COMPUTER GRAPHICS :

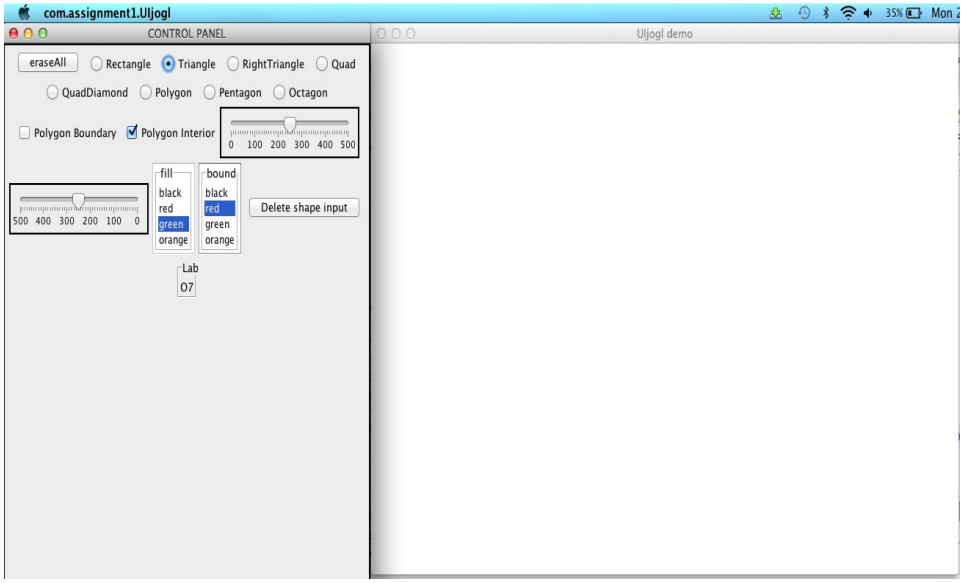
Project 1 :

Developing a "Paint" application :

This was one of the challenging applications that I created. To describe this project, it is more like a MS Paint software with a few other features. An interesting part is, its flexible user interactions.

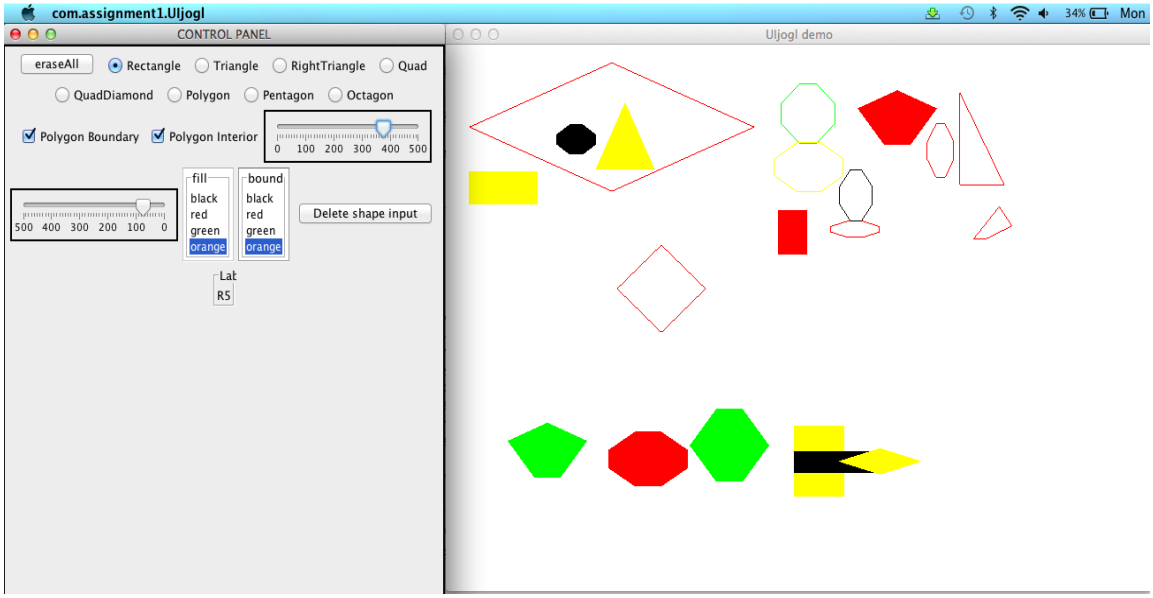
- Control Panel was designed as a seperate window
- Coding was done using Java for OpenGL(JOGL) with some AWT features

