UNIVERSITY OF MALTA
Institute of Digital Games

Creating Virtual Worlds

Lecture 1

Getting Started

Our topics today …

- **Introductions**
  Who are we, and who are you?
- **Virtual Worlds**
  What they are and where to find them
- **Class Structure**
  What we'll do in this course
- **Unity3D**
  Introduction to the software

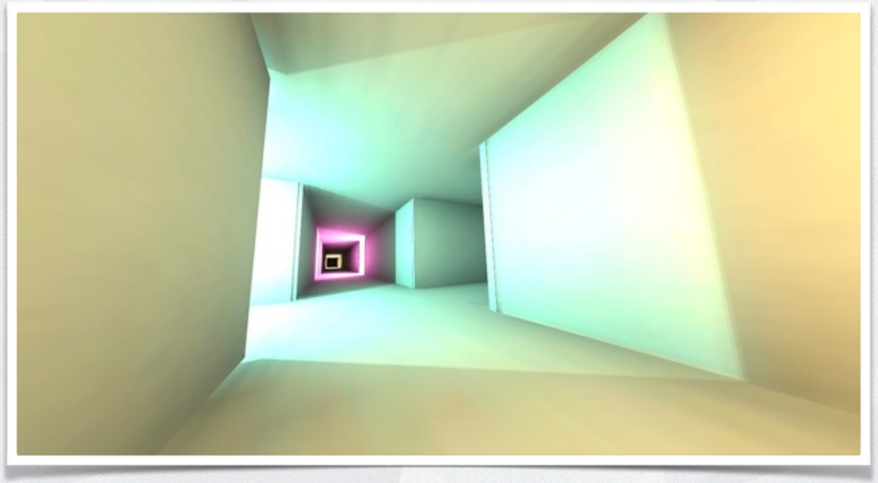
Marcello Gómez Maureira

BSc. in Game Architecture and Design
MSc. in Media Technology
Current: PhD on Curiosity through Games

Isabelle Kniestedt

BSc. in Game Architecture and Design
MDes. in Animation
Current: MSc. in Game Design and Analysis

What We'll Be Doing



Creating **virtual environments** to explore through PC controls and Head Mounted Displays (HMDs)

Conveying a narrative or atmosphere using **basic geometry, colour, lights, and composition**

Give you the basic tools you need to express yourself in this digital medium

Why?

… To express yourself artistically in a new and exciting way

… To learn new skills which are becoming increasingly more important

… To understand technical considerations, support project development in a team, and communicate more efficiently with others

Who are you

… and what brings you here?

Virtual Environments

The most common use of virtual environments (CG) are the movie, television, and video game industries

Often the goal is (stylized) photo realism

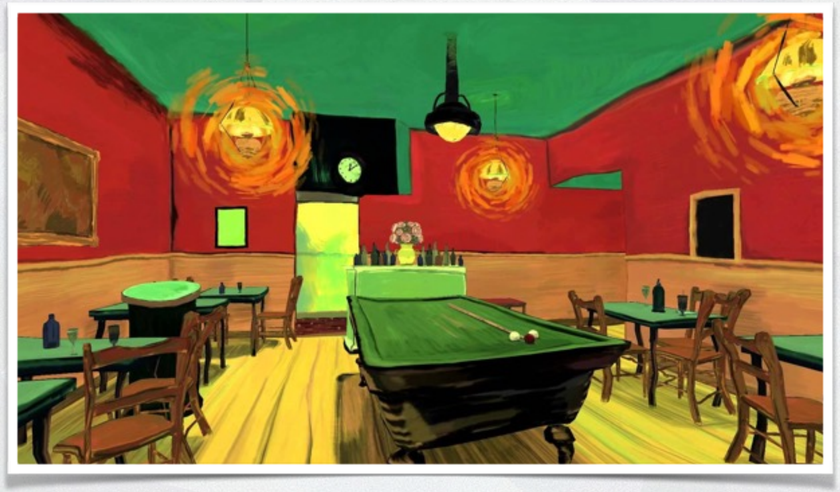
Nothing you see is real!

But environments do not need to be realistic to be interesting (quite the opposite)

Entire worlds can be made from **simple geometric shapes**

This is more common in the video game industry

Environments created for **virtual reality** also show more variety

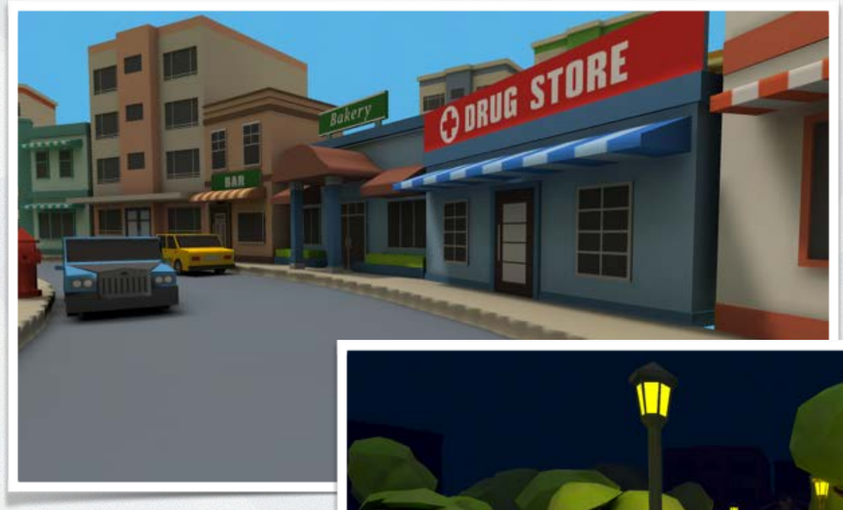


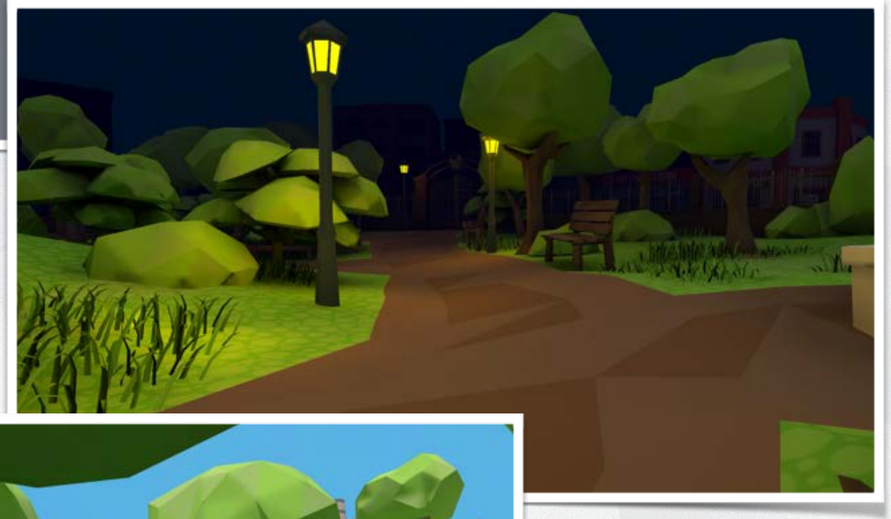
We are not limited to computer generated objects; **video material** can be used to make interesting spaces too

