



# INTRO TO UNITY

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SHADOWGUN Ingame screenshot





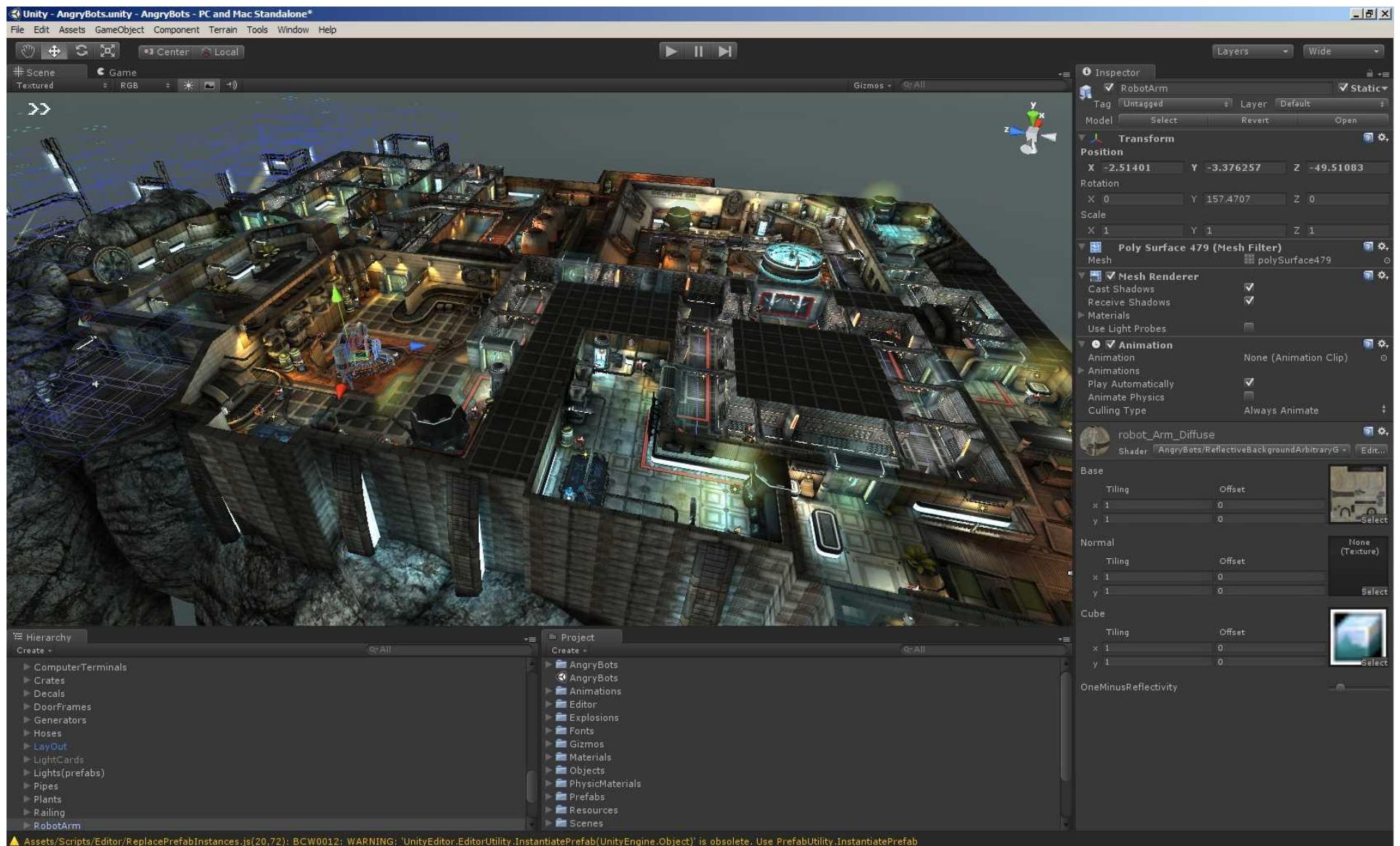
# Unity Show Reel



- <https://www.youtube.com/watch?v=8IWpnnvNxs8k>



# Unity 3D Game Editor



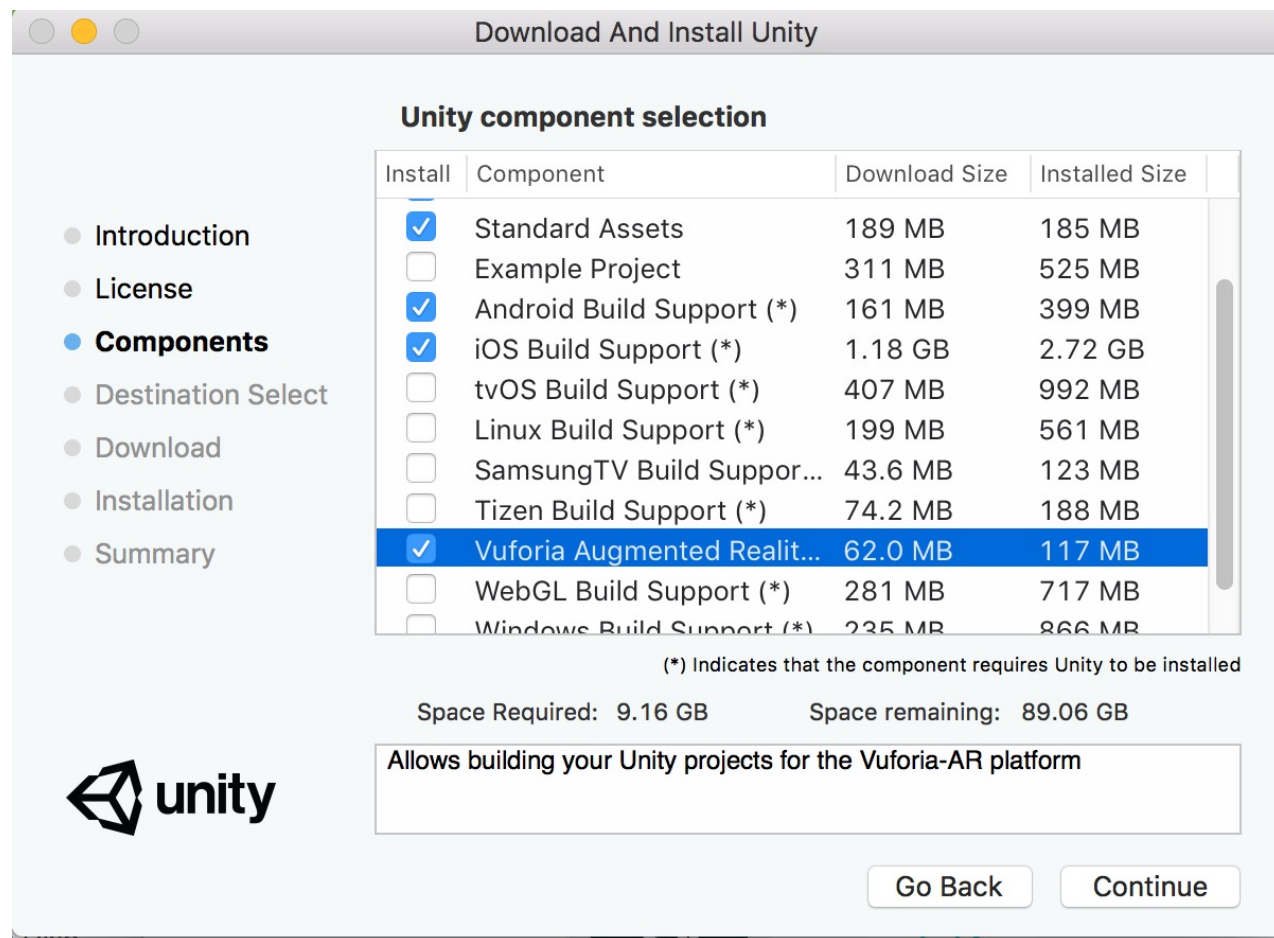


# SETUP

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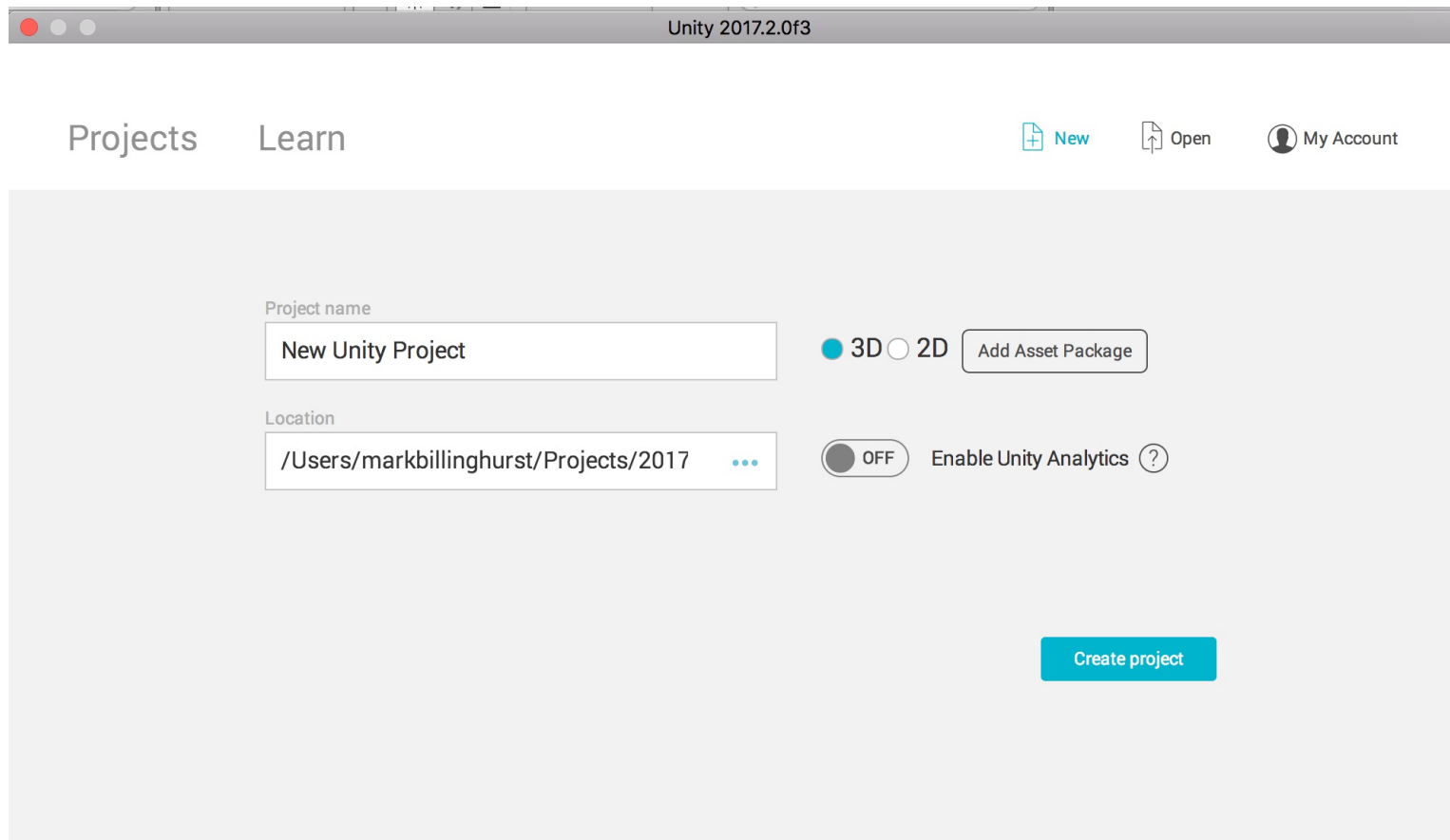
# Download and Install

- Go to [unity3d.com/download](https://unity3d.com/download)
- Use Download Assistant – pick components you want



# Getting Started

- First time running Unity you'll be asked to create a project
- Specify project name and location

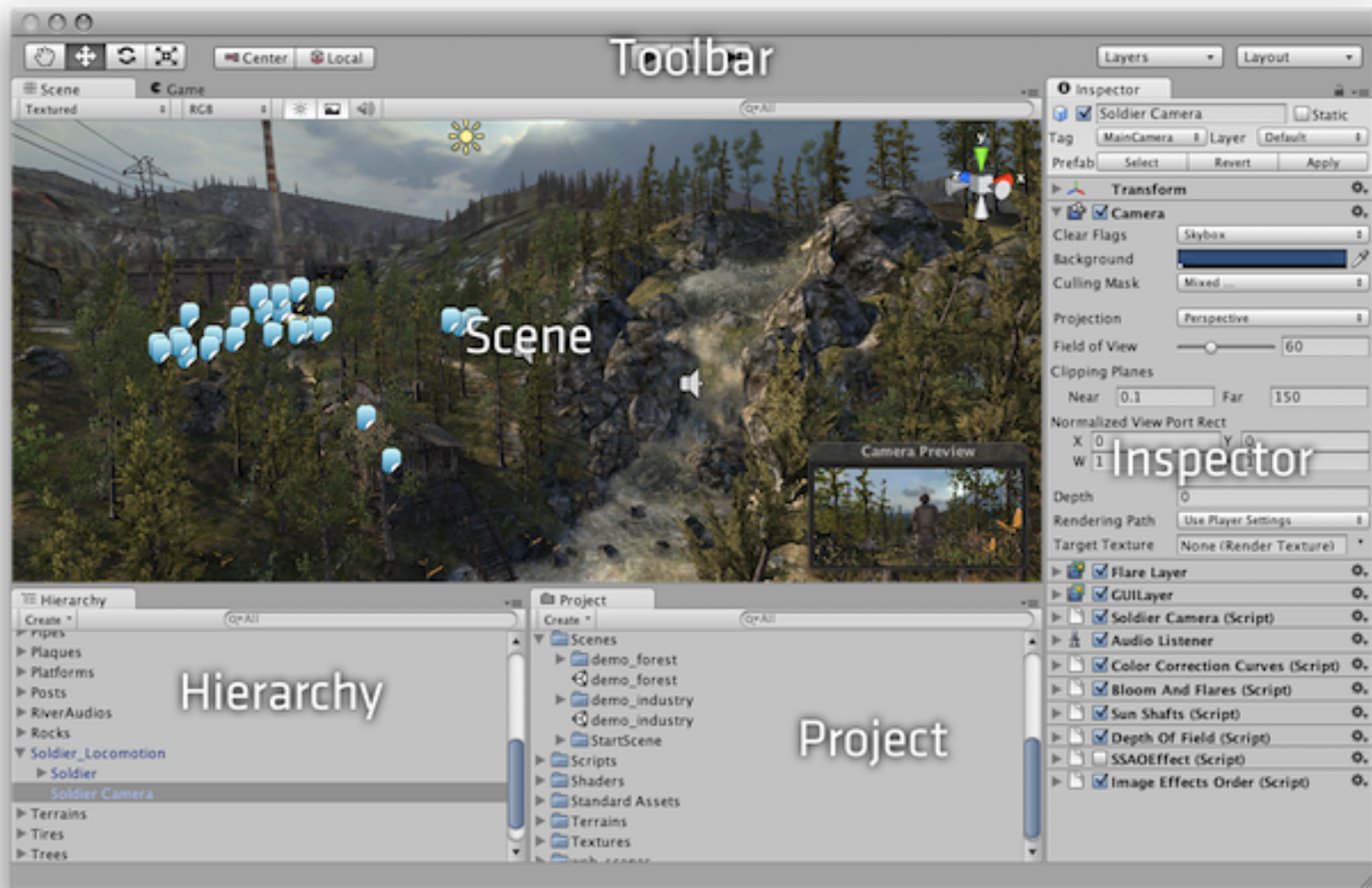


The screenshot shows the Unity 2017.2.0f3 application window. The title bar reads "Unity 2017.2.0f3". Below the title bar, there are navigation links: "Projects" and "Learn". On the right side of the navigation bar, there are three icons: a plus sign labeled "New", a document icon labeled "Open", and a user icon labeled "My Account". The main content area is a light gray background. It features a "Project name" label above a text input field containing "New Unity Project". To the right of the input field are two radio buttons: "3D" (selected) and "2D", followed by a button labeled "Add Asset Package". Below the "Project name" section is a "Location" label above a text input field containing "/Users/markbillinghamst/Projects/2017". To the right of the input field is a toggle switch labeled "OFF" and a button labeled "Enable Unity Analytics" with a help icon (?). At the bottom right of the main content area is a large blue button labeled "Create project".



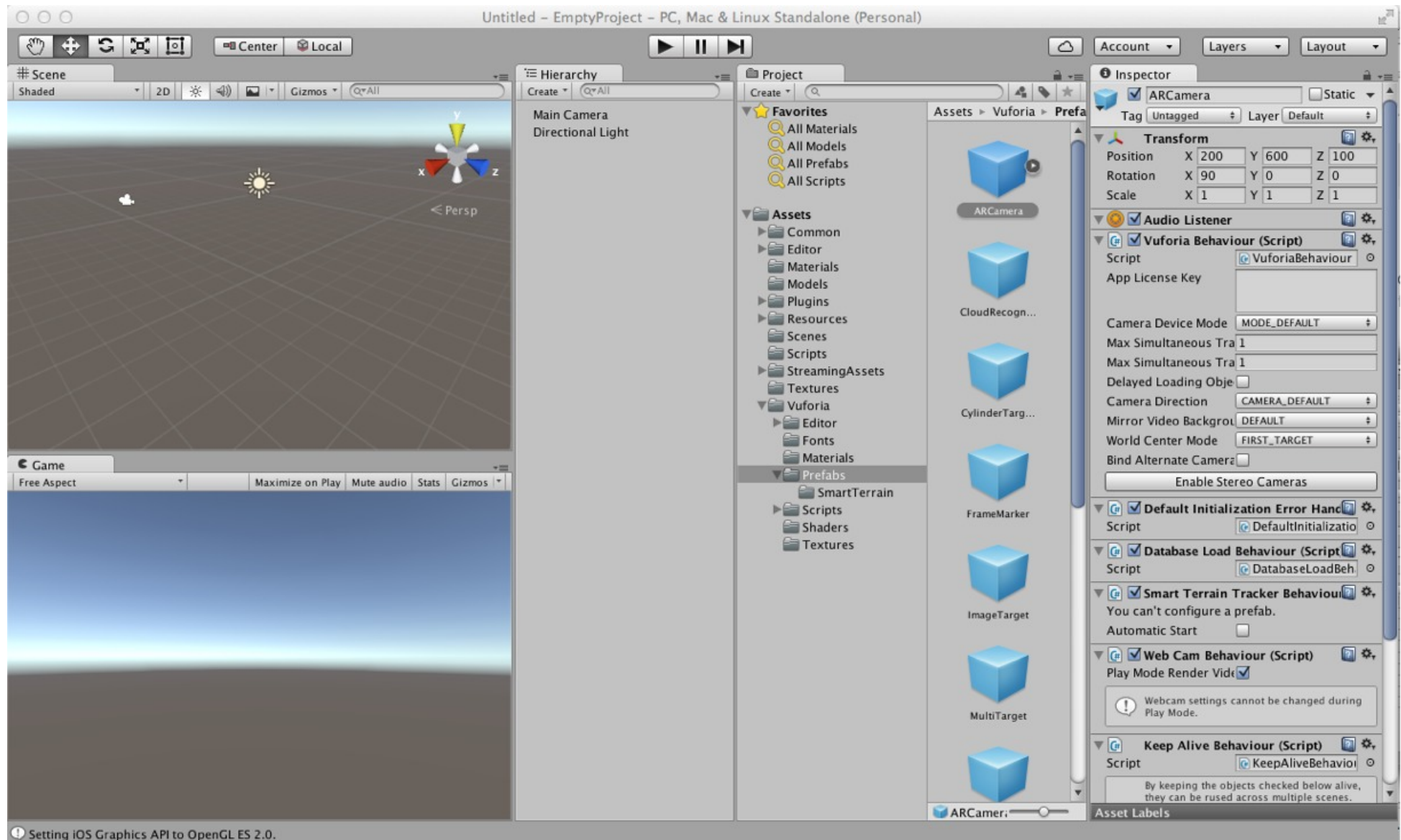
# Unity Interface

- Toolbar, Scene, Hierarchy, Project, Inspector





# Customizable Interface

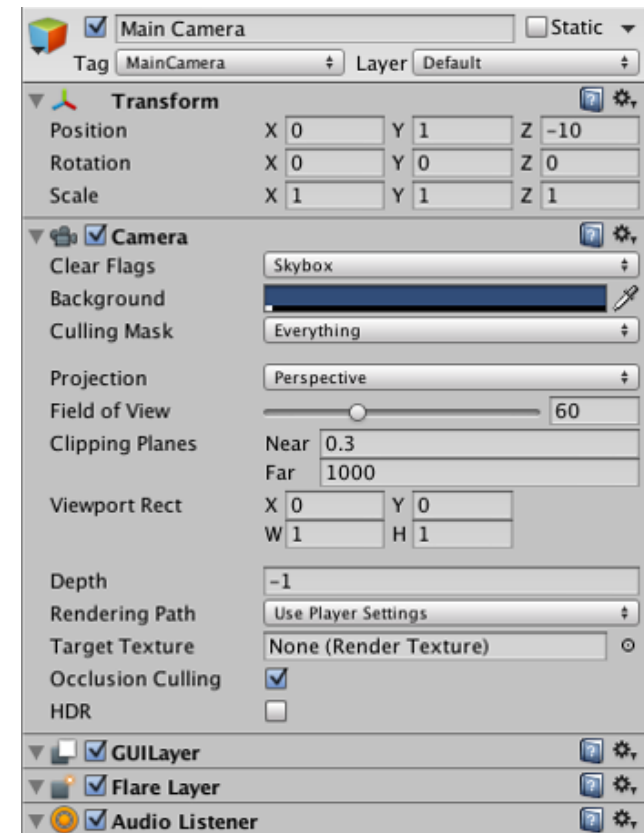
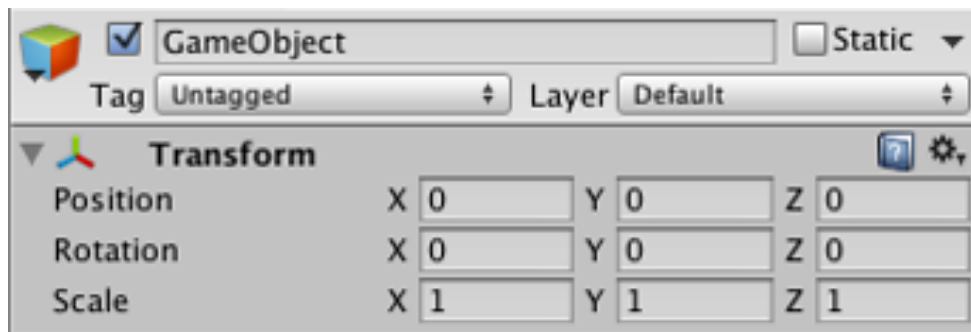


# Building Scenes

- **Use GameObjects:**
  - Containers that hold different components
    - Eg 3D model, texture, animation
- **Use Inspector**
  - View and edit object properties and other settings
- **Use Scene View**
  - Position objects, camera, lights, other GameObjects etc
- **Scripting**
  - Adding interaction, user input, events, etc

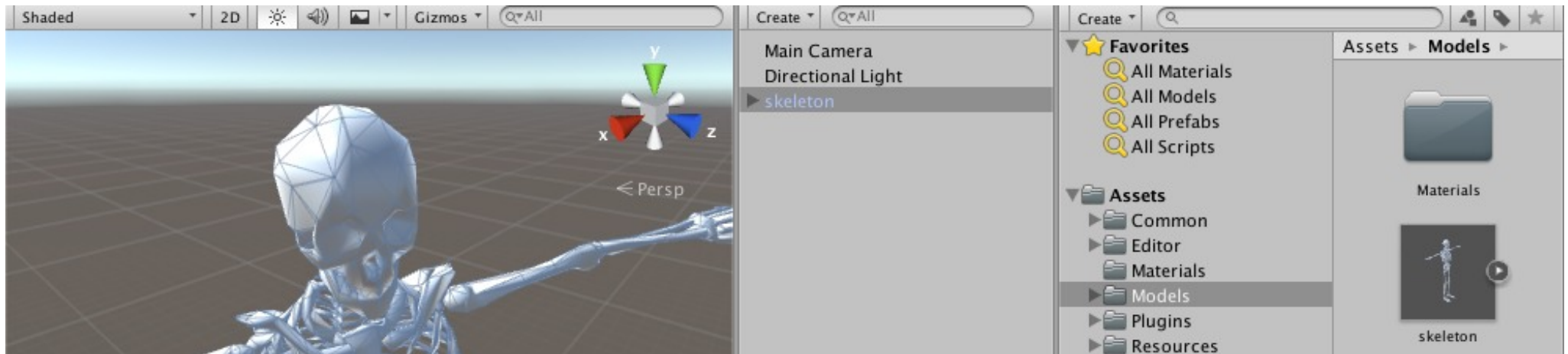
# GameObjects

- Every object in Scene is a GameObject
- GameObjects contain Components
  - Eg Transform Component, Camera Component



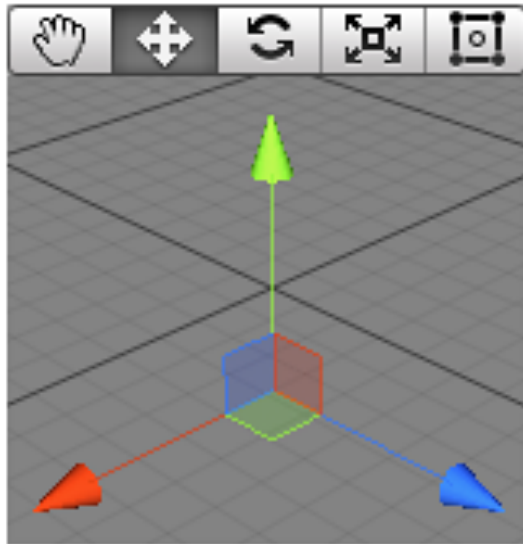


# Adding 3D Content

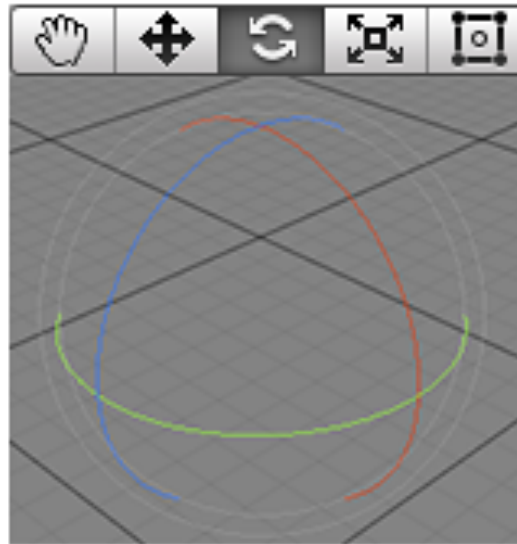


- Create 3D asset using modeling package, or download
  - Fbx, Obj file format for 3D models
- Add file to Assets folder in Project
- When project opened 3D model added to Project View
- Drag mesh from Project View into Hierarchy or Scene View
  - Creates a game object

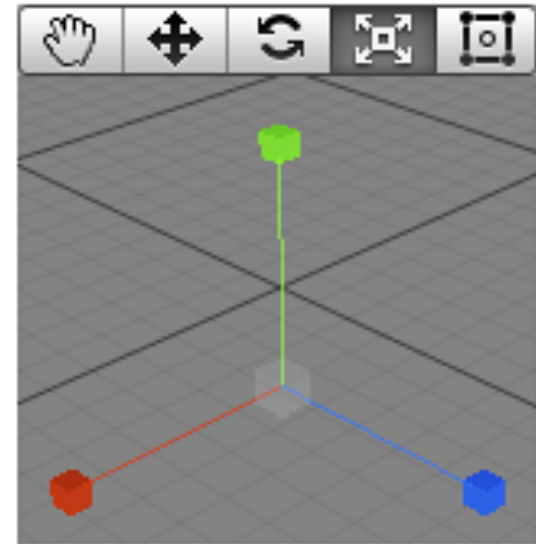
# Positioning/Scaling Objects



Translate (W)



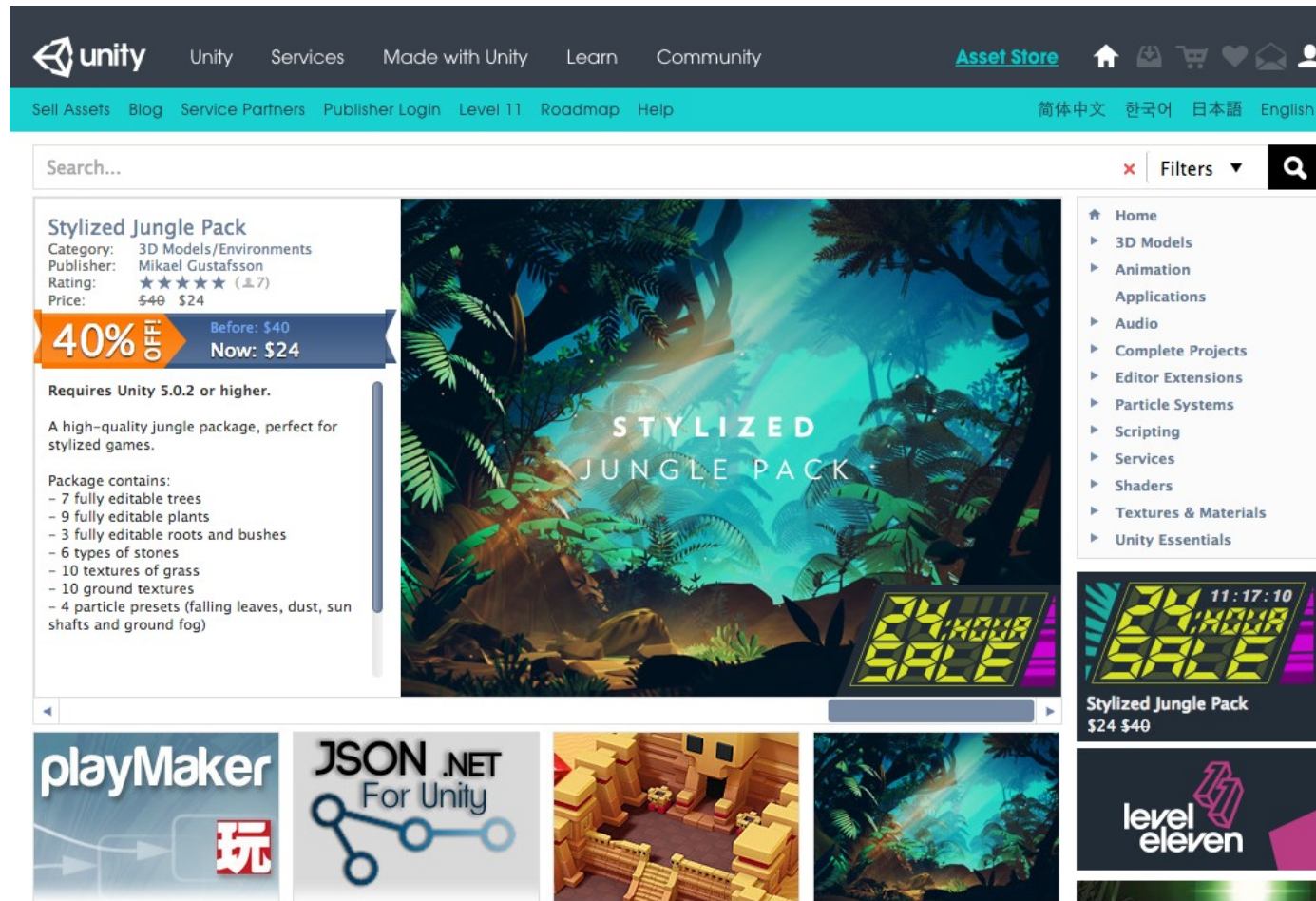
Rotate (E)



Scale (R)

- Click on object and choose transform

# Unity Asset Store



- Download thousands models, scripts, animations, etc
- <https://www.assetstore.unity3d.com/>





# UNITY BASICS

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# Making a Simple Scene

1. Create New Project
2. Create Game Object
3. Moving main camera position
4. Adding lights
5. Adding more objects
6. Adding physics
7. Changing object materials
8. Adding script behaviour

# Create Project

Unity 2017.2.0f3

Projects Learn

New Open My Account

Project name

New Unity Project

3D 2D Add Asset Package

Location

/Users/markbillinghurst/Projects/2017

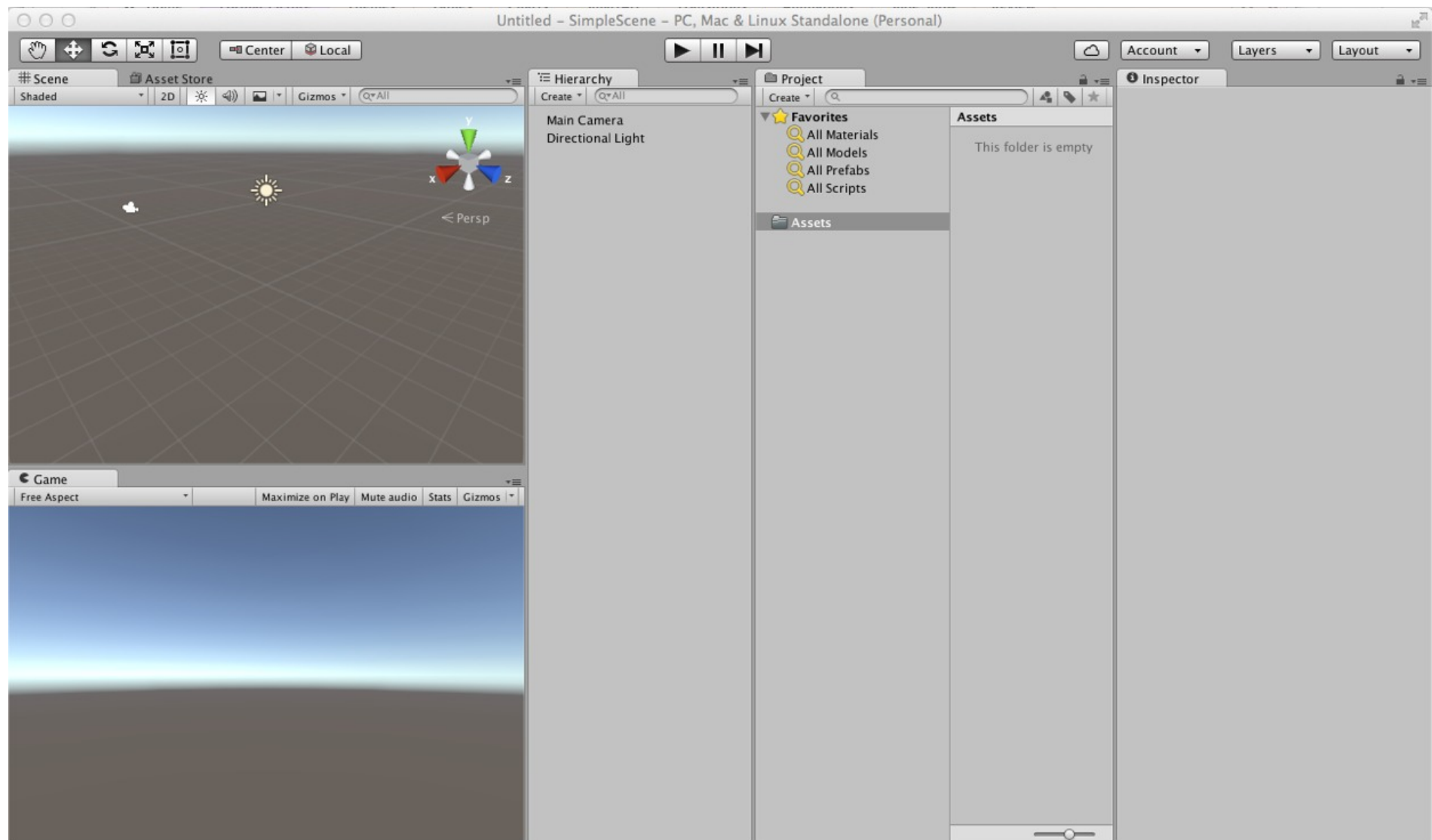
OFF Enable Unity Analytics ?

