

LAB-04

- 1) 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 contains only the method printArea() that prints the area of the given shape.

$$\text{Area of Rectangle} = l \times b;$$

$$\text{Area of triangle} = \frac{1}{2} \times b \times h;$$

$$\text{Area of circle} = 3.14 \times r \times r.$$

Soln import java.util.Scanner;

class Shape

class InputScanner(){

Scanner s = new Scanner(System.in);
}

abstract class Shape extends InputScanner()
{

double a;

double b;

abstract void getInput();

abstract void displayarea();
}


```
class Rectangle extends Shape() {
```

```
    public void getInput() {
```

```
        System.out.println("Enter the value  
of a & b in rectangle:");
```

```
        a = s.nextInt();
```

```
        b = s.nextInt();
```

```
    }  
    public void display area() {
```

```
        System.out.println("The area of  
rectangle: " + a * b);
```

```
class Triangle extends Shape() {
```

```
    public void getInput() {
```

```
        System.out.println("Enter the  
value of a & b in triangle:");
```

```
        a = s.nextInt();
```

```
        b = s.nextInt();
```

```
    }
```

```
    public void display area() {
```

```
        System.out.println("The area of  
triangle: " + (0.5 * a * b));
```

```
    }  
class
```

```
class Circle extends Shape() {
```

```
    public void getInput() {
```

```
        System.out.println("Enter the
```

```

        value of a of circle (radius). ");
        a = s.nextInt();
    }
    public void displayarea() {
        System.out.println("The area of
rectangle : " + 3.14 * a * a);
    }
}

```

```

Public class MainShape {
    public static void main (String[] args)
    {
        rectangle r = new rectangle();
        triangle t = new triangle();
        circle c = new circle();
        r.getInput();
        r.displayarea();
        t.getInput();
        t.displayarea();
        c.getInput();
        c.displayarea();
    }
}

```

⇒ Output

Enter the value of a, b of rectangle:

2 3

The area of rectangle : 6.0

Enter the value of a, b of triangle:

² ³
The area of triangle: 3.0

Enter the value of a of circle:

⁴

The area of circle = 50.24

~~10~~
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