

# CAR DEALERSHIP MANAGEMENT SYSTEM

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## Introduction

Welcome to the documentation for our Car Dealership Management System in JavaFX. This system streamlines our dealership's operations, handling inventory, sales and customer data.

## Purpose

Our goal with this system is to create a user-friendly interface powered by JavaFX, simplifying daily tasks for managing cars, sales, customers, and staff.

## Features

- **Inventory Management:** Easily add, update, and categorize vehicles.
- **Sales Management:** Record transactions, and track sales history.
- **Customer Relationship Management:** Maintain customer information for personalized services.

## Technology

Built with JavaFX for the interface and Java for the backend, with database integration for reliable data storage and retrieval.

## User Roles and Permissions

### Admin Role

- **Permissions:**
  - **Manage Inventory:** Add, edit, and remove vehicles from the inventory.
  - **Sales Management:** Access sales records, generate invoices, and manage sales transactions.
  - **Customer Management:** View and modify customer data.
  - **System Configuration:** Access system settings, manage user accounts.
- **Responsibilities:**
  - Oversee and control the entire system.
  - Ensure the accuracy and security of data.
  - Make high-level decisions regarding system configurations.
  - Provide support to clients and employees.

### Client Role

- **Permissions:**
  - **View Inventory:** Browse available vehicles.
  - **Make Purchases:** Initiate and complete purchases.
  - **View Own Information:** Access personal purchase history and profile.
- **Responsibilities:**
  - Browse available vehicles and their details.
  - Initiate and complete purchases.
  - Access personal purchase history and profile information.

### Note:

- Admins have full control and authority over the system, including data management and configuration.
- Clients have restricted access, primarily for browsing and making purchases, focusing on user-specific functionalities.

## **Inventory Management**

### **Functionality Overview**

The Inventory Management feature serves as the core component of our system, facilitating the addition, categorization, and updating of vehicles available for sale.

### **Admin Perspective**

#### Adding Vehicles

Admins can swiftly add new vehicles to the inventory. This involves specifying:

- Vehicle make, model, year, VIN (Vehicle Identification Number).
- Pricing details and any additional specifications.
- Uploading images for better visualization.

#### Categorization and Organization

Admins can categorize vehicles based on:

- Make, model, year, or any other relevant criteria.
- Sort vehicles for easy access and browsing.

#### Update and Removal

Admins have the authority to:

- Edit existing vehicle information such as price updates or specifications modifications.
- Remove vehicles from the inventory if they are sold or no longer available.

### **Client Perspective**

#### Browsing Available Vehicles

Clients have access to:

- View available vehicles with details such as make, model, year, and pricing.
- Filter and search functionalities for specific preferences (e.g., by make, price range, or year).

#### Vehicle Details

Clients can access:

- Detailed information about each vehicle, including specifications and images.
- Option to express interest or inquire further about a particular vehicle.

### **Interface**

#### Admin Interface

- Intuitive dashboard allowing admins to add, categorize, update, and remove vehicles efficiently.
- Clear navigation for easy access to different functionalities.

#### Client Interface

- User-friendly interface showcasing available vehicles with a user-friendly search and filter feature.
- Detailed vehicle pages for comprehensive information and easy inquiries.

#### **Integration with Sales and CRM**

The inventory system seamlessly integrates with Sales Management and Customer Relationship Management functionalities:

- Ensures real-time updates in inventory upon sales.
- Connects vehicle data to customer purchases for accurate sales history tracking.

## Sales Management

### Recording Transactions

- **Admin Functionality:** Admins initiate and record sales transactions.
  - Specify vehicle sold and buyer details.
  - Timestamp and details of the transaction for accurate tracking.

### Generating Invoices

- **Automated Invoicing:** Upon transaction completion, the system generates invoices.
  - Includes details of the purchased vehicle, pricing breakdown, and buyer information.
  - Provides a professional and itemized record of the transaction.

### Sales History Tracking

- **Comprehensive Sales Records:** The system maintains a comprehensive log of all sales.
  - Enables admins to view past transactions, including vehicle details, buyer information, and transaction dates.
  - Facilitates easy retrieval of sales history for analysis and reporting purposes.

