

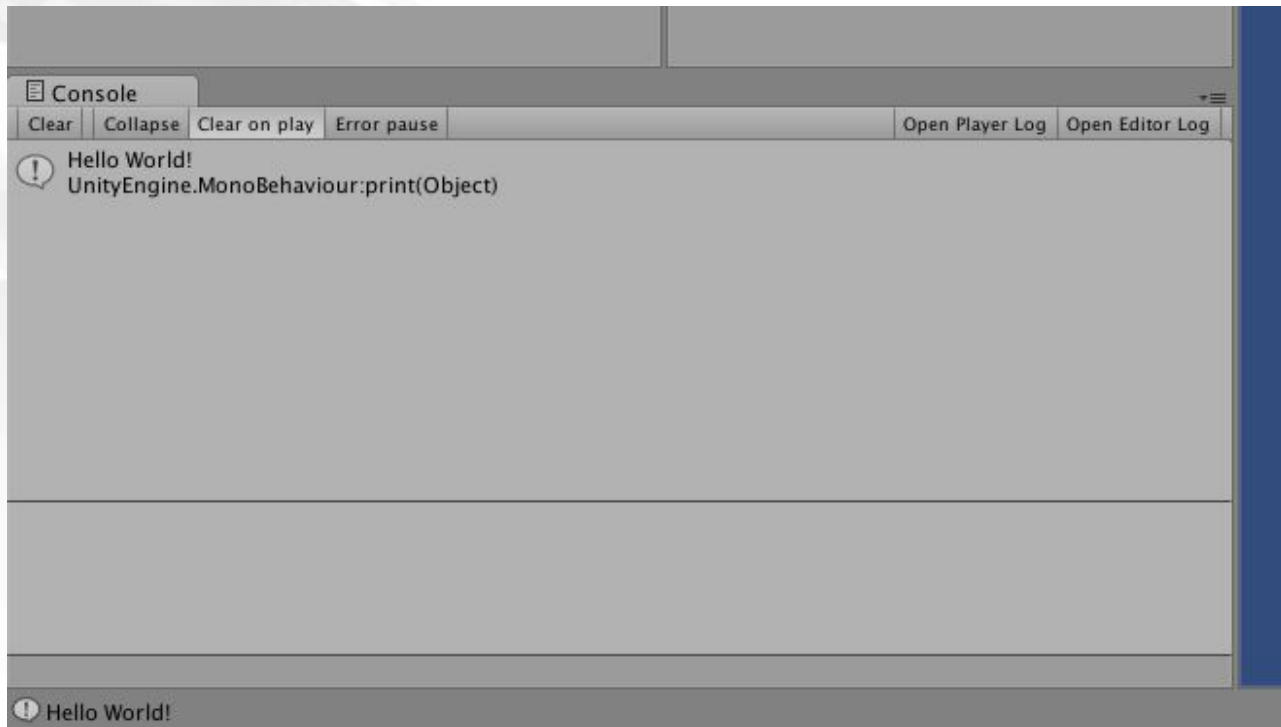
HELLO WORLD: YOUR FIRST PROGRAM

Topics

- **Hello World?**
- **Creating a Unity Project**
 - **The Unity Project Folder**
- **MonoDevelop: Unity's Code Editor**
- **Attaching Scripts to GameObjects**
- **Start() and Update()**
- **GameObject Prefabs and Instantiation**
- **The HelloWorld Project**

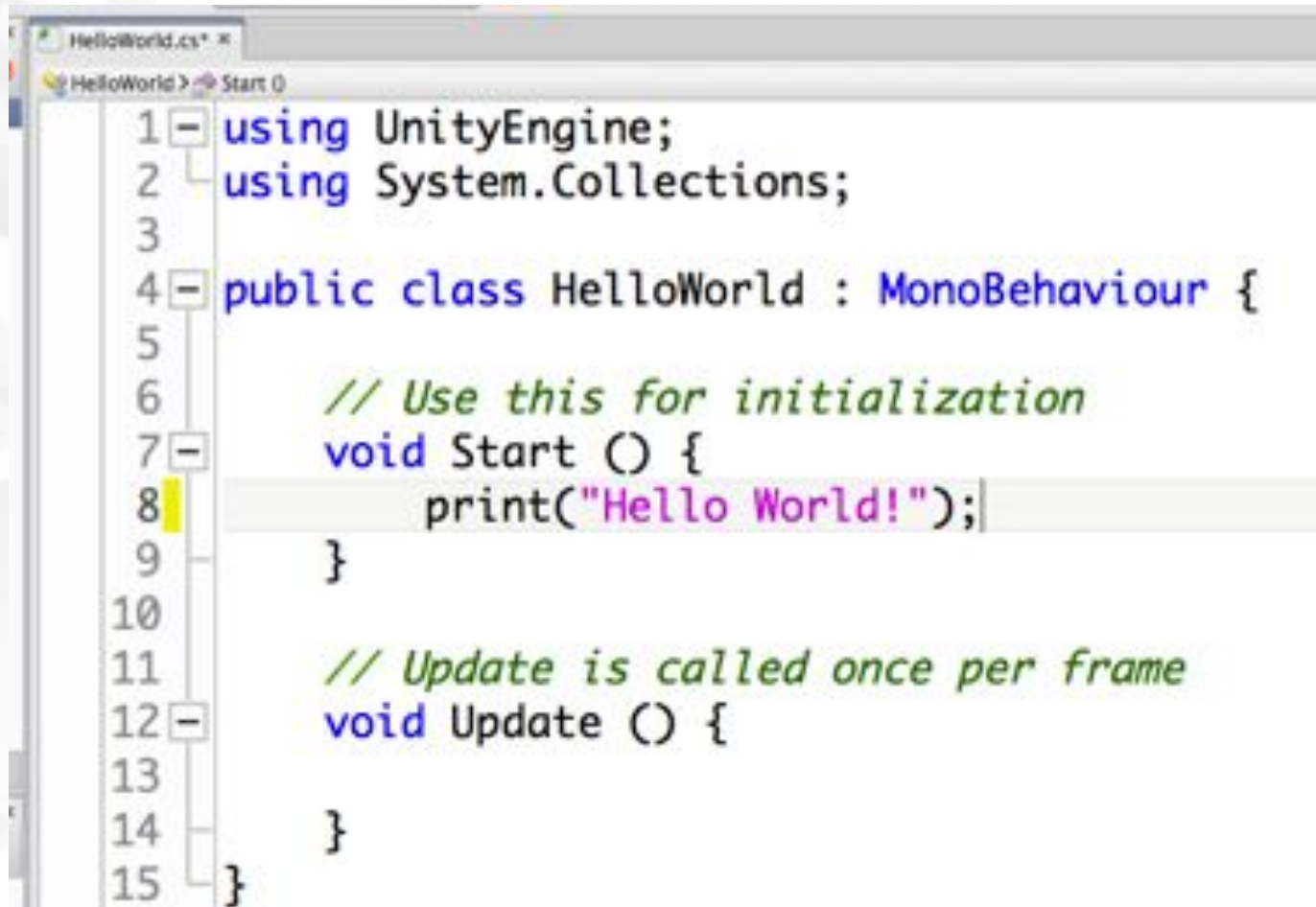
Hello World?

- Hello World is often the first program written by anyone learning a new programming language.
- Outputs "Hello World!" to the Console



Hello World?

- The code of HelloWorld.cs is very simple:



The screenshot shows a code editor window titled 'HelloWorld.cs'. The code is as follows:

