Object-Oriented Programming Lab#3

Today's Topics

- Class and Object
- Initialization of fields.
- Constructor

Problems/Assignments

Problem#1

Create a Banking System, where a user can create new account, deposit money, withdraw money and check the balance

What you need to do:

1) Create a **BankAccount** class which has **3 instance variables**; ***name***, ***id*** and ***balance***.

    a. Create a **constructor** that takes initial value for those 3 attributes and initializes those attributes.

    Create the **following 4 methods** as described;

    a. void deposit(double depAmount)

    - Inside the method the ***balance*** need to be increased by the "***depAmount***" amount.

    b. void withdraw(double withAmount)

    - Inside the method decrease the ***balance*** by "***withAmount***" amount. **Do necessary checks so that the balance do not become negative.**

    c. double getBalance()

    - The method returns the ***balance***.

    d. void display()

    - This method displays the attributes in the format "Name:[name]; Id:[id]; Balance:[balance]".

2) Now create another class **Bank** and implement the **main** method. In main method do the following.

    a. Create an **object** of the **BankAccount** class.
    b. Withdraw some money using ***withdraw***(…) method.
    c. Display the balance.
    d. Deposit some money by executing the ***deposit***(…) method.
    e. Display the balance.

<u>Problem#2</u>

Create an Inventory management system for “UAP Bazar” online store. For simplicity we will work with one product today. Each Product is identified by **its name, id, category and price**. The System should be able **to keep track of the product, check the price, update the price and view the product** info.

What you need to do:

1) Create an **Product** class which has **4 instance variables*; name, id, category*** *and* ***price***.

   a. Create a constructor that takes initial value for those 4 attributes and initializes those attributes.

   Create the **following 4 methods as** described

   a. void updatePrice(double newPrice)

   - Inside the method the ***price*** attributes need to be set to this ***newPrice***.

   b. double getPrice()

   - The method returns the ***price***.

   c. double getDiscountedPrice(double discountPercentage)

   - Store sometimes provide 10-30% discount on certain products. The method will return the ***price*** after discount.

   d. void display()

   - This method displays the attributes.

2) Now create another class **UapBazar** and implement the **main** method. In main method do the following.

   a. Create an **object** of the **Product** class
   b. Display the price.
   c. Update the price by calling the ***updatePrice***(…) method.
   d. Call the ***display***() method.
   e. Call the ***getDiscountedPrice(…)*** and pass 20% as ***discountPercentage***
   f. Print the discounted price.

Problem#3

Create an Employee Record System for “UAP HR” department. For simplicity we will work with one employee today. Each Employee is identified by **his/her name, employee id and position/designation**. Each employee is paid a fixed monthly **salary** regardless of the number of hours he/she worked. The System should be able **to check the salary of an employee, update the salary and view the employee** info.

What you need to do:

3) Create an **Employee** class which has **4 instance variables*; name, id, designation* and *salary***.

   a. Create a constructor that takes initial value for those 4 attributes and initializes those attributes.

   Create the **following 4 methods as** described

   e. void updateSalary(double newSal)

   - Inside the method the ***salary*** attributes need to be set to this ***newSal***.

   f. double getSalary()

   - The method returns the ***salary***.

   g. void display()

   - This method displays the attributes in the format “Name:[name]; Id:[id]; Designation:[designation]; Salary:[salary]”.

4) Now create another class **UapHr** and implement the **main** method. In main method do the following.

   a. Create an **object** of the **Employee** class
   b. Display the salary.
   c. Update the salary by calling the ***updateSalary***(…) method.
   d. Call the ***display***() method.