### Integration with Inventory

- **Inventory Update:** Upon a successful sale, the system automatically updates the inventory.
  - Removes the sold vehicle from the available inventory list.
  - Ensures real-time accuracy between inventory availability and sales data.

## Technical Details

### JavaFX and Java Backend

- **JavaFX:**
  - FXML for UI Design: Utilized extensively to structure the UI components and define their appearance.
  - Controller Implementation: Utilizes separate controllers for distinct UI components, managing user interactions efficiently.
- **Java Backend:**
  - Inventory Management: Employs specific classes and methods for managing inventory-related operations.
  - Sales, CRM, and Employee Handling: Implements separate modules and methods catering to sales, CRM functionalities, and employee management.
  - Seamless Integration: Ensures a smooth interaction between the Java backend and JavaFX for cohesive system functionality.

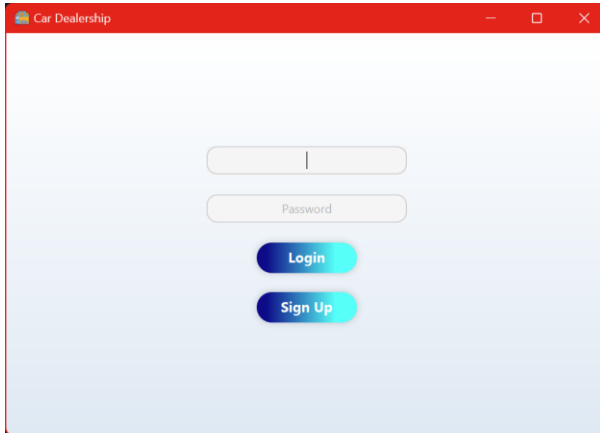
### Database Integration

- **PostgreSQL Integration:**
  - Database System: Utilizes PostgreSQL as the primary database for storing and retrieving data.
  - Schema Details: Describes the PostgreSQL database schema tailored to your system's needs.
    - Includes tables for inventory, sales transactions, customer details, and employee information.

## User Manual

### Login and Signup

#### Accessing the System



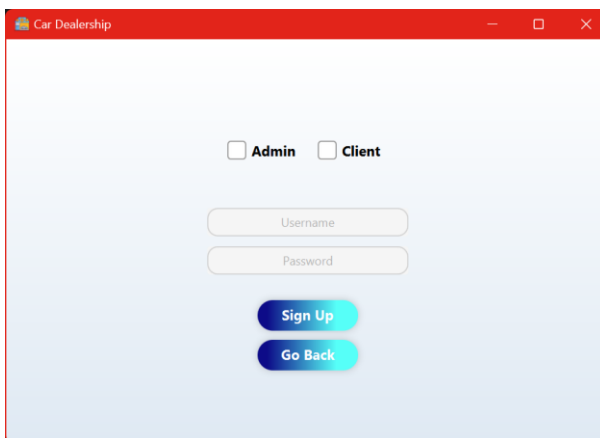
1. **Accessing the Login Page:**

- Run the desktop application.
- You'll be directed to the login page.

2. **Login Credentials:**

- Enter your username and password.
- Click "Login" to access the system.

#### User Roles and Signup



1. **User Roles:**

- Understand the different user roles available (Admin, Client).



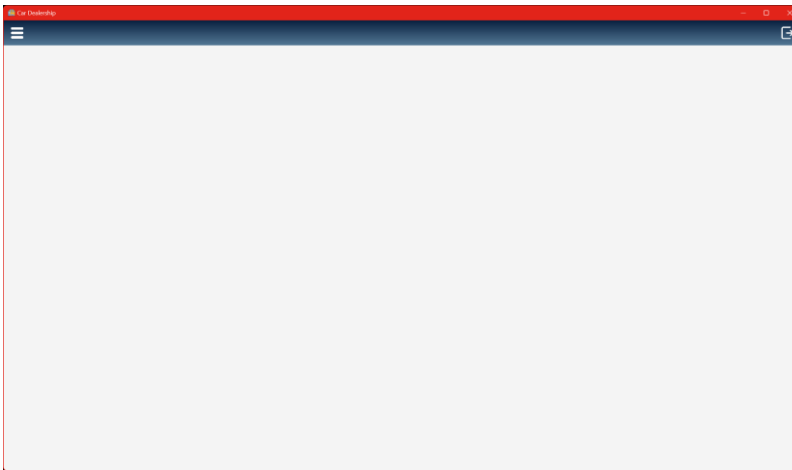
- Different functionalities are accessible based on your assigned role.

