

LAB 4

Q. 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.

PROGRAM:

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

    Shape(int x,int y){
        dim1 = x;
        dim2 = y;
    }
    Shape(int rad){
        dim1 = dim2 = rad;
    }

    abstract double printArea();
}

class Rectangle extends Shape {
    Rectangle(int x,int y)
    {
        super(x,y);
    }
    double printArea(){
        return (dim1*dim2);
    }
}

class Triangle extends Shape {
    Triangle(int x,int y)
    {
```

```

        super(x,y);
    }
    double printArea(){
return (dim1*dim2)/2;
    }
}

```

```

class Circle extends Shape {
    Circle(int rad)
    {
        super(rad);
    }
    double printArea(){
        return (3.14*dim1*dim1);
    }
}

```

```

class Lab4 {
    public static void main(String args[]){
        Rectangle R = new Rectangle(10,8);
        Triangle T = new Triangle(4,6);
        Circle C = new Circle(2);
        Shape ref;
        ref = R;
        System.out.println("Area of Rectangle: "+ref.printArea());
        ref = T;
        System.out.println("Area of Triangle: "+ref.printArea());
        ref = C;
        System.out.println("Area of Circle: "+ref.printArea());
    }
}

```

OUTPUT:

Command Prompt

```
D:\Workspace>javac Lab4.java
```

```
D:\Workspace>java Lab4  
Area of Rectangle: 80.0  
Area of Triangle: 12.0  
Area of Circle: 12.56
```

```
D:\Workspace>
```