techno india university

WEST BENGAL

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BCS3A

OOP JAVA ASSIGNMENT 2 DAY 3

1. **Write a JAVA Program to make a Student class with proper attributes like roll no, name, stream, and college. From main create such two students and show their information.**

ANS]

```
public class Student {

   int roll;

   String name,stream,college;

   Student(int ro,String nam,String str,String cg)

   {

      name=nam;

      roll=ro;

      stream=str;

      college=cg;

   }

   void display()

   {

      System.out.println(name+"\t"+roll+"\t"+stream+"\t"+college);

   }

   public static void main(String args[])

   {

      Student ob=new Student(1040,"Sayan Banerjee","CSE","Techno India University");

      Student ob1=new Student(1007,"James Bond","ECE","CalTech");

      System.out.println("Name\t\tRoll no\tStream\tcollege");

      ob.display();

      ob1.display();

   }
```

}

OUTPUT:- (IDE USED: https://www.tutorialspoint.com/compile_java_online.php)

```
public class Student {
    int roll;
    String name,stream,college;
    Student(int ro,String nam,String str,String cg)
    {
        name=nam;
        roll=ro;
        stream=str;
        college=cg;
    }
    void display()
    {
        System.out.println(name+"\t"+roll+"\t"+stream+"\t"+college);
    }
    public static void main(String args[])
    {
        Student ob=new Student(1040,"Sayan Banerjee","CSE","Techno India University");
        Student ob1=new Student(1007,"James Bond","ECE","CalTech");
        System.out.println("Name\t\tRoll no\tStream\tcollege");
        ob.display();
        ob1.display();
    }

}
```

```
$javac Student.java

$java -Xmx128M -Xms16M Student
Name            Roll no Stream  college
Sayan Banerjee  1040    CSE     Techno India University
James Bond      1007    ECE     CalTech
```

2. **Write a JAVA Program to consider the Student class in the previous program. Assume that a student studies 6 subjects. Each subject has a title, internal marks and theory marks. Write a Program to define Student class including the subjects as array. From main create such two students and show their information including subjects‟ name and grand total marks.**

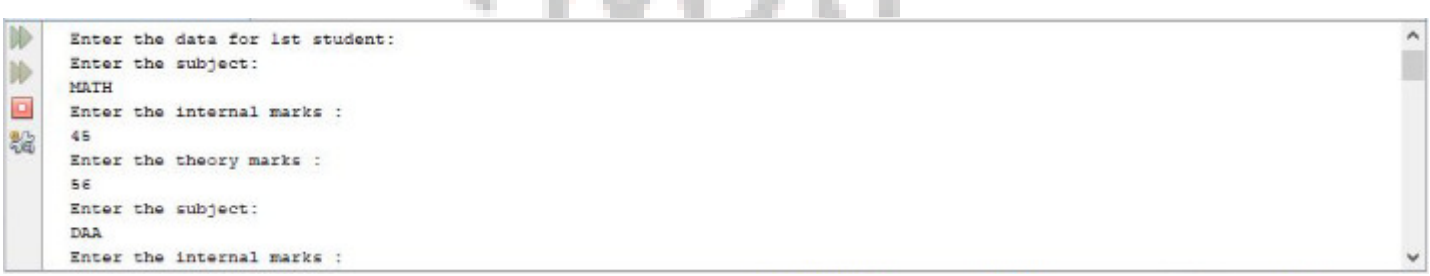
ANS] import java.util.*;

```
class Student
{
    public String sub[]=new String[6];
    public int internal[]=new int[6];
    public   int theory[]=new int[6];
            public void insert()
   {
      int i;
       Scanner sc=new Scanner(System.in);
      for(i=0;i<6;i++)
```

```
    {
        System.out.println("Enter the subject:");
        sub[i]=sc.next();
        System.out.println("Enter the internal marks :");
        internal[i]=sc.nextInt();
        System.out.println("Enter the theory marks :");
        theory[i]=sc.nextInt();
    }
        }
 public void display()
{
    int i;
    for(i=0;i<6;i++)
    {
        System.out.println("Subject:"+sub[i]);
        System.out.println("Internal marks:"+internal[i]);
        System.out.println("Theory marks:"+theory[i]);
        System.out.println("Grandtotal:"+(internal[i]+theory[i]));
    }

}
```

```
}
public class D3q2 {


    public static void main(String[] args) {
            Student std1=new Student();
       System.out.println("Enter the data for 1st student:");
       std1.insert();
       System.out.println("Information for 1st stud:");
       std1.display();
       Student std2=new Student();
       System.out.println("Enter the data for 2nd student:");
       std2.insert();
       System.out.println("Information for 2nd stud:");
      std2.display();
    }
     }
```

OUTPUT: (IDE USED: NETBEANS)



3. WAP to add or concat two number /string /object but the method name will be same like;

```
• void add() { ... }
• float add(int a,float b) { ... }
• void add(string a, string b) { ... }
• Test add(Test ob1,Test ob2){ .. .}
```