Screenshot of the application at start :



- I have programmed my software application in such a way that it allows users to draw different shapes, place it anywhere on the screen and make designs or patterns.
- I enabled **"erase all"** feature and drawing shapes based on **boundary/fill attribute.**
- I allowed the usage of sliders to change the positions of objects created either across the x or y axis.
- I used hash map to delete the most recently drawn shape by using their ID in the Joption pane dialog box.

Screenshot of the application after some user interactions being performed :



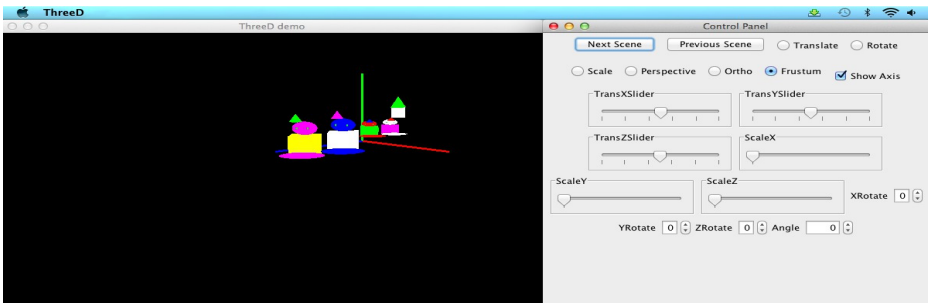
Project 2 :

Displaying 3D transformation and Viewing :

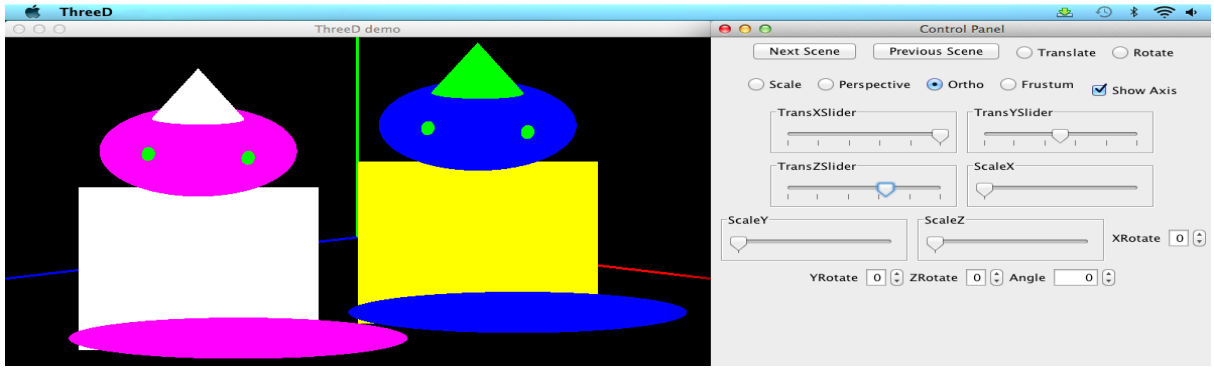
Developing this project made me strong with 3D transformation and viewing as I got experience by providing various views of the objects representation :

Screenshots and explantion :

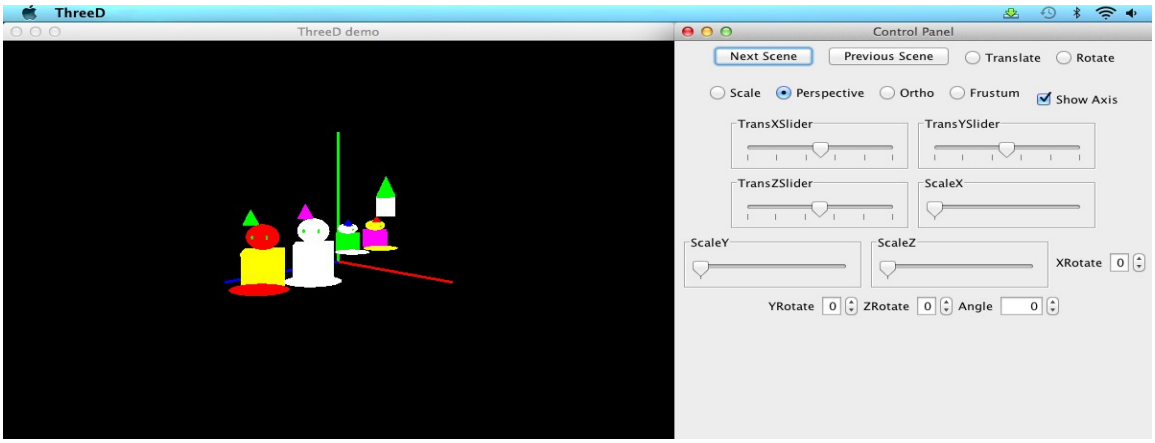
1) Frustum view of the composite object created from various child classes :



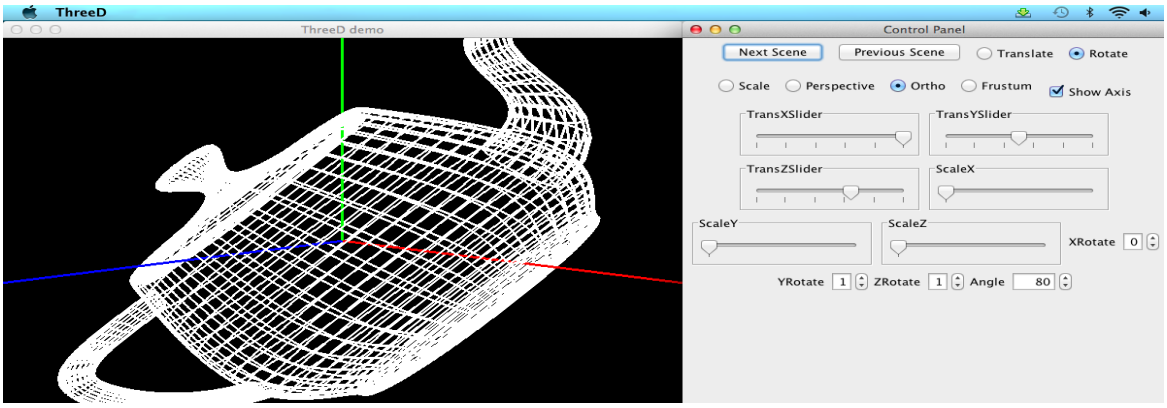
2) *Ortho view of the hierarchial object :*



3) *Perspective view of the composite object created from various child classes :*



