# CS 330 Project Proposal

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**Reflection**

I selected a visually interesting scene that I would be excited to create. I chose to populate the scene with objects made of simple shapes because of my inexperience with this process. I selected a skull to be composed of a sphere and tapered cylinder, which sat upon a book on a tabletop. The book is made of two boxes for the front and back covers and a third box for the pages within. I created two candles with wicks and flames. The candles and wicks are cylinders. The flames are comprised of spheres and cones. There is soft warm sunlight entering from a window off camera to the right. There is also a white point light shining from above and slightly left and behind the objects on the table. I created point lights for the candle flames but did not get to making the flame shapes appear illuminated as I was still working on functionality.

A user is able to use keyboard keys, A, S, D, W, Q, E, and P, as well as the mouse cursor and scroll wheel to manipulate the scene. A and D move the camera left and right. W and S move forward and backward. Q and E move the camera down and up. Vertical mouse movement controls the pitch of the camera, how much it is tilted up or down rotating around the X axis where the camera is positioned. Horizontal mouse movement controls the yaw of the camera, how it pans left or right rotating around the Y axis where the camera is positioned. Rolling the mouse wheel will increase or decrease the speed with which the camera moves in response to key comands adjusting the camera position. My intention was to have the P key control the view projection of the camera. The P key would toggle the camera view between perspective and orthographic views, but I am still developing that functionality.

Custom functions were used throughout this code. We were provided with a variety of functions already written that processed the math necessary to render the objects we placed within our scenes. We were provided with functions that trasnlated keyboard clicks and mouse movement into camera movement through the scene, we just needed to utilize them. In addition to customizing camera controls using the keyboard and mouse, I was working on a custom function to change the camera view from perspective to orthographic. Functions developed this way isolate functionality making it easier to use in many places but to only need to update in one area rather than everywhere it was used. These functions can be reused as is or modified, increasing efficiency and reducing redundant code writing.