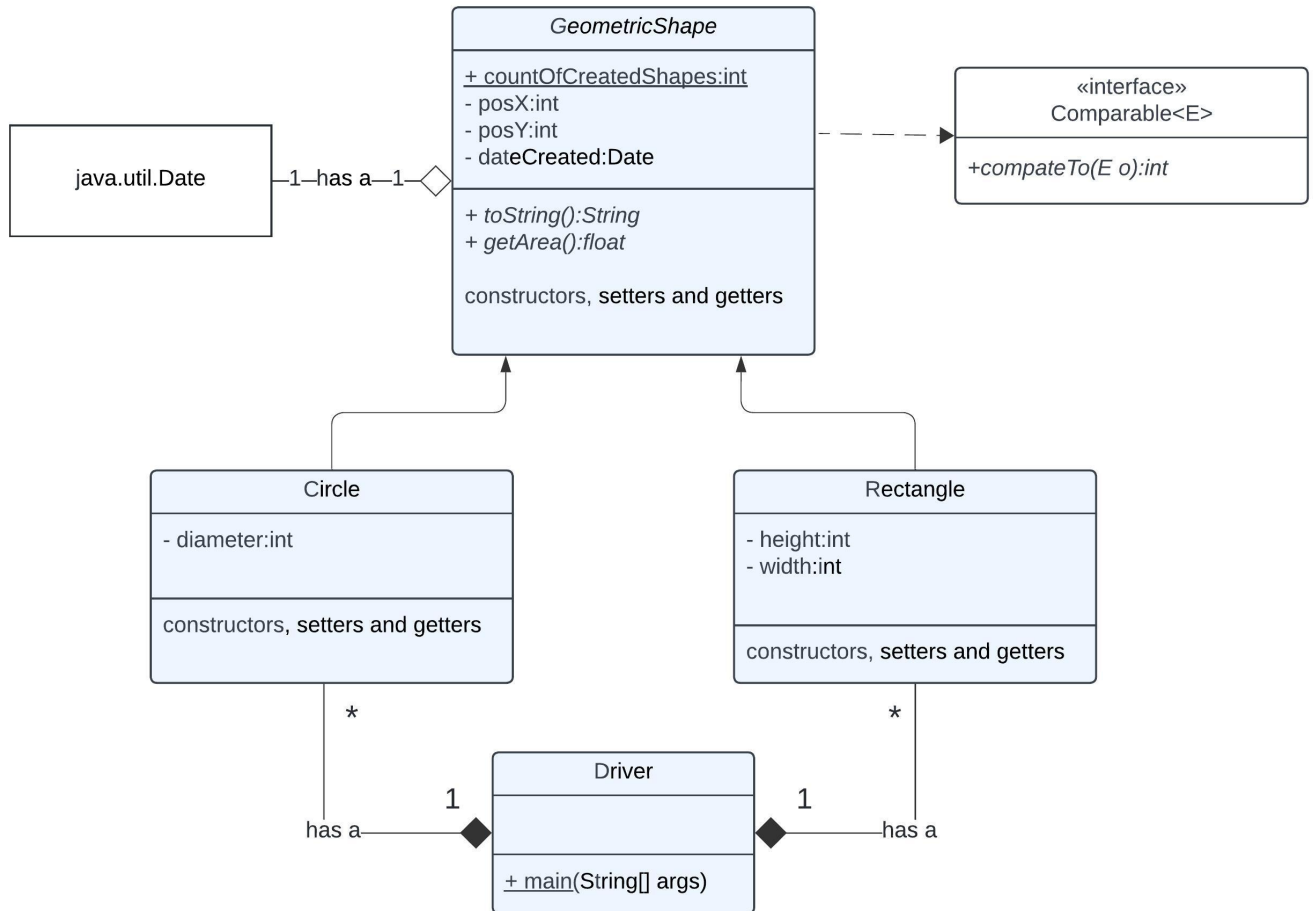


<b>Started on</b>	Tuesday, 23 January 2024, 3:30 PM
<b>State</b>	Finished
<b>Completed on</b>	Tuesday, 23 January 2024, 4:15 PM
<b>Time taken</b>	44 mins 52 secs
<b>Grade</b>	<b>12.00</b> out of 15.00 ( <b>80%</b> )

### Question 1

Complete

Mark 12.00 out of 15.00



Implement the abovementioned UML Class Diagram and the following description:

- notice the class names, some are italic (you should know what does that mean)
- For GeometricShape class:
  1. countOfCreatedShapes is incremented every time a new instance is created
  2. dateCreated is assigned the moment the instance is created
- For Driver class:
  1. create an arrayList of GeometricObject
  2. add 3 Circles and 3 Rectangles, ask user to fill the properties
  3. arrange all GeometricObjects in the arrayList according to their **area** in ascending order using Arrays.sort method
- implement all other classes except Comparable and Date classes

```
//GeometricShape Class
abstract public class GeometricShape implements Comparable<GeometricShape>,java.util.Date {
    public static int countOfCreatedShapes =0;
    private int posX;
    private int posY;
    private java.util.Date dateCreated;
    public GeometricShape () {
```

```

        posX =0;
        posY =0;
        dateCreated = new Date();
        countOfCreatedShapes++;
    }
public GeometricShape (posX,posY) {
    this.posX = posX;
    this.posY =posY;
    dateCreated = new Date();
    countOfCreatedShapes++;
}
public void setPosX(int n){
    posX = n; }
public void setPosY(int n) {
    posY = n; }
public int getPosX(){
    return this.posX; }
public int getPosY(){
    return this.posY; }
abstract public String toString() ;
abstract public float getArea();
}
// Rectangle Class
public class Rectangle extends GeometricShape {
    private int height ;
    private int width;
    public Rectangle() {
this(0,0);
}
public Rectangle(int height, int width) {
    super();
    this.height = height ;
    this.width = width;
}
public void setHeight(int n){
    this.height = n; }
public void setWidth(int n){
    this.width = n; }
public int getHeight () {
return this.height; }
public int getWidth () {
return this.width; }

```

```

public float getArea() {
    return (float)(this.height * this.width); }
public String toString() {
    return ("Rectangle [height = " +this.height + " width = " + this.width + " Area = " + this.getArea() + "]" );
}
}
// Circle Class
public class Circle extends GeometricShape {
    private int diameter ;
    Circle() {
        this(0);
    }
    public Circle(int diameter){
        super();
        this.diameter = diameter ;
    }
    public void setDiameter(int n) {
        this.diameter = n ; }
    public int getDiameter() {
        return this.diameter; }
    public float getArea() {
        return (Math.PI * this.diameter * this.diameter ); }
    public String toString() {
        return ("Circle [diameter = " + this.diameter + " Area = " + this.getArea() + "]" );
    }
}
import java.util.* ;
public class Driver () {
    public static void main(String [] args) {
        Scanner sc = new Scanner(System.in) ;
        ArrayList<GeometricShape> list = new ArrayList<>() ;
        for(int i =0; i< 3 ,i++) {
            System.out.println("Rectangle" + (i+1) + "enter the height then the width" );
            list.add(new Rectangle (sc.nextInt,sc.nextInt);
        }
        for(int i =0; i< 3 ,i++) {
            System.out.println("Circle" + (i+1) + "enter the diameter" );
            list.add(new Circle(sc.nextInt);
        }
        list = java.util.Collecation.sort(list) ;
    }
}

```

Comment: