**Design Decision**

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**CS-330**

For my project I chose to work with a few items that I had around the house. Those objects were a small watermelon ball that my dogs play with, a silver Hershey Kiss left over from Halloween, a can of energy drink which can always be found on my desk as it fuels my late-night coding sessions, and a phone. The reason that I chose these objects was that they were items that I could easily interact with and really investigate as I created them. OpenGL was something completely new to me so I wanted to keep things simple enough that this project would be doable but challenging enough to push my skills. Each object happened to be a different shape as well which helped me get acquainted with creating various types of objects.

In order for myself and any users of my program to really take in the work that was done we of course needed to implement camera controls. What good is it to have a world with 3D objects if you can’t look around them. So, I included the option to use the WASD keys on the keyboard to move left, right, forward, and backward with Q and E being added in to go up and down. Adding to those keyboard controls I set the keys O and P to toggle orthographic projection on and off. The mouse also plays a part in the controls by allowing you to move the camera to look all around and even use the scroll wheel to zoom in and really admire the hard work.

One way that I managed to keep my program easy to follow was by ensuring that I was commenting often but also keeping it necessary to avoid clutter. A good example is my comments in the render method which has each object clearly marked to show where the code for it starts and where the code for it ends. Good comments are a real godsend when it comes to working with this many lines of code, so I felt that it was absolutely crucial to focus on this. I also had functions that would either create or destroy shaders, meshes, and textures. We want to make sure that our programs aren’t cluttered or using more resources than they should be so this was an attempt to help mitigate that.

A few things that I wanted to reflect on was creating the lighting for the scene and the creation of the Hershey Kiss. I struggled quite a bit with the lighting because no matter what I was doing it would not accept the phong calculation. I was spending about 30-40 hours a week over the past few weeks on this project on top of doing two full time jobs, another class, and working on closing on a house so this was very draining. That said, seeing the Hershey Kiss that I created was such an amazing feeling because it came out better than I could have imagined. While the other items like the watermelon ball were nice to see, there was just something very satisfying about seeing the Kiss come to life. Maybe because that was my first complex object, so it is like my baby. While I’m sad that I may not come out with the grade that I had hoped for I am so proud to see how well I did after so many long, sleepless nights. I would actually like to work on this in my spare time some more to really see how I can make this project pop.