

2-1-24

LAB - 4

1. Develop a Java program to create an abstract class named Shape that contains 2 integers & an empty method named printArea(). Provide 3 classes named Rectangle, Triangle & Circle such that each one of the classes inherit 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() {
            System.out.println("Enter length & width of Rectangle");
            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 base & height of  
Triangle : ");
        a = s.nextDouble();
        b = s.nextDouble();
    }
    void displayArea() {
        System.out.println("Area of Triangle : " + (0.5 * a * b));
    }
}

```

```

class Circle extends Shape {
    void getInput() {
        System.out.println("Enter radius of circle : ");
        r = s.nextDouble();
    }
    void displayArea() {
        System.out.println("Area of circle : " + (Math.PI * r * r));
    }
}

```

```

public class Main {
    public static void main(String[] args) {
        Rectangle rectangle = new Rectangle();
        rectangle.getInput();
        rectangle.displayArea();

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

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

```

Q1P05:

Enter length and width of Rectangle:

4 5

Area of Rectangle: 20.0

Enter base and height of Triangle:

8 6

Area of Triangle: 24.0

Enter radius of Circle:

6

Area of Circle: 113.09733552923255.