

Lab 4:

: 02/01/2024

Develop a Java program to create an abstract class named Shape that contains 2 integers & an empty method named printArea(). Provide three classes named Rectangle, Triangle & circle such that each one of them 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 void getInput();
```

```
    abstract void displayArea();
```

```
}
```

```
class Rectangle extends Shape{
```

```
    void getInput(){
```

```
        InputScanner sc = new InputScanner();
```

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

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



```

        b = sc.s.nextInt();
    }
    void displayArea() {
        double area_rect = a * b;
        System.out.println("Area of rectangle is : " + area_rect);
    }
}

```

```

class Triangle extends Shape {
    void getInput() {
        InputScanner sc = new InputScanner();
        System.out.println("Enter the base and height of triangle :");
        a = sc.s.nextInt();
        b = sc.s.nextInt();
    }
    void displayArea() {
        double area_tri = a * b / 2;
        System.out.println("Area of triangle is : " + area_tri);
    }
}

```

```

class Circle extends Shape {
    void getInput() {
        InputScanner sc = new InputScanner();
        System.out.println("Enter the radius of circle :");
        a = sc.s.nextInt();
    }
    void displayArea() {
        double area_circle = 3.14 * a * a;
        System.out.println("Area of circle is : " + area_circle);
    }
}

```



```

public class AbstractMain {
    public static void main (String args[]) {

        Rectangle a = new Rectangle ();
        a.getInput ();
        a.displayArea ();

        Triangle b = new Triangle ();
        b.getInput ();
        b.displayArea ();

        Circle c = new Circle ();
        c.getInput ();
        c.displayArea ();
    }
}

```

System.out.println("Sanketh M. Hanasi IBM22CS262")

Output:

Enter the length and Breadth of rectangle:

10

2

Area of rectangle is 20.0

Enter the height and base of triangle:

8

4

Area of triangle is 10.0

Enter the radius of circle:

10

Area of circle is 314.0

Sanketh M. Hanasi IBM22CS262

24