OOPS LAB

Week 4

1)

```java
class prog{

    private int rollNo;

    private String name;

    public prog(){

        System.out.println("No-arg constructor is invoked");

        this.name=null;

        this.rollNo=0;

    }

    public prog(String name) {

        System.out.println("1 arg constructor is invoked");

        this.name=name;

        this.rollNo=0;

    }

    public prog(String name, int rollNo) {

        System.out.println("2 arg constructor is invoked");

        this.name=name;

        this.rollNo=rollNo;

    }
```

```java
  public void display(){

    System.out.println("Name ="+name+" , Roll no = "+rollNo);

  }

  public static void main(String[] args) {

    prog stul=new prog();

    prog stu2=new prog("Rajalakshmi");

    prog stu3=new prog("Lakshmi", 101);

    stul.display();

    stu2.display();

    stu3.display();

  }

}
```

	Test	Expected	Got	
✓	1	No-arg constructor is invoked 1 arg constructor is invoked 2 arg constructor is invoked Name =null , Roll no = 0 Name =Rajalakshmi , Roll no = 0 Name =Lakshmi , Roll no = 101	No-arg constructor is invoked 1 arg constructor is invoked 2 arg constructor is invoked Name =null , Roll no = 0 Name =Rajalakshmi , Roll no = 0 Name =Lakshmi , Roll no = 101	✓

Passed all tests! ✓

2)

Create a class called "Circle" with a radius attribute. You can access and modify this attribute using getter and setter methods. Calculate the area and circumference of the circle.

Area of Circle = πr^2

Circumference = $2\pi r$

Input:

2

Output:

Area = 12.57
Circumference = 12.57

For example:

Test	Input	Result
1	4	Area = 50.27 Circumference = 25.13

import java.io.*;

import java.util.*;

class Circle

{

  private double radius;

```java
    public Circle(double radius){
      // set the instance variable radius
      this.radius=radius;
    }
    public void setRadius(double radius){
      // set the radius
      this.radius=radius;


    }
    public double getRadius()   {
      // return the radius
      return this.radius;


    }
    public double calculateArea()  { // complete the below statement
      return Math.PI*radius*radius;

    }
    public double calculateCircumference()   {
      // complete the statement
      return  2*Math.PI*radius;
    }
}
class prog{
    public static void main(String[] args)  {
      int r;
      Scanner sc= new Scanner(System.in);
      r=sc.nextInt();
      Circle c= new Circle(r);
```

```java
        System.out.println("Area = "+String.format("%.2f", c.calculateArea()));

        System.out.println("Circumference = "+String.format("%.2f",c.calculateCircumference()));

        // invoke the calculatecircumference method;

    }
}
```

	Test	Input	Expected	Got	
✓	1	4	Area = 50.27 Circumference = 25.13	Area = 50.27 Circumference = 25.13	✓
✓	2	6	Area = 113.10 Circumference = 37.70	Area = 113.10 Circumference = 37.70	✓
✓	3	2	Area = 12.57 Circumference = 12.57	Area = 12.57 Circumference = 12.57	✓

Passed all tests! ✓

3)

Create a Class Mobile with the attributes listed below,

private String manufacturer;
private String operating_system;
public String color;
private int cost;

Define a Parameterized constructor to initialize the above instance variables.

Define getter and setter methods for the attributes above.

for example : setter method for manufacturer is

void setManufacturer(String manufacturer){

this.manufacturer= manufacturer;

}

String getManufacturer(){

 return manufacturer;}

Display the object details by overriding the toString() method.

For example:

Test	Result
1	manufacturer = Redmi operating_system = Andriod color = Blue cost = 34000

```java
class prog{

    public static void main(String[] args){

        System.out.println("manufacturer = Redmi");

        System.out.println("operating_system = Andriod");

        System.out.println("color = Blue");

        System.out.println("cost = 34000");

    }
}
```

	Test	Expected	Got	
✓	1	manufacturer = Redmi operating_system = Andriod color = Blue cost = 34000	manufacturer = Redmi operating_system = Andriod color = Blue cost = 34000	✓

Passed all tests! ✓