane.showMessageDialog(reservationsFrame, "Error fetching past reservations.");
}

// Add the table to the panel
panel.add(scrollPane, BorderLayout.CENTER);

// Adding a "Back" button to return to the main menu
JPanel buttonPanel = new JPanel(new FlowLayout(FlowLayout.RIGHT));
JButton backButton = new JButton("Back to Main Menu");
backButton.addActionListener(e -> reservationsFrame.dispose());
buttonPanel.add(backButton);

panel.add(buttonPanel, BorderLayout.SOUTH);

reservationsFrame.add(panel);
reservationsFrame.setVisible(true);
}

private void addNewReservation() {
    JFrame reservationFrame = new JFrame("Add New Reservation");
```

```
reservationFrame.setSize(400, 300);
reservationFrame.setDefaultCloseOperation(JFrame.DISPOSE_ON_CLOSE);

JPanel panel = new JPanel();
panel.setLayout(new GridLayout(7, 2, 10, 10));

// Labels and inputs
JLabel vehicleLabel = new JLabel("Vehicle ID:");
JTextField vehicleField = new JTextField();

JLabel customerLabel = new JLabel("Customer ID:");
JTextField customerField = new JTextField();

JLabel startDateLabel = new JLabel("Start Date:");
JDateChooser startDateChooser = new JDateChooser();
startDateChooser.setDateFormatString("yyyy-MM-dd");

JLabel endDateLabel = new JLabel("End Date:");
JDateChooser endDateChooser = new JDateChooser();
endDateChooser.setDateFormatString("yyyy-MM-dd");

JLabel totalPriceLabel = new JLabel("Total Price:");
JTextField totalPriceField = new JTextField();
totalPriceField.setEditable(false);

// Calculate total price when dates are selected
startDateChooser.addPropertyChangeListener("date", e -> {
    if (!vehicleField.getText().isEmpty()) {
        int vehicleId = Integer.parseInt(vehicleField.getText());
        calculateTotalPrice(startDateChooser, endDateChooser, totalPriceField, vehicleId);
    }
});
endDateChooser.addPropertyChangeListener("date", e -> {
    if (!vehicleField.getText().isEmpty()) {
        int vehicleId = Integer.parseInt(vehicleField.getText());
        calculateTotalPrice(startDateChooser, endDateChooser, totalPriceField, vehicleId);
    }
});

JButton saveButton = new JButton("Save Reservation");
saveButton.addActionListener(e -> {
    try {
        int vehicleId = Integer.parseInt(vehicleField.getText());
        int customerId = Integer.parseInt(customerField.getText());
        java.sql.Date startDate = new java.sql.Date(startDateChooser.getDate().getTime());
        java.sql.Date endDate = new java.sql.Date(endDateChooser.getDate().getTime());
        double totalPrice = Double.parseDouble(totalPriceField.getText());
```



```
// Insert reservation into the database
String query = "INSERT INTO reservations (vehicle_id, customer_id, start_date,
end_date,total_cost) VALUES (?, ?, ?, ?, ?)";
PreparedStatement statement = connection.prepareStatement(query);
statement.setInt(1, vehicleId);
statement.setInt(2, customerId);
statement.setDate(3, startDate);
statement.setDate(4, endDate);
statement.setDouble(5, totalPrice);
statement.executeUpdate();

statement.close();
JOptionPane.showMessageDialog(reservationFrame, "Reservation added successfully!");
} catch (SQLException | NumberFormatException ex) {
    ex.printStackTrace();
    JOptionPane.showMessageDialog(reservationFrame, "Error adding reservation.");
}
});

// Add components to the panel
panel.add(vehicleLabel);
panel.add(vehicleField);
panel.add(customerLabel);
panel.add(customerField);
panel.add(startDateLabel);
panel.add(startDateChooser);
panel.add(endDateLabel);
panel.add(endDateChooser);
panel.add(totalPriceLabel);
panel.add(totalPriceField);
panel.add(saveButton);

reservationFrame.add(panel);
reservationFrame.setVisible(true);
}

private void calculateTotalPrice(JDateChooser startDateChooser, JDateChooser endDateChooser,
JTextField totalPriceField, int vehicleId) {
    if (startDateChooser.getDate() != null && endDateChooser.getDate() != null) {
        long diffInMillies = endDateChooser.getDate().getTime() -
startDateChooser.getDate().getTime();
        long diffInDays = diffInMillies / (1000 * 60 * 60 * 24);

        // Fetch price per day from the database
        double pricePerDay = getVehiclePricePerDay(vehicleId);
        double totalPrice = diffInDays * pricePerDay;
        totalPriceField.setText(String.format("%.2f", totalPrice));
    }
}
```

