

***Project:***

***Shopping Cart***

***Team Members***

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***About :***

*The Shopping Cart System is a C# console application that simulates basic online shopping functions: adding, removing, updating products, calculating totals, applying discounts, and managing cart expiration. This project demonstrates essential programming skills, including object-oriented design and timer usage.*



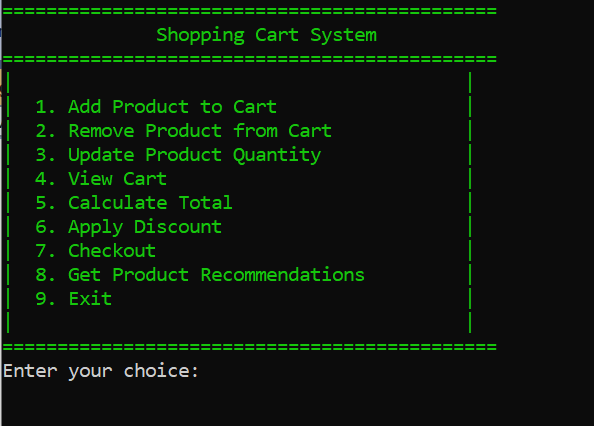
***Objectives:***

* ***User-Friendly Interface****:*
  + - *Create an intuitive console application for easy navigation.*
* ***Product Management****:*
  + - *Enable adding, removing, and updating products in the cart.*
* ***Cart Viewing****:* 
  + - *Display cart contents, including product details and total price.*
* ***Total Calculation****:* 
  + - *Calculate the total cost of products in the cart.*
* ***Discount Application****:* 
  + - *Allow users to apply discounts to their total purchase.*
* ***Checkout Process****:* 
  + - *Provide a summary of the cart and total price during checkout.*
* ***Cart Expiration Management****:* 
  + - *Implement automatic cart expiration after inactivity.*
* ***Product Recommendations****:*
  + - *Suggest products to enhance the shopping experience.*
* ***Error Handling****:*
  + - *Manage invalid inputs gracefully to ensure reliability.*
* ***Documentation and Reporting****:*
  + - *Provide comprehensive documentation for users and developers.*



***Main Menu***

* ***Initialization:***
* *Creates ShoppingCart and sets up a timer for expiration checks.*
* ***Menu Loop:***
* *Displays options until the user chooses to exit.*
* ***User Choices:***
* *Handles inputs for adding, removing, updating, viewing products, calculating totals, applying discounts, checking out, recommending products, or exiting.*
* ***Error Handling:***
* *Alerts users for invalid choices.*
* ***Continuation Prompt:***
* *Asks users to press a key to continue after each action.*



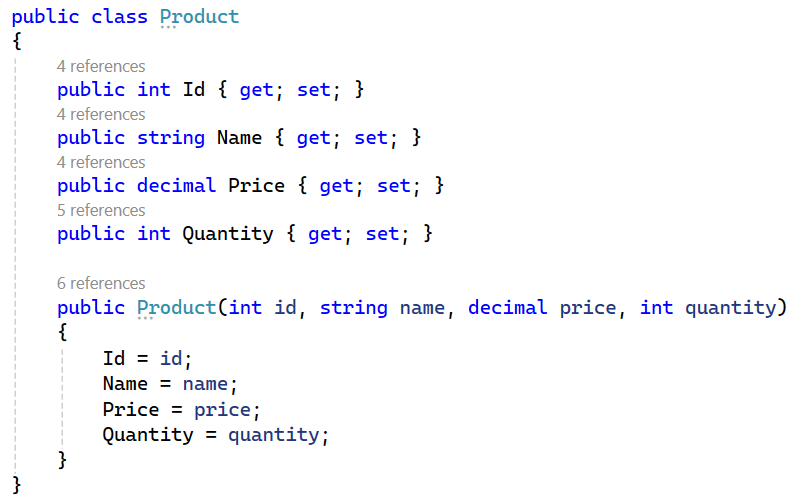
**Classes**

**Product Class**

* **Purpose:** Represents a product that can be added to the shopping cart.

**Attributes:**

* **Id**: An integer that uniquely identifies the product.
* **Name**: A string representing the name of the product.
* **Price**: A decimal value representing the price of the product.
* **Quantity**: An integer indicating how many units of the product are available or being purchased.