Create project

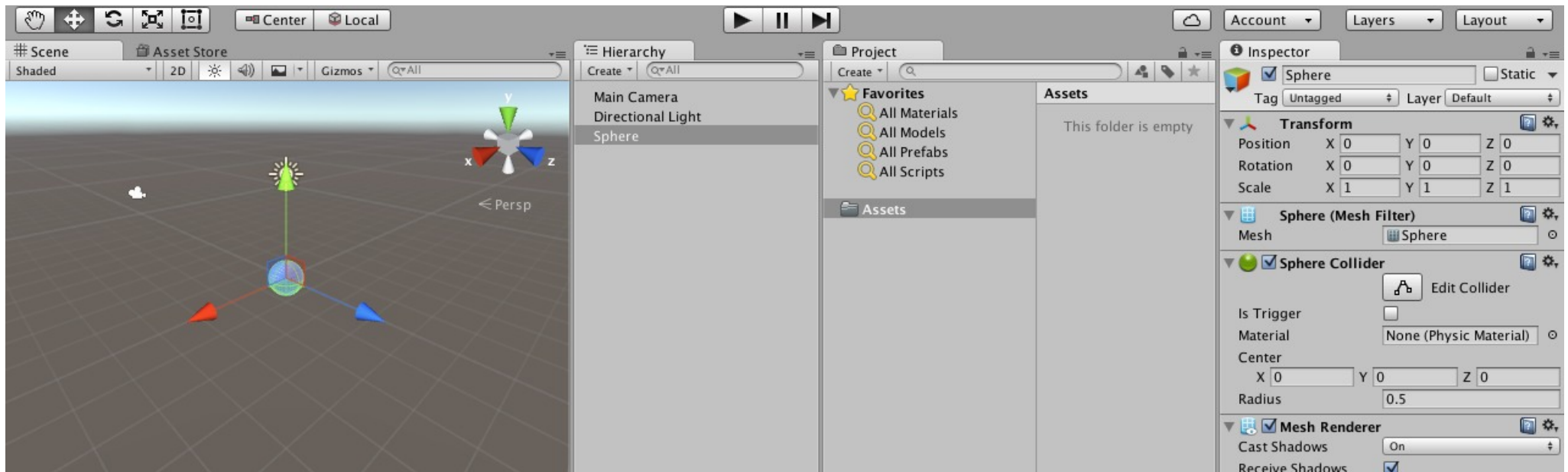
- Create new folder and project



# New Empty Project

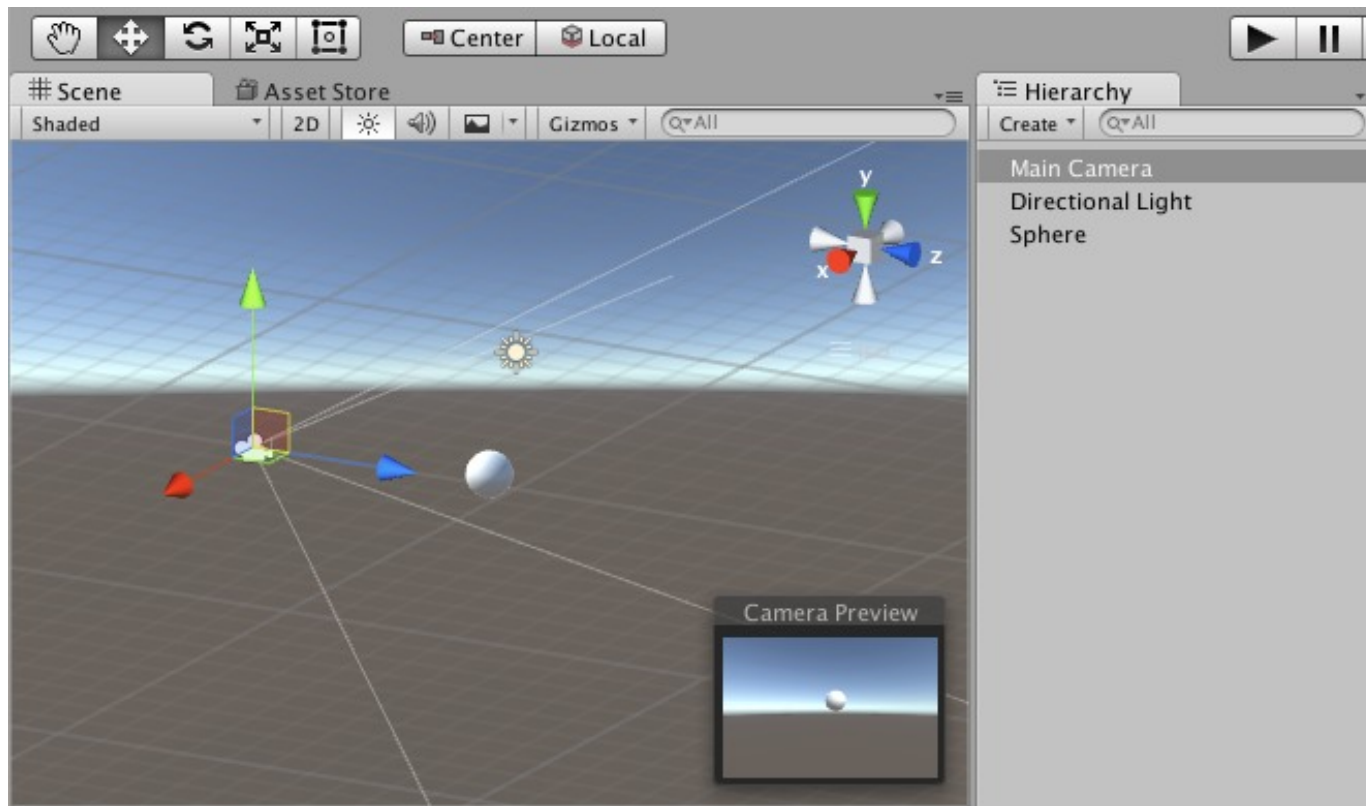


# Create GameObject



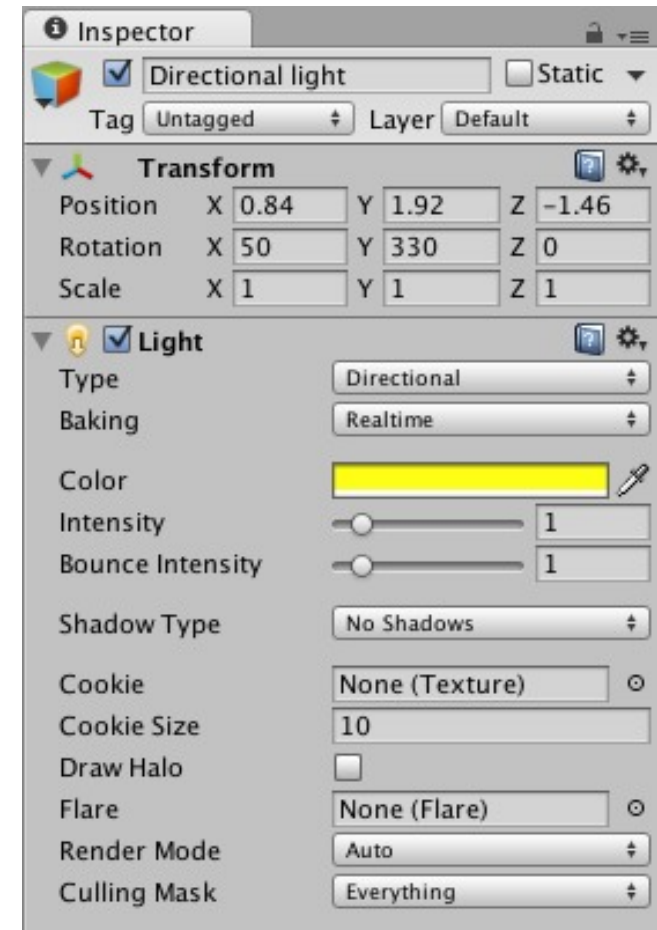
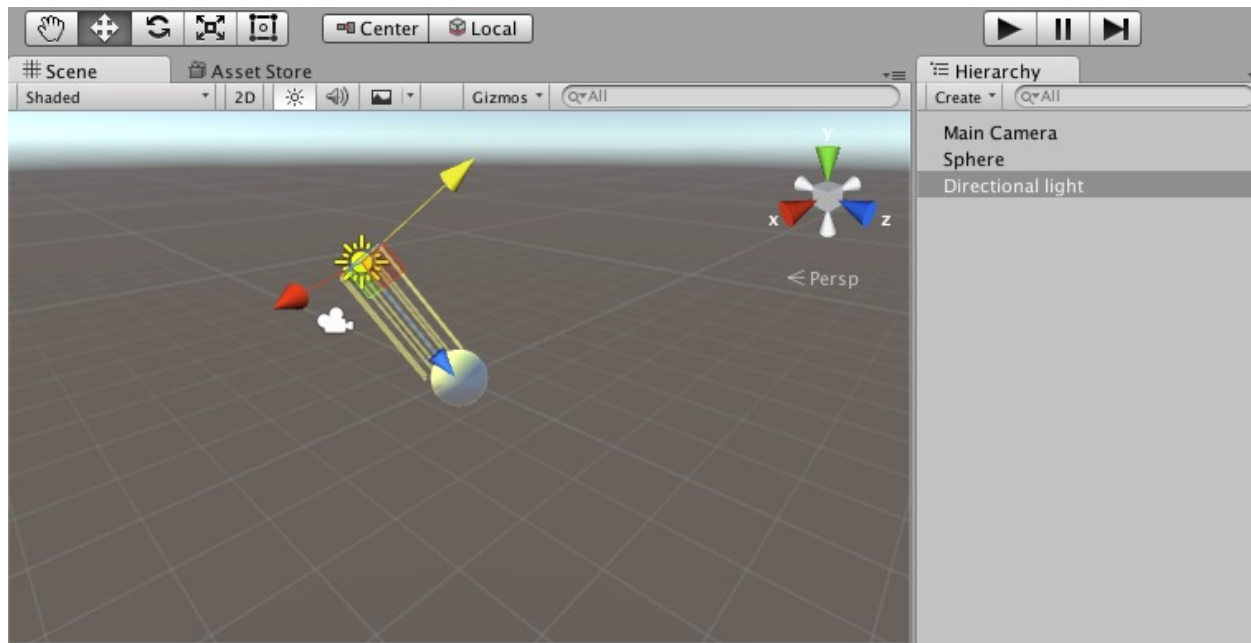
- Load a Sphere into the scene
- GameObject -> 3D Object -> Sphere

# Moving main camera



- Select Main Camera
- Select translate icon
- Move camera

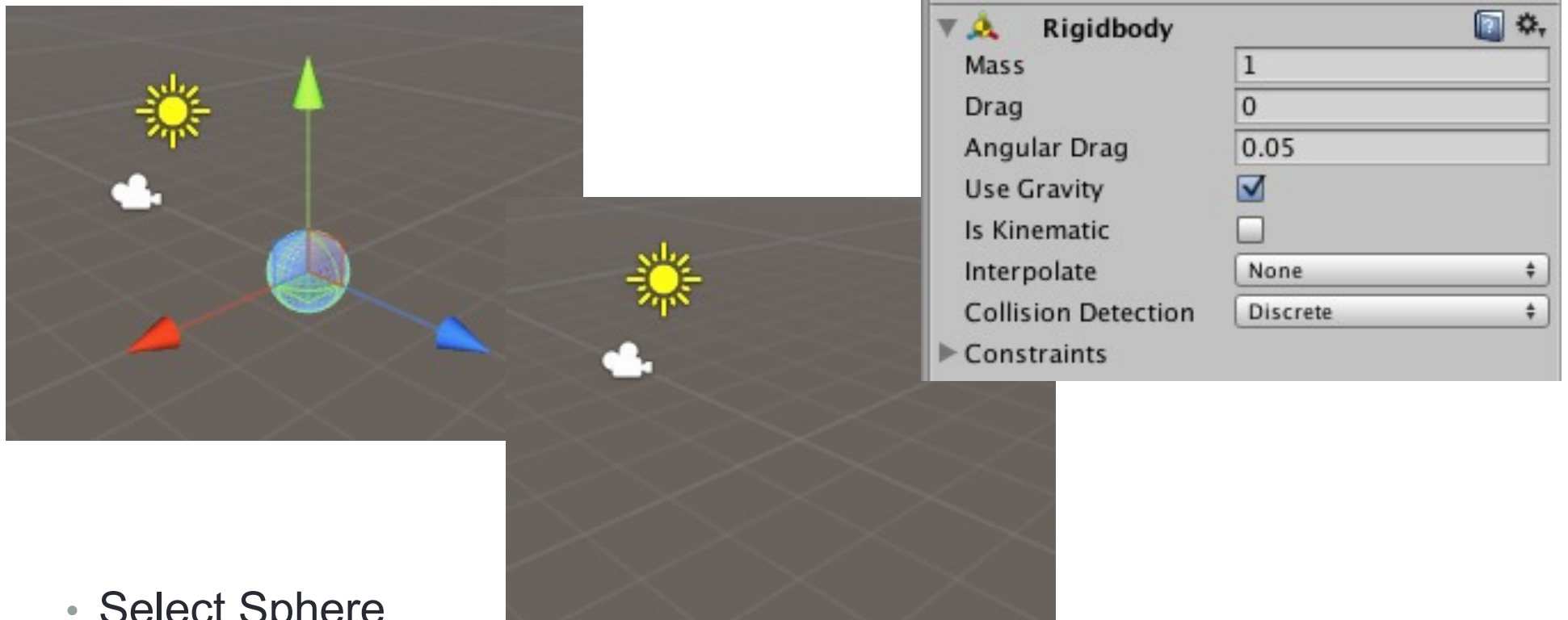
# Add Light



- GameObject -> Light -> Directional Light
- Use inspector to modify light properties (colour, intensity)