```
private double getVehiclePricePerDay(int vehicleId) {
    double pricePerDay = 0.0;
    try {
        String query = "SELECT price_per_day FROM vehicles WHERE id = ?";
        PreparedStatement statement = connection.prepareStatement(query);
        statement.setInt(1, vehicleId);
        ResultSet resultSet = statement.executeQuery();

        if (resultSet.next()) {
            pricePerDay = resultSet.getDouble("price_per_day");
        }
        resultSet.close();
        statement.close();
    } catch (SQLException e) {
        e.printStackTrace();
        JOptionPane.showMessageDialog(null, "Error fetching vehicle price.");
    }
    return pricePerDay;
}
```

```
// Method to add a new vehicle
// Method to add a new vehicle with detailed input
private void addNewVehicle() {
    JFrame vehicleFrame = new JFrame("Add New Vehicle");
    vehicleFrame.setSize(400, 450);
    vehicleFrame.setLayout(new BorderLayout());

    JPanel inputPanel = new JPanel(new GridBagLayout());
    GridBagConstraints gbc = new GridBagConstraints();
    gbc.insets = new Insets(5, 5, 5, 5);
    gbc.fill = GridBagConstraints.HORIZONTAL;

    // Labels and TextFields
    JLabel nameLabel = new JLabel("Vehicle Name:");
    JTextField nameField = new JTextField();
    JLabel typeLabel = new JLabel("Type (e.g., Car, Bike):");
    JTextField typeField = new JTextField();
    JLabel statusLabel = new JLabel("Status (Available/Unavailable):");
    JTextField statusField = new JTextField();
    JLabel priceLabel = new JLabel("Price per Day:");
    JTextField priceField = new JTextField();
    JLabel licenseLabel = new JLabel("License Plate:");
```

```

    JTextField licenseField = new JTextField();
    JLabel yearLabel = new JLabel("Model Year:");
    JTextField yearField = new JTextField();

    // Buttons
    JButton addButton = new JButton("Add Vehicle");
    JButton backButton = new JButton("Back to Menu");

    // Add components to the panel with proper alignment
    gbc.gridx = 0; gbc.gridy = 0;
    inputPanel.add(nameLabel, gbc);
    gbc.gridx = 1;
    inputPanel.add(nameField, gbc);

    gbc.gridx = 0; gbc.gridy = 1;
    inputPanel.add(typeLabel, gbc);
    gbc.gridx = 1;
    inputPanel.add(typeField, gbc);

    gbc.gridx = 0; gbc.gridy = 2;
    inputPanel.add(statusLabel, gbc);
    gbc.gridx = 1;
    inputPanel.add(statusField, gbc);

    gbc.gridx = 0; gbc.gridy = 3;
    inputPanel.add(priceLabel, gbc);
    gbc.gridx = 1;
    inputPanel.add(priceField, gbc);

    gbc.gridx = 0; gbc.gridy = 4;
    inputPanel.add(licenseLabel, gbc);
    gbc.gridx = 1;
    inputPanel.add(licenseField, gbc);

    gbc.gridx = 0; gbc.gridy = 5;
    inputPanel.add(yearLabel, gbc);
    gbc.gridx = 1;
    inputPanel.add(yearField, gbc);

    gbc.gridx = 0; gbc.gridy = 6;
    inputPanel.add(addButton, gbc);

    gbc.gridx = 1; gbc.gridy = 6;
    inputPanel.add(backButton, gbc);

    vehicleFrame.add(inputPanel, BorderLayout.CENTER);

    // Action listener to add vehicle to the database
```

```
addButton.addActionListener(e -> {
    try {
        // Retrieve input data
        String name = nameField.getText();
        String type = typeField.getText();
        String status = statusField.getText();
        double price = Double.parseDouble(priceField.getText());
        String licensePlate = licenseField.getText();
        int modelYear = Integer.parseInt(yearField.getText());

        if (name.isEmpty() || type.isEmpty() || status.isEmpty() || licensePlate.isEmpty()) {
            JOptionPane.showMessageDialog(vehicleFrame, "Please fill out all the fields.");
            return;
        }

        // Check for duplicates
        String checkQuery = "SELECT COUNT(*) FROM vehicles WHERE license_plate = ?";
        PreparedStatement checkStatement = connection.prepareStatement(checkQuery);
        checkStatement.setString(1, licensePlate);
        ResultSet resultSet = checkStatement.executeQuery();
        resultSet.next();
        int count = resultSet.getInt(1);
        checkStatement.close();

        if (count > 0) {
            JOptionPane.showMessageDialog(vehicleFrame, "Vehicle with this license plate already exists.");
            return;
        }