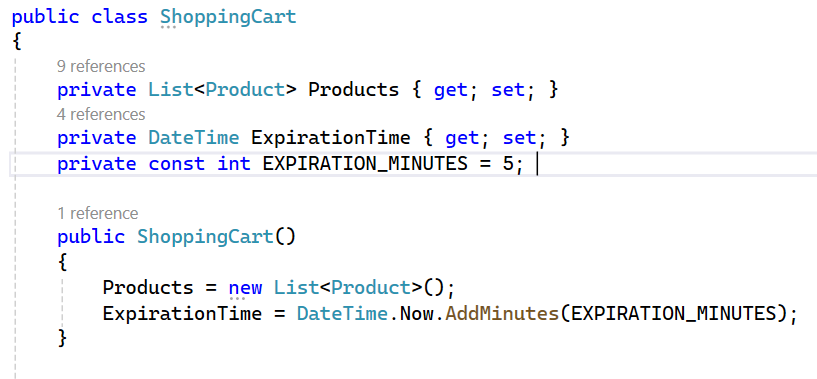


***ShoppingCart Class***

* ***Purpose****: Manages a collection of products that users can add to, remove from, or modify in their shopping cart.*

***Attributes:***

* ***Products****: A list of Product objects that represent the items currently in the cart.*
* *ExpirationTime: A DateTime object that indicates when the cart will expire.*
* *EXPIRATION\_MINUTES: A constant integer representing the expiration time limit for the cart (set to 5 minutes).*

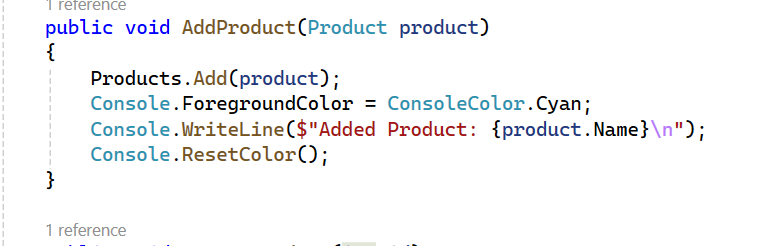


***Functions***

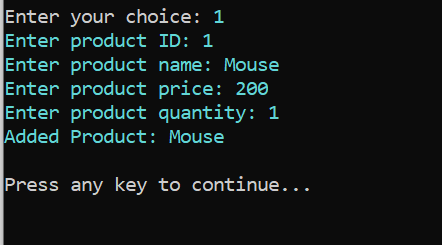
***AddProduct():***

* This Function Adds a product to the cart. It also Prompts for product details (ID, name, price, quantity) and calls AddProduct.

**Input :**



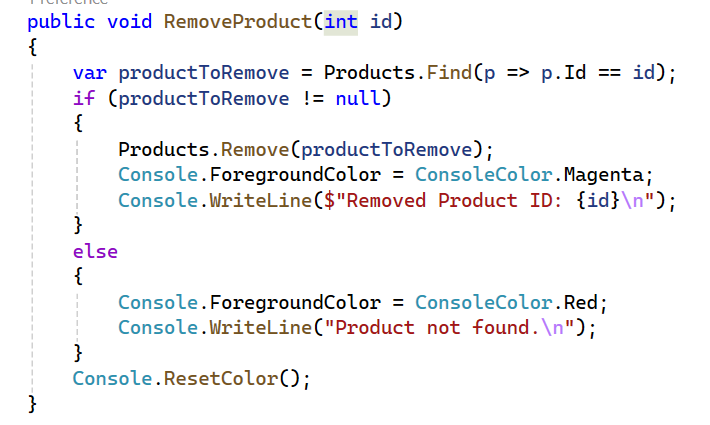
**Output :**

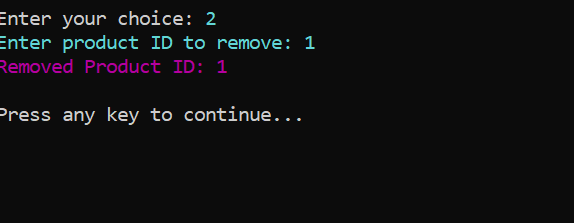


**Remove Product from Cart():**

* Prompts for the product ID to remove and calls RemoveProduct.