## 2. **Signup Process (If Applicable):**

- If new to the system, click on "Signup".
- Enter required details: username, password.
- Select the role (Admin or Client).

## **Client Dashboard Navigation**

### **Accessing the Menu**



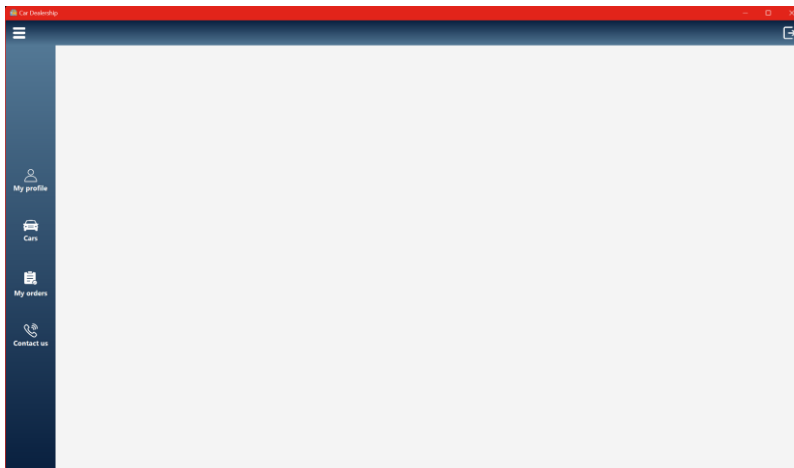
#### 1. **Locating the Menu Button:**

- Look for the menu icon/button located at the top of the dashboard interface.

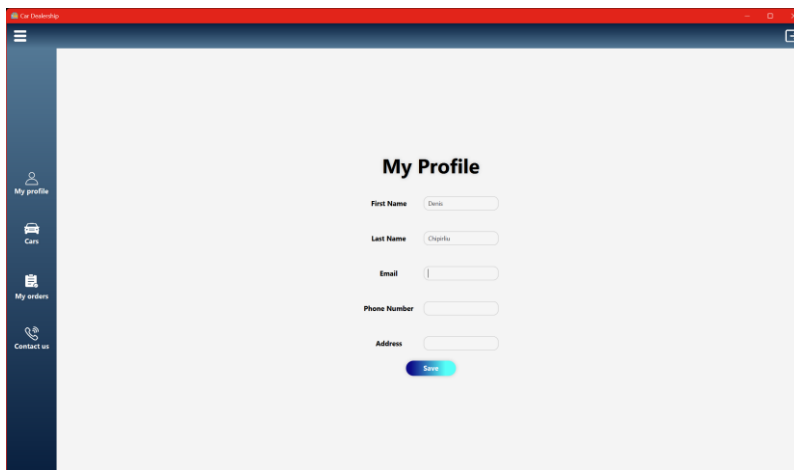
#### 2. **Opening the Menu:**

- Click or tap on the menu button to reveal the navigation options.

