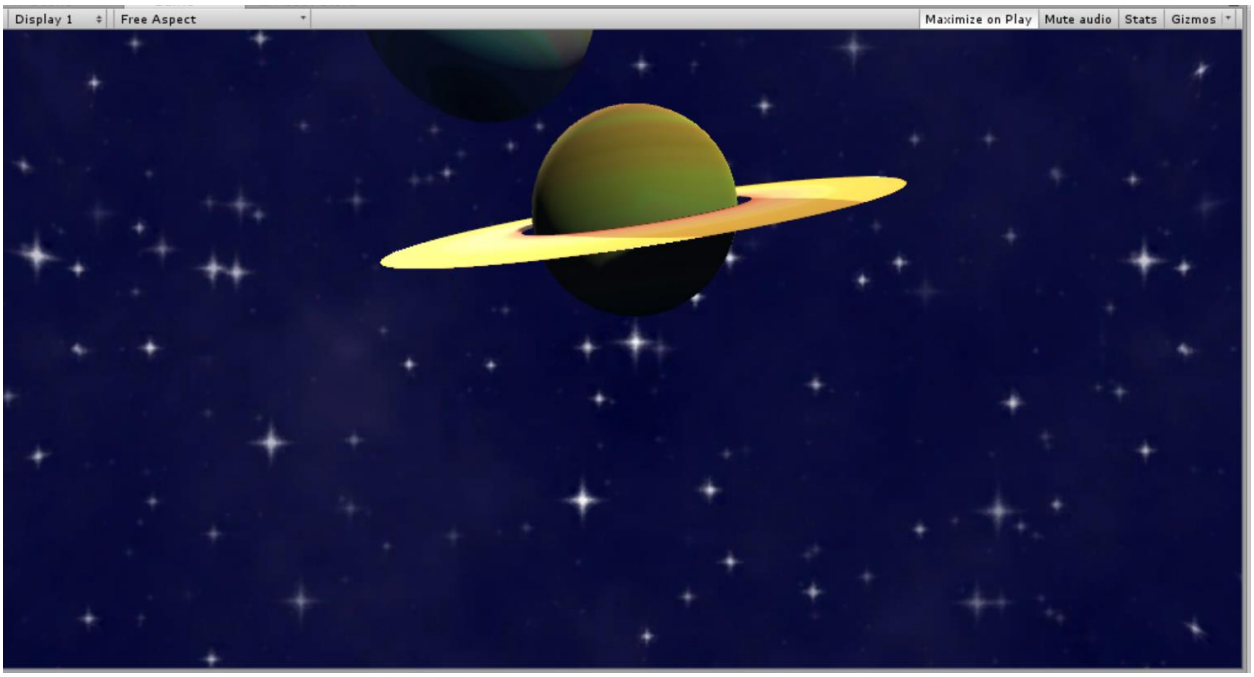
LAB #3 – PROJECT NOTES

BUILDING A VR EXPERIENCE IN UNITY

This is a companion document to the Lab #3 document that will cover step by step how to go through the process of creating your first Unity scene. We will be starting out our project, a Space VR mini-app, and will spend some time today covering the basics of the Unity Editor.

After completing this lab, we will have a Unity scene with a single planet that we will build off of in the next lab.



ADDING YOUR FIRST SCENE

The Week 3 Project zip folder contains several basic components to get started with building a Unity scene using the Google VR SDK.

GETTING THE PROJECT FILES

If you haven't already, make sure that you have all of the necessary programs and software installed on your computer. For this class, you will need to have:

- Unity 5.4
- The Week 3 Project .zip folder

1. Download the Week 3 Project zip folder to your local machine

2. Extract the files to your desktop or an easily accessible location
3. Launch Unity and create a Unity Account (or sign in if you have already done this)
4. From the Unity project launcher, select 'Open' and navigate to the Week 3 project folder
5. Select and open the Week 3 project

EXPLORING THE SAMPLE SCENE

In Unity, your application will be comprised of *scenes* – collections of objects that make up a single snippet of behavior or activity within your application. You can find saved scenes in the Asset pane of the Unity Editor.

1. Open up the 'FirstDemo' scene under Scenes > FirstDemo by double clicking on the scene icon
2. Take a note of what you see. Look at the Hierarchy pane and compare it to what you see in the scene view window. Click on objects in the Hierarchy and see which ones correspond to 3D objects in your scene view.
3. Become comfortable looking at different objects in the scene, and switching between play mode. What are some of the differences between scene mode and play mode?