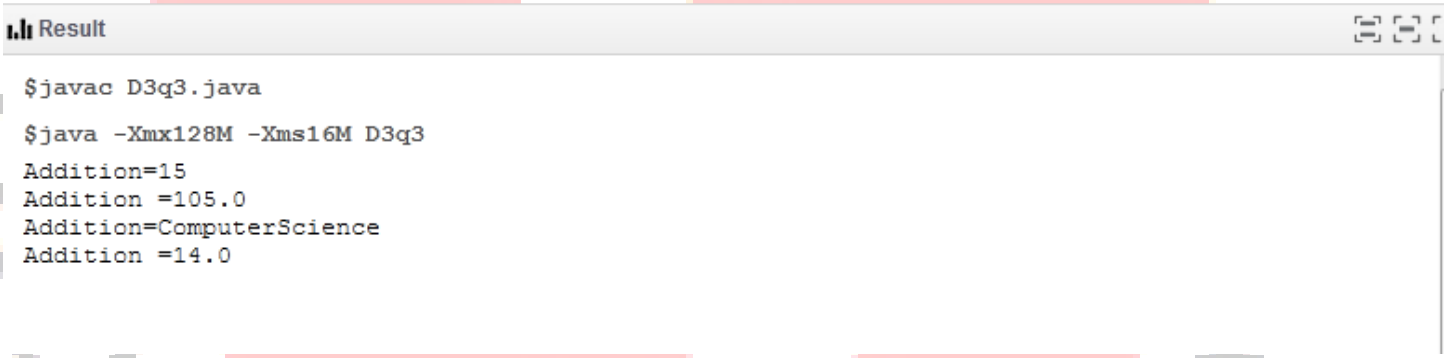
ANS]

```
class Concat
{
 public   int a,b,s;
   Concat()
   {
      a=10;
      b=5;
   }
   public void add()
   {

      System.out.println("Addition="+(a+b));
   }
   public float add(int x,float y)
```

```
    {
        float f=(float)(x+y);
        System.out.println("Addition ="+f);
        return f;
    }
   public Concat add(Concat ob1,Concat ob2)
   {
       Concat ob3=new Concat();
        ob3.s=ob1.a+ob2.b;
        System.out.println("Addition="+ob3);
        return ob3;
   }

    public void add(String s1,String s2)
    {
        String s3=s1+s2;
        System.out.println("Addition="+s3);
    }

}

public class D3q3 {

    public static void main(String[] args) {
```

```
        Concat ob=new Concat();
        ob.add();
        ob.add(5,100.0f);
        ob.add("Computer","Science");
        ob.add(10,4);
    }

}
```

OUTPUT (IDE USED: https://www.tutorialspoint.com/compile_java_online.php)



4. **Assume that a bank maintains two kinds of account for its customers, one called savings account and other called current account. The savings account provides compound interest and withdrawal facilities but no cheque book facility. The current account provides cheque book facility but no interest. Current account holders should also maintain a minimum balance (say Rs. 1000) and if the balance falls below this level a service charge is imposed (say Rs. 100).**

Create a class Account that stores customer name, account number and type of account. From this class derive two classes Curr_Acct and Savn_Acct respectively to make them more specific to their requirements. Include the necessary methods to achieve the following tasks:

a) Accept deposit from a customer and update the balance.

b) Display the balance.

c) Compute and deposit interest.

d) Permit withdrawal and update the balance.

e) Check for minimum balance, impose penalty, if necessary, and update balance. Use constructors to initialize the class members.

ANS]

