**Artifact 1: Software Design and Engineering**

1. The artifact that I chose came from when I took CS 330 that I took about a year ago.
2. This was one of the projects we did in the class by creating a 3D pyramid. Using the skills I learned I was able to take a 2D image and display it on screen and from there I was able to build upon that to graduate to 3D models of items. We started with a cube and from there learned how to use matrices to help create other shapes. This was one of the more challenging classes and also one of the more interesting ones. I am interested in possibly working in game design and development so learning OpenGL was huge plus for me. So that is the main reason I included this work of code in my ePortfolio. With this artifact I want to incorporate more features to just a 3D image. So for the design and engineering section of the Final Project I wanted to add rotation, navigation and texture to the item. This will show a solid basis of the skills I would need if I were to apply for a job in game design. I used best practices and coding standards to make it easier to read and follow along.
3. I was able to make all the enhancements I intended for this project. The first obstacle I had was to find code to use since all of my work was deleted from my Apporto portal, and I was robbed with my laptop and hard drive being taken with all of my previous work.
4. When I went through the code I knew what I wanted to do. The initial issues came in the beginning because I was using a virtual environment with all directories and libraries installed when I was taking the class. I had to learn how to set up an OpenGL environment on my personal computer. It was a struggle trying to remember all the libraries that were needed for a 3D model. I did a ton of research and was able to find out how to do it. The second challenge was to refresh my memory on using OpenGL and matrix multiplication to create my desired shape. I was able to research and find what I needed to make it work.