

Solution of Assignment 2

Question 1.

```
import java.util.*;
class Person
{
    String name;
    int age;
    public void setData()
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the name: ");
        this.name = sc.next();
        System.out.println("Enter the age: ");
        this.age = sc.nextInt();
    }
    public void display()
    {
        System.out.println(this.name+" "+this.age);
    }
}
public class Q1
{
    public static void main(String[] args)
    {
        Person p1 = new Person();
        p1.name = "Rohan";
        p1.age = 20;
        Person p2 = new Person();
        p2.setData();
        p1.display();
        p2.display();
        if(p1.age<p2.age)
            System.out.println(p1.name+" is younger than "+p2.name);
        else
            System.out.println(p2.name+" is younger than "+p1.name);
    }
}
```

Question 2.

```
import java.util.*;
class Complex
{
    int real, image;
    public void set_data()
    {
        Scanner sc = new Scanner(System.in);
        this.real = sc.nextInt();
        this.image = sc.nextInt();
    }
    public void display()
    {
        System.out.println(this.real + " + i" + this.image);
    }
    public Complex add(Complex c1, Complex c2)
    {
        Complex res = new Complex();
        res.real = c1.real + c2.real;
        res.image = c1.image + c2.image;
        return res;
    }
}

public class Q2
{
    public static void main(String[] args)
    {
        Complex c1 = new Complex();
        Complex c2 = new Complex();
        System.out.print("Enter the real and imaginary value of first Complex
number: ");
        c1.set_data();
        System.out.print("Enter the real and imaginary value of second Complex
number: ");
        c2.set_data();
        System.out.print("first Complex number: ");
        c1.display();
        System.out.print("Second Complex number: ");
        c2.display();
    }
}
```

```

        Complex res = new Complex();
        res = res.add(c1, c2);
        System.out.print("Addition is :");
        res.display();
    }
}

```

Question 3.

```

import java.util.*;

class Product
{
    int prodID, price, quantity;
    static int tot_price;
    public Product(int pid, int p, int q)
    {
        this.prodID = pid;
        this.price = p;
        this.quantity = q;
        tot_price += this.price;
    }
    public void display()
    {
        System.out.println(this.prodID+"\t\t"+this.price+"\t\t"+this.quantity);
    }
}

public class Q3
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        Product p[] = new Product[5];
        for(int i = 0;i<5;i++)
        {
            System.out.println("Enter the product id, price, and quantity: ");
            int pid = sc.nextInt();
            int price = sc.nextInt();
            int quantity = sc.nextInt();

```

```

        p[i] = new Product(pid,price,quantity);
    }
    System.out.println("All information:\nProduct ID   Price");
    for(int i = 0;i<5;i++)
        p[i].display();
    System.out.println("Total price is: "+Product.tot_price);

}
}

```

Question 4.

```

import java.util.Scanner;

class Deposit {
    long principal;
    int time;
    double rate, total_amount;
    public Deposit()
    {
        principal = 0;
        time = 0;
        rate = 0;
    }
    public Deposit(long p,int t,double d)
    {
        principal = p;
        time = t;
        rate = d;
    }
    public Deposit(long p,int t)
    {
        principal = p;
        time = t;
        rate = 5;
    }
    public Deposit(long p,double d)
    {
        principal = p;

```

```

        time = 2;
        rate = d;
    }
    public void calAmt()
    {
        total_amount = principal + (principal*time*rate)/100;
    }
    public void display()
    {
        System.out.println("Your principal is: "+principal);
        System.out.println("Loan time: "+time);
        System.out.println("Rate of interest: "+rate);
        System.out.println("Total payable amount: "+total_amount);
    }
}
public class Q4
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Output for first object");
        Deposit d = new Deposit(1000,2,3);
        d.calAmt();
        d.display();
        System.out.println("Output for second object");
        Deposit d1 = new Deposit(2000,6.0);
        d1.calAmt();
        d1.display();
    }
}

```

Question 5.

```

import java.util.*;

class Person
{
    String name;
    int age;
}

```

```

        Person(String name, int age)
        {
            this.name = name;
            this.age = age;
        }
    }
    class Employee extends Person
    {
        int eID, salary;
        public Employee(String name, int age, int eID, int salary)
        {
            super(name, age);
            this.eID = eID;
            this.salary = salary;
        }
        public void empDisplay()
        {
            System.out.println("*****Employee details*****");
            System.out.println("Name: "+this.name);
            System.out.println("Age: "+this.age);
            System.out.println("Employee ID: "+this.eID);
            System.out.println("Salary: "+this.salary);
        }
    }
}
class Q5
{
    public static void main(String[] args)
    {
        Employee e = new Employee("sankar",20, 1001, 20000);
        e.empDisplay();
    }
}

```

Question Q6.

```

import java.util.*;
abstract class Marks
{
    int markICP, markDSA;
}

