Make Your Own Game in Unity

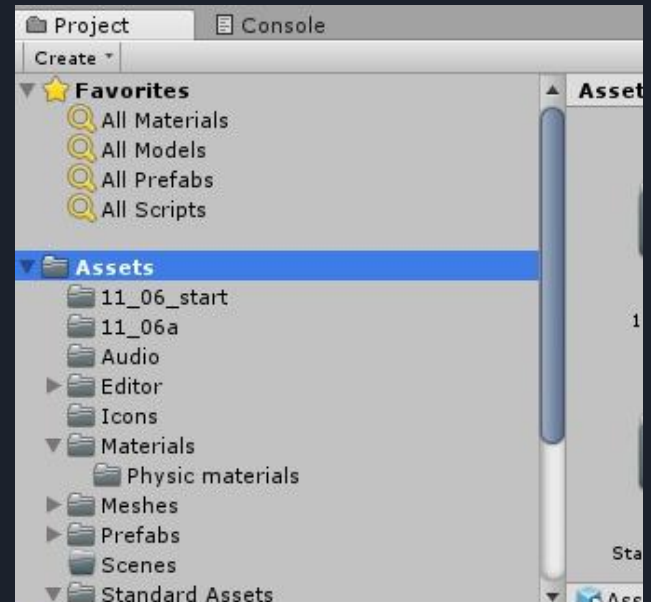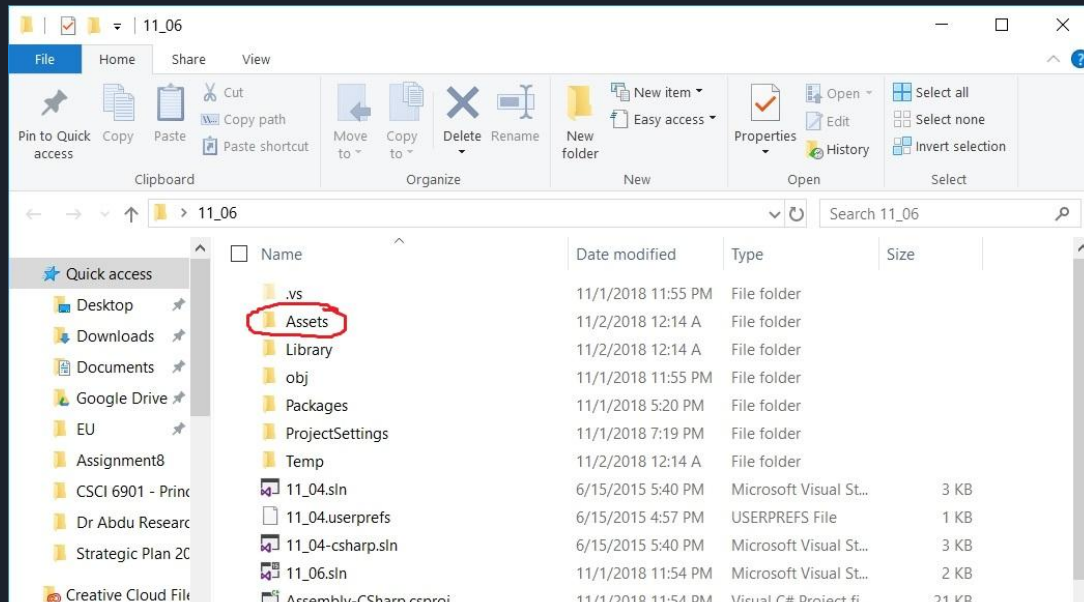High School Game Jam: Oak Hill Collaborative

Terms to Know for the UI in Unity

- Game Asset
- Material
- Meshes
- Prefabs
- Scenes
- Characters
- Effects
- Environment
- Particle Systems
- Textures

Game Assets

- Everything that goes into a game
- In Unity, the Asset folder holds everything you will use to build your game

Assets Folder

- Double-click the Assets folder in your Windows Explorer
- Unity pulls directly from that Assets folder for all of your game assets
- In Unity, you can view your Assets folder and all Assets in the Project Tab
- If you create something new in Unity, you will be able to view it both in the Windows explorer view and your Unity Project Panel view
- In Unity, Click Create -> Folder and name it whatever you'd like
- Sometimes it takes a minute for Unity to update, so be patient
- Once Unity has finished creating your new folder, check your Windows Explorer Assets Folder. You should see your new folder there as well.
- Be careful, if you delete something, it is deleted in both places.

The folders inside your Assets Folder

- These folders all contain different assets used to create the game objects you will be using to build your level
- Textures contain flat images that are applied in layers to the Materials
- Materials are applied to 3D objects to make them look like the game objects you see in the games you play
- Physical Materials are applied to give a real life feel to the object while the player runs around in the game (ie: ice, water, paving, stone)
- In this project, the Standard Assets folder contains various folders containing different Game Assets, like Characters, Effects, Environments, Particle Systems

Scenes and Prefabs

- For this game jam, you will primarily be using the Scenes and Prefabs folder
- The scenes folder contains all the various scenes and levels of a game. Right now, yours should be empty.
- Select the Scenes folder in your Project Tab
- Right-click inside the folder display -> Hover over Create -> Select New Scene
- Note: You'll notice that within the Create menu, there are lots of items that can be created. Those are all of the things that go into making the games feel real when you play them.
- Name your new scene whatever you'd like.
- Double click your new scene to open it.

