

**Due Monday, Nov. 18, 2009.**

In this project, you will learn and understand the 3D viewing and projection capabilities of OpenGL. First read through the 3D viewing chapter of the OpenGL programming guide(Red book). Secondly, you will look at an example from the Nate Robins Tutorials (posted on the course website), especially the projection example that illustrates the effects of changing viewing parameters on 3D objects.

You will adapt this example to use a modified graphical interface:

- You will allow variation of the `gluPerspective()`, `gluOrtho()` and `gluLookAt()` parameters to illustrate their effects on 3D objects.
- You will use value sliders(Fltk or Java Swing) for variation of all parameters (similar to the examples, and you may limit the range of the parameters).
- You will also show two views similar to the projection example, one from the camera, and another of the view volume, through transformation of the volume.
- You may create your own 3D objects for this project.

The tutorial examples have been built on the the 335 Linux machines.

**General Requirements**

- Implementation in C++ or Java.
- All drawing must be done using OpenGL, interactively (mouse, keyboard)
- Documentation: Your program must be well documented - all functions must have some documentation.
- Evaluation: An interactive demo of the project by the due date (usually after class) in 335. Also turn in hardcopies of your sources