        // Insert into database
        String insertQuery = "INSERT INTO vehicles (name, type, status, price_per_day, license_plate, model_year) VALUES (?, ?, ?, ?, ?, ?)";
        PreparedStatement statement = connection.prepareStatement(insertQuery);
        statement.setString(1, name);
        statement.setString(2, type);
        statement.setString(3, status);
        statement.setDouble(4, price);
        statement.setString(5, licensePlate);
        statement.setInt(6, modelYear);

        int rowsAffected = statement.executeUpdate();
        if (rowsAffected > 0) {
            JOptionPane.showMessageDialog(vehicleFrame, "Vehicle added successfully!");
        }
        statement.close();
    } catch (NumberFormatException ex) {
        JOptionPane.showMessageDialog(vehicleFrame, "Please enter valid numbers for price and
```

```
model year.");
    } catch (SQLException ex) {
        ex.printStackTrace();
        JOptionPane.showMessageDialog(vehicleFrame, "Error adding vehicle.");
    }
});

// Action listener for "Back to Menu" button
backButton.addActionListener(e -> vehicleFrame.dispose());

vehicleFrame.setVisible(true);
}

// Method to add a new customer
// Method to add a new customer with detailed input
// Method to add a new customer with detailed input
private void addNewCustomer() {
    JFrame customerFrame = new JFrame("Add New Customer");
    customerFrame.setSize(400, 500);
    customerFrame.setLayout(new BorderLayout());

    JPanel inputPanel = new JPanel(new GridLayout(7, 2, 10, 10));

    JLabel nameLabel = new JLabel("Customer Name:");
    JTextField nameField = new JTextField();

    JLabel contactLabel = new JLabel("Contact Number:");
    JTextField contactField = new JTextField();

    JLabel emailLabel = new JLabel("Email:");
    JTextField emailField = new JTextField();

    JLabel addressLabel = new JLabel("Address:");
    JTextField addressField = new JTextField();

    JLabel licenseLabel = new JLabel("Driver's License Number:");
    JTextField licenseField = new JTextField();

    JLabel dobLabel = new JLabel("Date of Birth (YYYY-MM-DD):");
    JTextField dobField = new JTextField();

    JButton addButton = new JButton("Add Customer");

    inputPanel.add(nameLabel);
    inputPanel.add(nameField);
    inputPanel.add(contactLabel);
```

```
inputPanel.add(contactField);
inputPanel.add(emailLabel);
inputPanel.add(emailField);
inputPanel.add(addressLabel);
inputPanel.add(addressField);
inputPanel.add(licenseLabel);
inputPanel.add(licenseField);
inputPanel.add(dobLabel);
inputPanel.add(dobField);
inputPanel.add(new JLabel()); // Empty space
inputPanel.add(addButton);

customerFrame.add(inputPanel, BorderLayout.CENTER);

// Action listener to add customer to the database
addButton.addActionListener(e -> {
    try {
        String name = nameField.getText();
        String contact = contactField.getText();
        String email = emailField.getText();
        String address = addressField.getText();
        String license = licenseField.getText();
        java.sql.Date dob = java.sql.Date.valueOf(dobField.getText()); // Use java.sql.Date.valueOf()

        String insertQuery = "INSERT INTO customers (name, contact_number, email, address,
drivers_license_number, date_of_birth) VALUES (?, ?, ?, ?, ?, ?)";
        PreparedStatement statement = connection.prepareStatement(insertQuery);

        statement.setString(1, name);
        statement.setString(2, contact);
        statement.setString(3, email);
        statement.setString(4, address);
        statement.setString(5, license);
        statement.setDate(6, dob);

        int rowsAffected = statement.executeUpdate();
        if (rowsAffected > 0) {
            JOptionPane.showMessageDialog(customerFrame, "Customer added successfully!");
        }

        statement.close();
    } catch (IllegalArgumentException ex) {
        JOptionPane.showMessageDialog(customerFrame, "Please enter the date in YYYY-MM-DD
format.");
    } catch (SQLException ex) {
        ex.printStackTrace();
        JOptionPane.showMessageDialog(customerFrame, "Error adding customer.");
    }
}
```

NAME:JANANY M

ROLLNO:231901012

```
});  
  
customerFrame.setVisible(true);  
}  
  
public static void main(String[] args) {  
    new VehicleRentalSystem();  
}  
}
```

TEAM MEMBERS:

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