```

```

        double percentage;
        public Marks(int markICP, int markDSA)
        {
            this.markICP = markICP;
            this.markDSA = markDSA;
        }
        public abstract double getPercentage();
    }
    class CSE extends Marks
    {
        int algoDesign;
        public CSE(int markICP, int markDSA, int algoDesign)
        {
            super(markICP, markDSA);
            this.algoDesign = algoDesign;
        }
        public double getPercentage()
        {
            return (this.markICP+this.markDSA+this.algoDesign)/3.0;
        }
    }
    class Non_CSE extends Marks
    {
        int enggMechanics;
        public Non_CSE(int markICP, int markDSA, int enggMechanics)
        {
            super(markICP, markDSA);
            this.enggMechanics = enggMechanics;
        }
        public double getPercentage()
        {
            return (this.markICP+this.markDSA+this.enggMechanics)/3.0;
        }
    }
    class Q6
    {
        public static void main(String[] args)
        {
            Scanner sc = new Scanner(System.in);
            System.out.println("Object of CSE student");
        }
    }

```

```

        System.out.println("Enter the marks of ICP, DSA, and Algorithm: ");
        int ICP = sc.nextInt();
        int DSA = sc.nextInt();
        int AD = sc.nextInt();
        CSE c = new CSE(ICP, DSA, AD);
        System.out.println("Percentage: "+c.getPercentage());
        System.out.println("Object of Non-CSE student");
        System.out.println("Enter the marks of ICP, DSA, and Mechanics: ");
        ICP = sc.nextInt();
        DSA = sc.nextInt();
        int M = sc.nextInt();
        Non_CSE nc = new Non_CSE(ICP, DSA, M);
        System.out.println("Percentage: "+nc.getPercentage());
    }
}

```

Question 7.

```

import java.util.*;
interface DetailInfo
{
    void count();
    void display();
}
class Person
{
    String name;
    static int maxCount = 0;
    public Person(String name)
    {
        this.name = name;
    }
    public void count()
    {
        maxCount = this.name.length();
    }
    public void display()
    {
        System.out.println("Your name: "+this.name);
    }
}

```



```

        System.out.println("Number of character present: "+maxCount);
    }
}
public class HelloWorld
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter a name");
        String name = sc.nextLine();
        Person p = new Person(name);
        p.count();
        p.display();
    }
}

```

Question Q8.

Student.java

```

package p1;

public class Student
{
    String name;
    int roll;
    void input(String n, int r)
    {
        this.name = n;
        this.roll = r;
    }
    void display()
    {
        System.out.println("Name: "+this.name);
        System.out.println("Roll: "+this.roll);
    }
}

```

Test.java

```

package p1;

```

```

public class Test extends Student
{
    public int mark1,mark2;
    public void input(String n, int r, int m1,int m2)
    {
        super.input(n, r);
        this.mark1 = m1;
        this.mark2 = m2;
    }
    public void display()
    {
        super.display();
        System.out.println("Marks 1: "+this.mark1);
        System.out.println("Marks 2: "+this.mark2);
    }
}

```

Sports.java

```

package p2;

```

```

public interface Sports
{
    public char Score1 ='A', Score2 = 'B';
}

```

Q8.java

```

import p2.*;
import p1.*;
public class Q8 extends Test implements Sports
{
    public int returnTotal()
    {
        return this.mark1+this.mark2;
    }
    public static void main(String[] args)
    {
        Q10 ob = new Q10();
        ob.input("Sankar",10,50,60);
        ob.display();
    }
}

```

```

        System.out.println("Total marks: "+ob.returnTotal());
        System.out.println("Score 1: "+Score1);
        System.out.println("Score 1: "+Score1);
    }
}

```

Home Assignment

Question 1.

```

import java.util.*;
class Commission
{
    int sales;
    public Commission(int sales)
    {
        this.sales = sales;
    }
    public double getCommission()
    {
        if(this.sales<=100)
            return this.sales*0.02;
        else if(this.sales>100 && this.sales<=5000)
            return this.sales*0.05;
        else
            return this.sales*0.08;
    }
}

public class Demo
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the sales amount: ");
        int sales = sc.nextInt();
        Commission C = new Commission(sales);
        double com = C.getCommission();
        if(com<0)
            System.out.println("Invalid Input");
    }
}

```

```
        else
            System.out.println("Commission: "+com);
    }
}
```