4) *Rotation transformation perfomed to a wired teapot :*

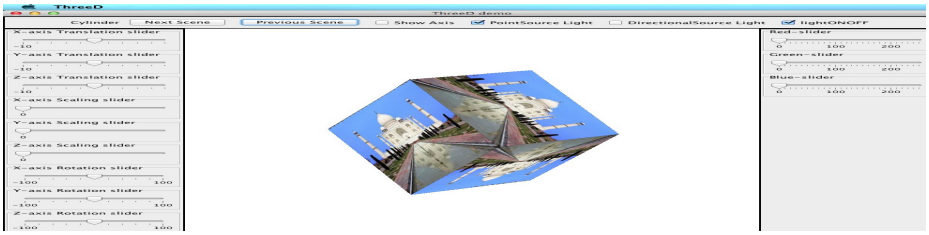


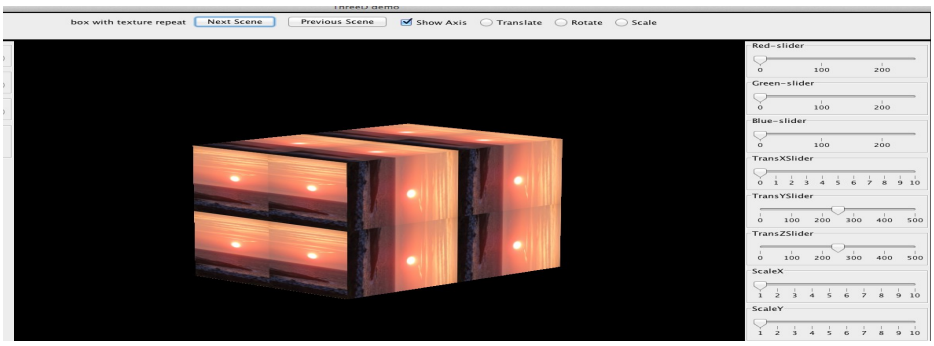
Project 3 :

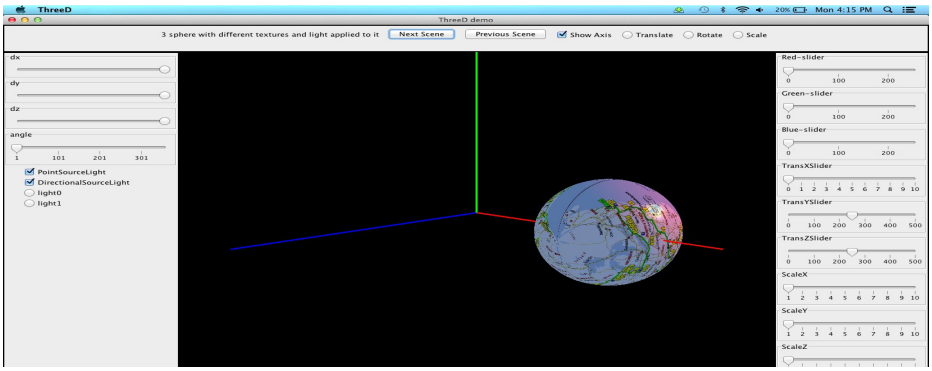
Its all about Textures, Lighting, Material and more :

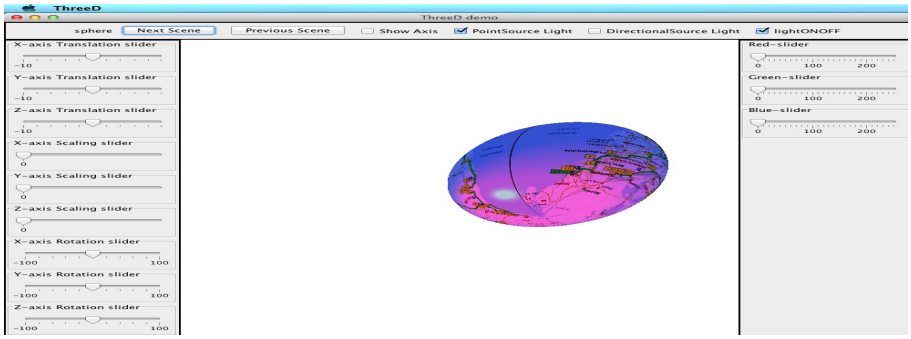
- I used various textures and I have attached a few of the screenshots.
- Lighting to objects are given based on the users interactions whether it is point or directional.
- Material properties like shiny, diffuse, ambient, specular are applied.