In this course we will see how to make **interesting, explorable** environments

We'll only use **basic tools** and **free materials**

No previous experience needed!





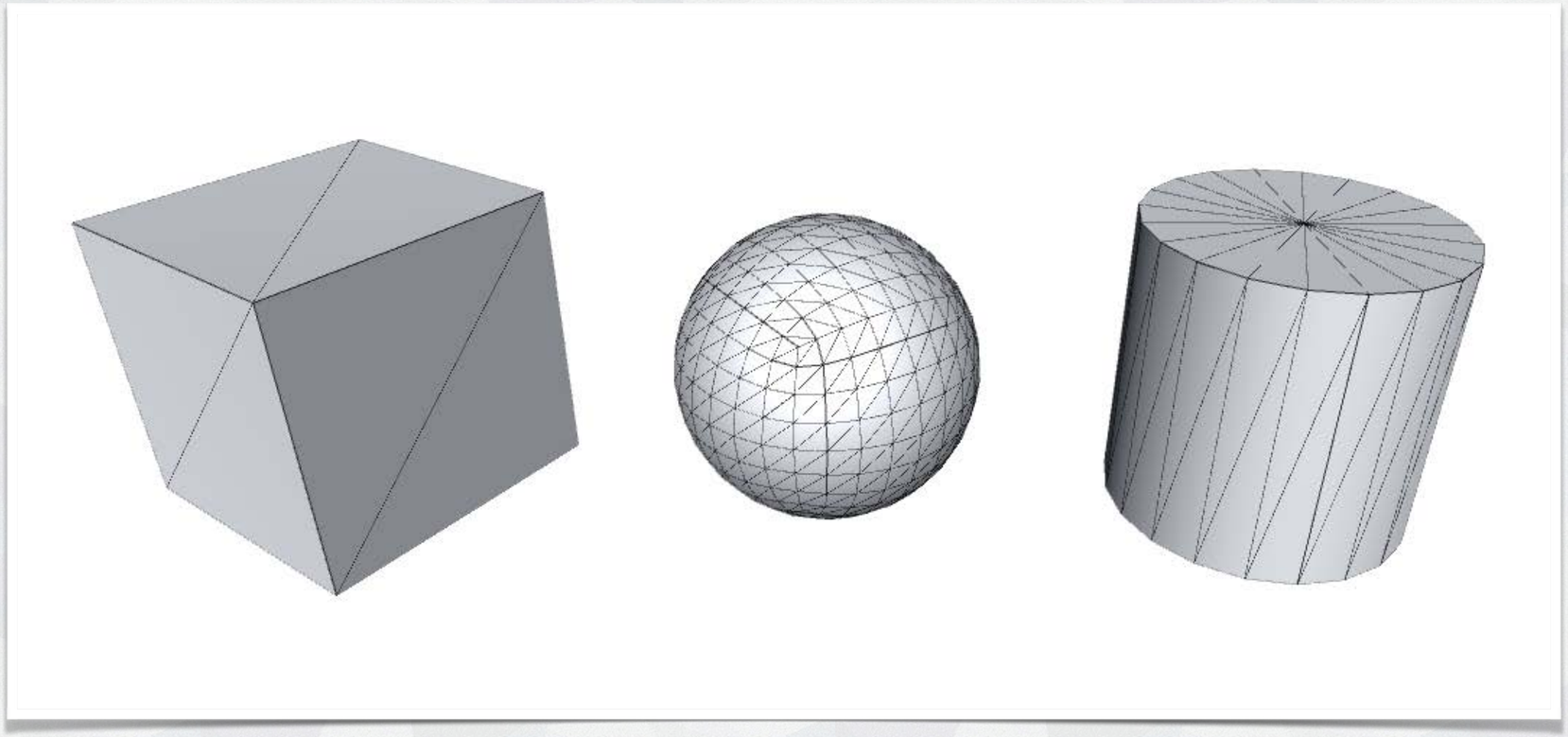
Course Structure

- 8 classes in total
  From today until 9th of December
- Sessions are 2 hours long
  Fridays from 12:00 - 14:00
- 20 Min. review of previous week
  By you!
- 30 Min. theory — break — 1 hour practice
  Today is an exception

Course Assignment

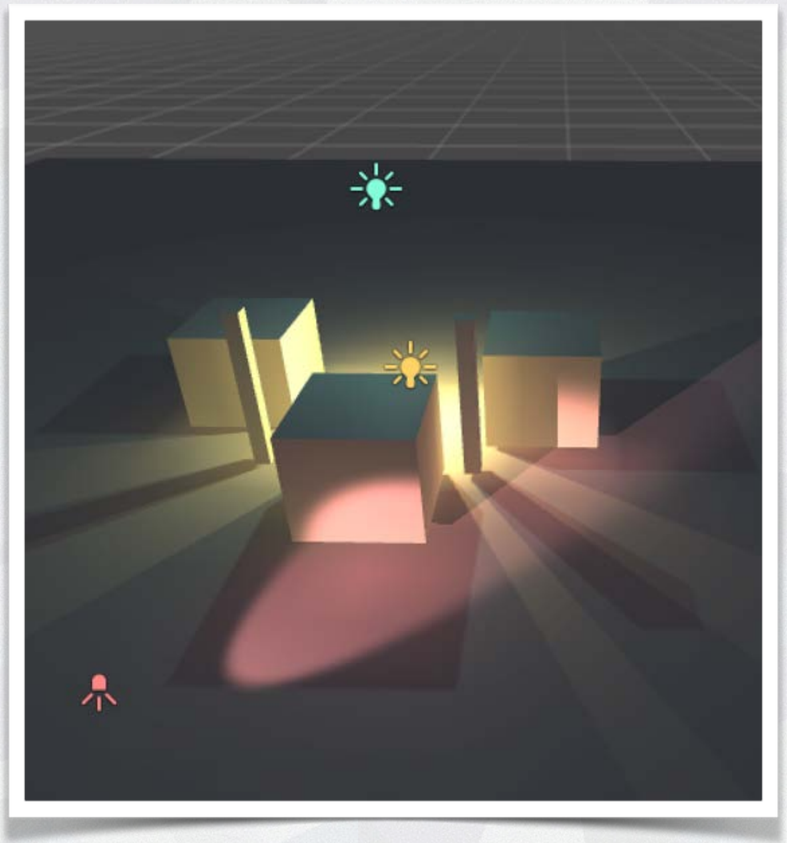
Create a **surreal city** environment in teams of two

