JAVA LAB PROGRAM-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.

Code:

```
import java.util.Scanner;
class InputScanner{
    Scanner sc = new Scanner(System.in);
}
abstract class Shape extends InputScanner{
    double dim1;
    double dim2;
    abstract double printArea();
}
class Rectangle extends Shape{
    Rectangle(){
    System.out.println("Enter the dimensions of the Rectangle: ");
    super.dim1 = sc.nextInt();
    super.dim2 = sc.nextInt();
    }
    double printArea(){
        System.out.println("\nArea of rectangle: ");
        return(dim1 * dim2);
    }
}
```

```
class Triangle extends Shape{
    Triangle (){
    System.out.println("Enter the dimensions of the Triangle: ");
    super.dim1 = sc.nextInt();
    super.dim2 = sc.nextInt();
    }
    double printArea(){
        System.out.println("Area of Triangle: ");
        return 0.5 * dim1 * dim2;
    }
}
class Circle extends Shape{
    Circle (){
    System.out.println("Enter the dimension (radius) of the Circle: ");
    super.dim1 = sc.nextInt();
    }
    double printArea(){
        System.out.println("Area of Circle: ");
        return 3.14*dim1*dim1;
    }
}
class AbstractDemo{
    public static void main(String args[]){
        Rectangle r = new Rectangle();
        Triangle t = new Triangle();
        Circle c = new Circle ();
```

```
        Shape figref;
        figref = r;
        System.out.println("Area is: "+figref.printArea()+"\n");
        figref = t;
        System.out.println("Area is: "+ figref.printArea()+"\n");
        figref = c;
        System.out.println("Area is: "+figref.printArea()+"\n");
    }
}
```

Output: