

Spring 2021

CSE 190

VR Technologies

Discussion 1



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ANNOUNCEMENTS

- Homework 1: Whack-A-Mutant Released
 - Due April 18th @ 11:59PM
 - **START EARLY**
- Waiting for the Dept. to distribute VR Headsets



AGENDA

- Introduction to Unity
- Key Terms & User Interface
- Getting Started with HW 1
- Resources



WHY UNITY



Why Unity?

- **Unity** is currently the standard game engine for VR (though not the only one)
- Making games from scratch is **hard**. Renderers, physics, shaders...
- Game engines let developers focus on content rather than backend systems
- **Pros** for using Unity:
 - Most VR support & collaborations with VR developers
 - Built-in native VR dev tools, very easy to get started

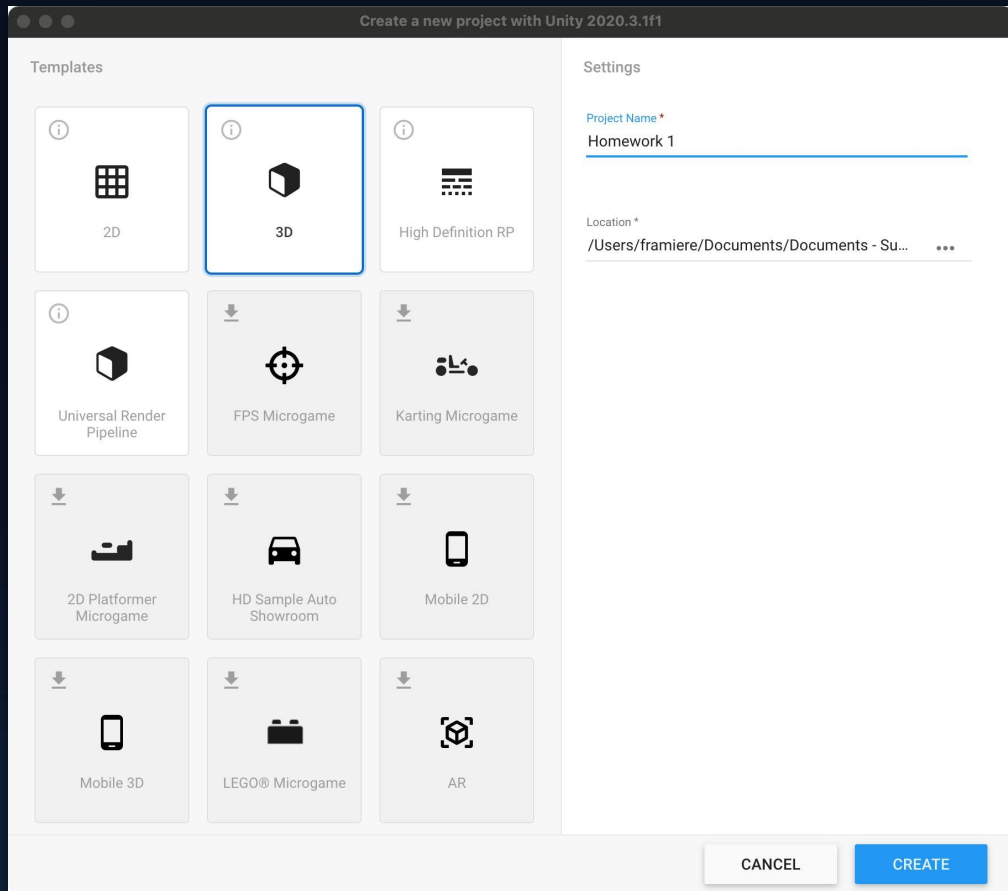


Unity-Based Games



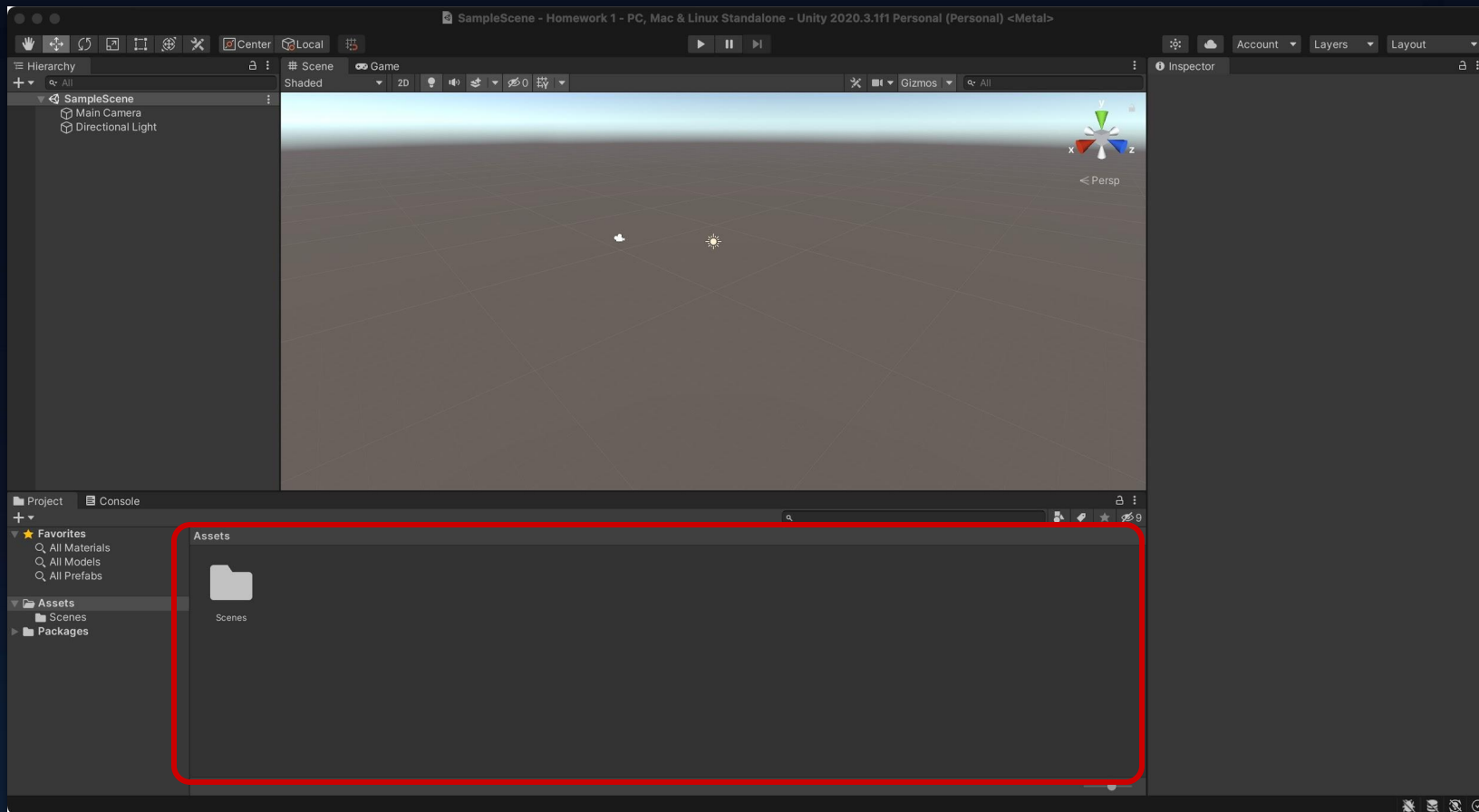
KEY TERMS & --- USER INTERFACE






Key Term: Assets

- Assets are any resources you're using to create your project
- Your "Assets" folder contains all of these resources
- Includes models, scenes, scripts, materials, textures, sound, etc.
- It's a good idea to always keep your assets organized in folders
- There are tons of assets available online and in Unity!



Key Term: Scenes

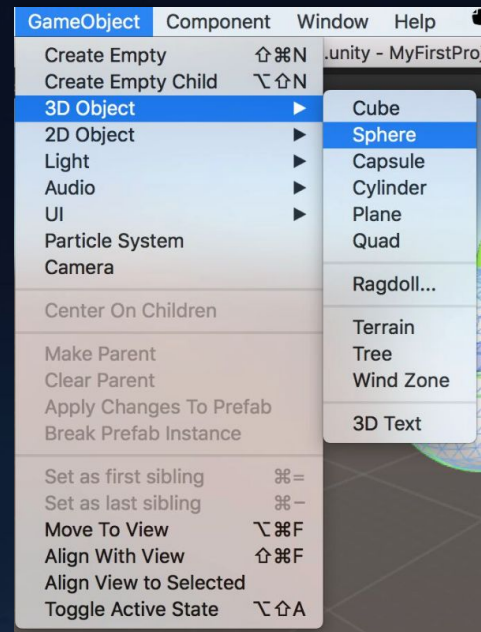
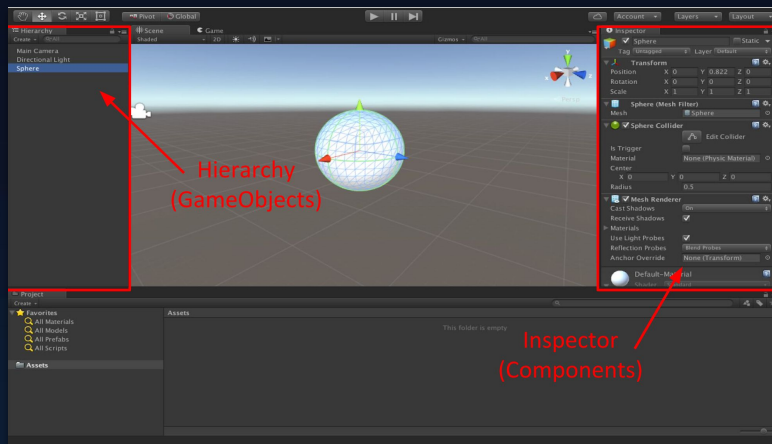
- Single level/environment of the game
- Saved as `.unity` files, and appear as Unity icons in assets 
- Save, save, save, save your scenes
- Multiple scenes within a single game