CREATING A NEW SCENE

We are going to create our first scene for our project, a planet floating in outer space. We will start out by making a new Unity scene:

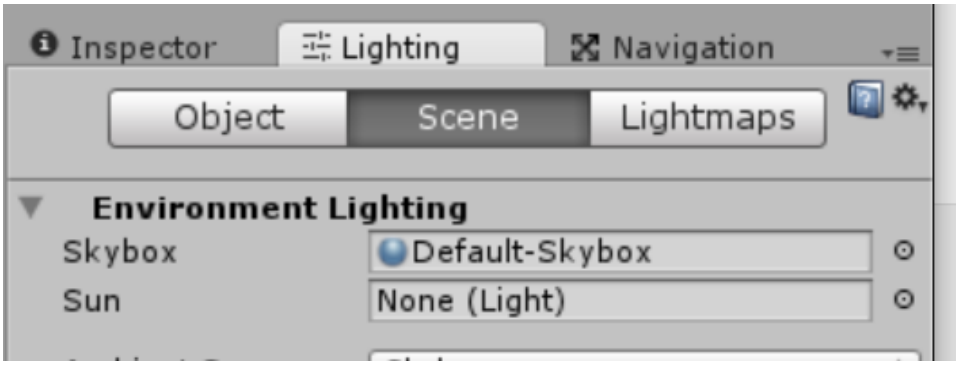
1. Go to File > New Scene
2. Name your new scene 'SpaceSceneMain' and save it into the Scenes folder. You will see it appear with the Unity icon under Assets > Scenes.

By default, the only things included in a new scene will be a camera object called 'Main Camera' and a directional light. Every scene that a player can view must have some kind of camera placed somewhere in the scene so that the computer knows how to draw the view of what is happening in our 3D world.

ADDING A SKYBOX

The first thing that we'll want to do is create a *skybox* for our scene. The skybox is a box that surrounds the entire scene and is an infinite distance away from our viewer.

1. At the top of the Unity Editor window, select Window > Lighting to bring up the Inspector tab for our lighting settings



2. The first section of the Lighting window is where our Environment Lighting is set. Click on the small circle directly to the right of the box labeled 'Skybox' to open a list of our available materials
3. From the asset choosing window, select the <skybox for space scene> asset from the tab labeled 'Assets'. This allows us to designate that we are choosing an asset from our game resources. In comparison, the Scene tab would only show us the objects that already exist in the scene as we've created it.
4. When you confirm the selection for the skybox, you'll notice that the editor reflects the change immediately and you can see how your sky looks.

Optional Exercise: Spend some time looking at available skyboxes on the Unity Asset Store. What do you find? Do you notice any differences between types of skyboxes?

ADDING A GOOGLE VR CAMERA

Now that we have something in our scene to view, we are going to add a script to our Main Camera object that will render our scene for VR. To do this:

1. Locate the Main Camera item in the Hierarchy and select it once
2. Click 'Add Component' at the bottom of the Inspector window to bring up the search bar
3. Type in "GVR Viewer" and hit enter/return to add it to the camera.

You will know that it was added successfully if you see a new section on the Main Camera Inspector that lists out settings under a '**GVR Viewer (Script)**' section. Try running your experience by clicking the play button to see the difference.

VIEWING YOUR EXPERIENCE

As we work on our scene, we'll want to make sure that we're taking some time to go into play mode and view our work. This is especially important as we move forward and add in our VR camera, as we'll want to be checking the first person perspective with the objects in our scene.

1. Click on the play button at the top of the window to launch your experience in game view. You'll notice that the Unity Editor will switch to the other window and begin your game.

Keep in mind that changes made to your app while you are in play mode do not persist when you end your play mode session! Being able to change things in play mode can be helpful to try out positioning in real time, but make sure that you aren't in play mode when you want to make final changes to your experience.

USING THE ASSET STORE

We are going to download a package from the Unity Asset Store to help us create our planet scene. The Unity Asset Store contains both free and paid packages that include models, materials, scripts, sounds, full game examples, and much more to help us with our development. You can access the Asset Store online in the browser, or directly through Unity.

1. Go to Window > Asset Store in Unity to launch the Asset Store.
2. At the top of the Asset Store home page, use the search box to for 'Vast Outer Space'
3. Click on the 'Download' button on the Vast Outer Space page to download the assets to Unity, then click on the 'Import' button to bring them all into the project.
4. Once we've downloaded and imported the package, you should see a folder called 'Vast Outer Space' in your Assets folder at the bottom of the editor.

ADDING OUR FIRST PLANET

Now that we have a package to help us with our scene, we will go ahead and start building our first planets.

1. Open the Vast Outer Space > Prefabs > Gas Planets to see the included prefabs. These models contain a geometry and material element, so we can simply use them as-in our project. The instructor will go into more detail about how the prefabs are created.
2. Drag one of the Gas Planet prefabs into your scene by clicking on it in the Assets panel and dragging it to the Hierarchy tab on the left side of the editor. You should see it show up in the scene view, and locate where it is relative to your camera and the directional light.

3. Move the planet so that it is located in front of the camera by modifying the *position* element in the Inspector window while the planet is selected in the hierarchy, or click and drag the arrows that appear on the planet when the editor is in position mode:

4. Experiment with scaling your planet by modifying the *scale* property in the Inspector window while the planet is selected in the hierarchy, or click and drag the arrows that appear on the planet with the scaling buttons selected:

Be creative and explore different things with your planet until it is a size and position you like. We'll be adding in more planets to the scene as we go, so keep that in mind as you start to size and position the objects in the scene.

NEXT TIME

We will be adding in the Google VR camera to our scene, and start working on implementing a user interface for our app. Finish your experience by adding more planets to your scene and customizing the way they look by changing materials, adding rings, asteroids, and more!