CSE 566 Virtual Reality
Spring 2019
Prof. Arie Kaufman

Assignment 0: Mini Tutorial for Unity
Credit: 0% of final grade.
Due date: Tuesday, February 19, 2019, 11:59pm, Stony Brook Time.
Completion of this assignment by the due date is required.

Unity3D is a cross-platform game development engine for 3D games and 2D games, as well as for virtual reality and augmented reality. In this course, we will design and develop our projects in Unity.

1. Installation and getting started

(1) If you are a beginner in Unity, it is strongly recommended to check out Unity manual (Chapter Working in Unity) to get started. (Must-read chapters: Getting Started, Asset Workflow, The Main Windows, Creating Gameplay, Editor Features)

(2) Installation recommendation:
We suggest that you install the latest Long Term Support version: LST Release 2017.4.
During installation, you will have to create an account with Unity. Since you will be required to deploy your projects on a mobile device, depending on the mobile platform you plan to use (iOS or Android), please make sure “Android Build Support”/ “iOS Build Support” and “Vuforia Augmented Reality Support” are marked as installation components during installation as shown in Figure 1.

(3) Mobile development environment:
Since we are going to deploy our project in Android or iOS platform, it is necessary to set up your development before starting to build your application.

- Unity development environment settings for Android can be found in here (check the tree hierarchy on the left in the linked page).
- Unity development environment settings for iOS can be found in here (check the tree hierarchy on the left in the linked page).
- Google Cardboard SDK for Unity. Please follow the instructions on this link to download Cardboard SDK for Unity and configure settings. Relevant sample projects and API guides are also provided in Google Developers.

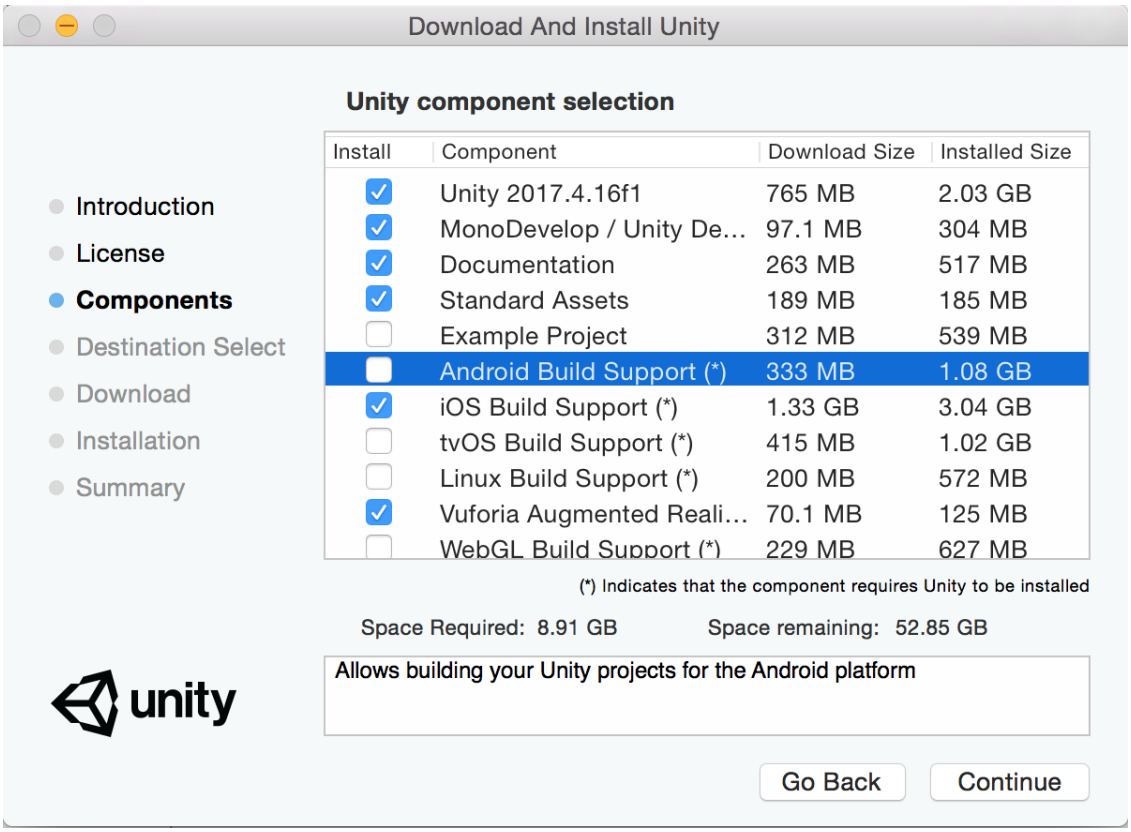

Figure 1

2. Working with Unity

(1) Programming language: It is suggested that you work in Unity with C#. It is still possible that you develop your project with UnityScript (also known as JavaScript for Unity) or Boo, but you need instructor prior permission for that. Please specify your programming language when you submit your code for homework or the final project.

(2) Project backup: It is suggested that you update your project in Unity Cloud Storage. This is helpful for both backup and project collaboration in the future.

3. Beginner tutorial links

The following tutorials can help you to have a jump-start:

Unity official tutorials for beginners

A good tutorial blog (you can find more in this blog)

*Some tips for working with Unity

- You can find shortcuts and hotkeys in Unity from The Main Windows.
- To estimate the performance (e.g., framerate) of your application, you can simply enable Stats in Game view as shown in Figure 2.

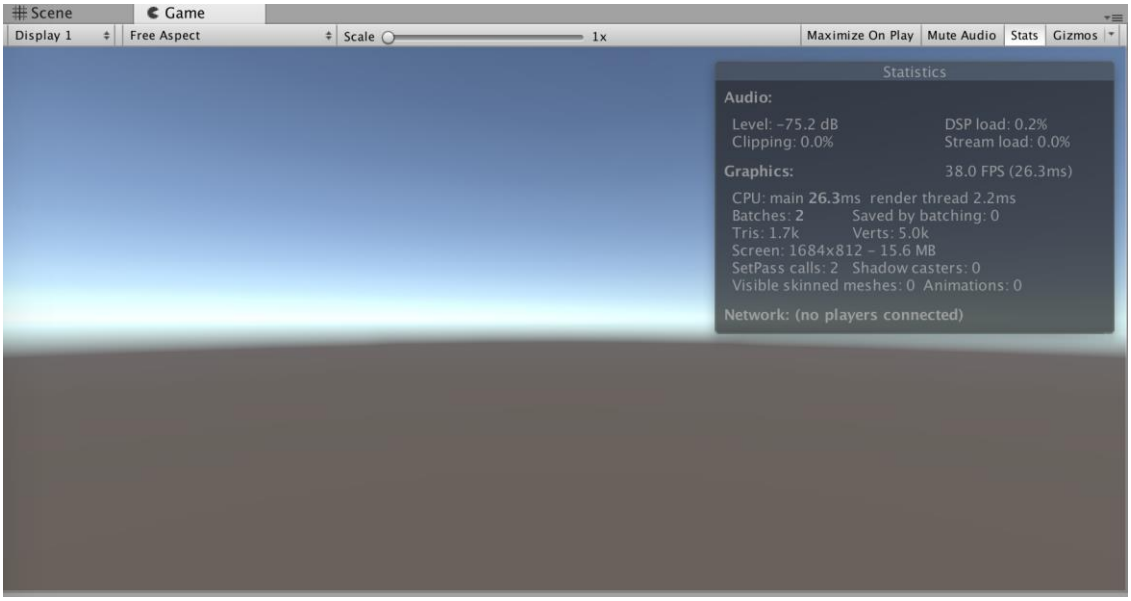

Figure 2

The more detailed analysis of project performance can be found in Profiler; you will find it very useful when you encounter unexpected drop (e.g., frame rate drop) in runtime (check this manual).

- Project backup and collaboration
  For every personal account, Unity provides 1GB cloud storage for collaboration (check this manual). Although you should not and will not collaborate with other classmates for the assignments of this course, it is always a good habit to backup your assignments and data frequently and this cloud storage can be helpful. Furthermore, you will collaborate with other team members for the final project, and you will find this cloud storage very useful for collaboration.
- Debug and Console Window
  Console Window can display plenty of useful information (check this manual). It is worth noting that there are several buttons on the top of Console Window as shown in Figure 3. Please try these buttons yourself in order to see how they can help you.

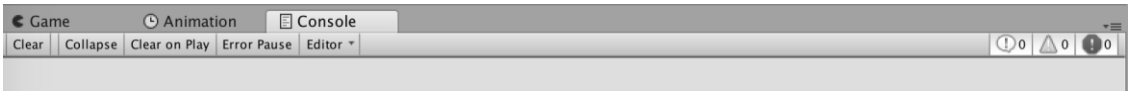

Figure 3

To aid with debugging, you can show your own messages in the Console using the Debug.Log, Debug.LogWarning, and Debug.LogError functions. To learn more about Unity log files, please check this manual.

- Search assets for your projects
  In each homework and project instruction, we will provide you with recommendations of assets (including models, textures, materials, and external packages). Most of the time the recommended assets are available in Unity Asset Store for free. However, these assets are not mandatory yet we encourage you to use your favorite assets as long as your work achieves the requirement in the instructions and the assets are not copyrighted and you use these assets legally.