

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.

Problem#2

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.