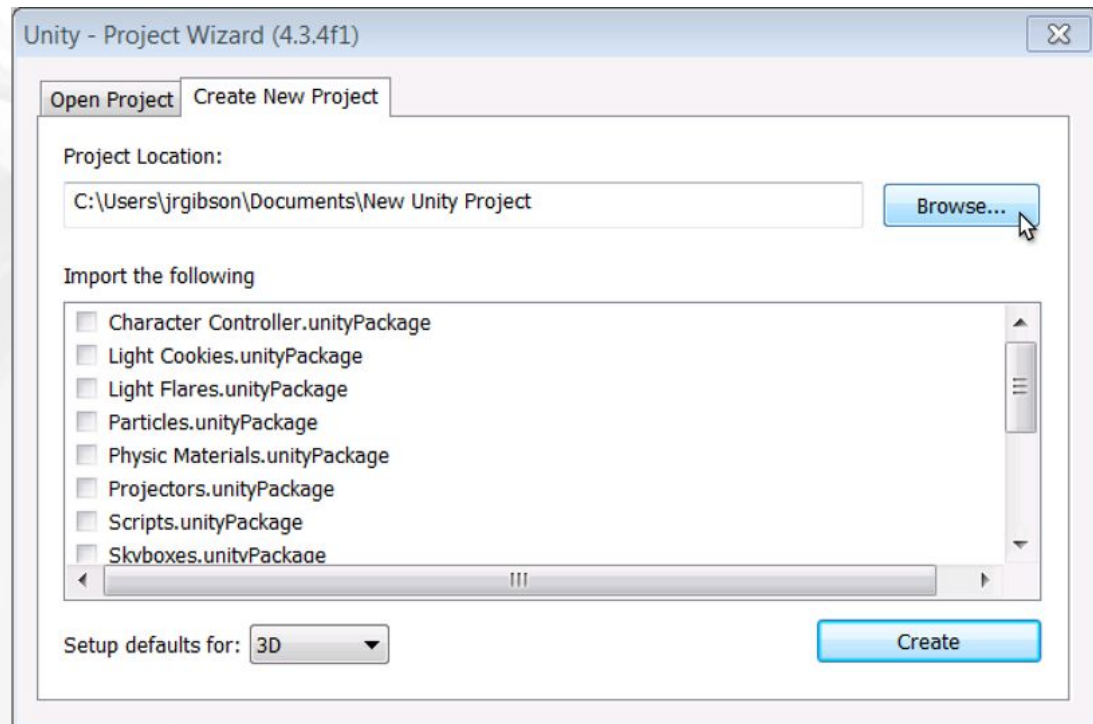
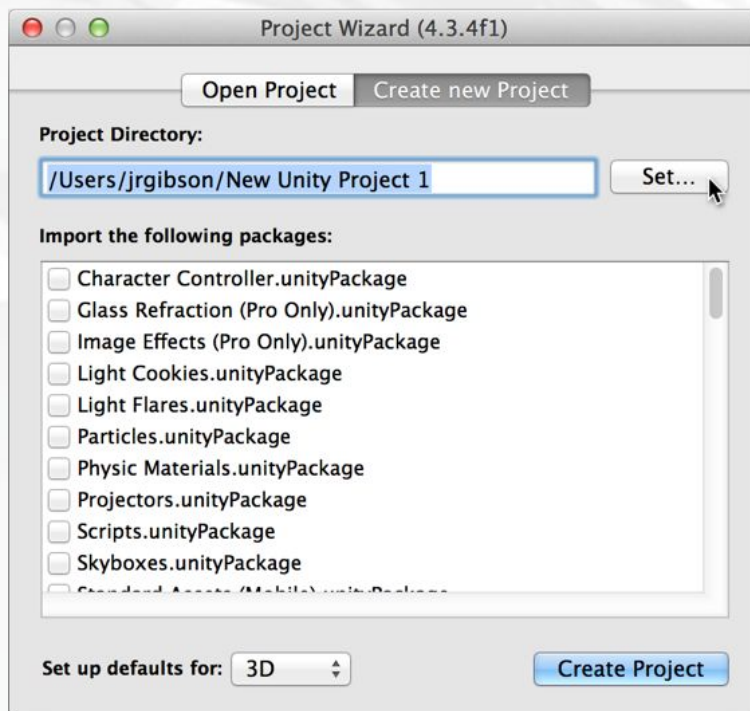
```
1 using UnityEngine;
2 using System.Collections;
3
4 public class HelloWorld : MonoBehaviour {
5
6     // Use this for initialization
7     void Start () {
8         print("Hello World!");
9     }
10
11    // Update is called once per frame
12    void Update () {
13
14    }
15 }
```

Creating a Unity Project

- From the menu bar, choose *File > New Project...*
- Choose the location for your project folder
 - **Mac OS X**
 - Click the **Set...** button
 - Navigate to the right location
 - Type the project name into the **Save As** field
 - Click the **Save** button
 - **Windows**
 - Click the **Browse...** button
 - Navigate to the right location
 - Click the **New Folder** button and give the new folder the name of your project.
 - Click the **Select Folder** button

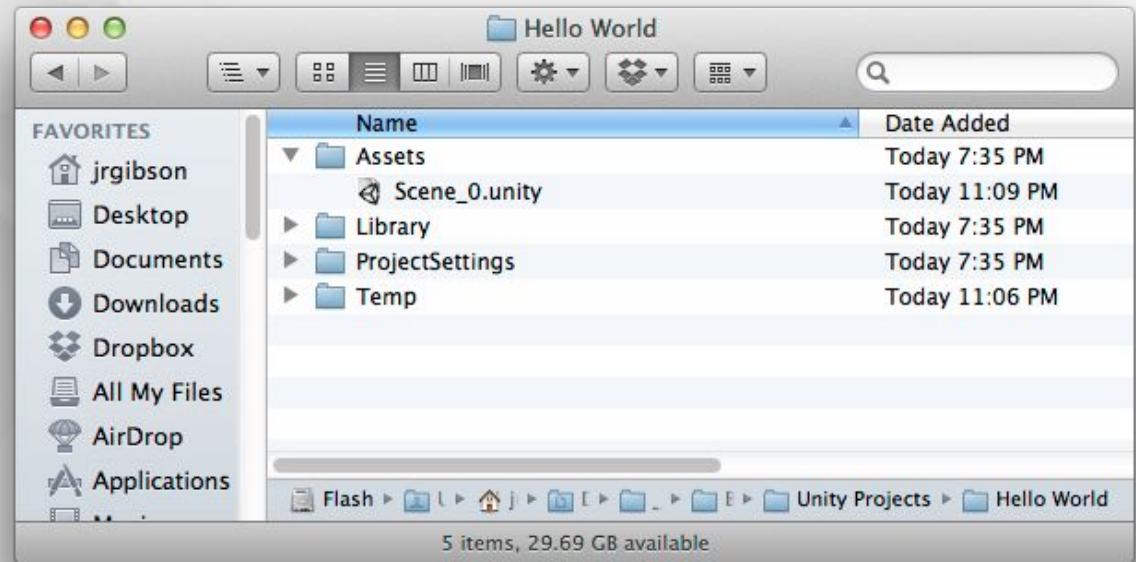
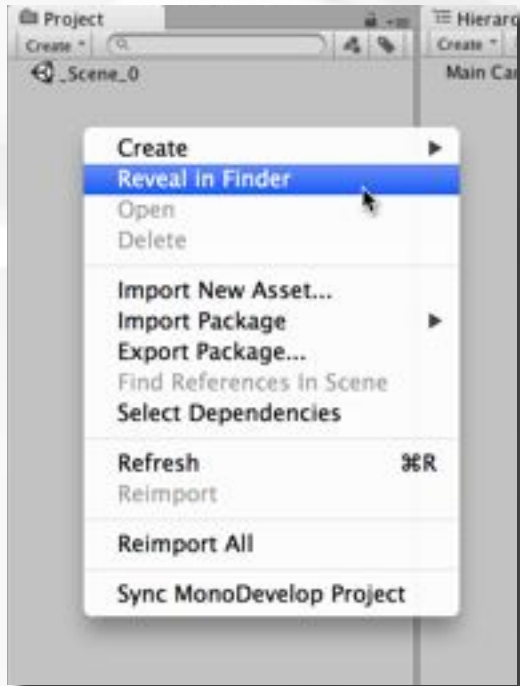
Creating a Unity Project

- Set up defaults for 3D
- Click the *Create Project* or *Create* button
- Appendix A contains detailed instructions



Creating a Unity Project

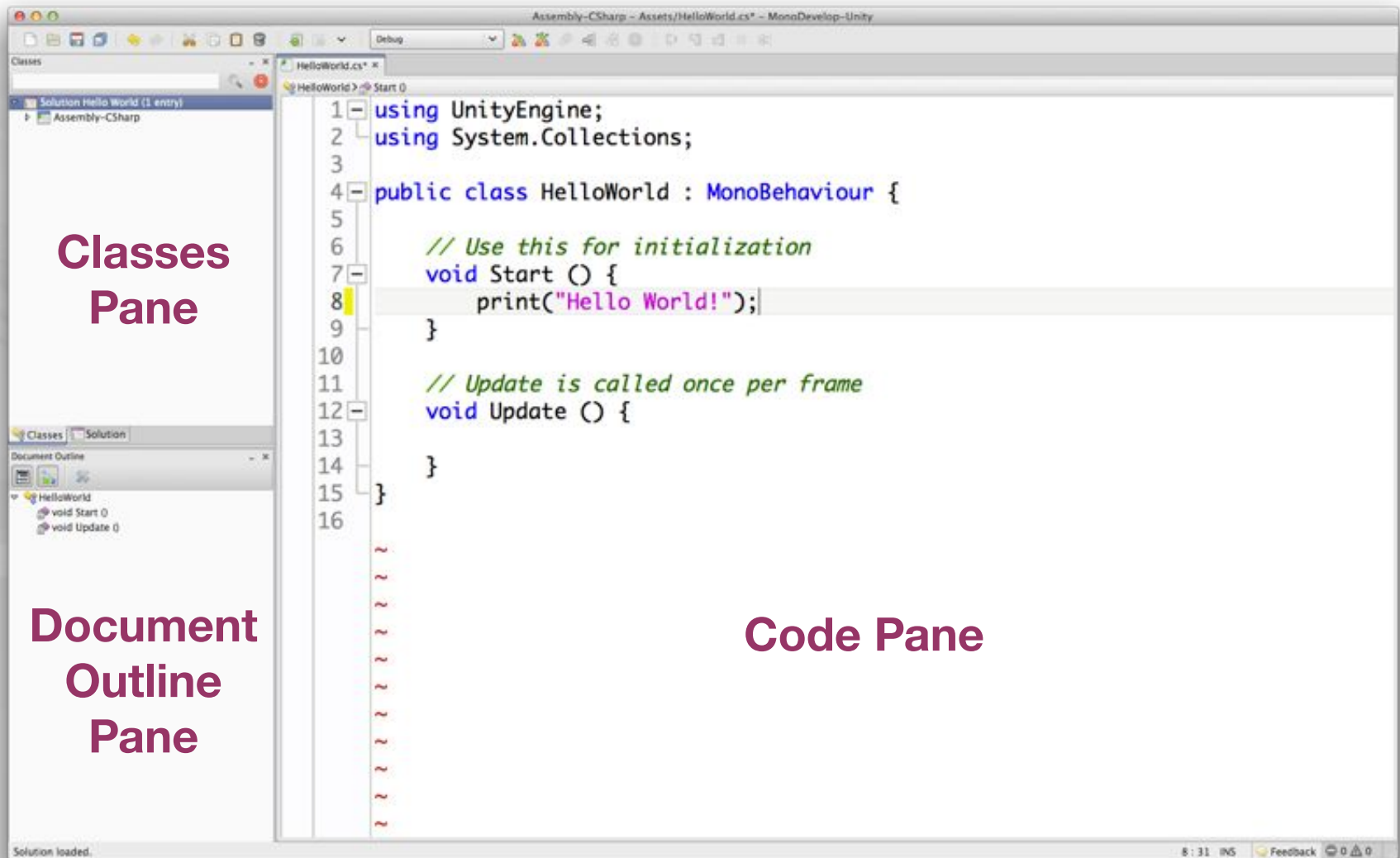
- The Project pane shows the contents of the Assets folder inside your Unity project folder
 - Right-click in the Project pane and choose *Reveal in Finder* (or *Show in Explorer*) from the pop-up menu



MonoDevelop: Unity's Code Editor

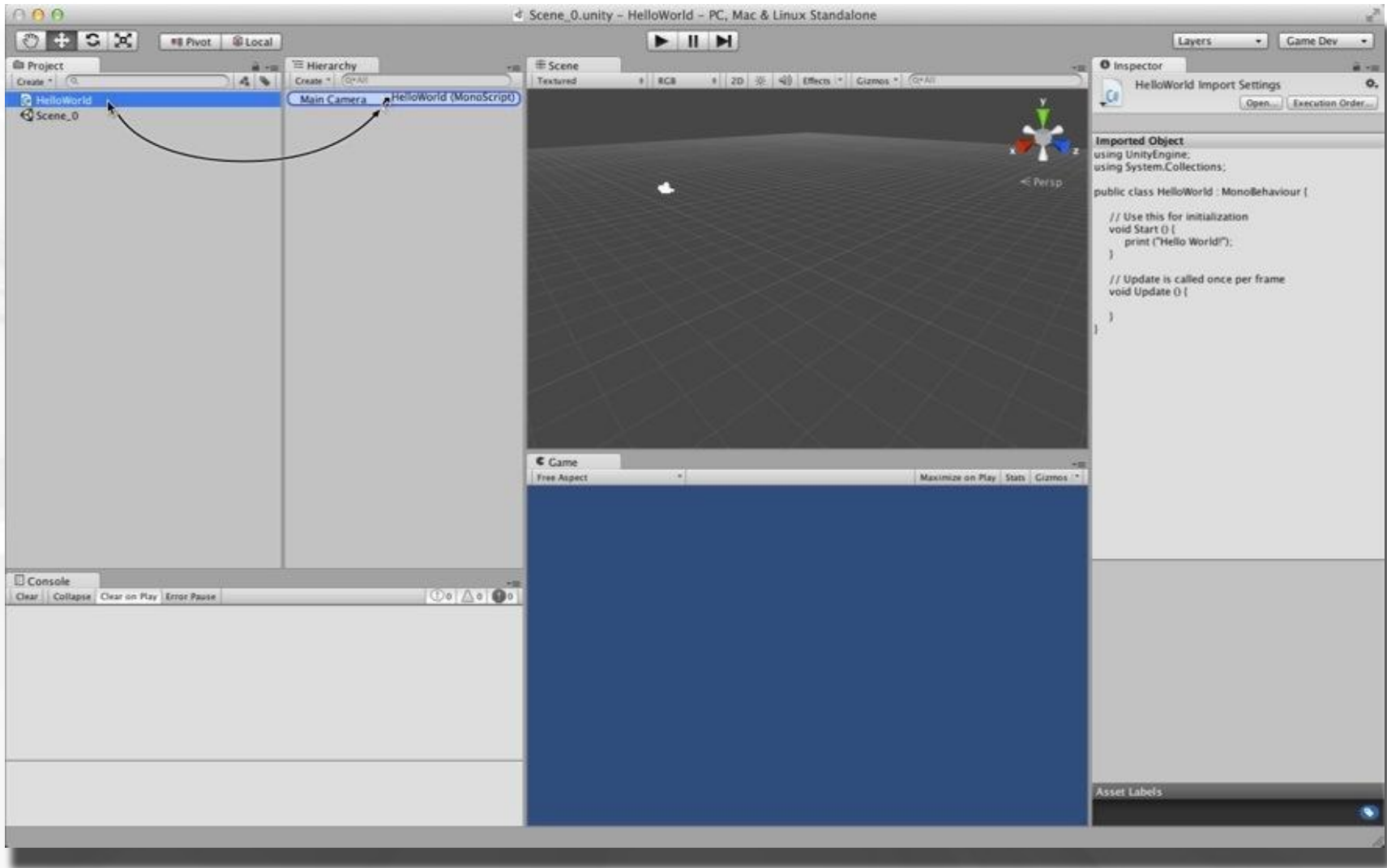
- **Unity uses MonoDevelop for code editing**
 - MonoDevelop is a separate program developed by a different team
- **To open MonoDevelop, double-click any C# script in your Project pane**
 - This will launch MonoDevelop
 - Though the launch process takes some time
- **You must save a document in MonoDevelop for it to recompile and update in Unity**
- **On Windows, Microsoft Visual Studio may be used**
 - Instructions for this can be found online

MonoDevelop: Unity's Code Editor



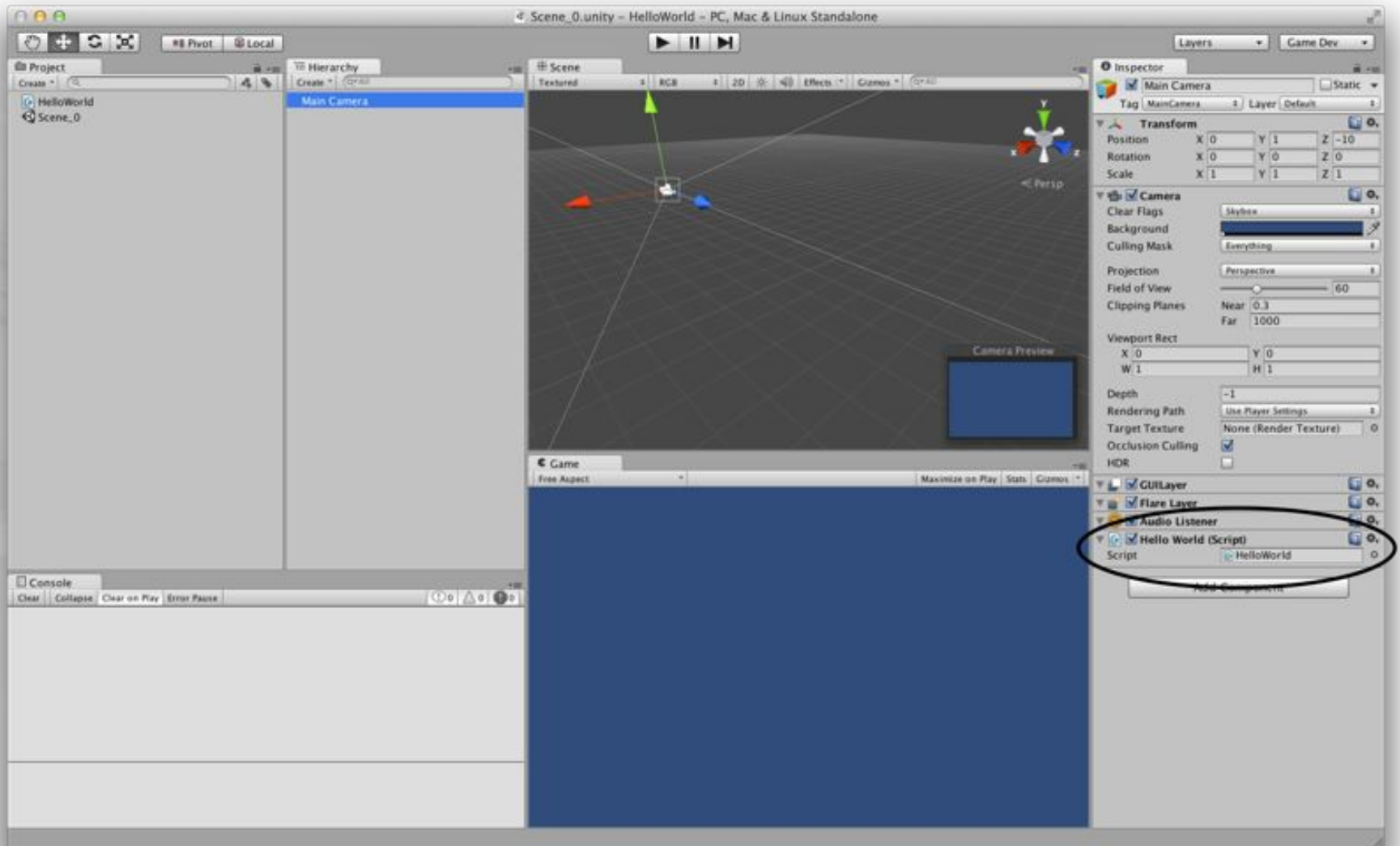
The MonoDevelop Window

Attaching Scripts to GameObjects



To work in Unity, a C# script must be *attached* to a GameObject

Attaching Scripts to GameObjects



This makes the script a *component* of the GameObject

Start() and Update()

- You make use of Start() and Update() in the HelloWorld project
 - **void Start() {...}**
 - Called once
 - Called immediately before the first Update() is called
 - **void Update() {...}**
 - Called every frame
 - This can happen over 200 times per second!
 - **void Awake() {...}** (not used in HelloWorld, but important)
 - Called once
 - Called at the moment the GameObject is created
 - Guaranteed to be called before Start()

