**Homework #4**

**CSCI 3353 - Hibbs**

**First of all I would like to apologize for turning this project in so late. I had an overwhelming amount of other work and finals over the past two weeks. I know it’s not fair to inconvenience you like this at the end of finals but just to give you an idea of what I’ve been up to: Android app and presentation and report, web apps app and presentation, finance project and write up, ops management paper, web apps homework, two business analytics projects and a report, business analytics exam, finance assignment--and that’s just what’s already due. However I’m finally turning this in so here goes it:**

The scene I created is intended to be a magic carpet ride through a scenic countryside. I started with a sky that was created by texture mapping a sphere and drawing it at the base position. I then created land (a texture-mapped ellipse) drawn at the same position (rotated to fit the plane). I also created a tree object (built cylinders using a parametric equation for trees) and randomized the location and size of these to make the scene look a little more natural by drawing them in various places. Though I intended to create more detail in the trees, I ran out of time. I would in the future hopefully stack these trees with smaller cones at different levels, add a stump, and texture map a shape onto these (however I had trouble figuring out the u and v of cones). Another shape I created was the car, which is made with two boxes and four cylinders (parametric equations for the wheels). I placed this at the center of the scene. I’m aware it doesn’t quite line up with the terrain (as it’s kind of off-road), however it could also be perceived as an ATV vehicle if that would fit better. Lastly I created a rectangle for the magic carpet, texture mapped it, and drew it at a different vector than all the other objects, because this is supposed to move with the camera.

When it comes to the user interface, I struggled greatly to figure out the camera, so that was one of my biggest obstacles. I originally moved the entire world on the key presses, then I figured out how to move the camera. So I made it so W and S move the center, eye, and rug vectors forward or backwards. To turn, I am essentially turning the world at an angle by pressing A or D. Though this behavior may seem a little funny at first, I think it makes the world feel a little bit like a simulation/game/snowglobe. For more camera movements, I incorporated a roll type feature where on the left mouse click you can move the camera around manually. The camera stays fixed in that position until you click and drag and move it around again. When you right click, you’re simulating a tilt, and I also made sure that the angle of the rug is rotated to make it feel as if you’re tilting the ride. If you wanted to simulate an immersive turning on the rug, you could right click and tilt as you’re using the arrow keys to make it feel as if you’re flying. In addition, I added a perspective to narrow the field of view, partly to make the world seem larger and to make you closer to the rug.