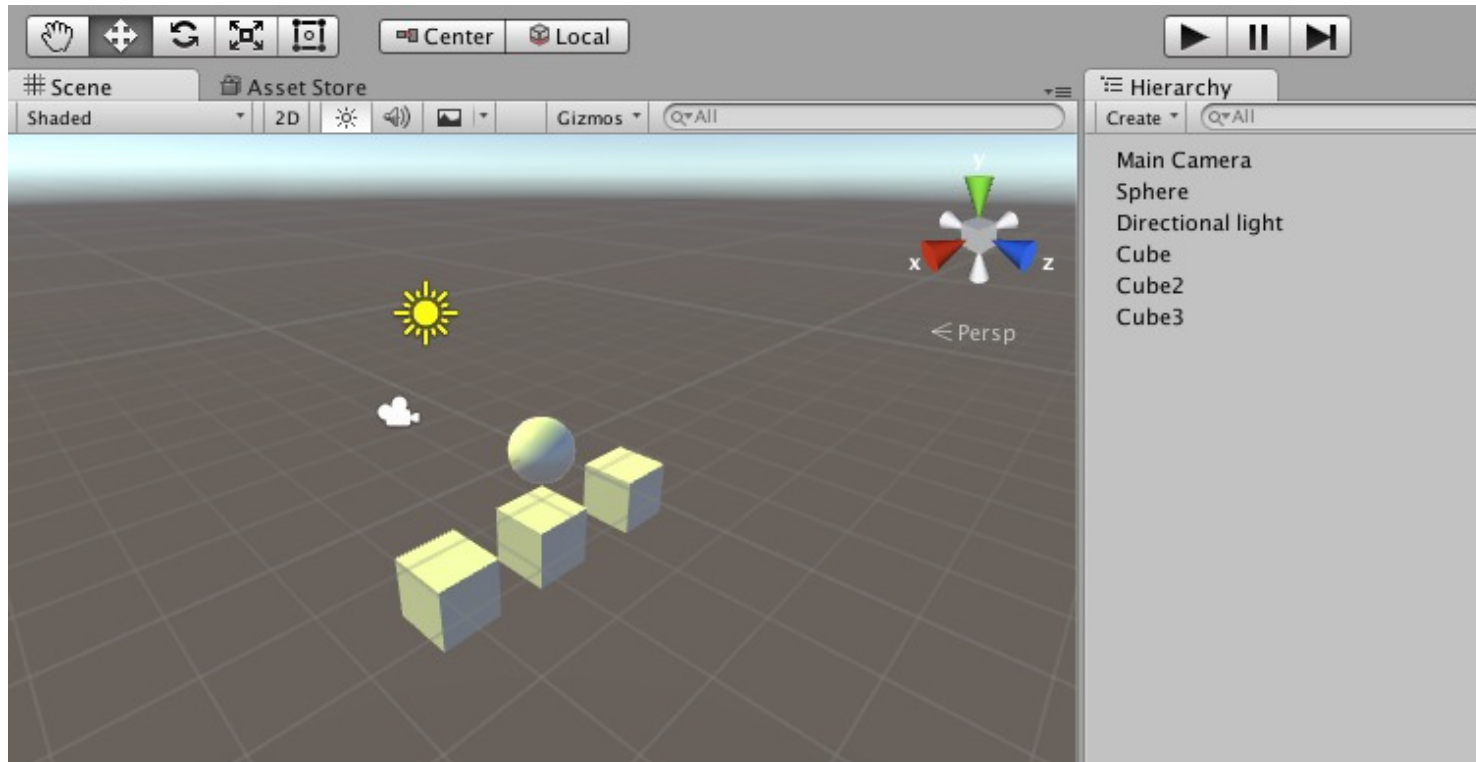


# Add Physics



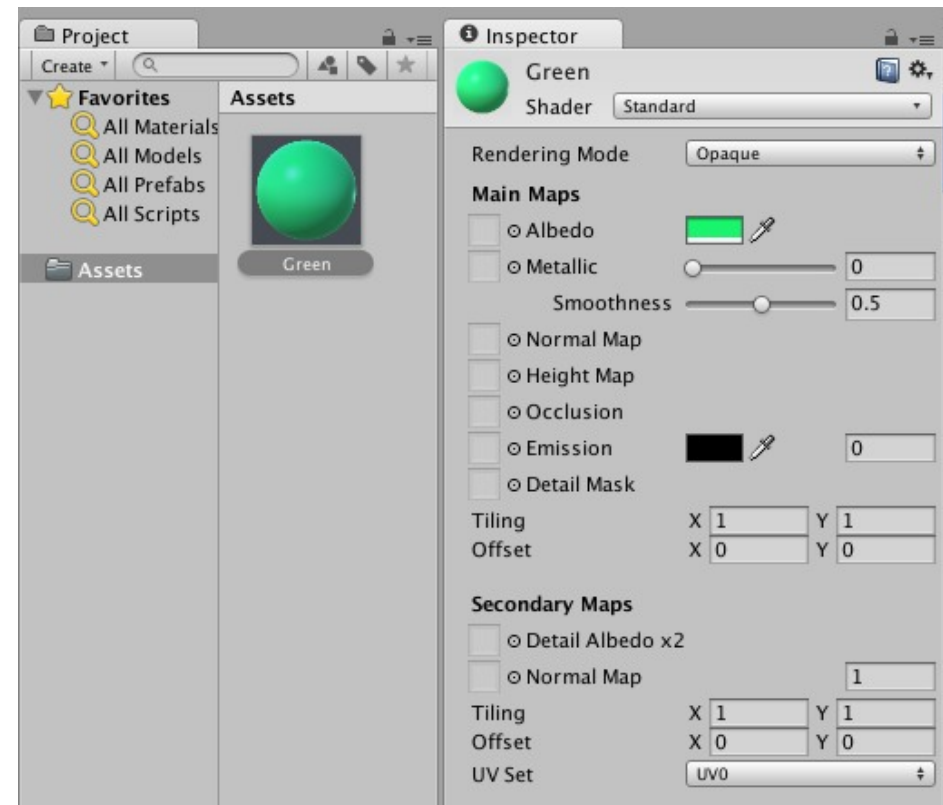
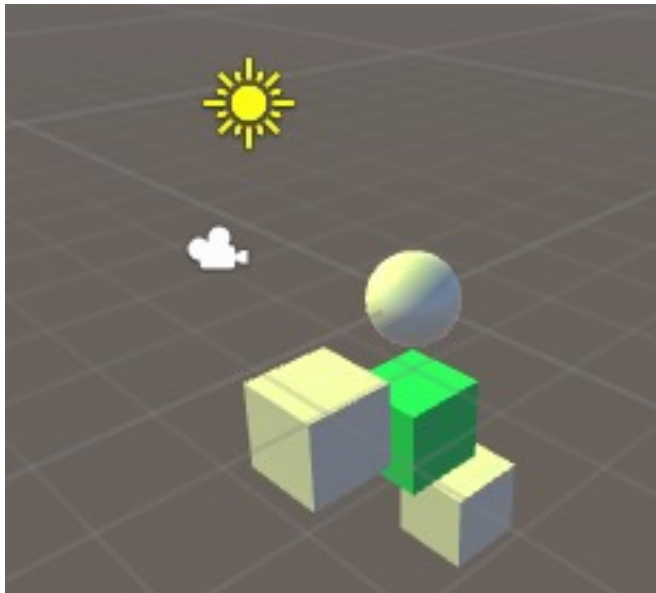
- Select Sphere
- Add Rigidbody component
  - Add Component -> Physics -> Rigidbody
  - or Component -> Physics -> Rigidbody
- Modify inspector properties (mass, drag, etc)

