Status	Finished
Started	Thursday, 3 October 2024, 11:26 PM
Completed	Thursday, 3 October 2024, 11:48 PM
Duration	21 mins 40 secs

Question **1**

Correct

Marked out of 5.00

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

Answer: (penalty regime: 0 %)

Reset answer

```
import java.util.Scanner;

class Circle {
    private double radius;

    // Constructor to set the instance variable radius
    public Circle(double radius) {
        setRadius(radius);
    }

    // Setter for radius
    public void setRadius(double radius) {
        if (radius >= 0) { // Ensure radius is non-negative
            this.radius = radius;
        } else {
            System.out.println("Radius cannot be negative. Setting to 0.");
            this.radius = 0;
        }
    }

    // Getter for radius
    public double getRadius() {
        return radius;
    }

    // Method to calculate area of the circle
    public double calculateArea() {
        return Math.PI * radius * radius; // Area = πr²
    }

    // Method to calculate circumference of the circle
    public double calculateCircumference() {
        return 2 * Math.PI * radius; // Circumference = 2πr
    }
}

class prog {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        double r = sc.nextDouble();

        Circle c = new Circle(r);

        // Calculate and print area
        System.out.printf("Area = %.2f%n", c.calculateArea());

        // Calculate and print circumference
        System.out.printf("Circumference = %.2f%n", c.calculateCircumference());
```

```
49
50          sc.close(); // Close the scanner to prevent resource leak
51      }
52  }
```

	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! ✓

Question **2**

Correct

Marked out of 5.00

Create a class Student with two private attributes, name and roll number. Create three objects by invoking different constructors available in the class Student.

Student()

Student(String name)

Student(String name, int rollno)

Input:

No input

Output:

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

For example:

Test	Result
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

Answer: (penalty regime: 0 %)

```
public class Student {
    private String name;
    private int rollNumber;
    public Student() {
        this.name = null;
        this.rollNumber = 0;
        System.out.println("No-arg constructor is invoked");
    }
    public Student(String name) {
        this.name = name;
        this.rollNumber = 0;
        System.out.println("1 arg constructor is invoked");
    }
    public Student(String name, int rollNumber) {
        this.name = name;
        this.rollNumber = rollNumber;
        System.out.println("2 arg constructor is invoked");
    }
    // student detail
    public void displayDetails() {
        System.out.print("Name =" + (name != null ? name : "null") + " , Roll no = " + rollNumber + "\n");
    }
    public static void main(String[] args) {
        Student s1 = new Student(); // No-arg
        Student s2 = new Student("Rajalakshmi"); // 1-arg
        Student s3 = new Student("Lakshmi", 101); // 2-arg

        s1.displayDetails();
        s2.displayDetails();
        s3.displayDetails();
    }
}
```

	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! ✓

Question **3**

Correct

Marked out of 5.00

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

Answer: (penalty regime: 0 %)

```
public class Mobile {
    private String manufacturer;
    private String operating_system;
    public String color;
    private int cost;
    public Mobile(String manufacturer, String operating_system, String color, int cost) {
        this.manufacturer = manufacturer;
        this.operating_system = operating_system;
        this.color = color;
        this.cost = cost;
    }
    public void setManufacturer(String manufacturer) {
        this.manufacturer = manufacturer;
    }
    public String getManufacturer() {
        return manufacturer;
    }
    public void setOperatingSystem(String operating_system) {
        this.operating_system = operating_system;
    }
    public String getOperatingSystem() {
        return operating_system;
    }
    public void setColor(String color) {
        this.color = color;
    }
    public String getColor() {
        return color;
    }
    public void setCost(int cost) {
        this.cost = cost;
    }
    public int getCost() {
        return cost;
    }

    // Overriding toString() method to display object details
    @Override
    public String toString() {
        return "manufacturer = " + manufacturer + "\n" +
```

```
                "operating_system = " + operating_system + "\n" +
                "color = " + color + "\n" +
                "cost = " + cost;
    }

    public static void main(String[] args) {
        Mobile mobile = new Mobile("Redmi", "Andriod", "Blue", 34000);
        System.out.println(mobile);
        /*
        System.out.println("manufacturer = " + mobile.getManufacturer());
        System.out.println("operating_system = " + mobile.getOperatingSystem());
        System.out.println("color = " + mobile.getColor());
```

	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! ✓

◄ Lab-04-MCQ

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