## Navigating through the Menu

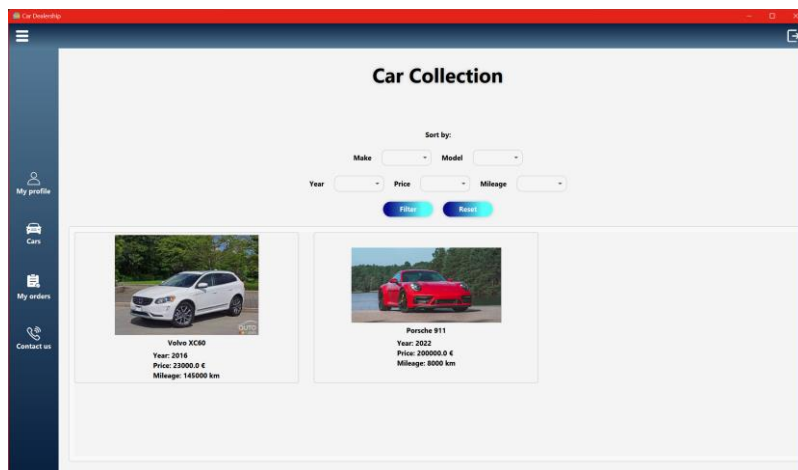


### 1. Profile Section:

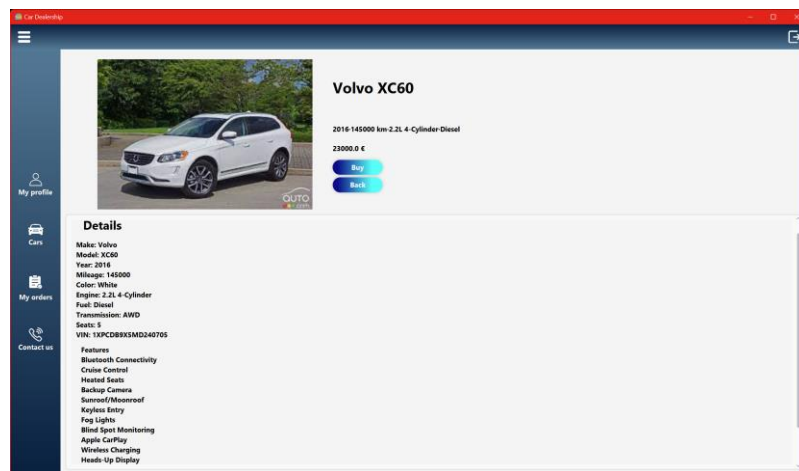


- Find and click on the "Profile" option within the opened menu.
- Access and manage personal information or settings.

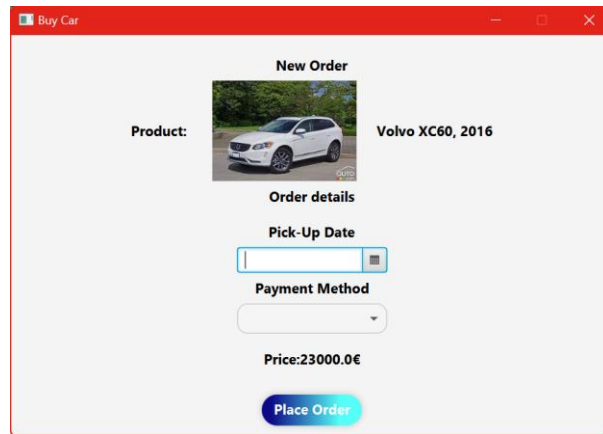
## 2. Viewing Available Cars:



- Select the "Cars" or "Inventory" option from the menu.
- Browse through the available vehicles.
- Filter by make, model, year, price and mileage the cars.
- Click on the car you want to open the detailed view from which you can buy the car.