Prefabs

- These are the game objects that are created with all of the game assets, and designed to be placed into your levels.
- Select the Prefabs folder in your Project Panel
- You see a bunch of folders named for what they contain. The Doors folder contains doors, for instance.
- Go ahead and open up the Doors folder.
- You'll see a few different file types.
- Animation files, and the Blue boxes are your Prefabs. Select DoorA. In the lower right of your screen, you should see what looks like a wooden door.
- If you select the right arrow beside the Blue box of DoorA Prefab, you'll see three more blue boxes. Those are the three different 3D models that make up this door.

DoorA Prefab

- Select the DoorA Prefab and drag it into your Scene, which should be the panel above you, and let go of your mouse.
- You now have a door in your level. On the right hand side, you'll see your Inspector Tab has some various items listed.
- The Transform is the location, position and scale of the selected Game Object.
- You can rotate, move and resize your door either in the Inspector, or by using your tools in the upper left of your screen.
- A Collider, in this case a Sphere Collider, cause a reaction when the player runs into it. On some game object it is set to not allow the player to walk through it, like a wall. In this case, the collider is set to wait for the player to press a button to open the door.
- The Animator is the animation that happens when an event is triggered, such as the player opening the door.
- The Door (Script) is the C# programming that tells the door what it is supposed to do during game play.

Play Your Game

- Right now, all we have is a door in our level, but let's press play anyway.
- You should see a sort of blue horizon with your door in it. Obviously, this is not a playable level, but to test your level while you are building it, this is how you would do it.

A Lot of Info at Once

- I realize that's a lot of info all at once, and in time you will learn to use all these tools.
- However, for this jam we are only going to really worry about your new level and the Prefabs.
- Let's build a quick level together, to give you an idea of how this works.
- Then you can get started on your own levels!

Build Your First Level

- Firstly, delete the door from your level.
- Hit Control+S, or select File -> Save Scene
- Saving often is important. Unity uses a lot of RAM Memory while it is running, and the more objects in your level, the more memory it uses. This can cause Unity to crash, and you will lose any unsaved data. Best practice is to Save every 5 minutes.
- In your Project Panel, select your Assets folder. To the right, you will see a game object called New Terrain 2.
- Select and drag it into your Scene Tab above. You should see a small tree scene.
- Save your scene. (CTRL + S)

Adding Player to Scene

- Select Standard Assets folder > Characters > FirstPersonCharacter > Prefabs
- Select the FPSController Prefab, and drag and drop it into your Scene Tab
- Save Your scene, then press play to make sure you placed it properly. If your character is not standing on the green terrain, you'll need to move your prefab to show that it is on the green terrain.

Adding Game Objects to build your level

- Click the Play button again to stop the demo.
- Select the Prefabs folder in your Project Tab
- Select the Archways folder then drag and drop ArchwayA into your Scene Tab
- Save your file. We are going to move this archway to face another direction.
- In the upper right corner, you should see an X,Y,Z directional pad that sort of resembles a compass
- Selec the Green Y. This will show you the birds'-eye-view of your scene.
- Clicking and holding your middle-mouse button, drag your scene around to move within this scene to find your Archway.
- You can also double-click your ArchwayA in the Hierarchy to your left to automatically zoom over to your selected game object. The Hierarchy will display all of the game objects that are in your scene.
- In the upper left corner, select the tool that looks like two circular arrows. This is your rotation tool.
- Making sure your game object is selected, go into your Scene, hover over the green circle around your archway, click down and drag to the left of your scene.
- You can see you rotated your Archway.

- Using your Right-Mouse button, click down and drag your mouse in the Scene Tab. As you can see, this game object doesn't have two sides. This is because it is meant to be place upon a wall.
- Let's add a wall.
- In your Project Tab, Select Prefabs > Walls and click and drag the game object WallBaseCorner into your Scene Tab
- Focus on your wall game object (Double-Click it in your Hierarchy tab)
- Rotate it on the Green Y Axis by -90 degrees. You can easily do this by typing -90 in the Y Rotation box of your Transform in your Inspector tab.
- Now select your ArchwayA in your Hierarchy, then go over to your Transform in the Inspector and in the Y Rotation box, type 0
- This allows both object to line up for when we move the doorway to the wall.
- With your archway selected, go to the upper left of your screen where your tools are and select the Move Tool.
- In the Scene tab, hover over the green square then click down and drag your mouse around. Clicking on the green square allows you to move in two directions at once. If you hover over and arrow and drag, it will only move in that direction. Line up the Archway to your wall. This Archway is a little bigger than the wall. We can scale it down by using the scale tool, but for this demo, let's move on. Save your file.

- Press play. If you walk around, you can see both our wall and archway are floating. Let's fix that.
- Press Play again to go back to your Scene.
- Select the Blue Z in the upper right of your scene.
- Using the Middle mouse button, move around so that you can see the ground and your two game objects.
- Select WallBaseCorner in your Hierarchy.
- With the Move Tool selected, hover over the Green Y Arrow in your scene and click down with your mouse.
- Move the mouse down until the wall starts to disappear into the ground.
- Once no bottom edge is above the ground, select the Archway in your Hierarchy and do the same.
- Save and press play.
- Walk around and and make sure you aren't walking through any walls and that the wall is in fact below the ground.
- Now it's your turn to build your own level!