**Semester Project Documentation**

**Semester Project Title**: Online car customization and purchasing

**Student Details**

(Fill according to number of team/group members)

|  |  |  |  |
| --- | --- | --- | --- |
|  | Student Name | Student Reg # | Student Degree |
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**Main Features**

**The main features of this code are:**

**1. Arrays for Features and Selections:**

   The code uses two arrays of strings for control and selection to store feature prompts and user selections.

**2. Arrays for Prices:**

   There are arrays for price and final price to store base prices and final prices for different car features.

**3. User Login:**

   The program begins with a simple user login system where the user provides a name, username, and password. Subsequent login attempts are verified against the provided credentials.

**4. Feature Selection:**

    The user is prompted to select various features for the car, such as the model, variant, paint color, interior color, rims size, and additional options like leather seats, autopilot, etc.

**5. Price Calculation:**

    The code calculates the final price based on the user's selections and updates the final price array accordingly.

**6. Receipt Generation:**

 After feature selection and price calculation, the program generates a receipt displaying the user's choices, the corresponding prices, and the final total price.

**7. Functionality for Additional Prices:**

The program includes functionality to calculate and display the additional prices for selected options.

**8. Delivery Address:**

The user is prompted to enter their delivery address, and it is displayed in the final receipt.

**9. Function Decomposition:**

   The code is organized into functions like login(), controls(),finalpricefun(), receipt(), and additionprices(), which helps in modularizing the code and making it more readable.

**10. Use of getline() for Input:**

    getline() is used for taking input, allowing the user to input strings with spaces.

**11. Control Flow:**

   The code uses if-else statements to control the flow based on the user's selections and choices.

**12. Global Variables:**

     Some variables for additionprice, address are declared globally, making them accessible across different functions.

**Types of Users**

There is single user in this code that is buyer of the car.

**Requirements Breakdown**

**Requirements Breakdown:**

**1. User Authentication**:

   1.1 The system shall prompt the user to enter their name, username, and password for login.

   1.2 The user shall choose a unique username during the account creation process.

   1.3 The system shall validate the entered username and password for successful login.

   1.4 Upon successful login, the system shall display a welcome message.

**2. Car Configuration:**

   2.1 The system shall present a menu for selecting the car model (Model X, Model Y, Model 3).

   2.2 The user shall be able to choose a car variant based on the selected model.

   2.3 The system shall prompt the user to select options for paint color, interior color, and rims size.

   2.4 Additional features such as leather seats, auto-pilot, etc., shall be presented to the user.

   2.5 The system shall allow the user to confirm or reject each additional feature.

**3. Price Calculation:**

   3.1 The system shall assign base prices to each car model and variant.

   3.2 Additional features selected by the user shall have associated prices.

   3.3 The system shall calculate the final price based on the selected car model, variant, and additional features.

   3.4 The user shall have the option to decline any additional feature to reduce the final price.

**4. Delivery Information:**

   4.1 The system shall prompt the user to enter their delivery address.

   4.2 The delivery address shall be stored for later inclusion in the receipt.

**5. Receipt Generation:**

   5.1 The system shall generate a receipt displaying the user's selections and their corresponding prices.

   5.2 The receipt shall include information about the selected car model, variant, colors, rims size, and additional features.

   5.3 The final price, including all selected options, shall be presented in the receipt.

   5.4 The user's delivery address shall be included in the receipt.

**6. Additional Prices Calculation:**

   6.1 The system shall calculate additional prices for selected features and accumulate them into a total additional price.

   6.2 The total additional price shall be added to the final price to determine the overall cost.

**7. User Interaction:**

   7.1 The system shall use a user-friendly interface for input and output.

   7.2 The user shall interact with the system through the console interface.

   7.3 The system shall provide clear prompts and instructions to guide the user.

**8. Code Modularity:**

   8.1 The code shall be modularized into functions to handle different aspects of the program.

   8.2 Functions shall be used for tasks such as login, feature selection, price calculation, receipt generation, and addition price calculation.

**9. Error Handling:**

   9.1 The system shall handle errors, such as invalid inputs during login or feature selection.

   9.2 Error messages shall be displayed to guide the user in case of input validation failures.

**Features to Codding Matrix**

*(In the following table you will mention the following items for each feature, mention the items in each column for each feature of your application)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sr  no. | Feature Name | Concept Used | Functions Created | Variables / Obj Created | Line of Code Written |
| 1 | Xyz | Control structure | Xyz()  Sumnum() | Int v1, int v2 | 110 |
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