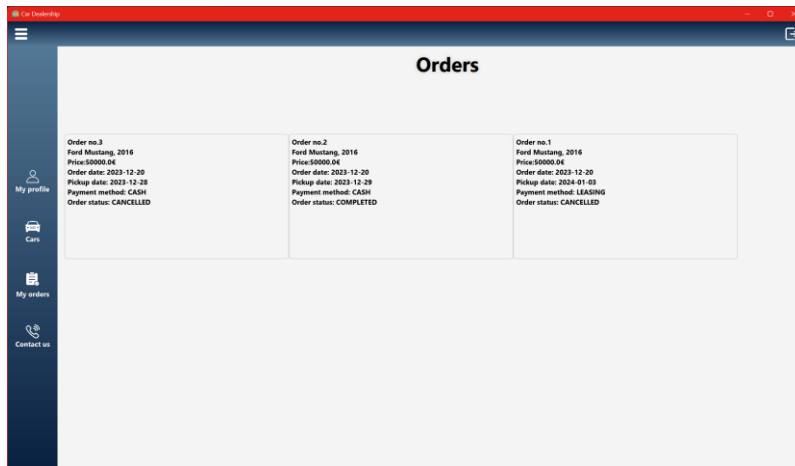
## Buying a car



The screenshot shows a web application window titled "Buy Car". Inside, there's a "New Order" section. It features a "Product:" label next to an image of a white Volvo XC60 and the text "Volvo XC60, 2016". Below this is an "Order details" section with a "Pick-Up Date" input field and a "Payment Method" dropdown menu. The price is listed as "Price:23000.0€". At the bottom is a blue "Place Order" button.

- After pressing the buy button, this menu will pop up.
- You can select the date you want to get the car from the dealership and the payment method ( Cash, Credit Card, Check, Leasing).
- The order is placed by pressing the “Place Order” button.

### 3. Checking Order Status or History:

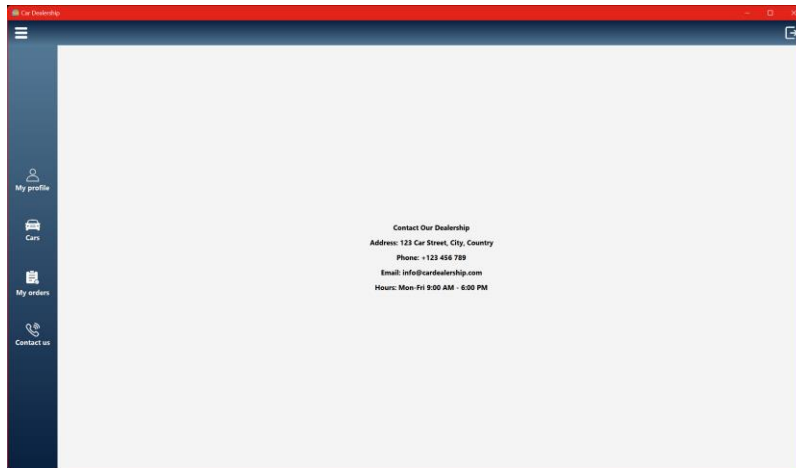


The screenshot shows a web application window titled "Car Dealership" with a sidebar menu containing "My profile", "Cars", "My orders", and "Contact us". The main content area is titled "Orders" and displays a table with three order entries.

Order no.3	Order no.2	Order no.1
Ford Mustang, 2016 Price:40000.0€ Order date: 2023-12-20 Pickup date: 2023-12-20 Payment method: CASH Order status: CANCELLED	Ford Mustang, 2016 Price:40000.0€ Order date: 2023-12-20 Pickup date: 2023-12-20 Payment method: CASH Order status: COMPLETED	Ford Mustang, 2016 Price:40000.0€ Order date: 2023-12-20 Pickup date: 2024-01-03 Payment method: LEASING Order status: CANCELLED

- Choose the "My Orders" or "Order History" section in the menu.
- View current orders or check past order details.

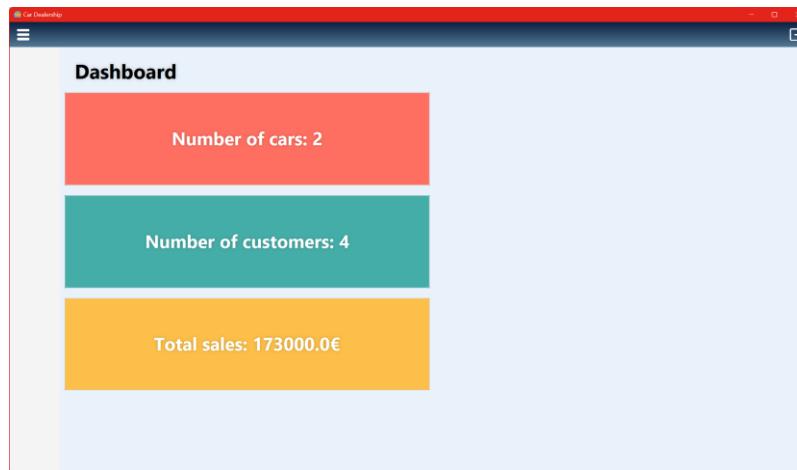
### 4. Contact Us Page:



- Locate and click on the "Contact Us" option.
- Access contact information or submission forms for inquiries.

