**Kshitij Karke**
01400107
kshitij_karke@student.uml.edu

# Final Report

http://weblab.cs.uml.edu/~kkarke/427546s2018/finalproject/

This final report showcases my final project and my thought process and research towards completing the project

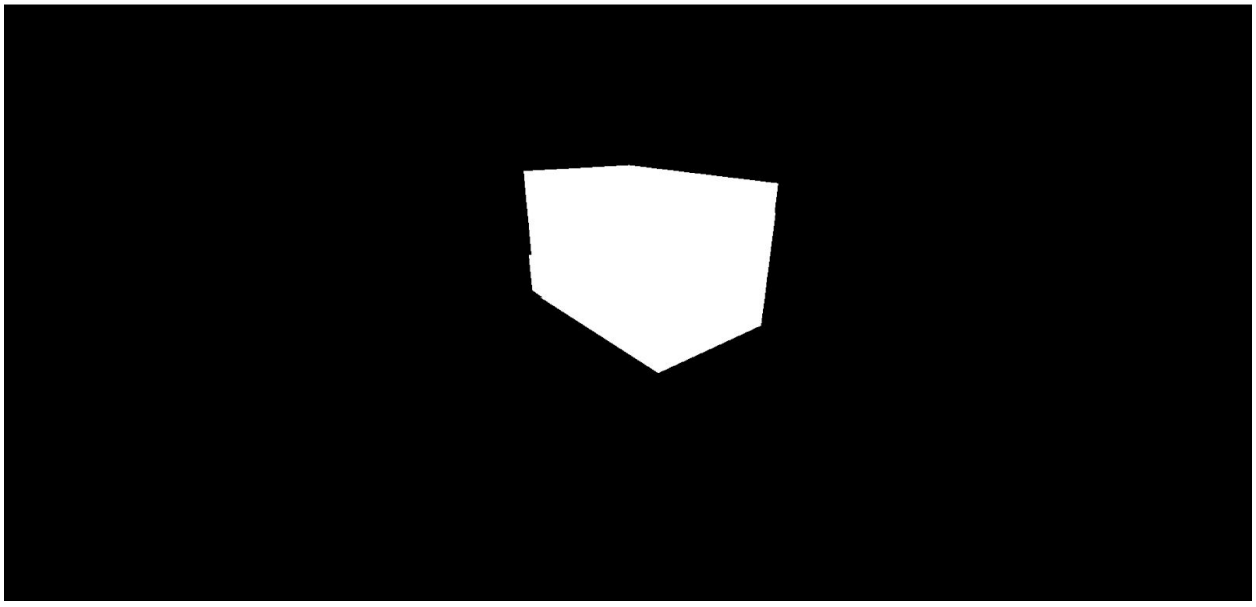
**Contents:**

## Week 1

## Research

I used this week mostly to do research on what framework I would use to do my project while there were many options I ended up using three.js. I found the main framework on

https://threejs.org/docs/index.html#manual/introduction/Creating-a-scene and I was able to create a simple cube that was rotating in a space.



I was also able to click and drag the object to change the view multiple sides of it while it was rotating.

It used a perspective camera. This is the code that made the object rotate:

```
requestAnimationFrame(animate);
demoBox.mesh.rotation.x += 0.01;
demoBox.mesh.rotation.y += 0.02;
renderer.render(scene, camera);
```

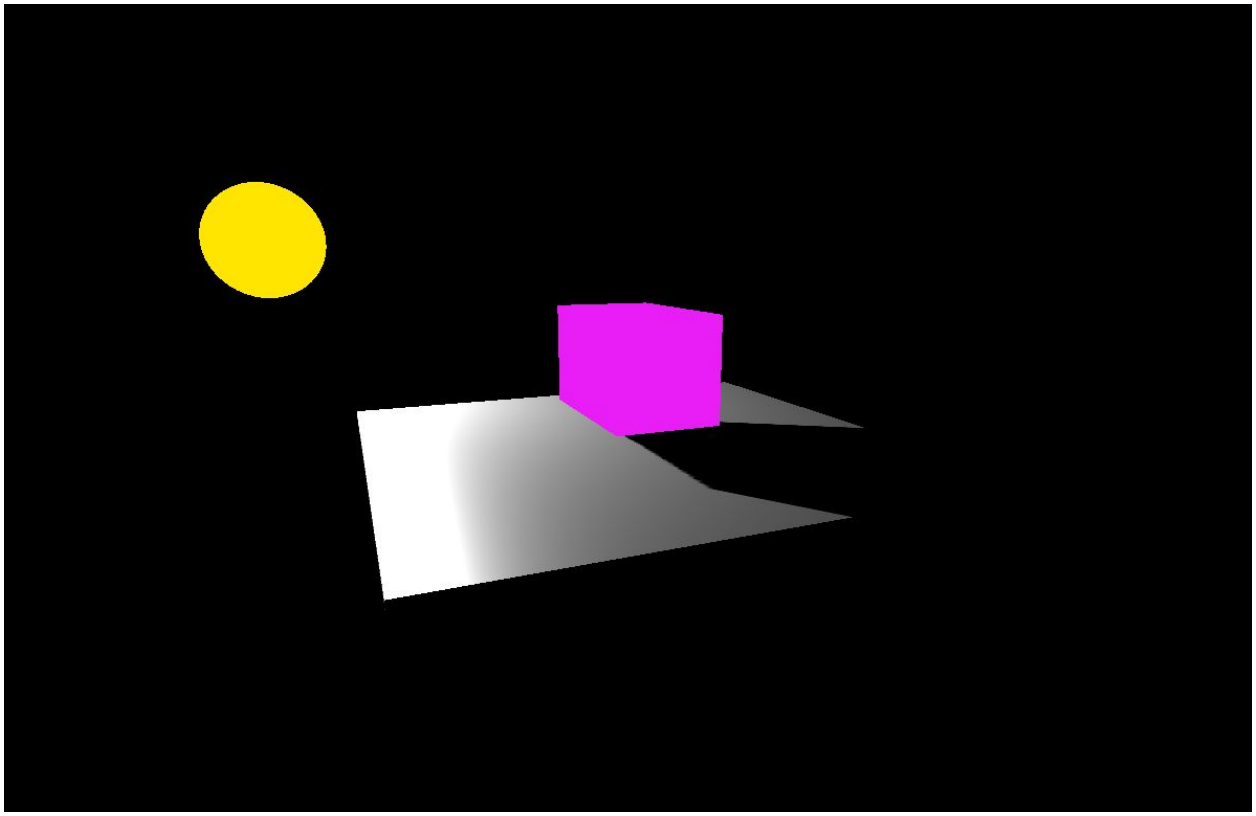
As this function was running recursively, it called and rendered itself while the webpage was open.

