

A short tutorial to various technologies used in
this course

Computer Game Technologies

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Engineering

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1 Installing Unity

This course will guide you through the basics of game design. We will use Unity as the engine for exercises and the final project. Unity is a cross-platform game engine used to develop games and simulations for computers, consoles and mobile devices. Both 2D and 3D graphics are supported, and you can also develop virtual reality. The university has a subset of consoles, mobiles and even a VR Oculus Quest if you want to try out your very own games.

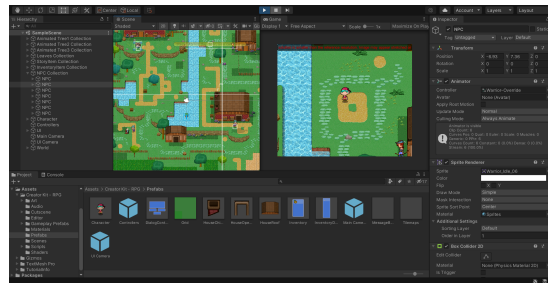


Figure 1: Unity in action

You are most likely familiar with a lot of games created in Unity, among which you can find everything from Among us, Fall Guys, Hearthstone, Cuphead, Subnautica and Rust. To get started, you will have to install the Unity Hub, create a Unity ID and download a Unity Editor. Once that is done, all that is left is to realize your own game ideas.

1.1 Unity Hub

The first step is to download Unity Hub. This will allow you to manage your Unity project, switch between different Unity versions and find tutorials on various subjects. The tutorials are easy to follow and range in everything from FPS, RPG to microgames. More on tutorials follows later in this document.

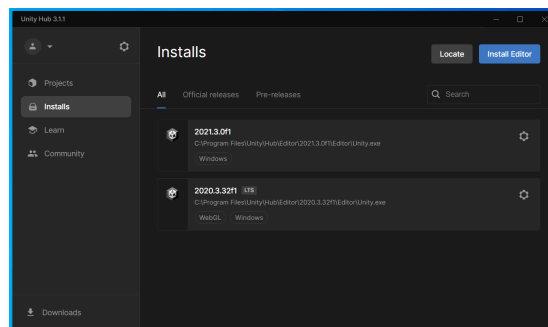


Figure 2: Unity Hub, with two installed Unity versions

To download Unity Hub, go to <https://unity.com/download>. On the download site, it is possible to choose downloads for Windows, Mac or find instructions for Linux. Once your Unity Hub is installed and ready, you can install a Unity Editor.

1.2 Unity Editor

In the unity hub, choose installs in the left side panel, and then click "Install Editor". It is best to choose a version marked with LTS (Long Term Support). Modules can be added to support Mac, Android, IOS and Linux builds of your projects. Note: If you already have a visual studio version, then you can deselect the Microsoft Visual Studio Community 2019 option.

To install the packages needed for script editing in visual studio, you run the visual studio installer and click modify on the existing installed version you want to use.

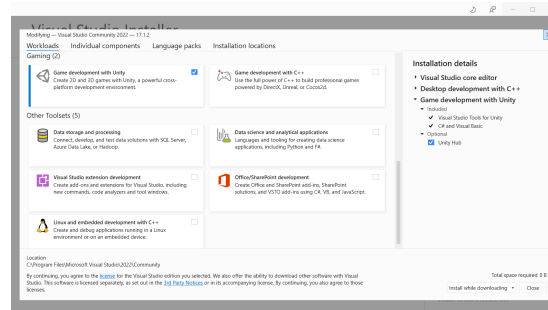


Figure 3: Run "Visual Studio Installer" and click modify. Find the package called "Game development with unity" and click Modify in the bottom right corner

2 Getting started with Unity

To get started with Unity it is highly recommended to find a tutorial or a demo that can show you the ropes when beginning your Unity Journey.

One creator that guides new users towards a better understanding of Unity is called Brackeys. On his YouTube channel you will find various introductions to Unity, where it is recommended to follow his "How to make a Video Game - Getting started" tutorial. This tutorial takes you through 11 videos, ultimately resulting in a small functional video game. The videos will guide you through topics such as getting started, programming in unity, movement, camera, collision and game play.

<https://www.youtube.com/watch?v=j48LtUkZRjU&list=PLPV2KyIb3jr5QFsefu02RlAgWEz6EvVi6>

Note on script editing: You can configure Unity to use Visual Studio or another editor, by selecting Edit > Preferences in the unity Editor. Then select

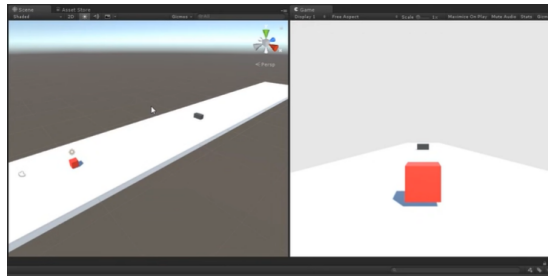


Figure 4: A scene and game view from the tutorial from Brackeys

the External Tools tab, and change the External Script Editor to the preferred Editor.

2.1 Student plans for Unity

Unity provides students with gain access to various functionality otherwise not included. This is not strictly necessary, however it does provide some nice functionality for larger projects. <https://unity.com/products/unity-student> Choose the option of Post-Secondary students, sign in with your unity ID and follow the steps to link you're AU mail with the unity account.

2.2 Version control in Unity

There are multiple ways of setting up version control for Unity. You should be familiar with Github already and it is possible to setup with unity as well. Our good friend "Brackeys" has a tutorial, that is a bit outdated but still works. (with small changes, ie. in the project settings, version control is its own tab now, separate from the Editor tab.)

<https://www.youtube.com/watch?v=qpXxcvS-g3g>

However if you are including very large files to your Unity project, it may be interesting to look at PlasticSCM or git-LFS(large file storage). PlasticSCM with the student plan supports up to 25 GB for free. <https://unity.com/support-services/redeem/plastic-scm> <https://github.com/git-lfs/git-lfs/wiki/Tutorial>

2.3 demos and tutorials

There are many tutorials available directly through the Unity Hub aswell. Simply click the learn tab and try it out yourself, or go to <https://learn.unity.com/> to see more.

For various demo's of what you can also do in Unity, you can visit <https://unity.com/demos>.

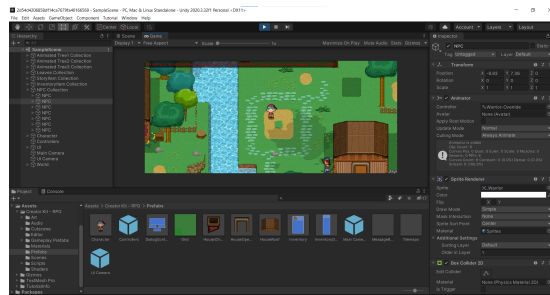


Figure 5: Example from the Unity Creator Kit - RPG

2.4 Unity Assets

A Unity Asset is what is used to refer to items that you can use in your own unity projects. It can be everything from character models to environments, as well as audio or images. The Unity Asset store is a library of assets, that include both free and purchase able assets for your own use. If you are a great programmer but a poor designer, this may be the way to avoid having to spend countless hours on designs. The top free assets in the Unity Asset store can be found and <https://assetstore.unity.com/top-assets/top-free>. It is also worth paying a visit to <https://unity3d.com/quick-guide-to-unity-asset-store>, where links to everything from 3D nature models, 2D characters and even music/audio clips are linked, that you can use for free in your own projects.

With the Unity Student plan, a selection of asset packages are also free. Within these packages various assets such as music, animations, character and environment models are made available for you to use in your projects. It is not something you will use much in your projects through this course, however they may provide inspiration and free to use prefabs. <https://assetstore.unity.com/browse/student-plan-pack>

The voucher for the free student asset packages is included in the email you get, when you set up a unity student plan.