**Input :**

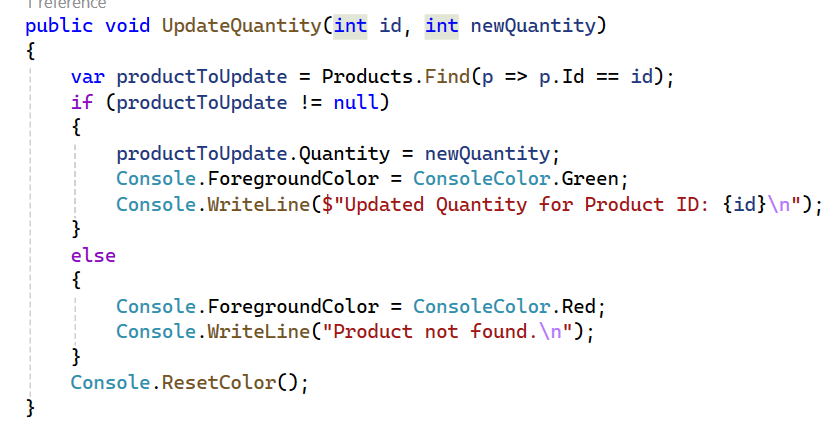


**Output :**

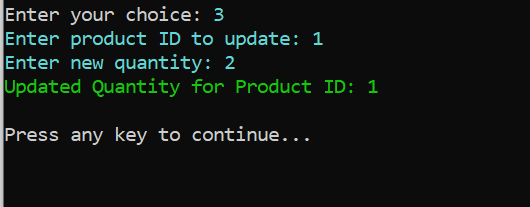
**Update Product Quantity():**

* Prompts for the product ID and new quantity, then calls UpdateQuantity.

**Input :**



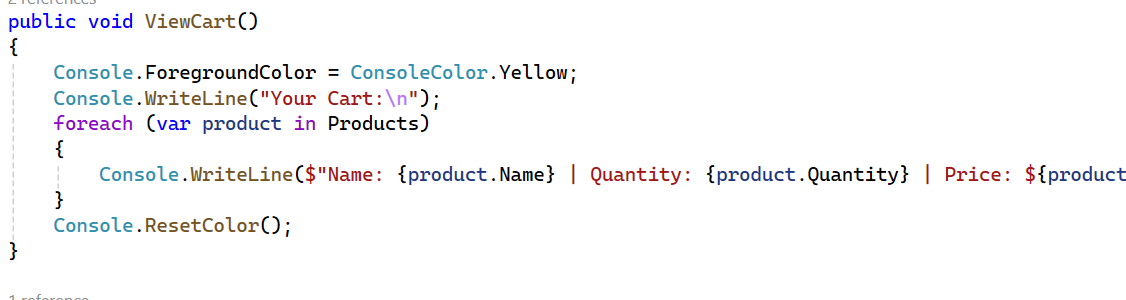
**Output :**

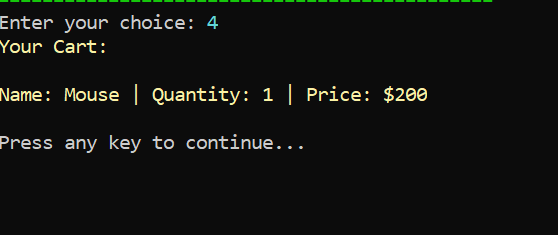


**View Cart()**:

* Calls ViewCart to display the contents of the cart.

**Input :**

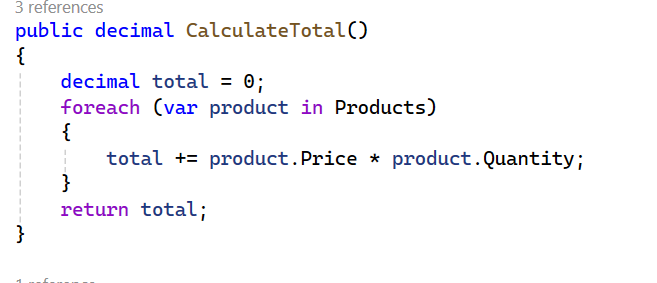


**Output :** 

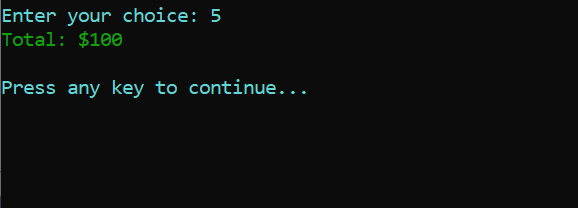
**Calculate Total():**

* This Function will Calculate Total and displays the total price.

