08/01/2024

(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 contain only the method printArea() that prints the area of the given shape

```
import java.util.*;

class InputScanner {
        Scanner sc;
        public InputScanner() {
                sc = new Scanner(System.in);
        }
}

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

class Rectangle extends Shape {

        @Override
        void getInput() {
                System.out.print("Enter the length and breadth
                                of a Rectangle :");
                this.a = sc.nextDouble();
                this.b = sc.nextDouble();
        }
```

```
@Override
void displayArea() {
    System.out.println("The area of the Rectangle is
                        : ", (this.a * this.b));
  }
}

class Triangle extends Shape {

    @Override
    void getInput() {
        System.out.print("Enter Height and Base of
                          Triangle : ");
        this.a = sc.nextDouble();
        this.b = sc.nextDouble();
    }

    @Override
    void display() {
        System.out.print("Enter the radius of the circle:");
        this.a = sc.nextDouble();
    }

    @Override
    void displayArea() {
        System.out.println("The area of the circle
                            is : " + (Math.PI * this.a * this.a));
    }
}
```

```
class AbstractDemo {

    public static void main (String[] args) {
        Shape s;
        s = new circle();
        s.getInput();
        s.displayArea();

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

        s = new Triangle();
        s.getInput();
        s.displayArea();
    }
}
```

output:-

```
enter the radius of circle : 3
The area of circle is : 28.274333882308138
enter the length and breath of Rectangle : 2 4
The area of Rectangle is 8.0
Enter the height and Base of a Triangle : 4 4
The area of triangle is : 8.0
```

2-1-2024