## Admin Dashboard Navigation

### Accessing the Menu



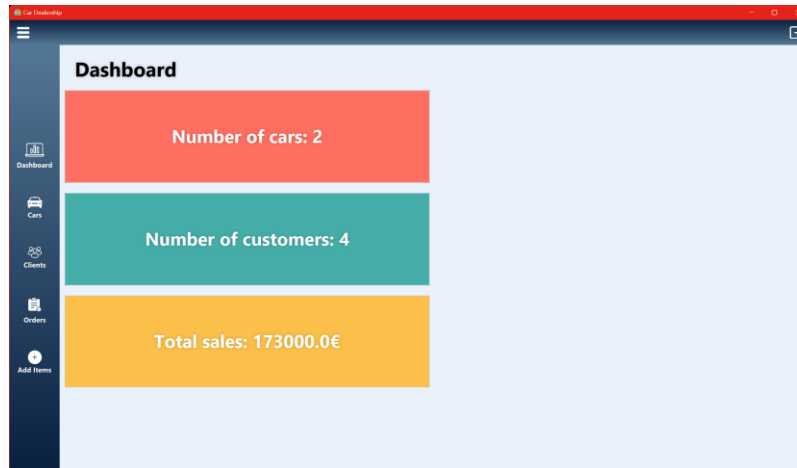
#### 1. Locating the Menu Button:

- Look for the menu icon/button situated at the top of the admin dashboard interface.

#### 2. Opening the Menu:

- Click or tap on the menu button to reveal the navigation options.