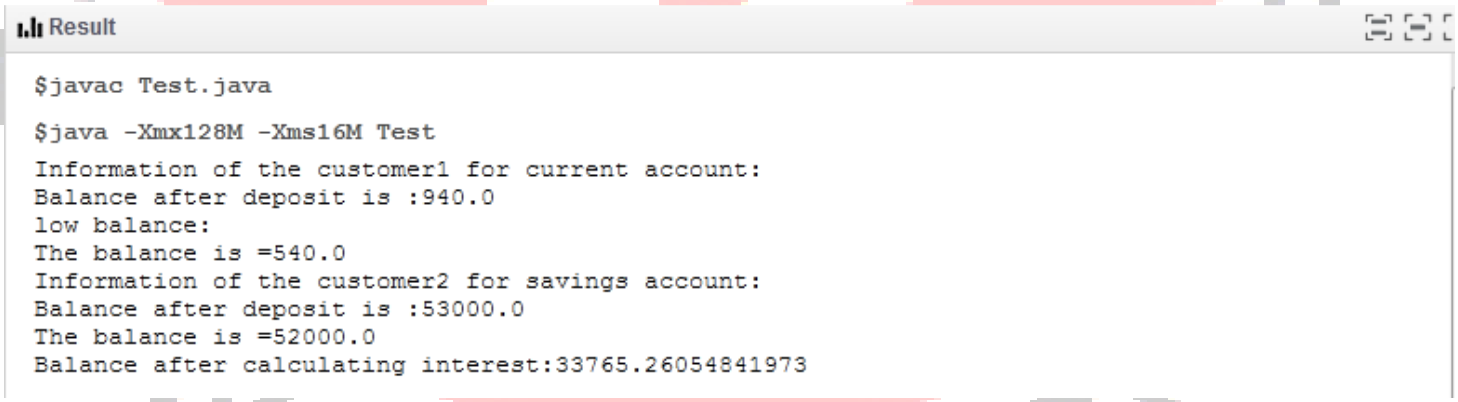
```
public class Test {

public static void main(String args[])
        {
            Curr_Acct obj=new Curr_Acct("abc","current",4567,750.00);
            System.out.println("Information of the customer1 for current account:");
            obj.deposit(190.00);
            obj.withdraw1(300.00);
            obj.display();
            Savn_Acct ob1=new Savn_Acct("xyz","savings",9098,50000.00);
            System.out.println("Information of the customer2 for savings account:");
            ob1.deposit(3000.00);
            ob1.withdraw2(1000.00);
            ob1.display();
            ob1.compound_interest(30000,4,3);
        }
}


class Account {

String name,acc_type;
```

```
int acc_num;
double balance;
public Account(String n,String t,int num)
    {
        name=n;
        acc_type=t;
        acc_num=num;
    }
    public void deposit(double amount)
        {
            balance=balance+amount;
            System.out.println("Balance after deposit is :"+balance);
        }
    public void withdraw1(double amount)
    {
        if(balance<1000 && amount<balance) {
        System.out.println("low balance:");
        balance=balance-amount; balance=balance-100;
    }
    else if(balance<1000 && amount>balance) {
    System.out.println("Insufficient balance:");
    }

    else if(balance>1000 && amount>balance)
    {
```

```
        System.out.println("Low balance:");
    }
    else {
    balance=balance-amount;
    }
     }


public void withdraw2(double amount)
{
    balance=balance-amount;
}
public void display()
{
    System.out.println("The balance is ="+balance);
}
public void compound_interest(double balance,int t,float r)
    {
        balance=balance*Math.pow((1+r/100),t);
        System.out.println("Balance after calculating interest:"+balance);
    }
}
class Curr_Acct extends Account
{
    public Curr_Acct(String n,String t,int num,double b)
```

```
    {
        super(n,t,num); balance=b;
    }
}
class Savn_Acct extends Account
{
public Savn_Acct(String n,String t,int num,double b)
    {
        super(n,t,num); balance=b;
    }
}
```

OUTPUT: (IDE USED: https://www.tutorialspoint.com/compile_java_online.php)



5. Design a class to represent a *Bank Account*. Include the following things:

Fields

- Name of the depositor(String)
- Address of the depositor(String)
- Account number(String)
- Balance amount in the account(Double/float)

Methods

- To assign initial values(Using parameterized constructor)
- To deposit an amount
- To withdraw an amount after checking balance
- To display the name, address and balance of a
- customer From main create object and call these methods.

➢ Use concept of method overloading for withdrawal and balance checking for current and savings account

ANS]

```
import java.util.Scanner;


class Account
{
    String name,acc_type;
    int acc_num;
    double balance;
   public Account(String n,String t,int num)
    {
        name=n;
        acc_type=t;
```

```
    acc_num=num;
}

public void deposit(double amount)
{

        balance=balance+amount;
        System.out.println("Balance after deposit is :"+balance);

}

public void withdraw1(double amount)
{
        if(balance<1000 && amount<balance)
        {
            System.out.println("low balance:");
            balance=balance-amount;
            balance=balance-100;
        }
        else if(balance<1000 && amount>balance)
        {
            System.out.println("Insufficient balance:");
        }
        else if(balance>1000 && amount>balance)
        {
```

```
            System.out.println("Low balance:");
        }
        else
        {
            balance=balance-amount;
        }
    }

    public void withdraw2(double amount)
    {
      balance=balance-amount;
    }
    public void display()
    {
        System.out.println("The balance is ="+balance);
    }
    public void cinterest(double balance,int t,float r)
    {
        balance=balance*Math.pow((1+r/100),t);
        System.out.println("Balance after calculating interest:"+balance);
    }

}
class Curr_Acct extends Account
{
```

```
        public Curr_Acct(String n,String t,int num,double b)
        {
           super(n,t,num);
           balance=b;
        }

}
class Savn_Acct extends Account
{
        public Savn_Acct(String n,String t,int num,double b)
        {
           super(n,t,num);
           balance=b;
        }
}
public class D3q5 {

    public static void main(String[] args) {
      Curr_Acct b1=new Curr_Acct("abc","current",212,8898.00);
        System.out.println("Information of the customer1 for current account:");
```

```
        b1.deposit(230.00);
        b1.withdraw1(700.00);
        b1.display();

        Savn_Acct b2=new Savn_Acct("xyz","savings",2345,56000.00);
        System.out.println("Information of the 2nd customer for savings account:");
        b2.deposit(8500.00);
        b2.withdraw2(140.00);
        b2.display();
        b2.cinterest(350,4,5);

    }
}
```

OUTPUT: (IDE USED: https://www.tutorialspoint.com/compile_java_online.php)