

OBJECT ORIENTED PROGRAMMING PROJECT



ONLINE SHOPPING SYSTEM



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Online Shopping System

Project URL on GitHub:

[online-shopping-system-cpp/OnlineShoppingSystem: The Final Project \(github.com\)](https://github.com/online-shopping-system-cpp/OnlineShoppingSystem)

Introduction :

The Online Shopping System is a comprehensive platform designed to facilitate the purchasing process for customers and management operations for administrators. This system allows registered customers to view, select, and purchase products, while administrators can manage product listings and customer accounts. The system is designed to be user-friendly and secure, ensuring a seamless shopping experience.

Brief Description :

The Online Shopping System is implemented in C++ and comprises multiple classes that handle various functionalities of the system. These include customer management, product management, shopping cart operations, and administrative tasks. The system provides a console-based interface for interaction, making it straightforward to use for both customers and administrators.

Features

1. **User Registration and Login:**
 - Customers can create an account with a username, password, nickname, and initial balance.
 - Login functionality ensures secure access to the system.
2. **Product Management:**
 - Administrators can add, update, and delete products.
 - Products have attributes like ID, name, price, and quantity.
3. **Discount Management:**
 - Administrators can set discounts on products.
 - Customers can view and apply available discounts during purchase.
4. **Shopping Cart:**
 - Customers can add products to their cart.
 - The cart displays the items, their quantities, and the total price.
 - Checkout functionality processes the purchase and updates the customer's balance.
5. **Balance Management:**
 - Customers can check and add to their balance.
6. **Account Management:**
 - Customers can view and update their account details.
 - Password reset functionality is available using a nickname.
7. **Administrative Functions:**

- Administrators can view all registered customers and products.
- Ability to set discounts on products.

Files

The system is structured into several files to separate different functionalities:

1. **main.cpp:** Contains the main function and the core flow of the application.
2. **Product.h:** Defines the Product class and its derived class GeneralProduct.
3. **User.h:** Defines the RegisteredCustomer and Administrator classes, along with the Shop class for cart management.

Attributes and Functions

Classes and Attributes

1. **Product (Abstract Base Class):**
 - Attributes: id, name, price, quantity.
 - Functions: getId(), getName(), getPrice(), getQuantity(), display().
2. **GeneralProduct (Derived Class):**
 - Inherits from Product.
3. **RegisteredCustomer:**
 - Attributes: username, password, nickname, balance, attempt, returns.
 - Functions: login(), viewItems(), addToCart(), makePurchase(), applyDiscount(), checkout(), showBalance(), addBalance(), displayUserData(), forgetPassword().
4. **Administrator:**
 - Attributes: adminUsername, adminPassword, users, products.
 - Functions: login(), addItem(), updateItemDetails(), deleteProduct(), addUser(), viewUsers(), viewProducts(), setDiscountForProducts().
5. **Shop:**
 - Attributes: cartedItems, cartedQuantity, cartedPrice.
 - Functions: addCart(), displayCart().

Key Functions :

- **login():** Handles user authentication.
- **viewItems():** Displays available products to the customer.
- **addToCart():** Adds selected products to the customer's shopping cart.
- **checkout():** Processes the purchase and updates the balance.
- **showBalance():** Displays the customer's current balance.
- **addBalance():** Allows the customer to add more funds to their account.
- **addItem():** Enables the administrator to add new products to the system.
- **deleteProduct():** Allows the administrator to remove products.
- **setDiscountForProducts():** Sets a discount for a specific product.
- **displayUserData():** Shows the customer's account details.
- **forgetPassword():** Resets the customer's password.

Here is some of our system outputs:

1. User Registration and Login:

```
*****
*                                     *
*   Welcome to Online Shopping System   *
*                                     *
*****
```

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```
Are you a Customer or an Admin?
-----
1. Customer
2. Admin
-----
Enter an option:
```

```
Are you a Customer or an Admin?
-----
1. Customer
2. Admin
-----
Enter an option: 1
```

```
                Welcome to Online Shopping System
            Please create an Account to continue Shopping
Enter Your username: username
Enter Your Password: 12345
Enter a nickname(This will be used to reset password): aslan
Add some balance to buy products: 10
```

```
                Welcome to Online Shopping System
            What would you like to buy?