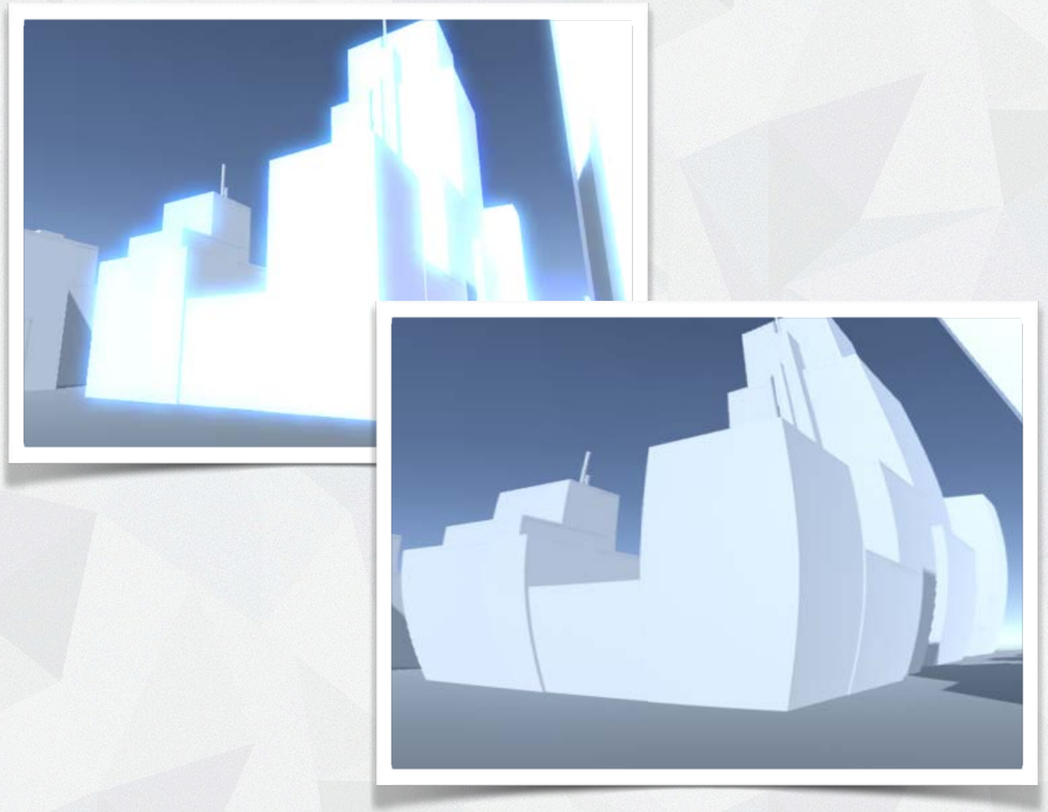
We will start with **basic shapes**, add some **lights** and **texture**, as well as **moving elements** and **interactivity** throughout the course



2: Primitives and Polygons

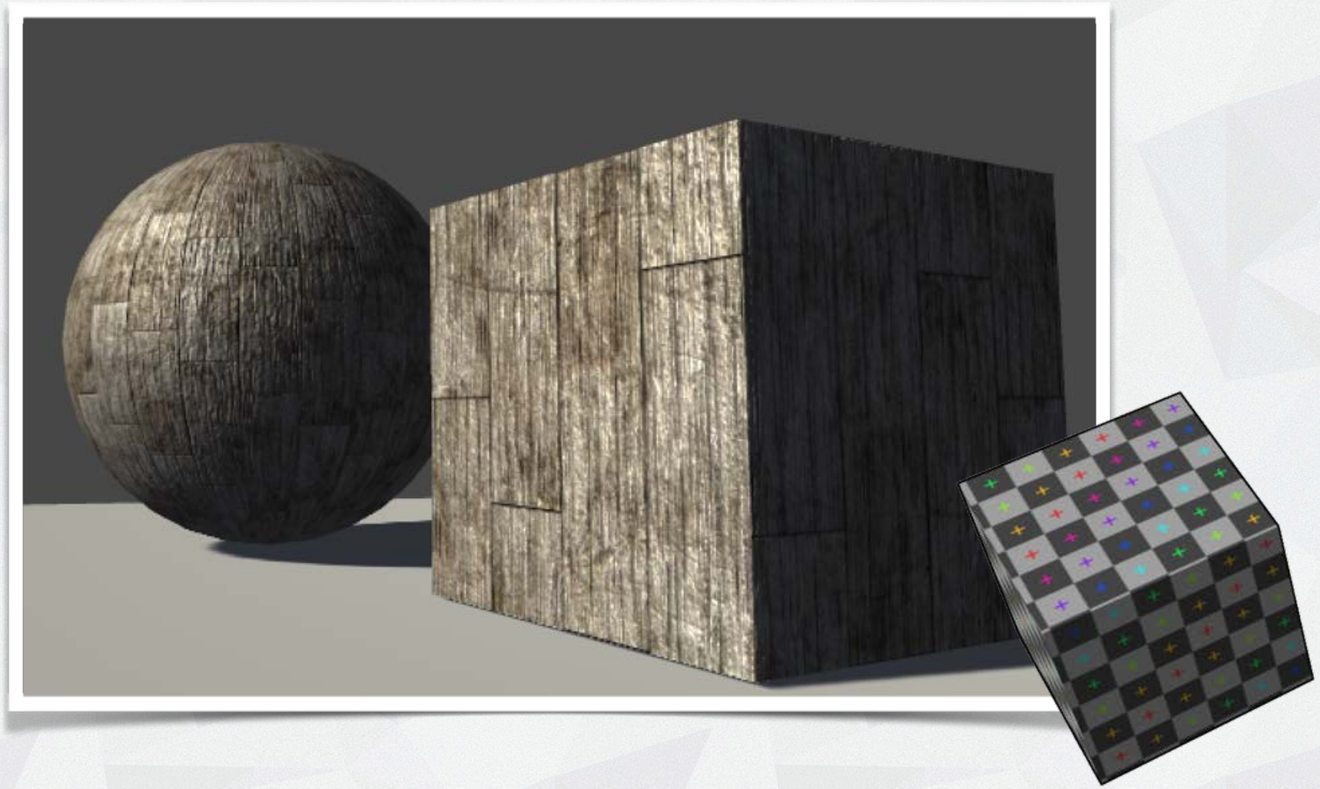
Polygons 101 — Creating and transforming geometry in Unity — Building a city with basic shapes

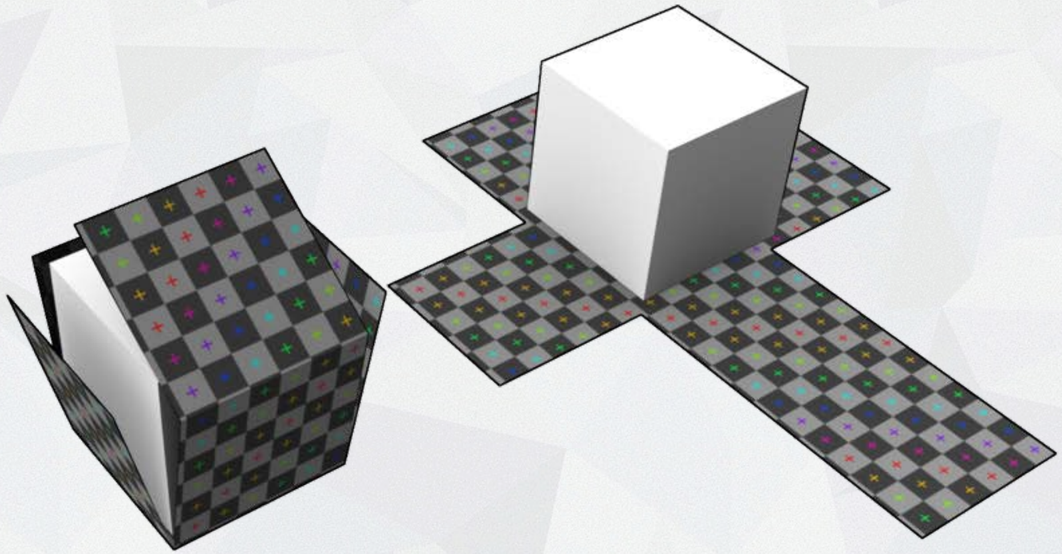




3: Imports, Cameras, and Lights

More complex models — Setting up lights — Basic camera settings — Adding a mood to your city



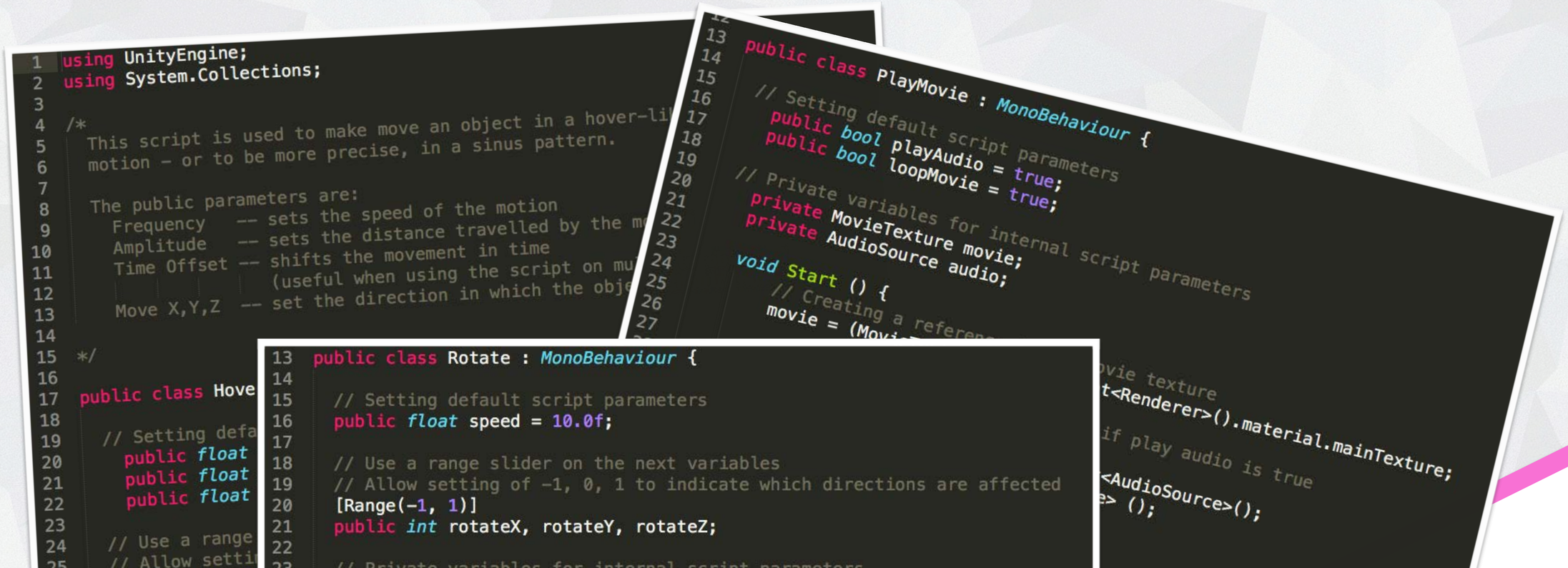


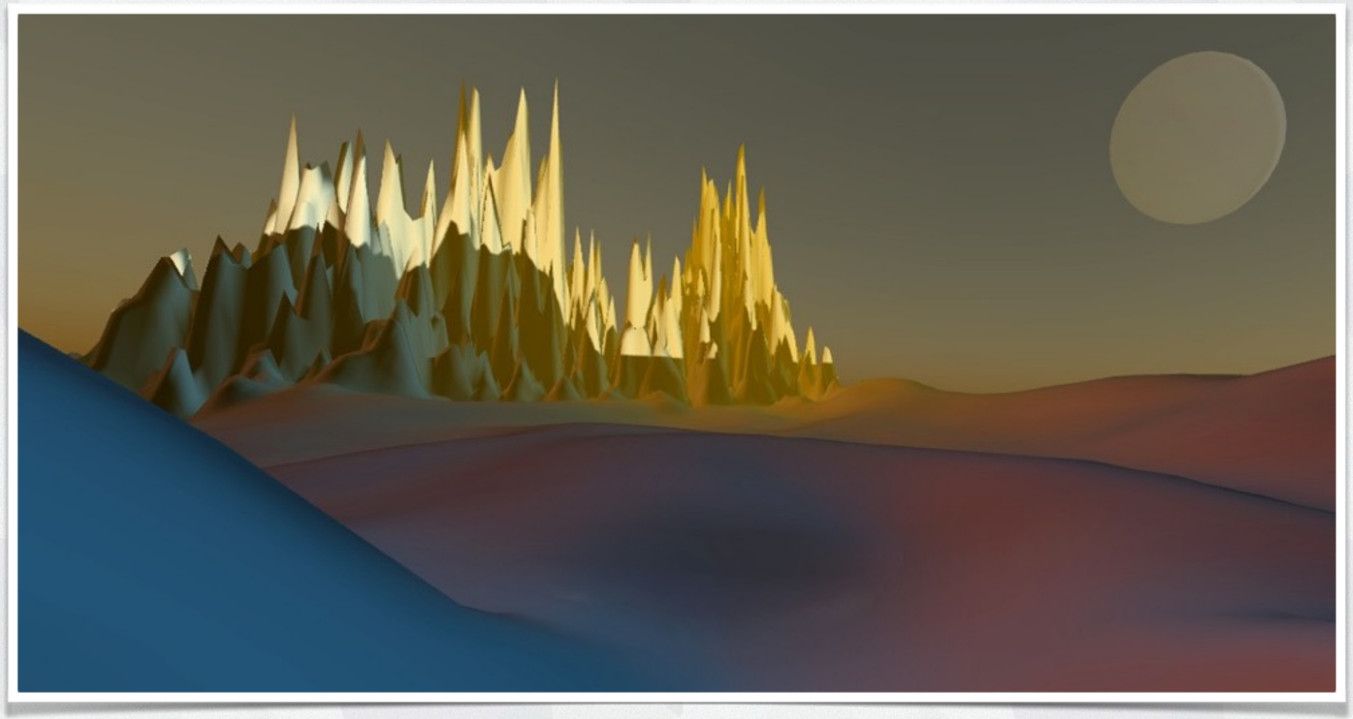
4: Materials and Textures

Surface properties — Creating and adding materials — Texture maps — UV Maps

5 & 6: Unity Scripts and Components I & II

A closer look at components — Programming 101 — Implementing scripts into your scene — Unity Functions — Using the Unity documentation





7: Terrain, Grass, and Particles

Additional tools — Make your scene even more unique

8: Showcase

Where to go from here — Trying out your scenes

Assessment

- **Degree Plus = No grades**
  Course is listed on your transcript when you graduate
- **Attendance is mandatory to pass**
  If you can't attend, mail us before class starts with the reason
- **Try to find some time to practice**
  This will help you in making the most out of this course

Break Time!
Any questions?

After the break:

Unity 101 and opening the program for the first time

Why Unity3D?

- **Widely used game engine**
  Especially by small development teams
- **Good support and documentation**
  Easy to find solutions to issues or how to do something
- **Asset Store & Plugins**
  Many free tools and asset packs, integration of VR
- **Free for non-commercial projects**
  Always a plus for students

Unity 101

- **Project**
  The entire game, simulation, interactive experience, etc.
- **Scene**
  A file in the project; one environment, or “level”
- **Asset**
  File used in the scenes; models, textures, sounds, etc.
- **Put very simply:**
  Projects are made of scenes, populated with assets

