National University of Computer and Emerging Sciences

Lab Manual 6

for

Object Oriented Programming (OOP)

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Section	BSE-2A
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Instructions:

- If someone is caught using the internet in this lab without permission, their marks will be reduced

to zero, and if caught in two labs in this manner, they will not be allowed to sit for a quiz.
- In case of Plagiarism, Straight Zero in particular lab and report this case to DC.
- Solve this Question in Sequence.
- Late Submission is not allowed. If someone evaluates his/her code, he/she will submit the code in google classroom and then leave the class.

Question 1: Online Shopping System

You are tasked with designing a C++ program to model an Online Shopping System. The system involves three main entities: Customer, Order, and Product. Each entity has specific attributes and functionalities as described below:

Customer Class:

- Attributes:
  - Name: Represents the customer's name.
  - Address: Stores the customer's address.
  - Orders: A list of orders placed by the customer.
- Functions:
  - AddCustomer(): Adds a new customer to the system with a unique identifier.
  - PlaceOrder(): Allows a customer to place an order by specifying the products and quantities.
  - ViewOrders(): Displays all orders placed by the customer.

Order Class:

- Attributes:
  - OrderID: Unique identifier for each order.
  - Date: Date and time when the order was placed.
  - Products: A list of products included in the order along with their quantities.
- Functions:
  - AddOrder(): Adds a new order to the system for a specific customer.
  - CalculateTotal(): Calculates the total cost of the order based on product prices and quantities.
  - ViewOrderDetails(): Displays details of a specific order, including products and total cost.

Product Class:

- Attributes:
  - Name: Name of the product.

    - Price: Price of the product.
    - Availability: Indicates whether the product is currently available in stock.
- Functions:
    - AddProduct(): Adds a new product to the system with a unique identifier.
    - UpdateAvailability(): Updates the availability status of a product based on stock levels.

Implementation Guidelines:

1 - Customer Management:

- Implement a data structure (e.g., array, vector) to store customer objects.
- Provide functions to add customers, view customer details, and manage customer orders.

2 - Order Management:

- Implement a data structure (e.g., array, vector) to store order objects.
- Include functions to add orders, calculate order totals, and view order details.

3 - Product Management:

- Use a data structure (e.g., array, vector) to store product objects.
- Develop functions for adding products, updating availability, and displaying available products.

4 - Association and Dependencies:

- Establish associations between customers, orders, and products to track relationships.
- Use appropriate data structures and mechanisms (e.g., pointers, IDs) to manage associations.

5 - User Interaction:

- Design a user-friendly interface that allows users to interact with the system (e.g., through console inputs/outputs).
- Provide menu options or commands for customers to add products to cart, place orders, view order history, etc.ViewProducts(): Displays all available products in the system.