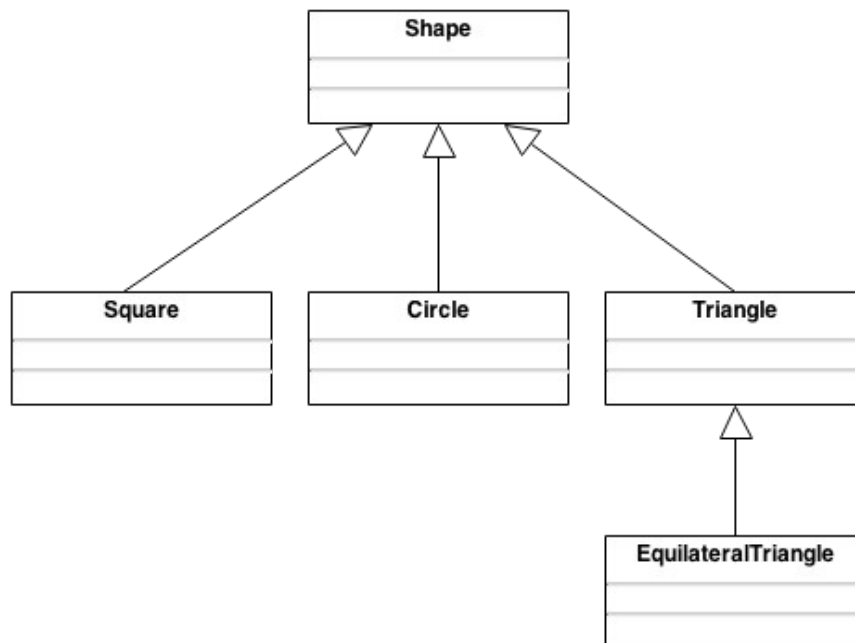# CIS 3515 Assignment 0

Instructions: This lab will test your knowledge of inheritance in Kotlin

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

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

       fun getArea() {
           return 0.0;
       }

       fun printDimensions() {
           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:

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

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 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. **Demonstrate your working project to the TA.**