Goal Achieved: **Modeling to create and store a 3D object**

## Week 2

### Light

I used three.js to create a light source similar to the sun. I was also able to make a floor and cast a shadow of the 3D object. It was complex and took me a while to figure out. I planned to use this lighting to provide a slider in my GUI to increase and decrease it's intensity.



Code I used for the light:

```
light = new THREE.PointLight(0xffffff, 3, 100, 2);
  light.position.set(10, 5, 10);
  light.castShadow = true;
  scene.add(light);
  light.add(sun.mesh);
```

Goal Achieved: **View my created object from multiple views and Transform camera/viewer/light sources(s).**

## Week 3

## Colors & Mapping

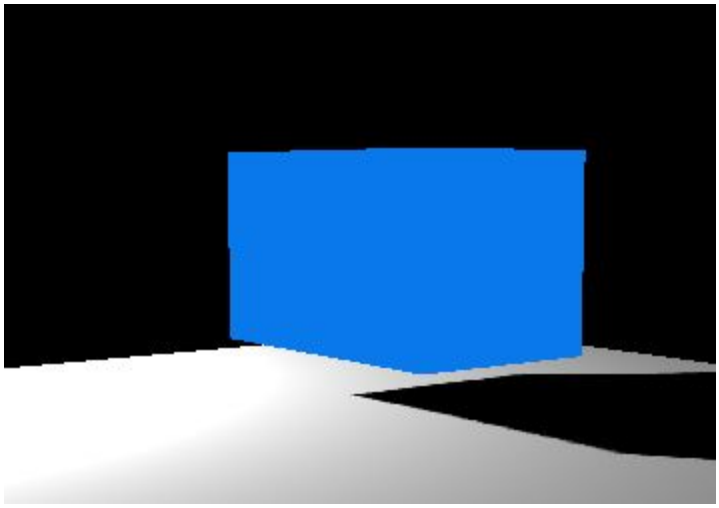
For this week I was able to modify the textures and mapping of my 3D object.

Three.js is very convenient and gives users a way to change the colors and textures of object by using simple commands.

Example:

I was able to turn the cube blue:

demoBox.color = new THREE.Color( 0x00FFFF );



The material can be changed by using:

new THREE.MeshLambertMaterial

new THREE.MeshPhongMaterial

new THREE.MeshNormalMaterial

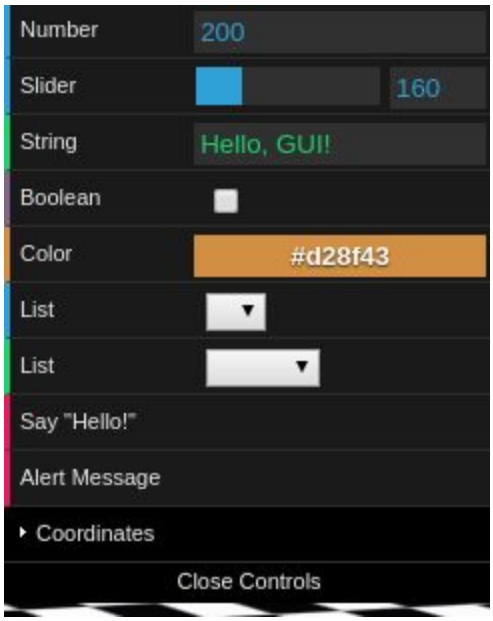
There were only a limited number of materials that could be mapped in three.js If I have the time I will look into custom mapping of texture from user files

Goals Achieved: **Create texture/bump/environmental mappings for the object.**

## Week 4

### Interface

For this week I created an interface to control all the previous aspects of the project that I worked on.




I used DAT.GUI files to create this interface which is located at:

http://learningthreejs.com/blog/2011/08/14/dat-gui-simple-ui-for-demos/