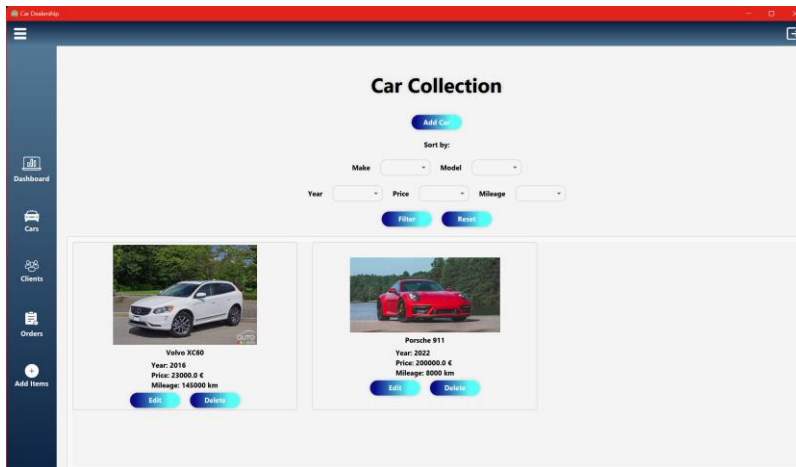
### Navigating through the Menu



## 1. Dashboard Overview:

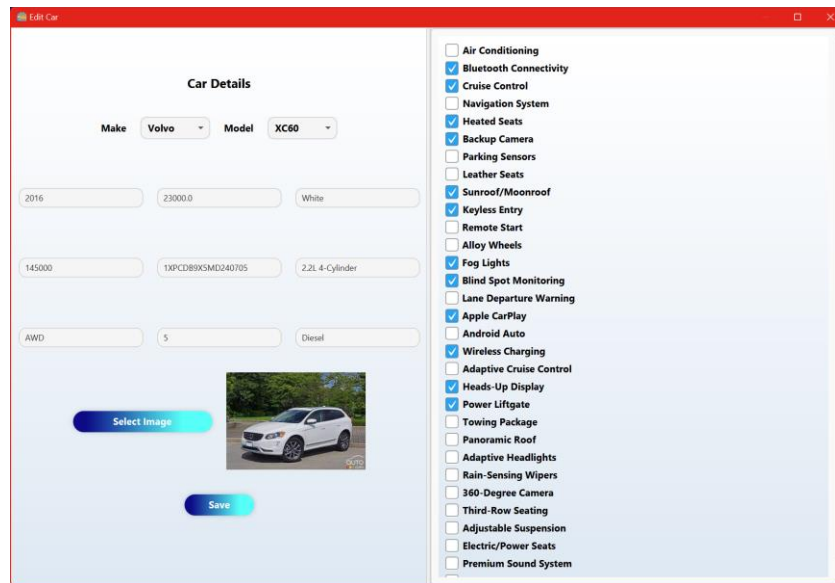
- Click on "Dashboard" to access an overview of the number of cars, customers or the total sales from the completed orders.

## 2. Managing Cars:



- Select the "Cars" option from the menu.
- Access inventory management functionalities.
- Edit or delete every individual car.

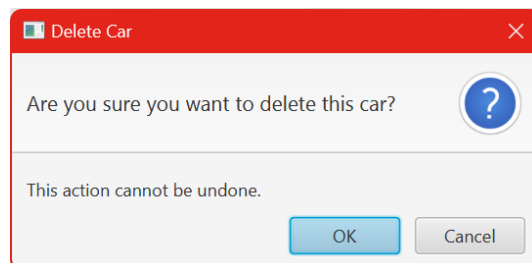
## Editing cars



The 'Edit Car' window is divided into two main sections. The left section, titled 'Car Details', contains input fields for 'Make' (Volvo), 'Model' (XC60), 'Year' (2016), 'Price' (23000.0), 'Color' (White), 'Mileage' (145000), 'VIN' (1XPCE89XSM0240705), 'Engine' (2.0L 4-Cylinder), 'Drive' (AWD), 'Transmission' (5), and 'Fuel' (Diesel). Below these fields are buttons for 'Select Image' and 'Save'. The right section is a list of features with checkboxes, including Air Conditioning, Bluetooth Connectivity, Cruise Control, Navigation System, Heated Seats, Backup Camera, Parking Sensors, Leather Seats, Sunroof/Moonroof, Keyless Entry, Remote Start, Alloy Wheels, Fog Lights, Blind Spot Monitoring, Lane Departure Warning, Apple CarPlay, Android Auto, Wireless Charging, Adaptive Cruise Control, Heads-Up Display, Power Liftgate, Towing Package, Panoramic Roof, Adaptive Headlights, Rain-Sensing Wipers, 360-Degree Camera, Third-Row Seating, Adjustable Suspension, Electric/Power Seats, and Premium Sound System.

- Change the current information about any car in the database.

## Deleting cars



The 'Delete Car' dialog box is a red-bordered window with a red header bar containing the title 'Delete Car' and a close button. The main area is white and contains the text 'Are you sure you want to delete this car?' followed by a blue circular icon with a white question mark. Below this, it says 'This action cannot be undone.' At the bottom right, there are two buttons: 'OK' and 'Cancel'.

- This alert will appear when clicking the delete button for a car.
- Pressing OK will result in removal of that car from the database.

- Add new cars to the collection.

### Adding cars

- Fill all the fields with information about the car.
- Check the features the car has.
- Add an image of the car using the “Select Image” button.
- Press “Add car” to finalize the process.

### 3. Client Management:

Client ID	First Name	Last Name	Email	Phone Number	Address
1	Chris	Chaplin			
2	Chris	Roberts			
3	Cyril	Chaplin			
4	Stefan	Chaplin	stefan.chaplin@gmail.com	0123456789	Berlin

- Choose the "Clients" section in the menu.
- Access and manage client details or information.

