CIS 3515 Assignment 0

Instructions: This assignment will test your knowledge of inheritance and interfaces, encapsulation, and polymorphism in Kotlin.

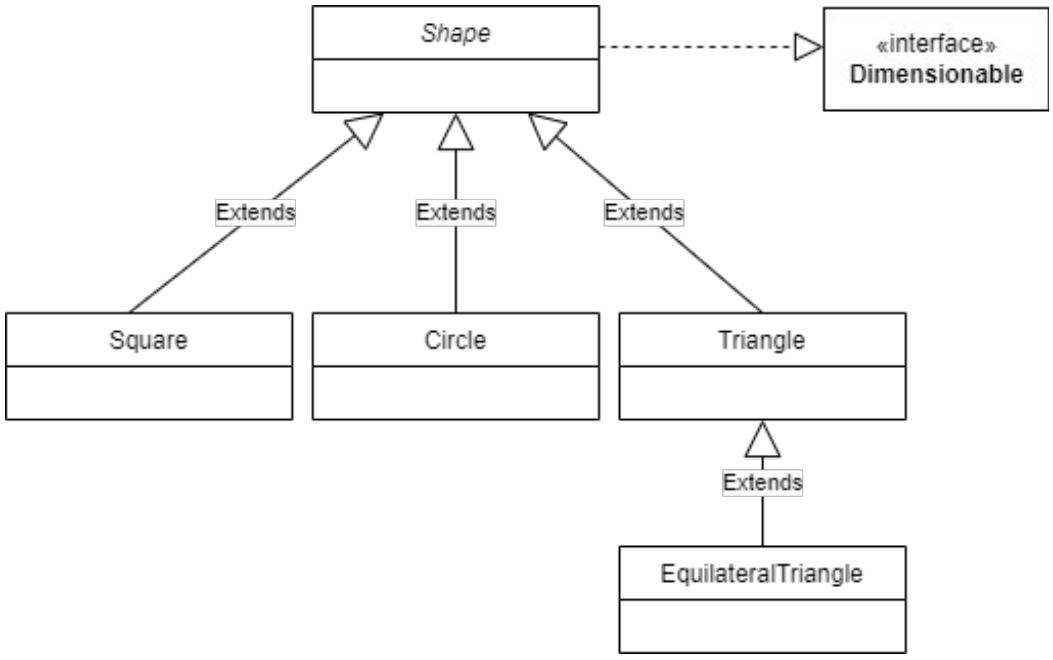
1. Using IDEA (this is the preferred IDE), create a class called **Shape** using the following code snippet:

```
abstract class Shape (_name : String) : Dimensionable{
    var name = _name

    fun getArea() {
        return 0.0;
    }

}
```

2. Create 4 additional classes and the interface specified above as follows:



3. In the Dimensionable interface, add the following function de:

   fun printDimensions()

4. 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()** function that will take the following parameters:
        1. Square: **length** and **height**
        2. Circle: **radius**
        3. Triangle: 3 sides
        4. EquilateralTriangle: 1 side
    3. Implement the **printDimensions()** function specified in the Dimensionable interface to print the dimensions of the current shape.
    4. Override the **getArea()** funtion 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. From your main function (Main.kt → fun main())
        1. Create one instance of each class and store each in a variable of type **Shape**
        2. Prompt the user to enter the dimensions for each object (https://www.programiz.com/kotlin-programming/input-output)
        3. Once all objects have been created, print the name, dimensions, and area for each object to the screen with appropriate headings (https://kotlinlang.org/docs/typecasts.html)

6. **Commit and Push your completed assignment to GitHub, and submit the assignment repository URL to Canvas**