Unity 101

Scene View

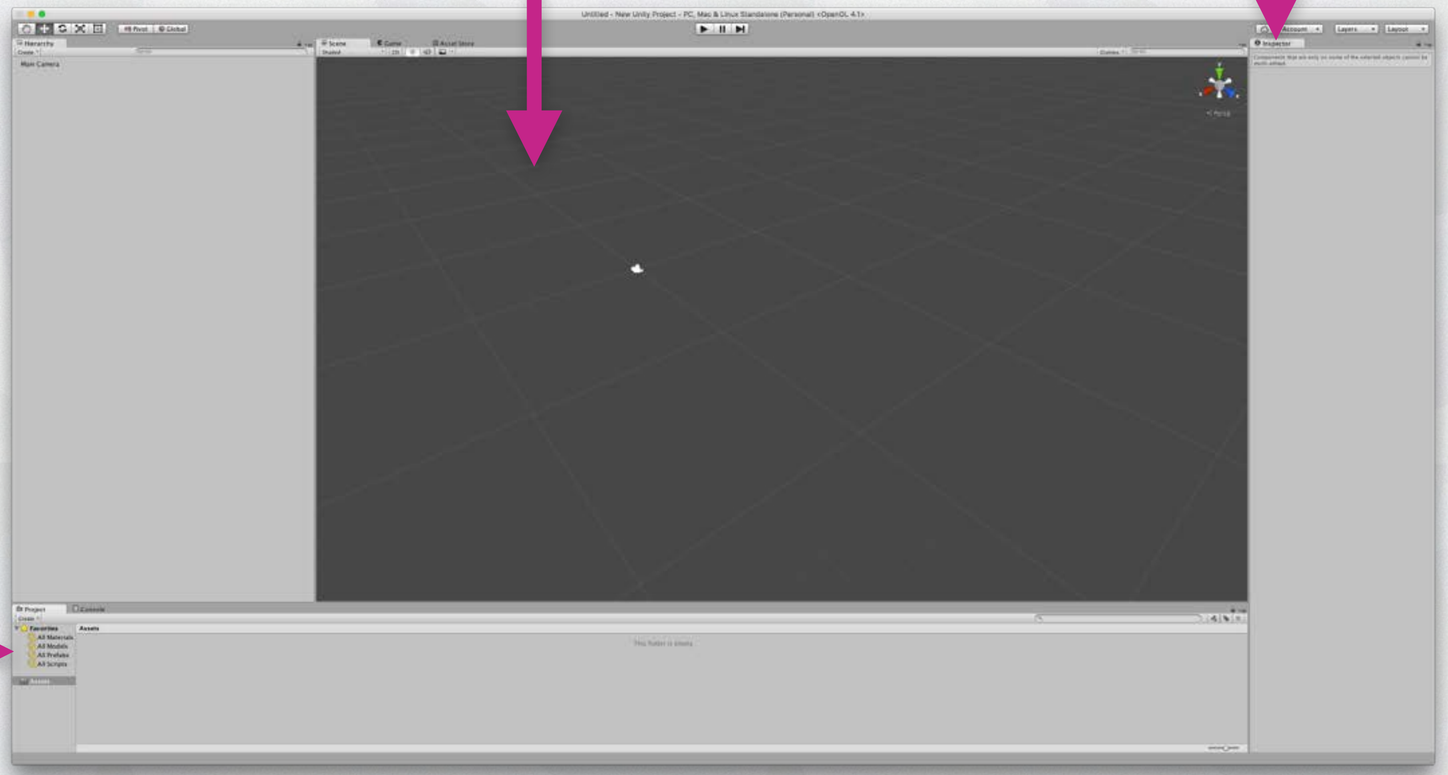
Where you build your environment

Inspector

Shows object details

Hierarchy

Lists all objects in the scene



Project Window

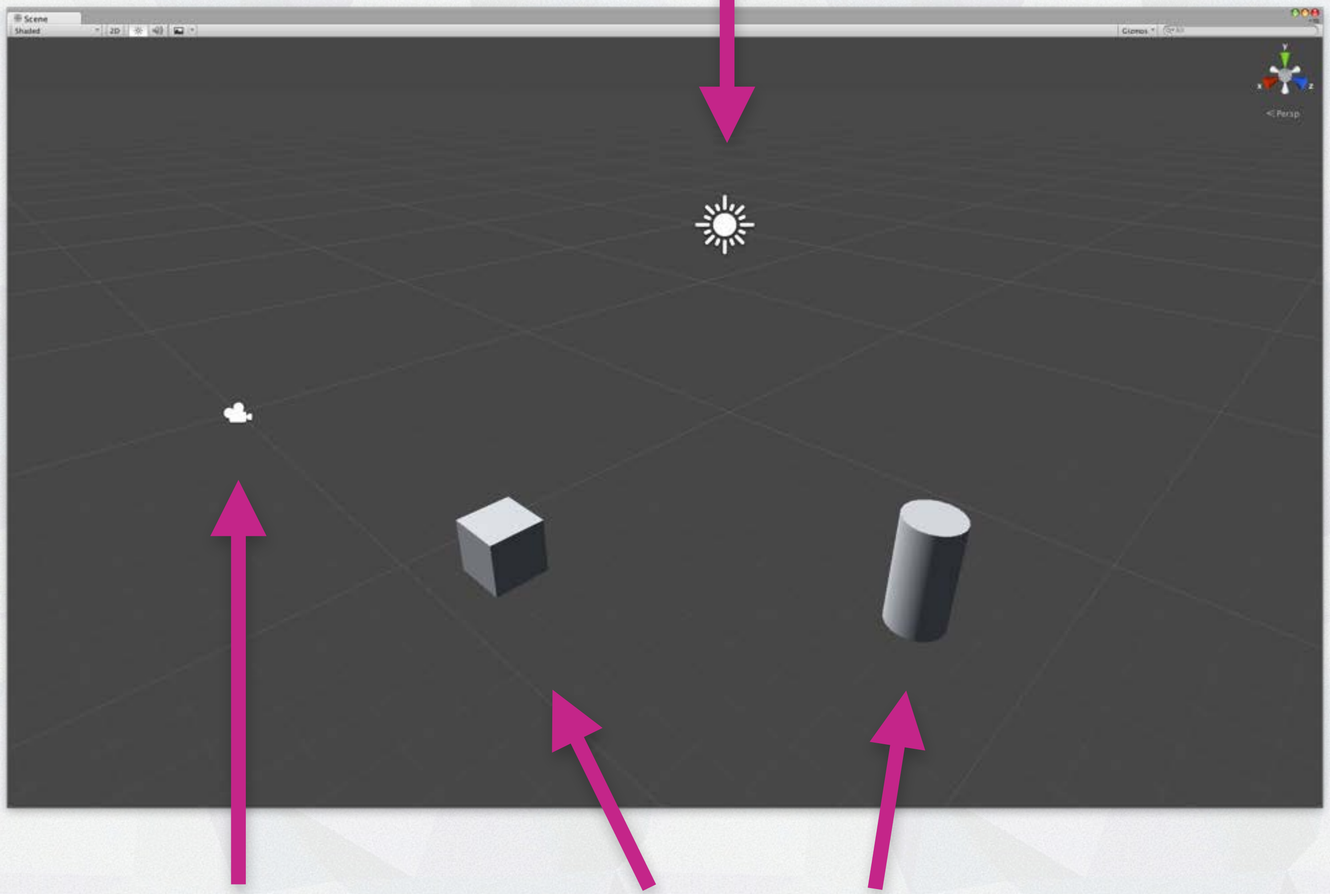
Manage all assets of the project (scenes, models, materials, sounds, etc.)

