

## CMSC427 Fall 2017

### Lab 5 – Starting OpenGL and JOGL

Due TBA (will be posted on Piazza)

Submit online as combined PDF plus source files

#### **Objectives of lab:**

- Get started on main Project and OpenGL in pure Java
- Understand the plain red cube example from Gordon

#### **Requirements:**

This assignment is get started on the major semester project which will be a scene viewing program in OpenGL/JOGL. This is to start creating parametric meshes for object modeling.

Start with the Gordon example Prog4\_1, example 1: plain Red Cube. (You can also use example 3, the tumbling cube.)

First try to under the code by modifying camera position, the object position, and the projection. Find those parts of the program and play with the values. Select values that are interesting.

Then create two new copies of the method `setupVertices`. Call them `setupVerticesCylinder()` and `setupVerticesTetra()`.

- In the first modify the cube to make a tetrahedron (chosen because it's the simplest option).
- In the second use parametric methods to create the vertices for a cylinder, and then generate a vertices array with appropriate triangles.

The difficult part of this lab will be figuring out the pattern for generating triangles, and then ordering the vertices for each, from the cylinder. You may generate an intermediate 2D array of vertices to help with that stage.

Submit:

- A. A header with CMSC427 fall 2017 Lab 5 and your name.
- B. A short narrative with what you found out in experimenting with the code.
- C. A copy of the Java source code in the the PDF
- D. Save as PDF and submit, along with a separate copy of your source files.

If you don't change the shaders you don't need to submit them.

As a lab, the requirements for code are lightweight in that you don't have to validate your program against all possible inputs, or work on the most general solution. Consider your program a working prototype. You're free to extend, play with, revise, and otherwise make the assignment yours.