Question 2.

```
import java.util.*;
```

```
class Book
{
    String BName, BEdition;
    int BPrice;
    public Book(String BName, String BEdition, int BPrice)
    {
        this.BName = BName;
        this.BEdition = BEdition;
        this.BPrice = BPrice;
    }
    public void display()
    {
        System.out.println(this.BName+"\t"+this.BEdition+"\t"+this.BPrice);
    }
}
class HQ2
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("How many book you want to buy: ");
        int n = sc.nextInt();
        Book b[] = new Book[n];
        for(int i = 0;i<n;i++)
        {
            sc.nextLine();
            System.out.println("Enter the book name, edition, and price ");
            String name = sc.nextLine();
            String edition = sc.nextLine();
            int price = sc.nextInt();
        }
    }
}
```

```

        b[i] = new Book(name, edition, price);
    }
    System.out.println("*****Book information*****");
    System.out.println("Book name \t edition \t price ");
    for(int i = 0;i<n;i++)
    {
        b[i].display();
    }
    int index = 0;
    for(int i = 1;i<n;i++)
    {
        if(b[index].BPrice<b[i].BPrice)
            index = i;
    }
    System.out.println("Book details with highest price ");
    b[index].display();
}
}

```

Question 3.

```

import java.util.*;

class Bank
{
    String bankName;
    int depositAmount;
    static int totalAmount;
    public Bank()
    {
        this.bankName = "";
        this.depositAmount = 0;
    }
    public void setBankName(String bankName)
    {
        this.bankName = bankName;
    }
    public void setAmount(int depositAmount)
    {

```

```

        if(depositAmount>=1000)
        {
            this.depositAmount = depositAmount;
        }
        else
        {
            this.depositAmount = 0;
            System.out.println("Balance not credited due to low balance");
        }
        totalAmount += this.depositAmount;
    }
    public void showData()
    {
        System.out.println(this.bankNname+"\t"+this.depositAmount);
    }
    public int bankDetails(Bank[] b)
    {
        int index = 0;
        for(int i = 1;i<b.length;i++)
        {
            if(b[index].depositAmount>b[i].depositAmount)
                index = i;
        }
        return index;
    }
}
class HQ3
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("How many account you want to create: ");
        int n = sc.nextInt();
        Bank b[] = new Bank[n];
        for(int i = 0;i<n;i++)
        {
            sc.nextLine();
            System.out.println("Enter the bank name, and deposit amount
(minimum amount 1000)");
            String name = sc.nextLine();

```

```

        int amount = sc.nextInt();
        b[i] = new Bank();
        b[i].setBankName(name);
        b[i].setAmount(amount);
    }
    System.out.println("*****Book information*****");
    System.out.println("Bank name \t Amount ");
    for(int i = 0;i<n;i++)
    {
        b[i].showData();
    }
    System.out.println("TotalAmount deposit by the person is
"+Bank.totalAmount);
    int index = b[0].bankDetails(b);
    System.out.println("Bank details with minimum deposit amount ");
    b[index].showData();
}
}

```

Question Q4.

```

class Distance
{
    double meters, centimeters;
    public Distance()
    {
        this.meters = 0;
        this.centimeters = 0;
    }
    public Distance(double meters, double centimeters)
    {
        this.meters = meters;
        this.centimeters = centimeters;
    }
    public Distance add(Distance d1, Distance d2)
    {
        Distance d3 = new Distance();
        d3.meters = d1.meters + d2.meters;
        d3.centimeters = d1.centimeters + d2.centimeters;
    }
}

```

```

        if(d3.centimeters>=100)
        {
            d3.meters += (int)(d3.centimeters/100);
            d3.centimeters = d3.centimeters%100;
        }
        return d3;
    }
    public void display()
    {
        System.out.println(this.meters+" "+this.centimeters);
    }
}
public class HQ4
{
    public static void main(String[] args)
    {
        Distance d1 = new Distance(5, 70);
        Distance d2 = new Distance(15, 50);
        Distance d3 = new Distance();
        d3 = d3.add(d1,d2);
        d1.display();
        d2.display();
        d3.display();
    }
}

```

Question 5.

```

class PointType
{
    int xCoordinate,yCoordinate;
    public PointType(int x, int y)
    {
        this.xCoordinate = x;
        this.yCoordinate = y;
    }
    public double returnXcoordinate()
    {
        return this.xCoordinate;
    }
}

```



```

        public double returnYcoordinate()
        {
            return this.yCoordinate;
        }
    }
class CircleType extends PointType
{
    double radius, area, perimeter ;
    public CircleType(int x, int y, double r)
    {
        super(x,y);
        this.radius = r;
    }
    public void operation()
    {
        this.area = Math.PI*Math.pow(this.radius, 2);
        this.perimeter = 2*Math.PI*this.radius;
    }
    public void display()
    {
        System.out.println("Circle center x = "+returnXcoordinate()+" , and y = "+returnYcoordinate());
        System.out.println("Circle radius: "+this.radius);
        System.out.println("Area of Circle: "+this.area);
        System.out.println("Perimeter of Circle: "+this.perimeter);
    }
}
public class HQ5
{
    public static void main(String[] args)
    {
        CircleType CT = new CircleType(4, 8, 5.5);
        CT.operation();
        CT.display();
    }
}

```