

Lab: 4

KA-1-23P

DOMS

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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;  
class Input Scanner {  
    Scanner() {  
        Scanner s;  
        InputScanner() {  
            s = new Scanner(System.in);  
        }  
    }  
}
```

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

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

```
        System.out.println("Enter the dimension of the rectangle (length and breadth);");  
    }
```



```
a = s.nextDouble();  
b = s.nextDouble();  
}  
void displayArea() {  
    System.out.println("Area of rectangle  
        = " + (a * b));  
}  
}
```

```
class Triangle extends Shape {  
    void getInput() {  
        System.out.println("Enter the dimension  
            of the triangle (base and height):");  
        a = s.nextDouble();  
        b = s.nextDouble();  
    }  
    void displayArea() {  
        System.out.println("Area of triangle =  
            + ((a * b) / 2));  
    }  
}
```

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



```
void displayArea() {  
    System.out.println("Area of circle ="  
        + (3.14 * a * a));  
}  
}
```

```
class MainMethod {  
    public static void main(String args[]) {  
        Rectangle R = new Rectangle();  
        R.getInput();  
        R.displayArea();  
  
        Triangle T = new Triangle();  
        T.getInput();  
        T.displayArea();  
  
        Circle C = new Circle();  
        C.getInput();  
        C.displayArea();  
    }  
}
```

Output :

Enter the dimension of the rectangle (length and breadth):

4 5

Area of rectangle = 20.0

Enter the dimension of the triangle (base

and height :

9 6

Area of triangle = 27.0

Enter the dimension of the circle (radius):

5

Area of Circle = 78.5