# CS 330 Final Project

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CS 330 Comp Graphic and Visualization

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I chose my selected objects, the Rocket, the Launch Tower, Tank Farm, and Launch Stand because I was able to break each object down into simple shapes. For the rocket, I was able to break the main body into 3 simple objects, two elongated cylinders, and an elongated sphere for the nose cone. I also decided to add the control surfaces, being the upper and lower flaps onto the rocket which all consisted of an elongated box and triangle or pyramid on top of it. This was the method I used for almost all of the objects. I would break it into the main body of the objects and smaller details. When it came to the launch tower, I knew that I was not going to be able to make 100 different objects all seperate of each other without it being too taxing. So, I did research and found a way to write a function that would create the struts on the tower. This overall improved the readability and maintainability of the code. When it came to the lighting, I wanted to make sure I had two main components. I wanted a greater light to act as the sun and a small one to appear as a small light on the stand. The sun would be represented by a directional more powerful light that casts light across the entire scene while the smaller light is represented by a low power point light.

To control the scene, the program includes mouse movement for the x and y axis of camera movement, as well as w,a,s,d controls control the forward, backwards, left and right motions of the camera. I also implemented a function to change the speed of the camera with the scroll wheel.

There were multiple functions used within the assignment that helped to make it more modular and efficient. One specific function was the SetTransformations() function with allowed for all the different transformations such as Position, Rotation, and Scale to all be set with one function. This helped to simply the overall code structure when having to create and set up many different objects and complex objects. Another example of a function would be SetShaderMaterial() which allowed for the use of many different materials while being able to separate the initializaion of the materials for each object seperately from creating the geometry of the object.