1. View Products
2. My Account and Balance
3. Show my carted Products and Checkout
4. Return To the Main
Enter an option: █
```

2. Product Management:

```

                                Welcome to Online Shopping System
                                What would you like to buy?

1. View Products
2. My Account and Balance
3. Show my carted Products and Checkout
4. Return To the Main
Enter an option: 1
-----
ProductID      Name                Price                Quantity
-----
   1          Laptop          5000 Turkish Lira         10
   2      Smartphone 3000 Turkish Lira         20
   3          T-Shirt         50 Turkish Lira        100
   4          Boxers          30 Turkish Lira        150
   5      Headphones 200 Turkish Lira         50
-----
Enter a Product ID: █
```

3. Balance Management

```
Enter a Product ID: 4
Enter quantity: 10
Boxers Added to the cart!!!

Current total is 300 Turkish Lira
*****

                                Welcome to Online Shopping System
                                What would you like to buy?

1. View Products
2. My Account and Balance
3. Show my carted Products and Checkout
4. Return To the Main
Enter an option: 2

1. Check Balance
2. Add More Balance
3. Show my all data
4. Reset password
5. Return to Main Menu
█
```

4. Administrative Functions:

```
                                Are you a Customer or an Admin?
                                -----
                                1. Customer
                                2. Admin
                                -----
                                Enter an option: 2
Enter Admin Username: admin
Enter Admin Password: admin123
Login successful!

                                Admin Panel

1. Add Product
2. Delete Product
3. Add User
4. View Users
5. View Products
6. Set Discount
7. Return to Main Menu
Enter an option: █
```

4. Discount Management:

1. Here is the Admin Ability to set discounts on products

```
Are you a Customer or an Admin?
-----
1. Customer
2. Admin
-----
Enter an option: 2
Enter Admin Username: admin
Enter Admin Password: admin123
Login successful!

Admin Panel
1. Add Product
2. Delete Product
3. Add User
4. View Users
5. View Products
6. Set Discount
7. Return to Main Menu
Enter an option: 6
Enter Product ID to set discount: 3
Enter discount percentage (e.g., 10 for 10%): 50
Discount set successfully for product ID: 3
```

2. And here when the customer will get the discount

```
-----
ProductID      Name      Price      Quantity
-----
1      Laptop      5000 Turkish Lira      10
2      Smartphone 3000 Turkish Lira      20
3      T-Shirt      50 Turkish Lira      100
4      Boxers      30 Turkish Lira      150
5      Headphones 200 Turkish Lira      50
-----
Enter a Product ID: 3
Enter quantity: 10
You have a 50% discount for Product T-Shirt.
Do you want to apply the discount? (1 for yes, 2 for no): 1
Original Price: 50 Turkish Lira
Discounted Price: 25 Turkish Lira
T-Shirt Added to the cart!!!

Current total is 250 Turkish Lira
*****
```


Conclusion

In conclusion, the online shopping system project aims to provide a seamless and efficient platform for customers to browse, select, and purchase products. Through the analysis of requirements and the design of various diagrams such as use case, class, sequence, activity, and collaboration diagrams, we have established a comprehensive understanding of the system's functionality and interactions.

The system caters to different types of users, including registered customers, new customers, and administrators. Registered customers can log in, view items, add items to their cart, apply discounts, and make purchases. New customers can also register to become registered customers. Administrators have additional privileges such as managing accounts, updating item details, adding new items, and setting discounts.

The backbone of the system is the **OnlineShoppingSystem**, which coordinates the interactions between customers, products, discounts, and administrators. Throughout the system's operation, objects collaborate to fulfill user actions and ensure smooth transactions.

By employing various diagrams and models, we have provided a structured representation of the system's requirements, functionality, and interactions. This holistic approach facilitates effective communication among stakeholders, guides development efforts, and lays the groundwork for the implementation phase.

In summary, the online shopping system project demonstrates the application of software engineering principles and methodologies to design a robust and user-friendly e-commerce platform that meets the needs of customers and administrators alike.