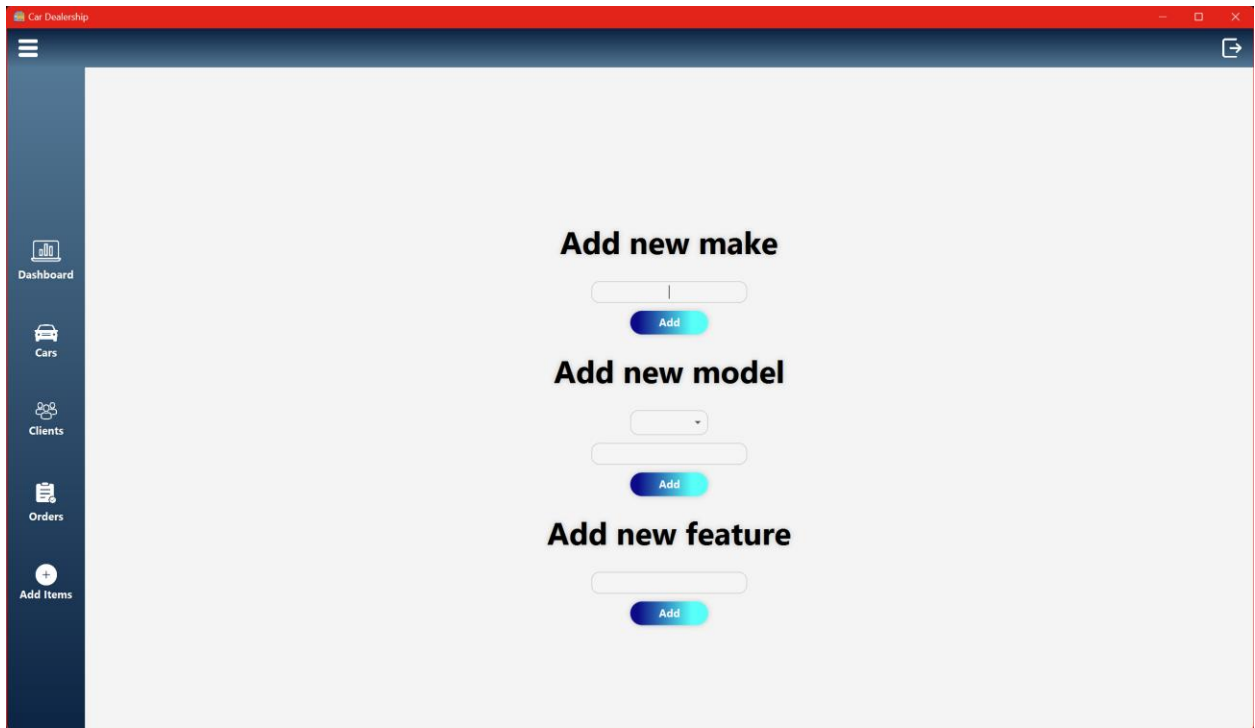


#### 4. Order Handling:

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- Click on "Orders" to view and manage orders.
- Monitor order status or process pending orders.
- Complete or cancel orders using the buttons from the "Action" column.
- Double click on a car id will open the edit car page for the specific car.

## 5. Adding Items:



- Locate and select the "Add Items" option.
- Access the functionality to add new items such as new makes, new models or new car features to the database.

### Future Enhancements

#### 1. Notifications and Reminders:

- Implement a notification system to alert admins or clients about upcoming appointments, pending orders, or important updates regarding their transactions.

#### 2. Analytics and Reporting:

- Introduce a reporting module that provides insights into sales trends, inventory turnover, customer preferences, etc. Visual representations like charts or graphs could be beneficial.

#### 3. CRM Enhancements:

- Add features for personalized marketing or communication with clients based on their preferences, purchase history, or specific criteria.

#### 4. Integration with External Platforms:

- Explore integrating with third-party services like online payment gateways, vehicle history report providers, or social media platforms for marketing purposes.

5. **Vehicle Comparison Tool:**

- Offer a feature that allows clients to compare multiple vehicles side by side, highlighting differences in specifications, pricing, or features.

6. **PDF Bill Export:**

- Attach to every order a downloadable PDF file with the bill for the client.

**Conclusion**

The Car Dealership Management System presents a robust and user-friendly solution tailored to streamline operations, manage inventory, track sales, and nurture customer relationships within our dealership.