Week 4: Constructor, Destructor, Default parameters, Static Member Variable

Learning Materials: Chapter 6

Task 1

Create a class - Product that represents products in an inventory system. It has private data members- name, id, price, quantity, and availability status. It may need other member data for following functions. Price and quantity should be 0 if not mentioned otherwise. Implement the following public member functions:

- Product()
- Product(name, id, price, quantity)
- Create getter and setter functions for each member variable.
- void setMaxQuantity(int qty) – set maximum number of items a product can have.
- void addToInventory(int added_quantity) – add a specified quantity to the product.
- bool isAvailable()- checks if the product is available or not.
- void purchase(int purchased_quantity): – if the product is available, then purchase items of given quantity.
- int updatePrice(int percent) – Add percent% to the current price.
- void displayInventoryValue() - Display the total value of a particular product in inventory (quantity * price)
- void displayDetails()-prints the details of the product.
- void displayTotalInventoryValue() - Display the total value of all the available products in inventory.
- ~Product()

Create at least 3 products and implement in a way that all the functions have been used.

Task 2

Create a Medicine class which has private data members - name, genericName, discountPercent, unitPrice. An object of a medicine class will have a unit price which is the maximum retail price. At any time a medicine can have a 0-45 % discount. It may need other member data for following functions. Implement the following member functions (task of the function is written after a hyphen):

- Medicine ()
- Medicine (name, generic name, unit price)
- Create getter and setter function for all members. The default price will be 0 and discount rate I 5%
- double getSellingPrice(int nos) - this member function returns the selling price of the medicine for given nos of unit price . Selling price = price - discount.

- bool isAffordable(double budget): check whether someone can afford it or not.
- void resetPrice(): reset to initial price and display the price
- void display() - this member function displays the information of a medicine object in the console.
- ~ Medicine ()

Create at least 3 objects and implement in a way that all the functions have been used and also return the total price of the sold medicines.

Task 3

Define a class “BankAccount” with the following description. Each account will have the account number, account holder name, account type (current/savings), current balance, minimum balance (An account has to maintain Minimum Amount, cannot withdraw). Implement the following functions:

- BankAccount()
- BankAccount(add necessary iformation)
- Function showBalance() (for displaying current balance),
- Functions deposit() and withdrawal() of money from an account. Show appropriate messages for invalid amount.
- Function giveInterst() will deposit net interest to the account. Default interest is 3 percent of current balance but it might be different. A fixed 10% Source Tax will be deducted from the incurred interest.
- printAccountStatement(): to show all the transactions made from this account
- applPenalty(): Applies a penalty fee if the account balance falls below the minimum balance requirement
- When the BankAccount object is destroyed display a message like: *Account of Mr. X with account no 1234 is destroyed with a balance BDT 5000*