**Input :**

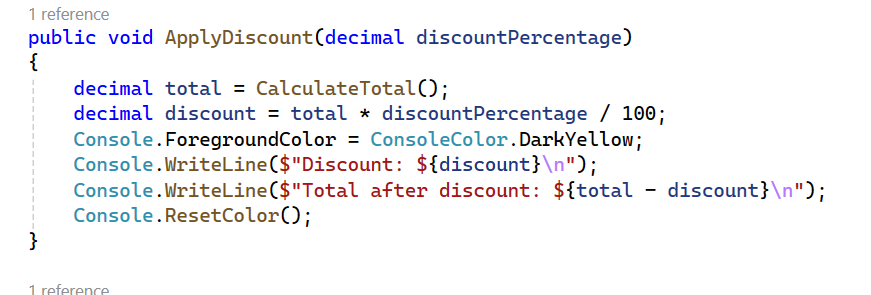


**Output :**

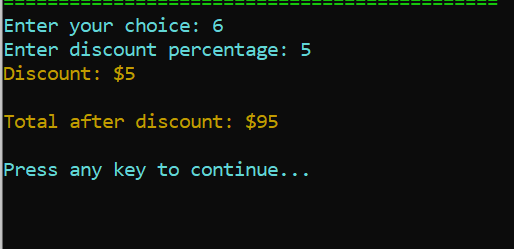


**ApplyDiscount()**:

* Applies a discount to the total cost of the cart.

**Input :**

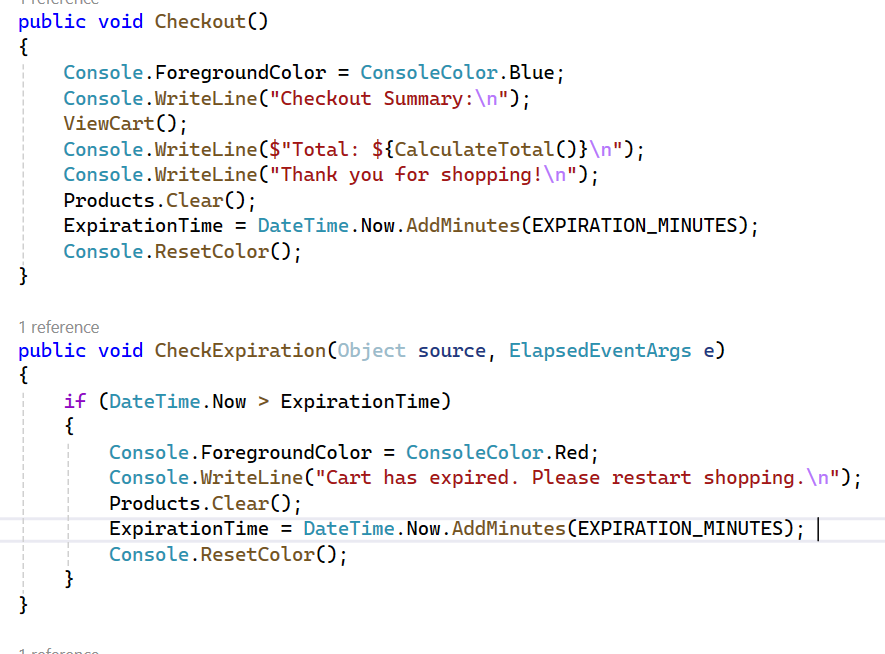
**Output :**



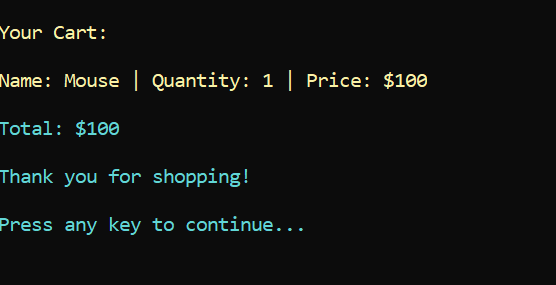
**Checkout()**:

* Finalizes the purchase and clears the cart.
* It will also check the expiration of cart if necessary.

