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Lab Program - 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 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.

```
⇒ import java.util.Scanner;
class InputScanner {
    Scanner s;
    InputScanner() {
        s = new Scanner(System.in);
    }
}

abstract class Shape extends InputScanner {
    double a;
    double b;
    abstract class Shape extends InputScanner
    abstract void getInput();
    abstract void displayArea();
}

class Rectangle extends Shape {
    void getInput() {
        System.out.print("Enter length and width of  

        the rectangle: ");
        a = s.nextDouble();
        b = s.nextDouble();
    }
}
```

```

    void displayArea() {
        System.out.println("Area of Rectangle: " + (a * b));
    }
}

```

```

class Triangle extends Shape {
    void getInput() {
        System.out.print("Enter base and height of the triangle: ");
        a = s.nextDouble();
        b = s.nextDouble();
    }
}

```

```

    void displayArea() {
        System.out.println("Area of Triangle: " + (0.5 * a * b));
    }
}

```

```

class Circle extends Shape {
    void getInput() {
        System.out.print("Enter radius of the circle: ");
        r = s.nextDouble();
    }
}

```

```

    void displayArea() {
        System.out.println("Area of Circle: " +
            (Math.PI * r * r));
    }
}

```

```

public class main {
    public static void main (String[] args) {
        Rectangle rectangle = new Rectangle();
        Triangle triangle = new Triangle();
        Circle circle = new Circle();
    }
}

```

```
rectangle . get Input ();  
rectangle . display Area ();  
triangle . get Input ();  
triangle . display Area ();  
circle . get Input ();  
circle . display Area ();
```

}

}

Output -

Enter length and width of the rectangle: 5 8

Area of Rectangle: 40.0

Enter base and height of the triangle: 6 4

Area of triangle: 12

Enter radius of the circle: 8

Area of circle: 201.0619

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