

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 class shape. Each one of the classes contains only the method printArea() that prints the area of the given shape.

```
→ import java.util.Scanner;  
abstract class shape  
{  
    int a;  
    int b;  
    abstract void printArea();  
    public shape (int a,int b)  
    {  
        this.a = a;  
        this.b = b;  
    }  
    class Rectangle extends shape  
    {  
        public Rectangle (int a, int b)  
        {  
            super(a, b);  
        }  
        void printArea()  
        {  
            System.out.println("Area of rectangle :" + (a * b));  
        }  
    }
```

```
class Triangle extends shape  
{  
    public triangle (int a, int b)  
    {  
        super (a, b);  
    }  
    void printArea()  
    {  
        System.out.println ("Area of Triangle :" + (a*b));  
    }  
}  
  
class circle extends shape  
{  
    public circle (int a, int b)  
    {  
        super (a, b);  
    }  
    void printArea()  
    {  
        System.out.println ("Area of circle :" + (3.14*a*b));  
    }  
}
```

```
class Area  
{  
    public static void main (String [] args)  
    {  
        Scanner sc = new Scanner (System.in);  
        System.out.print ("Enter length of rectangle :");  
        int l_rect = sc.nextInt();  
        System.out.print ("Enter breadth of rectangle :");  
        int b_rect = sc.nextInt();  
    }  
}
```

```
System.out.print("Enter height of triangle:");
```

```
int l-tri = sc.nextInt();
```

```
System.out.print("Enter base of triangle:");
```

```
int b-tri = sc.nextInt();
```

```
System.out.print("Enter radius of circle:");
```

```
int r-cir = sc.nextInt();
```

```
Rectangle r = new Rectangle(l-rec, b-rec);
```

```
Triangle t = new Triangle(l-tri, b-tri);
```

```
Circle c = new Circle(r-cir, r-cir);
```

```
System.out.println("-----");
```

```
r.printArea();
```

```
t.printArea();
```

```
c.printArea();
```

```
}
```

```
}
```

Prog5 - Notepad

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```
import java.util.Scanner;

abstract class Shape
{
    int a;
    int b;
    abstract void printArea();

    public Shape(int a, int b) {
        this.a = a;
        this.b = b;
    }
}

class Rectangle extends Shape
{
    public Rectangle(int a, int b) {
        super(a, b);
    }

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

class Triangle extends Shape
{
    public Triangle(int a, int b) {
        super(a, b);
    }

    void printArea() {
        System.out.println("Area of triangle:" + (a*b));
    }
}
```

```
class Circle extends Shape
{
    public Circle(int a, int b) {
        super(a, b);
    }

    void printArea() {
        System.out.println("Area of Circle:"+ (3.142*a*b));
    }
}

class Prog5 {

    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter length of rectangle:");
        int l_rec = sc.nextInt();
        System.out.print("Enter breadth of rectangle:");
        int b_rec = sc.nextInt();

        System.out.print("Enter height of triangle:");
        int l_tri = sc.nextInt();
        System.out.print("Enter base of triangle:");
        int b_tri = sc.nextInt();

        System.out.print("Enter radius of circle:");
        int r_cir = sc.nextInt();

        Rectangle r = new Rectangle(l_rec,b_rec);
        Triangle t = new Triangle(l_tri,b_tri);
        Circle c = new Circle(r_cir,r_cir);
        System.out.println("-----");
        r.printArea();
        t.printArea();
        c.printArea();
    }
}
```

```
PS C:\Users\dashr\OneDrive\Desktop\Roshni 00J Lab> javac Prog5.java
PS C:\Users\dashr\OneDrive\Desktop\Roshni 00J Lab> java Prog5
Enter length of rectangle:13
Enter breadth of rectangle:12
Enter height of triangle:10
Enter base of triangle:22
Enter radius of circle:4
-----
D'Area of rectangle:156
Area of triangle:220
Area of Circle:50.272
PS C:\Users\dashr\OneDrive\Desktop\Roshni 00J Lab> ■
```