Vidyavardhini's College of Engineering and Technology

Department of Artificial Intelligence & Data Science

AY: 2024-25

Class:	SE	Semester:	III
Course Code:	CSL 304	Course Name:	OOPJ

Name of Student:	Aman Mehtar
Roll No. :	32
Assignment No.:	02
Title of Assignment:	
Date of Submission:	
Date of Correction:	

Evaluation

Performance Indicator	Max. Marks	Marks Obtained
Completeness	5	5
Demonstrated Knowledge	3	3
Legibility	2	2
Total	10	10

Performance Indicator	Exceed Expectations (EE)	Meet Expectations (ME)	Below Expectations (BE)
Completeness	5	3-4	1-2
Demonstrated Knowledge Legibility	3	2	1
Legibility	2	1	0

Checked by

Name of Faculty : Ms Neha Raut

Signature :

Date :

Q1) Write a Java class named Triangle that includes methods to:
1. Accept the base and height of the triangle.
2. Calculate the area of the triangle.
3. Display the calculated area.

Sol: *Program for class (Java):

```java
import java.util.Scanner;
public class Triangle {
    private double base;
    private double height;

    // Method to accept base and height of the triangle
    public void acceptDimensions() {
        Scanner s = new Scanner(System.in);
        System.out.print("Enter the base of the triangle :");
        base = s.nextDouble();
        System.out.print("Enter the height of the triangle : ");
        height = s.nextDouble();
    }

    // Method to calculate the area of the triangle
    public double calculatedArea()
    {
        return (0.5 * base * height);
    }

    // Method to display the calculated area.
    public void displayArea() {
```

```
        double area = 0.5 * base * height;
        System.out.printf ("Area of the triangle is %f ", area);
    }
}


public class MAIN {
    public static void main (String args[]) {

        Triangle t = new Triangle ();
        t.acceptDimensions ();
        t.calculatedArea ();
        t.displayArea ();

    }
}
```

* Output Example
Enter the base of the triangle : 3.0
Enter the height of the triangle : 8.0
Area of the triangle is 12.0

Q2) Create a class Rectangle with a default constructor that sets the length and width to 1, and a parameterized constructor that accepts length and width as parameters. Implement methods to calculate and display the area.

Sol:

```java
import java.util.Scanner;

public class Rectangle {
    private double width;
    private double height;
    private double area;

    Rectangle ()
    public Rectangle () {
        width = height = 1;
        Sy
    }

    public Rectangle (double width, double height)
    {
        this.width = width;
        this.height = height;
    }

    public double calculateArea ()
    {
        return (length * breadth width area = (height * width);
        return (height * width);
    }
```

```java
        public void displayArea () {
            double area = calculateArea ();
            System.out.printf (" The area of rectangle with length
                = %.2f and width = %.2f is %.2f ", height, width, area)
        }
    }

public class MAIN {
    public static void main ( String args[] ) {

        Rectangle defaultRect = new Rectangle ();
        defaultRect. displayArea ();
        Scanner  s = new Scanner
        Rectangle par
        double heightIP, widthIP;
        System.out.println (" Enter length of Rect : ");
        heightIP = s. nextDouble ();
        widthIP = s. nextDouble ();

        Rectangle paramRect = new Rectangle (widthIP, heightIP);
        paramRect. displayArea ();

        s.close ();
    }
}
```

* Output
Enter length of Rect : 25.0
Enter width of Rect : 10.0
The area of rectangle with length = 1.00 and width = 1.00 is 1.00

The area of rectangle with width = 25.00 and width = 10.00 is 250.00

Q3) Create a class Student that has constructor for initializing student details such as name, roll number, and marks. Overlod the constructor to allow creation of a student with just name and roll number. Implement a method to display the student's details.

Sol:

```
public class Student {
    private String name;
    private int rollNum, marks;

public Student (String name, int rollNum, marks) {
    this.name = name;
    this.rollNum = rollNum;
    this.marks = marks;
}

    public Student (String name, int rollNum) {
        this.name = name;
        this.rollNum = rollNum;  this.marks = -1;
    }

    public void display () {
        if (marks == -1) {
            System.out.printf (" Name : %s, Roll No: %d",
                                name, rollNum);
        }
        else {
```

```java
System.out.println
System.out.printf (" Name : %s , Roll No. : %d , Marks = %d ",
                    name, rollNum, marks);


        }
    }
}


public class MAIN {
    public static void main (String args []) {

        Student  s1 = new Student (" Aman", 32, 100);
        Student  s2 = new Student (" Heet", 21);

        s1.display ();
        s2.display ();
    }
}
```

* Output Example
Name : Aman , Roll No. : 32, Marks : 100
Name : Heet , Roll No : 21