Scene View

When you **open a scene file**, it shows here

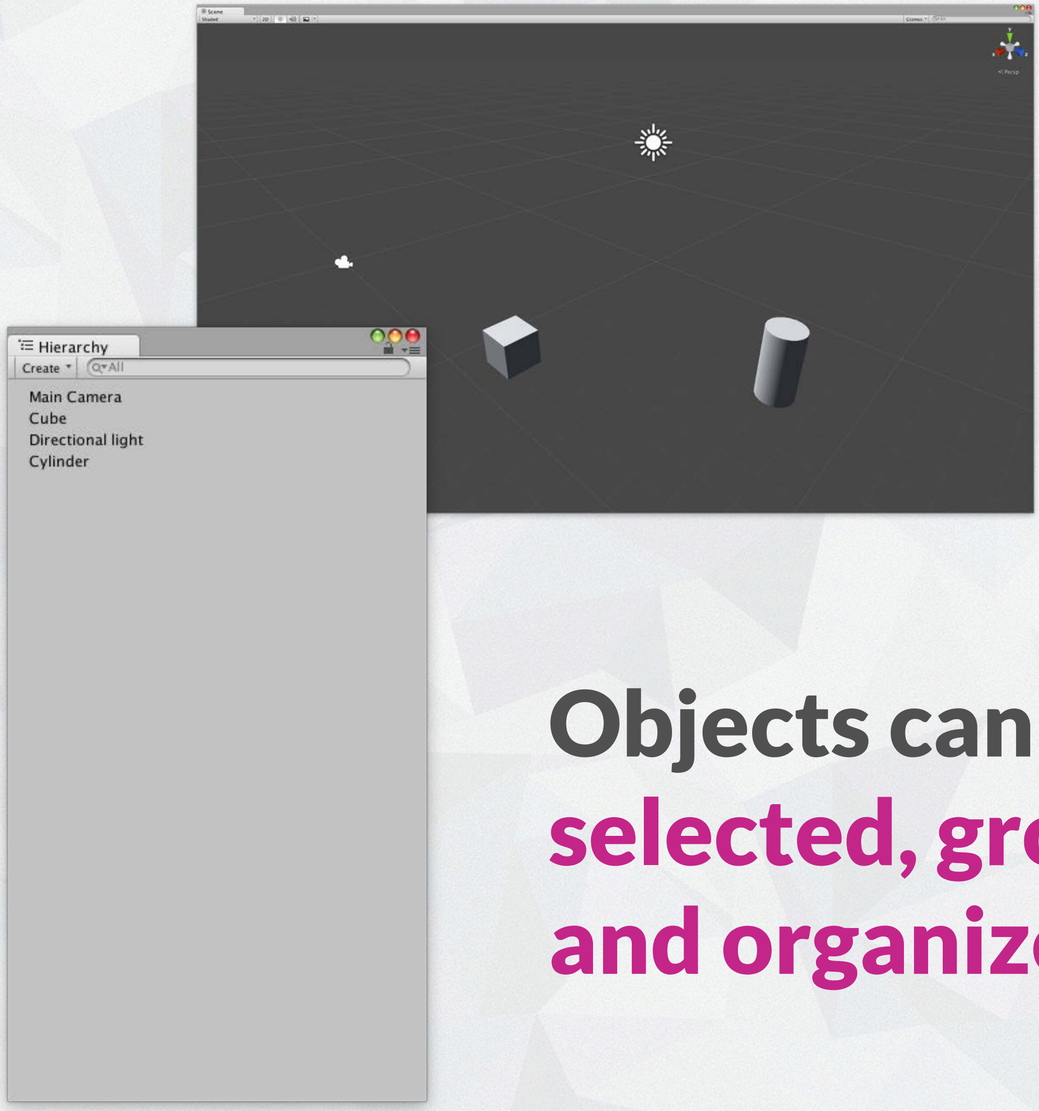
You can **move and position objects** to build your worlds

Most of the work is done in this view



Scene Hierarchy

The Hierarchy **lists all the objects in a scene**



It's **easier to find a specific object** in the Hierarchy than in the Scene View, especially with complex scenes

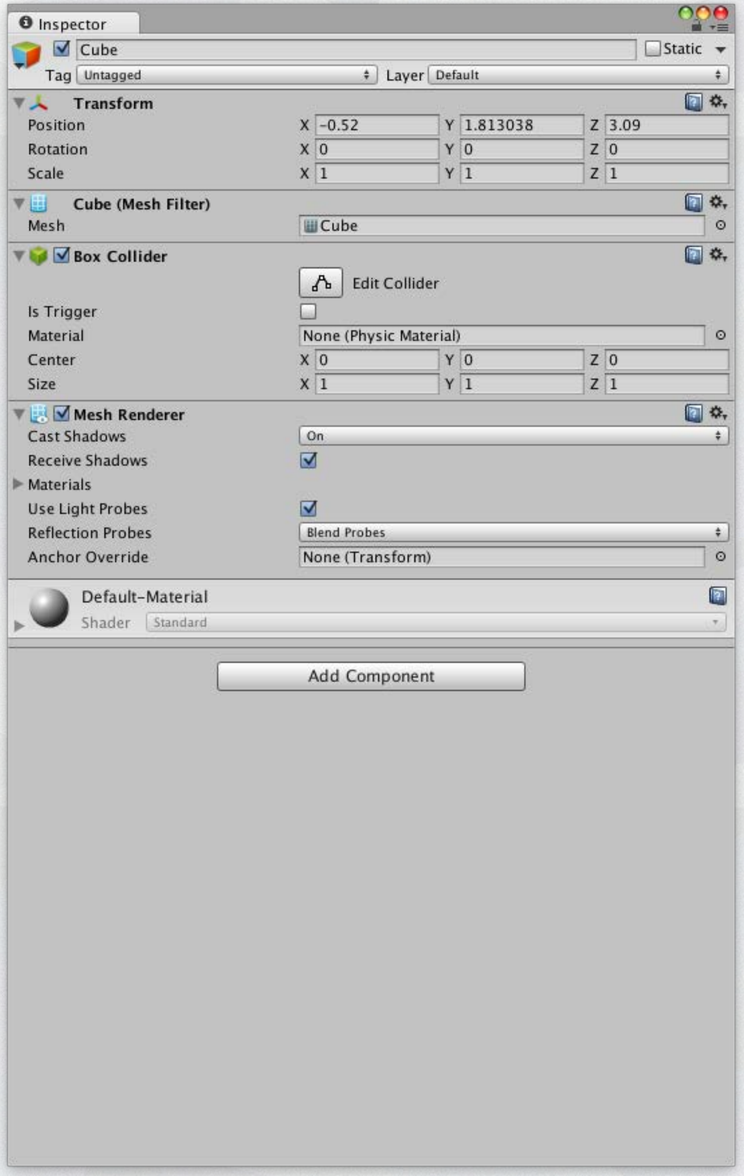
Objects can be **selected, grouped, and organized**

