Assignment-4

```
//write a java program to define a class student with attrubtes rollno,name,marks and accept data
//for 2 object and diplay them

import java.lang.*;

import java.io.*;


class Student {


 String name;

 int roll_no;

 int sub1,sub2;


 void getdata() throws IOException {


  BufferedReader br = new BufferedReader(new InputStreamReader(System.in));

  System.out.println ("Enter Name of Student");

  name = br.readLine();


  System.out.println ("Enter Roll No. of Student");

  roll_no = Integer.parseInt(br.readLine());


  System.out.println ("Enter marks out of 100 of 1st subject");

  sub1 = Integer.parseInt(br.readLine());


  System.out.println ("Enter marks out of 100 of 2nd subject");

  sub2 = Integer.parseInt(br.readLine());

 }


 void show() {
```

```
 int total = sub1+sub2;
 float per = (total * 100) / 200;
 System.out.println ("Roll No. = "+roll_no);
 System.out.println ("Name = "+name);
 System.out.println ("Marks of 1st Subject = "+sub1);
 System.out.println ("Marks of 2nd Subject = "+sub2);
 System.out.println ("Total Marks = "+total);

 }
}

public class StudentDemo {

 public static void main(String[] args) throws IOException {

 Student s=new Student();
 s.getdata();
 s.show();
 }
}
```

==========

//WAP to define bank accept id,name,balance write method deposit,checkbal,withdraw and display details.

```
class TestAccountInterface
{
   public static void main(String s[])
   {
      IAccount account = new HDFCAccount();
```

```
        System.out.println("Transacting using HDFC Account");
        transactOnAccount(account);
        System.out.println();

        account = new StateBankAccount();

        System.out.println("Transacting using State Bank Account");
        transactOnAccount(account);
    }

    public static void transactOnAccount(IAccount account)
    {
        System.out.println("------------------------------");
        account.deposit(10000.0);
        printBalance("depositing 10,000.0", account);
        account.withdraw(2500.0);
        printBalance("withdrawing 2,500.0", account);
        account.withdraw(4100.0);
        printBalance("withdrawing 4,100.0", account);
        account.deposit(5000.0);
        printBalance("depositing 5,000.0", account);
        System.out.println("------------------------------");
    }

    public static void printBalance(String message, IAccount account)
    {
        System.out.println("The balance after " + message + " is " + account.getBalance() +".");
    }

}
```

```
interface IAccount
{
   double getBalance();

   void deposit(double amount);

   void withdraw(double amount);
}

class HDFCAccount implements IAccount
{
   double deposits;
   double withdrawals;



   public double getBalance()
   {
      return deposits - withdrawals;
   }

   public void deposit(double amount)
   {
      deposits += amount;
   }

   public void withdraw(double amount)
   {
      withdrawals += amount;
   }
}
```

```
class StateBankAccount implements IAccount
{
   double balance;

   public double getBalance()
   {
      return balance;
   }

   public void deposit(double amount)
   {
      balance += amount;
   }

   public void withdraw(double amount)
   {
      balance -= amount;
   }
```

==========

//WAP to define class employee with attribute id,name,designation accept data from 5 objects and dispay employee details.

```
import java.util.Scanner;

public class Employee {

 int empid;
 String name;
 float salary;
```

```
public void getInput() {

 Scanner in = new Scanner(System.in);
 System.out.print("Enter the empid :: ");
 empid = in.nextInt();
 System.out.print("Enter the name :: ");
 name = in.next();
 System.out.print("Enter the salary :: ");
 salary = in.nextFloat();
}

public void display() {

 System.out.println("Employee id = " + empid);
 System.out.println("Employee name = " + name);
 System.out.println("Employee salary = " + salary);
}

public static void main(String[] args) {

 Employee e[] = new Employee[5];

 for(int i=0; i<5; i++) {

  e[i] = new Employee();
  e[i].getInput();
 }

 System.out.println("**** Data Entered as below ****");

 for(int i=0; i<5; i++) {
```

```
   e[i].display();
  }
 }
}
```

==========

// WAP to define class SimpleInterest with attributes principleamount,rate of interest static,number of years calculate SI and display it.

```
import java.util.Scanner;
public class JavaExample
{
   public static void main(String args[])
   {
      float p, r, t, sinterest;
      Scanner scan = new Scanner(System.in);
      System.out.print("Enter the Principal : ");
      p = scan.nextFloat();
      System.out.print("Enter the Rate of interest : ");
      r = scan.nextFloat();
      System.out.print("Enter the Time period : ");
      t = scan.nextFloat();
      scan.close();
      sinterest = (p * r * t) / 100;
      System.out.print("Simple Interest is: " +sinterest);
   }
}
```

==========

//write a program complex number to add the rea and imaginary part for 2 complex numbers

```
public class ComplexNumber{
```

```
  //for real and imaginary parts of complex numbers
  double real, img;

  //constructor to initialize the complex number
  ComplexNumber(double r, double i){
          this.real = r;
          this.img = i;
  }

  public static ComplexNumber sum(ComplexNumber c1, ComplexNumber c2)
  {
          //creating a temporary complex number to hold the sum of two numbers
      ComplexNumber temp = new ComplexNumber(0, 0);

      temp.real = c1.real + c2.real;
      temp.img = c1.img + c2.img;

      //returning the output complex number
      return temp;
   }
   public static void main(String args[]) {
          ComplexNumber c1 = new ComplexNumber(5.5, 4);
          ComplexNumber c2 = new ComplexNumber(1.2, 3.5);
      ComplexNumber temp = sum(c1, c2);
      System.out.printf("Sum is: "+ temp.real+" + "+ temp.img +"i");
  }
}
```