WEEK 4 :

Develop a Java program to create an abstract class named Shape that contains two integers and an empty method named printArea( ). Provide three classes named Rectangle, Triangle and Circle such that each one of the classes extends the class Shape. Each one of the classes contain only the method printArea( ) that prints the area of the given shape.

Source Code:

```
abstract class Shape {
    int dim1;
    int dim2;


    abstract void printArea();
}

class Rectangle extends Shape {
    public Rectangle(int length, int width) {
        this.dim1 = length;
        this.dim2 = width;
    }


    void printArea() {
        int area = dim1 * dim2;
        System.out.println("Area of Rectangle: " + area);
    }
}

class Triangle extends Shape {
    public Triangle(int base, int height) {
        this.dim1 = base;
        this.dim2 = height;
    }

    void printArea() {
        double area = 0.5 * dim1 * dim2;
        System.out.println("Area of Triangle: " + area);
    }
}

class Circle extends Shape {
    public Circle(int radius) {
        this.dim1 = radius;
        this.dim2 = 0;
```

```
    }


    void printArea() {
        double area = Math.PI * dim1 * dim1;
        System.out.println("Area of Circle: " + area);
    }
}

public class Main {
    public static void main(String[] args) {
        Shape rectangle = new Rectangle(8,9);
        Shape triangle = new Triangle(8, 6);
        Shape circle = new Circle(14);

        rectangle.printArea();
        triangle.printArea();
        circle.printArea();
    }
}
```

Output:

```
PS C:\Users\satis\OneDrive\Documents\ooj_lab> javac Main.java
PS C:\Users\satis\OneDrive\Documents\ooj_lab> java Main
Area of Rectangle: 72
Area of Triangle: 24.0
Area of Circle: 615.7521601035994
PS C:\Users\satis\OneDrive\Documents\ooj_lab>
```

Written Code & Output :

WEEK-4

Develop a Java program to create an abstract class named shape that contains two integers and an empty method named printArea(). Provide three classes named Rectangle, Triangle and Circle such that each one of the classes extends the class shape. Each one of the classes contain only the method printArea() that prints the area of the given shape.

```
abstract class shape{
    int dim1;
    int dim2;

    abstract void printArea();
}

class Rectangle extends shape{
    public Rectangle(int length, int width)
    {
        this.dim1 = length;
        this.dim2 = width;
    }

    void printArea()
    {
        int area = dim1 * dim2;
        System.out.println("Area of rectangle:" + area);
    }
}
class Triangle extends shape{
    public triagle(int base, int height)
    {
        this.dim1 = base; this.dim2 = height;
    }
```

```
void printArea(){
    double area = 0.5 * dim1 * dim2;
    System.out.println("Area of Triangle:" + area);
  }
}

class circle extends shape{
    public circle(int radius)
    {
        this.dim1 = radius;
        this.dim2 = 0;
    }

    void printArea(){
      double area = Math.PI * dim1 * dim1;

    System.out.println("Area of circle:" + area);
  }
}

public class Main{
  public static void main(String[] args)
  {
    Rectangle rectangle1 = new Rectangle(8,9);

    Triangle triangle1 = new Triangle(8,6);

    Circle circle1 = new Circle(14);

    rectangle1.printArea();
    triangle1.printArea();
    circle1.printArea();
}
```

Output:

Area of rectangle: 72

Area of triangle: 24

Area of circle: 615.7521601035994.