Inspector

The Inspector shows the **details of a selected object**

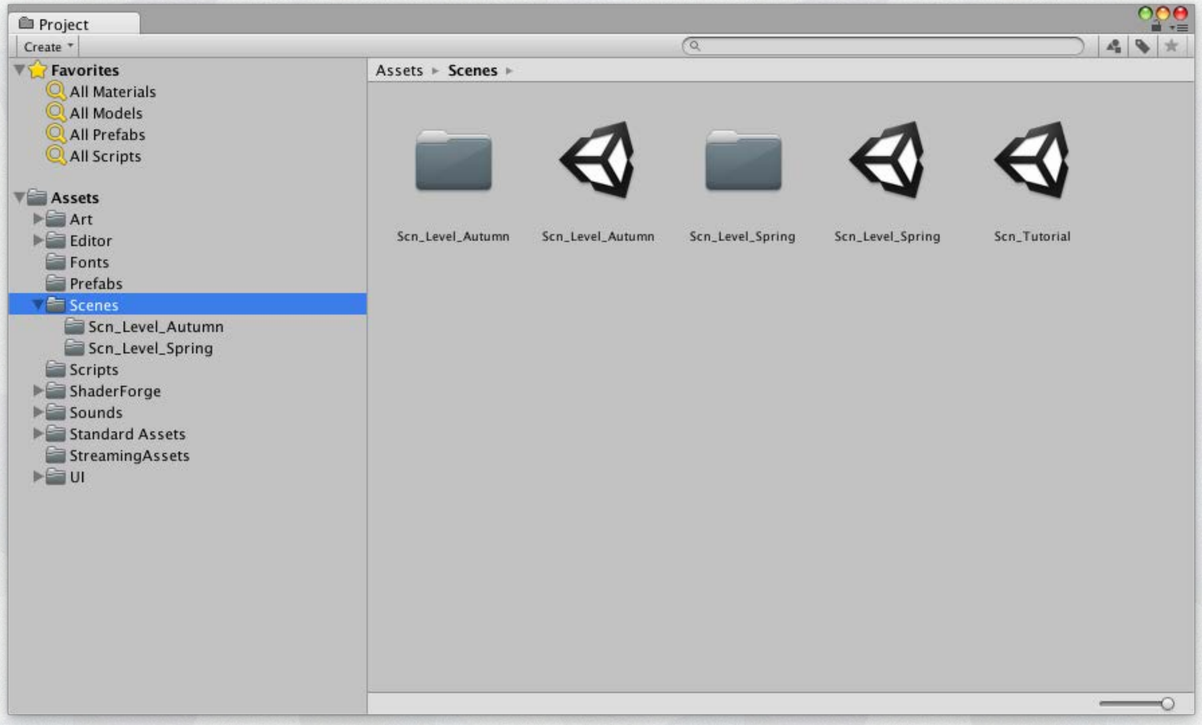
Objects have **components**, which can be accessed in the Inspector

It gives **precise control** over the **parameters** that define an object



Project Window

The Project Window is where we see **all the files that make up the project**



It gives us access to the project folder on the PC

Contains all files; scenes, models, textures, materials, sounds, plugins, etc.

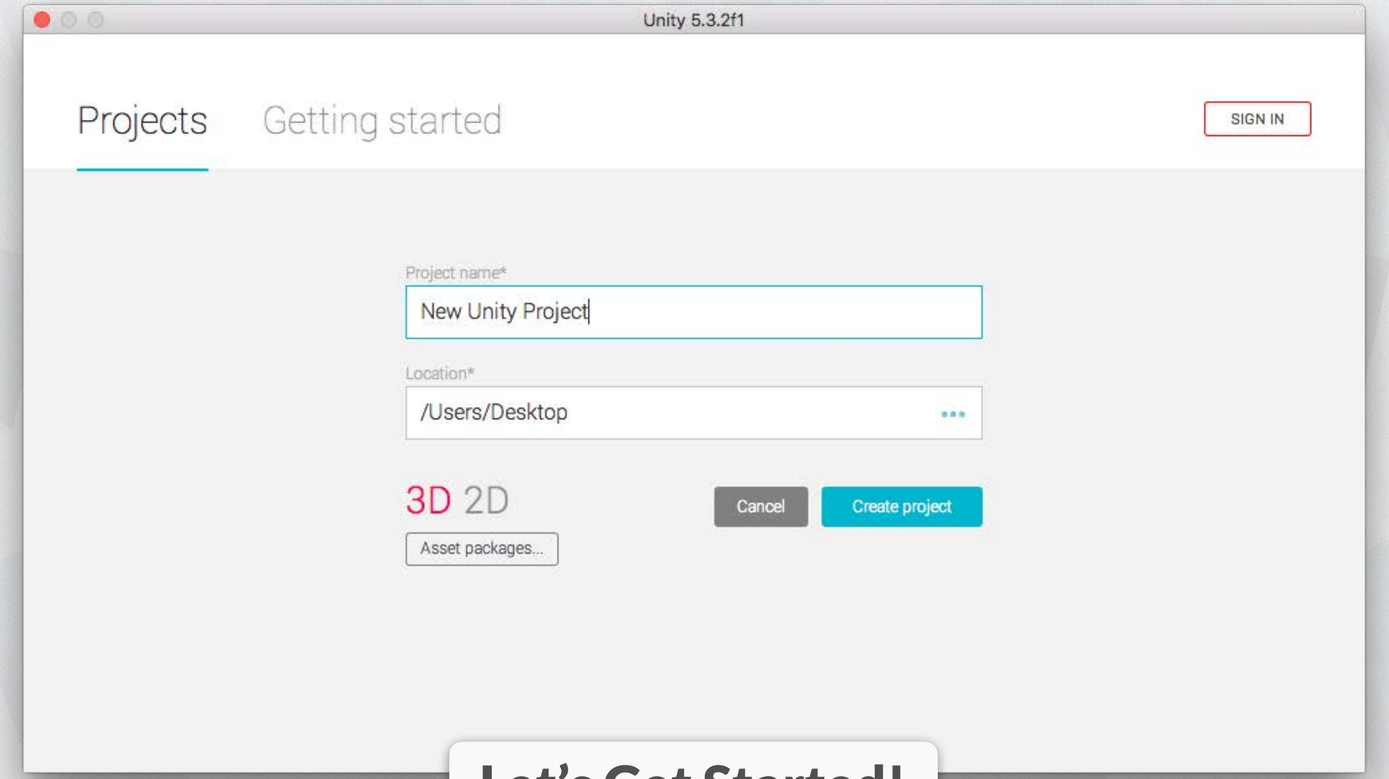
Game View

The Game View allows us to **test our scene**

It will use the **main camera** as its viewpoint

Unlike the Scene View, which is static, **animations and interactions** will work in this view

In Practice



Let's Get Started!

Contact and Class Materials

Course Website: http://virtualworlds.dandyus.com

Course schedule can be found here, as well as class materials uploaded on a weekly basis

Contact: creatingvirtualworlds@gmail.com

Let us know if you can't make it to class, have any feedback, or questions