Screenshots:









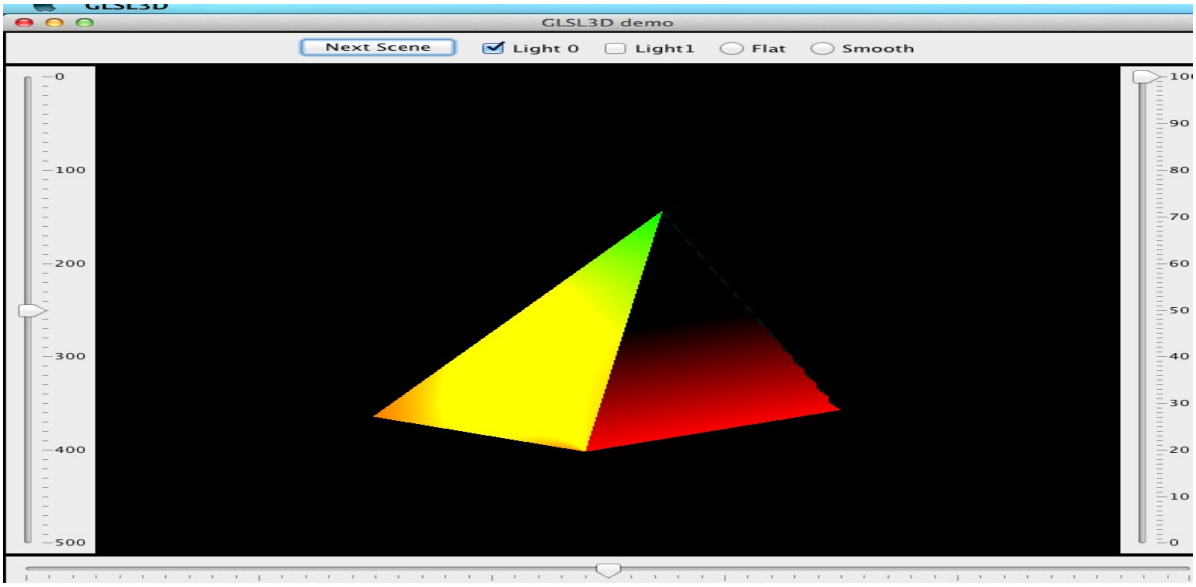
Project 4 :

Introduction to OpenGL Shader Language :

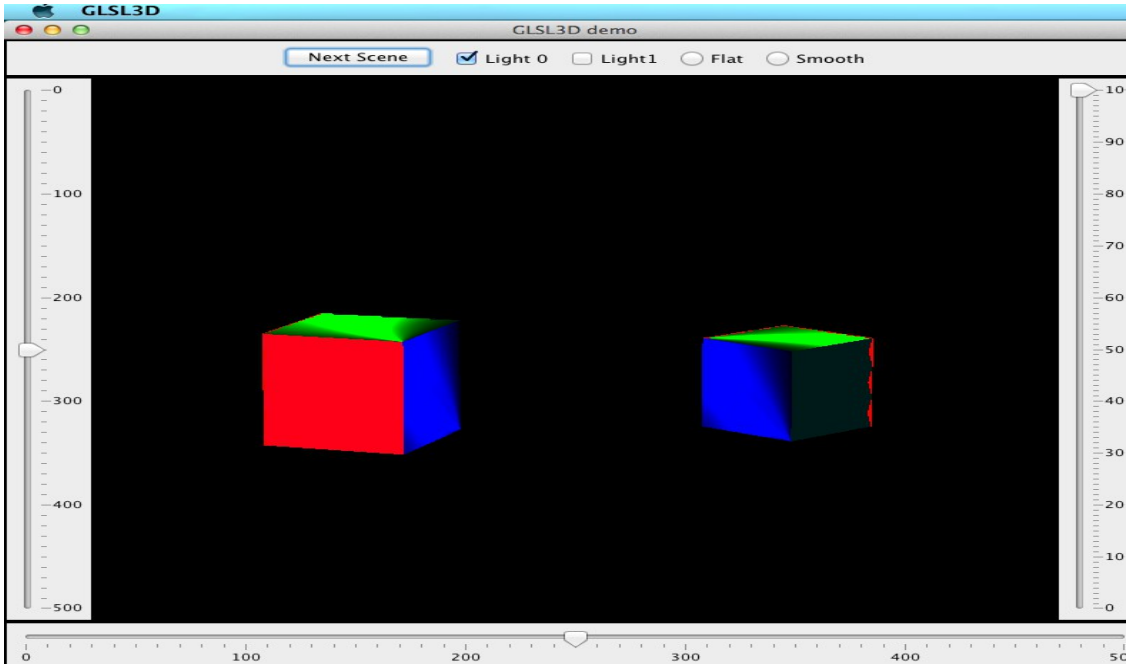
This project provided introduction to basics of GLSL which was more fascinating.

