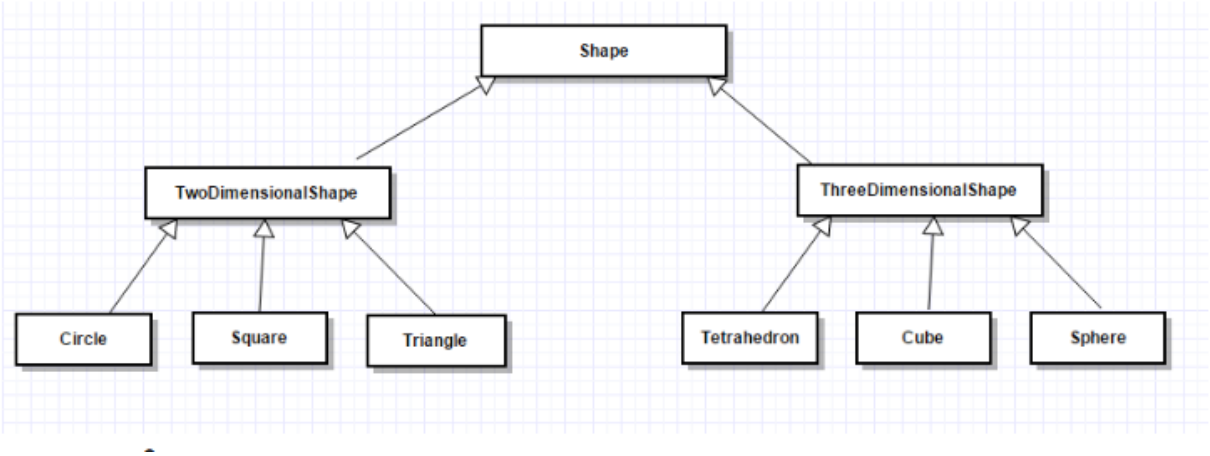
COP 2800, Java Programming,

Assignment Inheritance (30 points)



(Shape Inheritance Hierarchy) The world of shapes is much richer than the shapes included in the inheritance hierarchy. Write down all the shapes you can think of—both two-dimensional and three-dimensional—and form them into a more complete Shape hierarchy with as many levels as possible. Your hierarchy should have class Shape at the top.
Classes TwoDimensionalShape and ThreeDimensionalShape should extend Shape. Add additional subclasses, such as Square and Sphere, at their correct locations in the hierarchy as necessary (refer to the picture above)

Create a package called Shape. Show the following in your code.
Use of the different access modifiers (public, protected and private)
Create some data members, methods to show how inheritance works in your codes. You can create another special method to describe the shape of the subclasses. Create a ShapteTest class and create objects of the different shapes and call the inherited method and the special methods from the super and subclasses.

Grade rubric:

Program comments in detail	5
Program code file (.java)	15
Ran program screen shot	5
Assessment/Reflection	3
Challenges	2
Total	30

Purpose: The program ties to the following student learning outcomes

MLO 1. Solve problems, design solutions, write and test code in Java using correct code structures and following professional programming standards.

MLO 2. Create classes and declare objects with methods for use in object-oriented programming.

MLO 4. Use variables, constants, data structures, and arrays for Java a strictly typed language.

MLO 5. Use input and output as necessary in all programs.

MLO 6. Use the Java API for Prewritten Constants, Methods, and Classes.