**Input:**



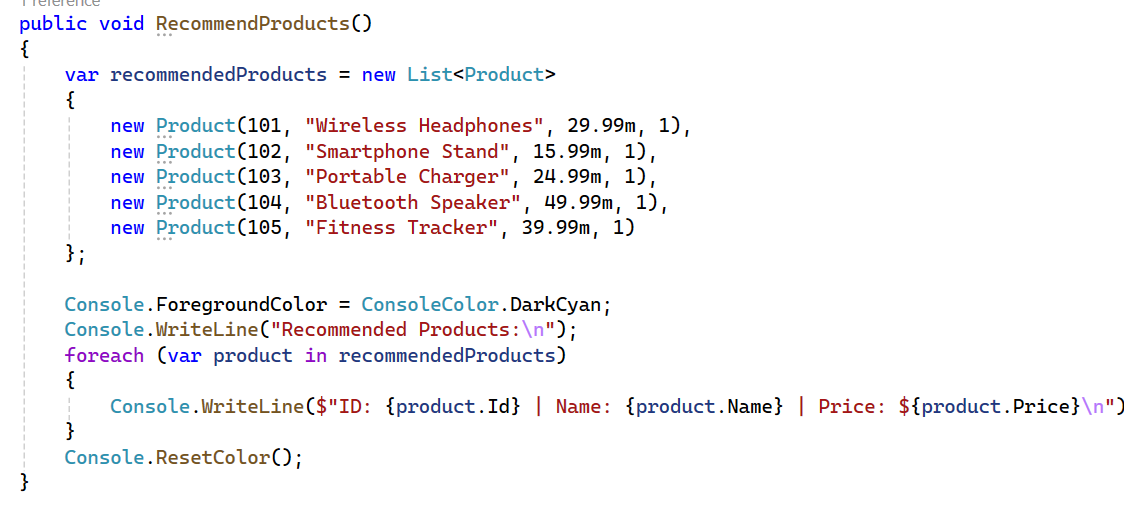
**Output :**



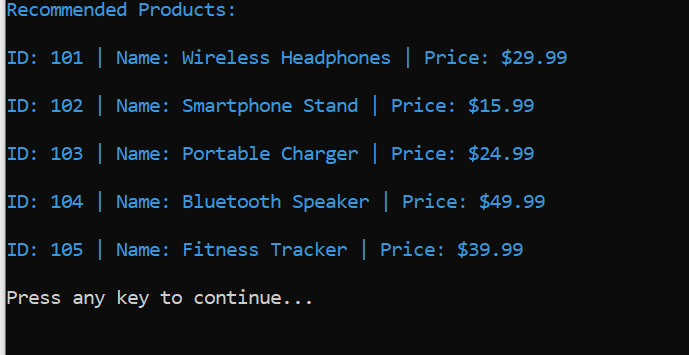
**Recommend Products()**:

* Provides a list of recommended products to the user.

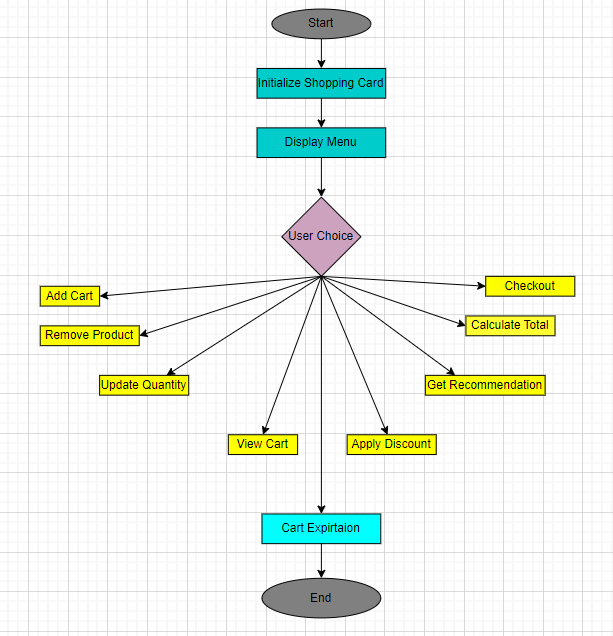
**Input :**



**Output :**



***Shopping Cart Flow Chart***



***UML Diagram***