- Interpolating normals and colors generated interactive objects
- Lighting was enabled to clearly demonstrate the presence of colors.
- Generated pyramid (hard coded) and sphere (sphere generation algorithm)

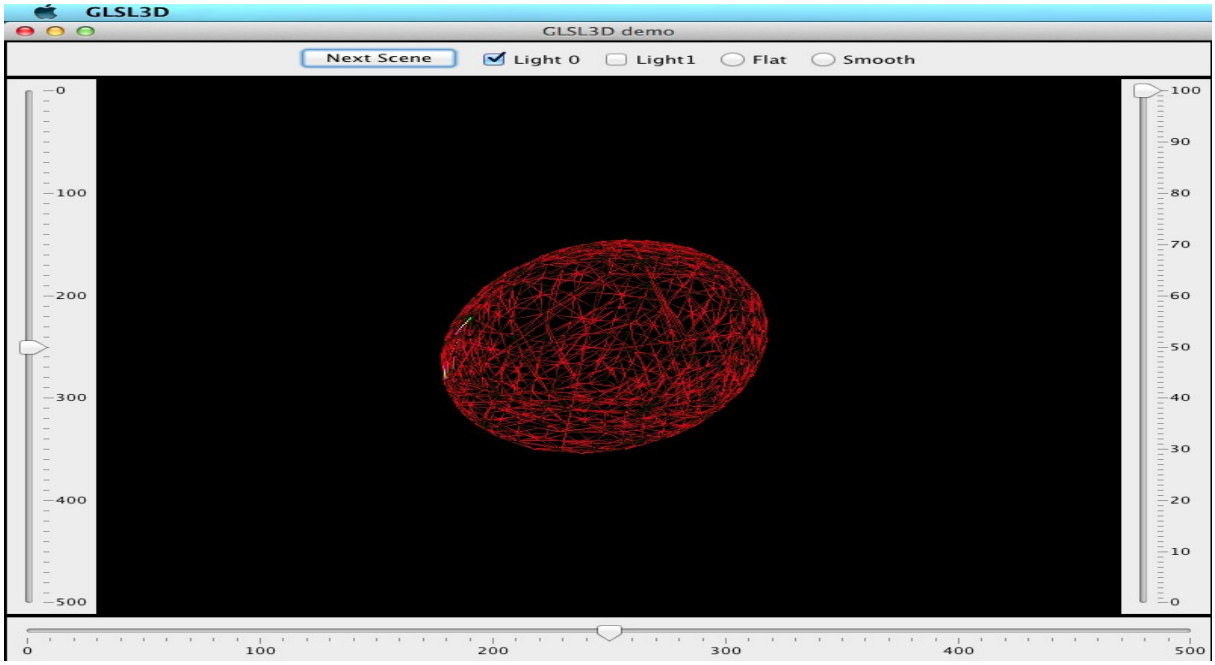
Screeshot of a Pyramid : (light0 enabled)



Screeshot of a Cube: (light0 enabled with interpolation effect) ;



Screeshot of a Sphere generated :



At present I am doing my final graphics project based on sweep surfaces