

2/01/23 LAB 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.

```
import java.util.Scanner;
```

```
abstract class shape
```

```
{  
    int a, b;  
    abstract void printArea();  
    abstract void input();  
    Scanner s = new Scanner(System.in);  
}
```

```
class rectangle extends shape
```

```
{  
    void input()
```

```
{  
        System.out.println("Enter the length  
        and breadth");
```

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

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

```
    void printArea()  
    {
```

```
        System.out.println("Area of triangle  
        rectangle is : " + (a*b) + " sq units");  
    }
```

```
}  
}  
  
class Triangle extends Shape  
{  
    void input()  
    {  
        System.out.println("Enter the base and  
        height :");  
        a = S.nextInt();  
        b = S.nextInt();  
    }  
    void printarea()  
    {  
        System.out.println("Area of triangle  
        is: " + ((a*b)/2) + " sq units");  
    }  
}
```

```
class Circle extends Shape  
{  
    void input()  
    {  
        println("Enter the radius of circle");  
        a = S.nextInt();  
    }  
    void printarea()  
    {  
        System.out.println("Area of circle is"  
        + ((3.14)*a*a) + " sq. units");  
    }  
}
```



```
class area
```

```
{
```

```
    public static void main (String args[])
```

```
{
```

```
        rectangle r = new rectangle();
```

```
        r.input();
```

```
        r.printarea();
```

```
        triangle t = new triangle();
```

```
        t.input();
```

```
        t.printarea();
```

```
        circle c = new circle();
```

```
        c.input();
```

```
        c.printarea();
```

```
}
```

```
}
```

Output:

Enter the length and breadth.

4

5

The area of rectangle is : 20 square units

Enter the base and height

4

5

The area of triangle is : 10 square units

Enter the radius

2

The area of circle is : 12.56 square units.