**SHOPPING CART PROJECT**

**Submitted To**

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**BY**

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## 1. Project Overview

The Shopping Cart project is a console-based application developed in C#. It allows users to browse products, add them to their cart, remove items, view their cart contents, and proceed to checkout. The project aims to simulate a real-world shopping experience while demonstrating core programming concepts in C#.

**2. Objectives**

* To create a user-friendly shopping cart application.
* To implement core features such as adding/removing products, viewing the cart, and checking out.
* To incorporate user management features like signup, login, and password recovery.
* To calculate total costs, including discounts and sales tax.

**3. Architecture and Design**

The application follows an object-oriented programming (OOP) paradigm. It consists of the following key classes:

* **Product:** Represents a product with an ID, name, and price.
* **CartItem:** Represents an item in the shopping cart, containing a product and its quantity.
* **ShoppingCart:** Manages the collection of cart items, handles adding/removing items, and calculates totals.
* **User:** Represents a user with a username and password for authentication.
* **Program:** The main class that handles user interaction and drives the application flow.

## 4. Implementation Details

1. **Product Class**
   * Properties: ID, Name, Price
   * Constructor: Initializes product attributes.
2. **CartItem Class**
   * Properties: Product (of type Product), Quantity
   * Method: GetTotalPrice() to calculate the total price for the item.
3. **ShoppingCart Class**
   * Manages a list of CartItem objects.
   * Methods include:
     + **AddItem(**Product product, int quantity**)**
     + **RemoveItem()**
     + **ViewCart()**
     + **GetTotalCost()**
     + **Checkout()**
     + **ProductRecommendations()**
4. **User Class**
   * Properties: Username, Password
   * Methods for user management: **Login(), Signup(), ForgotPassword()**

**5. Features**

* **User Management:**
  + Signup, login, and password recovery options.
* **Shopping Cart Operations:**
  + Add and remove items.
  + View all items in the cart with total cost calculation.
* **Checkout Process:**
  + Confirmation of order and calculation of total cost including discounts and sales tax.
* **Product Recommendations:**
  + Suggests additional products to users based on their shopping behavior.

## 6. User Guide

1. **Running the Application:**
   * Open the project in your IDE and run the Main method in the Program class.
2. **User Registration:**
   * Select the "Signup" option, enter a unique username and password.
3. **Logging In:**
   * Choose the "Login" option and provide your credentials.
4. **Shopping Actions:**
   * Use the shopping menu to add items to your cart, view cart details, and proceed to checkout.

### **7. Test Cases:**

* **User Registration:**
  + Verify if a new user can be created successfully.
* **Login Functionality:**
  + Test valid and invalid login attempts.
* **Shopping Cart Operations:**
  + Add, remove, and view items; check total price calculations.
* **Checkout Process:**
  + Confirm order and validate receipt of confirmation message.

## 8. Conclusion

The Shopping Cart project effectively simulates an online shopping experience using C#. It incorporates essential features such as user management, cart operations, and checkout processes. The project serves as a foundational example of object-oriented programming and can be expanded with additional functionalities and improvements.

**UML DIAGRAM:**