# Add More Objects



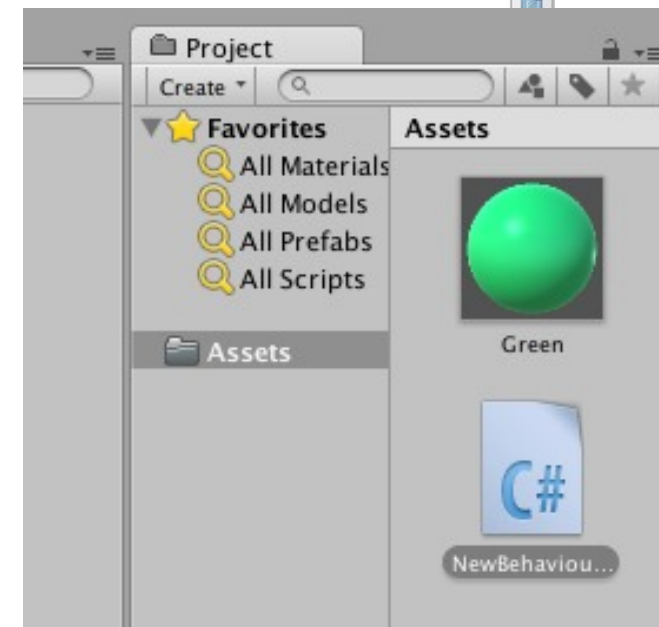
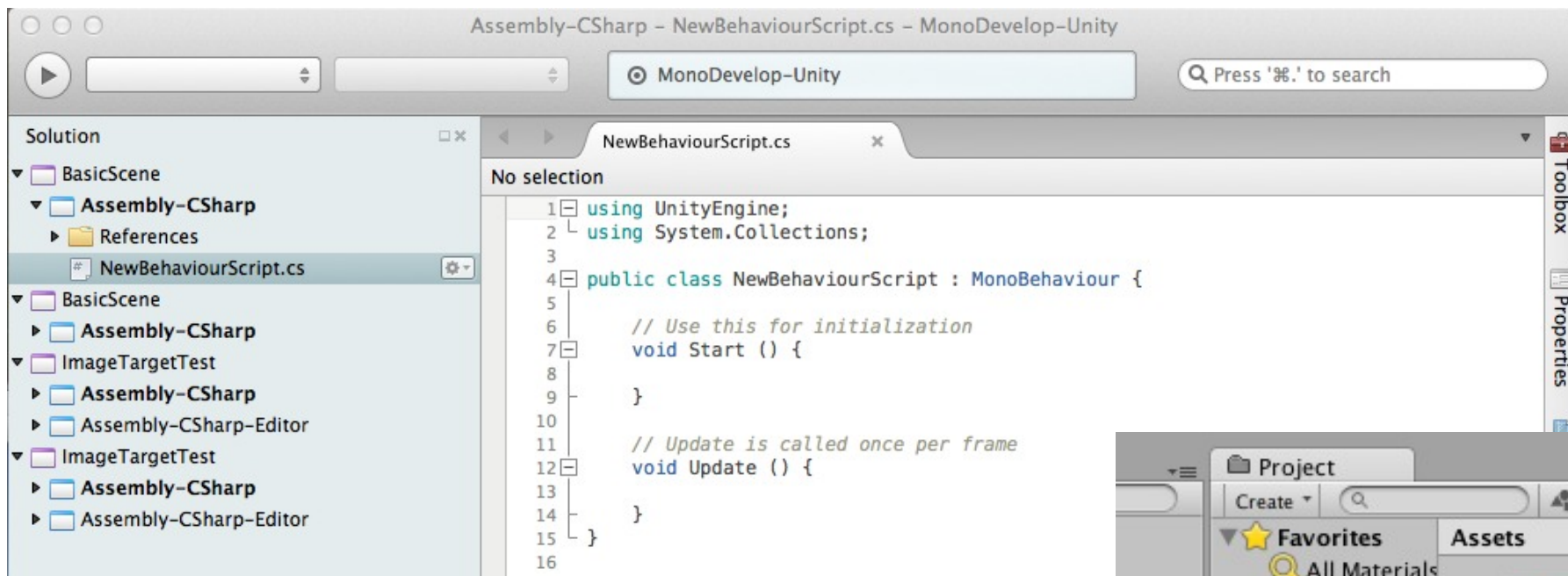
- Add several cubes
  - GameObject -> 3D Object – Cube
- Move cube
- Add Rigid Body component (uncheck gravity)

# Add Material



- Assets -> Create -> Material
- Click Albedo colour box in inspector
- Select colour
- Drag asset onto object to apply

# Add Script



- Assets -> Create -> C# script
- Edit script using Mono
- Drag script onto Game Object



# Example C# Script

## GameObject Rotation

```
using UnityEngine;
using System.Collections;

public class spin : MonoBehaviour {

    // Use this for initialization
    void Start () {

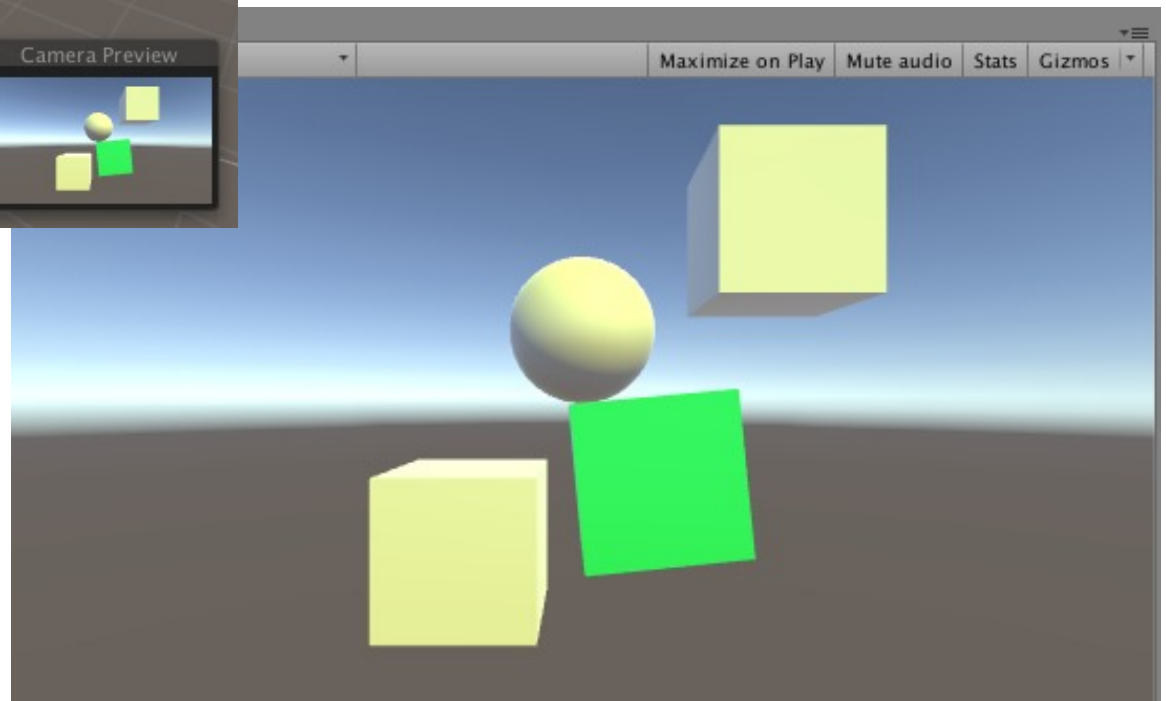
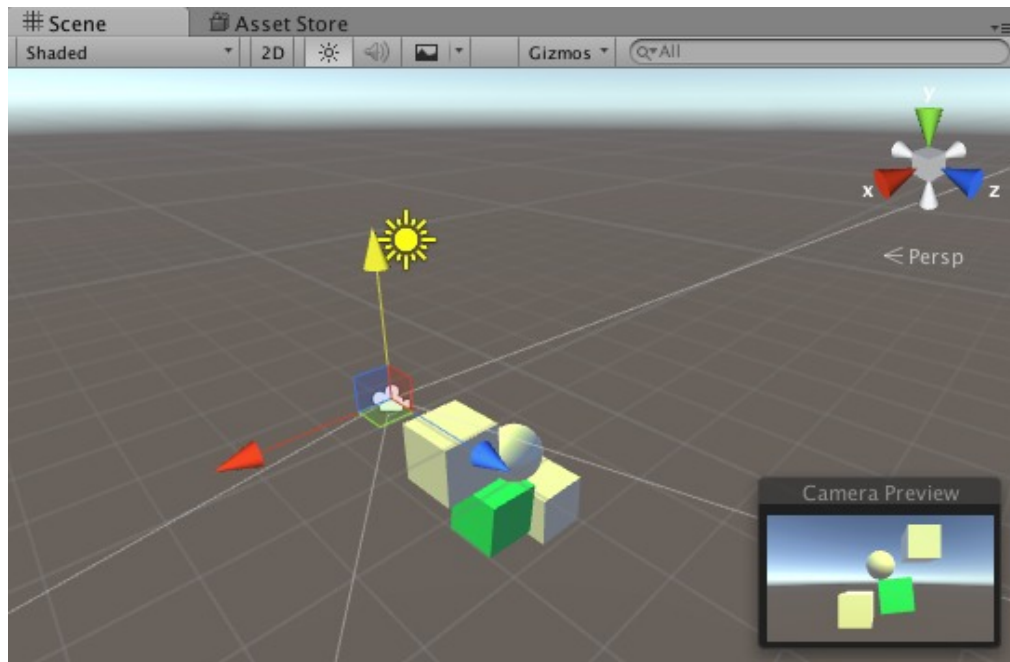
    }

    // Update is called once per frame
    void Update () {
        this.gameObject.transform.Rotate(Vector3.up*10);
    }
}
```

# Scripting C# Unity 3D

- `void Awake():`
  - Is called when the first scene is loaded and the game object is active
- `void Start():`
  - Called on first frame update
- `void FixedUpdate():`
  - Called before physics calculations are made
- `void Update():`
  - Called every frame before rendering
- `void LateUpdate():`
  - Once per frame after update finished

# Final Spinning Cube Scene



# Resources

- Unity Main site
  - <http://www.unity3d.com/>
- Holistic Development with Unity
  - <http://holistic3d.com>
- Official Unity Tutorials
  - <http://unity3d.com/learn/tutorials>
- Unity Coder Blog
  - <http://unitycoder.com>