CIS 3515

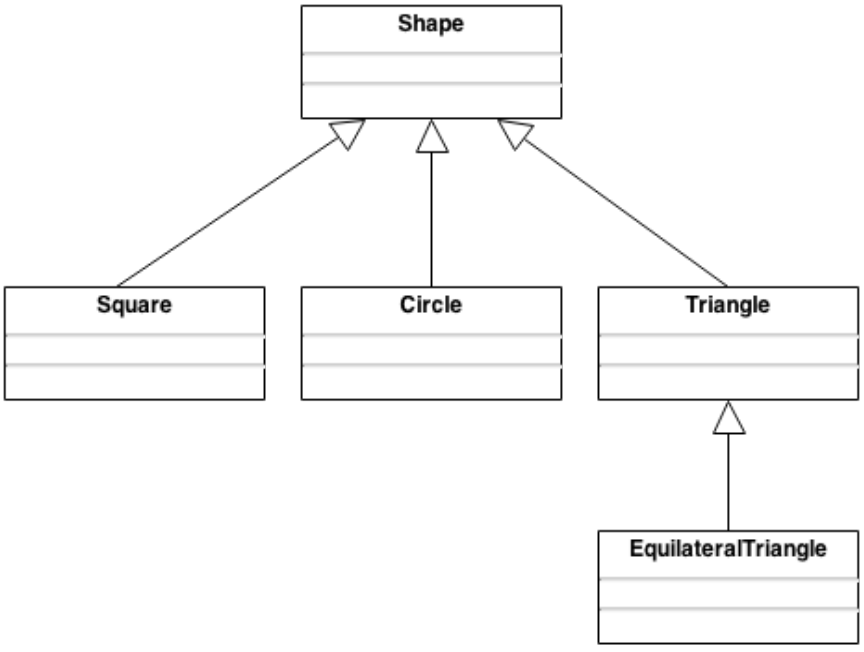
Worksheet 0

Instructions: This lab will test your knowledge of inheritance in **Java**

1. Using Netbeans (or your preferred IDE), create a class called **Shape** using the following guide:

```
public class Shape {
    private String name;

    public Shape(String name) {
        this.name = name;
    }

    /** returns the name of the shape */
    public String getName() {
        return name;
    }

    /** returns the area of the shape */
    public double getArea() {
        return 0.0;
    }

    public void printDimensions(){
        System.out.println("No dimensions");
    }

}
```

2. Create 4 additional classes as follows:



3. For each additional class do the following:
    1. Have a constructor that takes a **name**, which it turn invokes the constructor of its superclass.
    2. Implement a **setDimensions()** method that will take the following parameters:
        1. Square: **length** and **height**
        2. Circle: **radius**
        3. Triangle: 3 sides
        4. EquilateralTriangle: 1 side
    3. Override the **printDimensions()** method of the superclass to print the dimensions of the current shape.
    4. Override the **getArea()** method of the superclass to calculate the correct area for each shape. For triangles, use Heron's Formula:

$$area = \sqrt{s\,(s-a)\,(s-b)\,(s-c)}$$

where a,b, and c are the lengths of the sides, and s = ½ the perimeter

    5. Create a main class that will create one instance of each class, and prompt the user to enter the dimensions for each object.
    6. Once all objects have been created, print the name, dimensions, and area for each object to the screen.
    7. **Demonstrate your working project to the TA.**