Key Term: GameObjects

- A GameObject is anything that exists inside your scene
- All GameObjects consist of Components
- Components are what give a GameObject it's properties and behaviour
 - C# Scripts
 - Material & Shaders
 - Textures
- GameObjects always appear in the Hierarchy
- Components appear in the Inspector, when a GameObject is selected

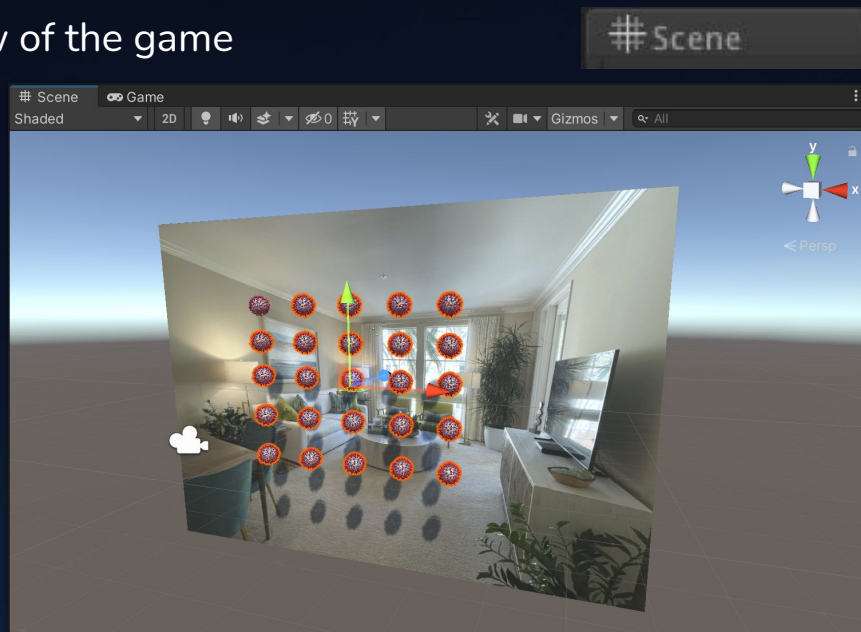
Key Term: GameObjects

- Creating GameObject: GameObject -> 3D Object
- Choose & create shape, or import existing 3D meshes
- Shape should now show up in the **Hierarchy**



Scene View

- The Scene View is a developer's view of the game
- Freely navigate and change objects
- Not bound by the game's camera perspective
- Unrelated to what user sees



Game View

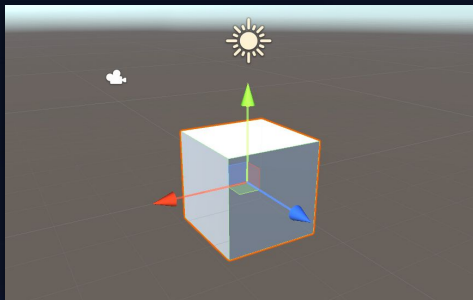
- The Game View is the player's view of the game
- Determined by in-game camera
- What the actual player will see!
- Can be set to specific resolutions



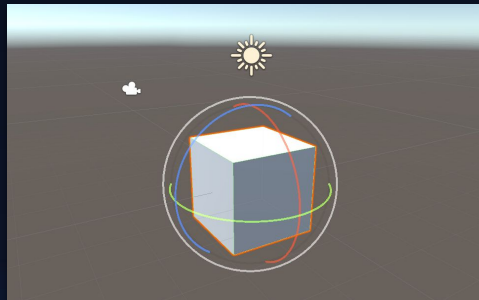
Hot Keys

- Navigating in Scene View
 - **Zoom in/out:** Mouse Wheel
 - **Look around:** Right click and hold mouse
 - **Focus on Object:** Shift + F
 - **Move around:** Arrow Keys / Hold down right mouse button and use WASDQE
- Transform GameObjects (select object from hierarchy first)
 - **Scale:** R
 - **Translate:** W
 - **Rotate:** E

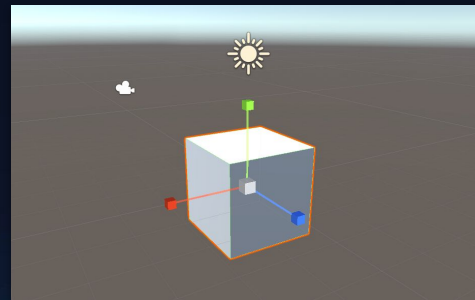
Transformations



W: Translate



E: Rotation



R: Scaling

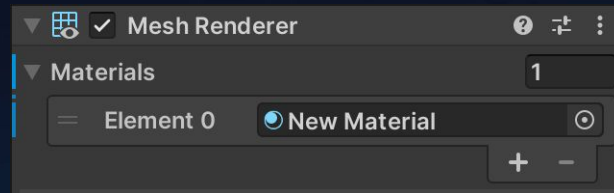
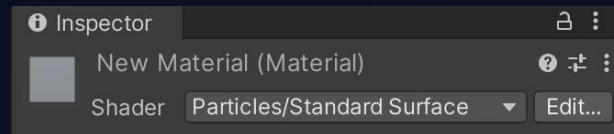
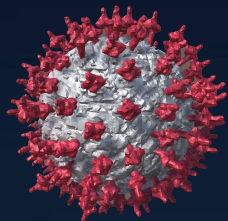
GETTING STARTED

HOMEWORK 1



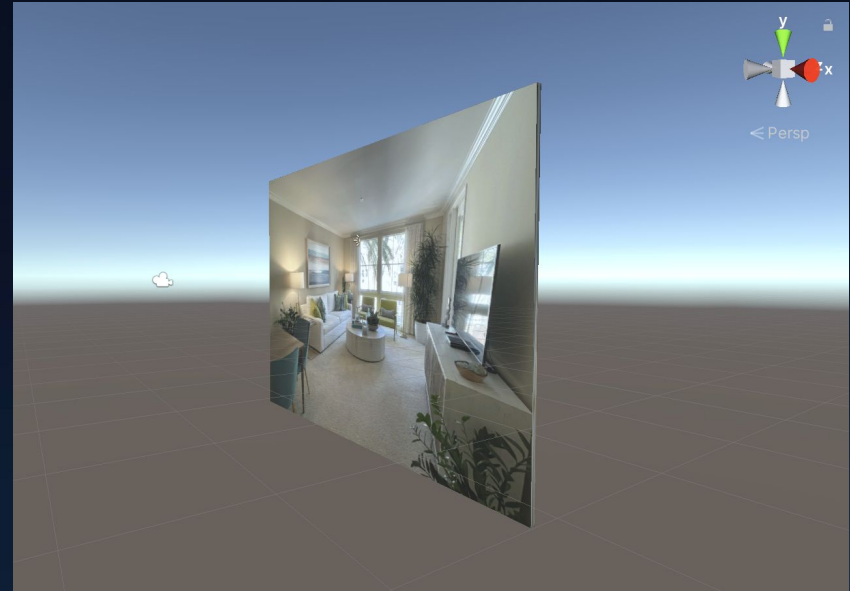
Import Coronavirus Model

- Use the fbx model linked on Campuswire
- Create a new material from Assets menu
- Choose “Particles/Standard Surface” as the shader
- Select the newly created material in the object Inspector, under “Mesh Renderer”



Create Backdrop

- Create a thin box
- Take photo and import to Unity
- Drag the photo to the box



Create C# Script

- Dynamically modify GameObjects
- Implement game logic
- Create via the Asset Menu
(Asset -> Create -> C# Script)
- Attach the script to GameObject
Inspector -> Add Component ->
Search for newly created script

```
1  using System.Collections;
2  using System.Collections.Generic;
3  using UnityEngine;
4
5  public class CursorBehavior : MonoBehaviour
6  {
7      // Start is called before the first frame update
8      void Start()
9      {
10
11      }
12
13      // Update is called once per frame
14      void Update ()
15      {
16          Debug.Log("Hello World!");
17      }
18  }
```

Example



Resources

Triton XR Unity Google Drive

<https://drive.google.com/drive/folders/0B0TPLmj3665lYXI5ZjFE0Xg1Q3M>

Triton XR Unity Learning Guide:

<https://docs.google.com/document/d/14h0Z3iqhLpOdTrBAIcml5S5TLEMxbA6P5QtxvuBApwU/edit>

Unity Scripting API:

<https://docs.unity3d.com/ScriptReference/>

Google :)



QUESTIONS?