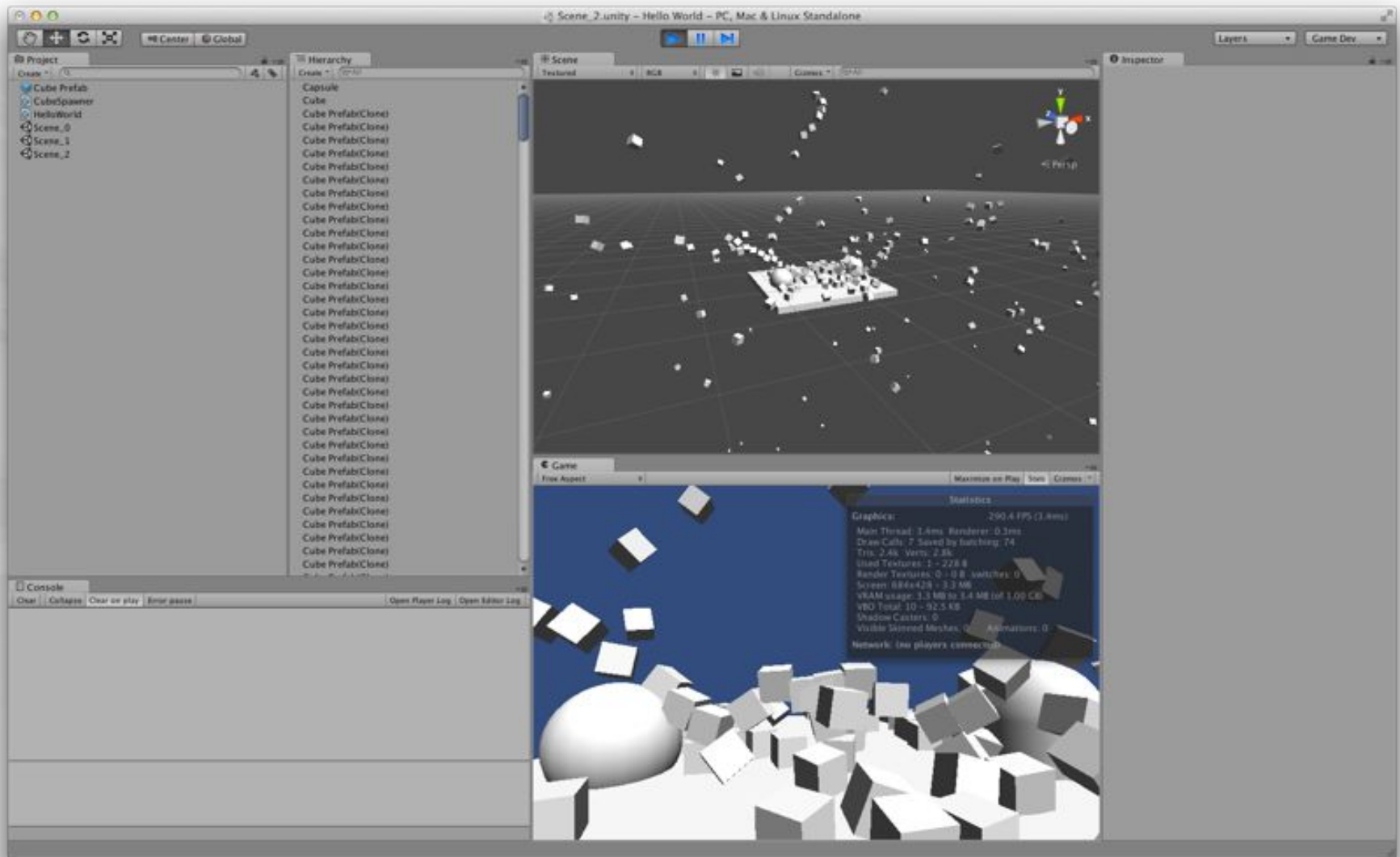
GameObject Prefabs and Instantiation

- ***A prefab is a mold from which GameObject instances can be made***
 - Created by dragging a GameObject from the Hierarchy pane into the Project pane
 - Can be assigned to a script variable in the Inspector pane
 - `public GameObject gameObjectPrefab;`
 - Then, an instance of the prefab can be created in code
 - `Instantiate(gameObjectPrefab);`
- ***This is used in HelloWorld to create thousands of instances of a Cube GameObject prefab***

The HelloWorld Project

- **Output "Hello World!" to the Console pane**
 - Once using Start()
 - Many times using Update()
- **Create a Cube prefab that reacts to gravity & physics**
- **Instantiate an instance of the Cube prefab**
 - Once using Start()
 - Many times using Update()
 - This will create a cascade of thousands of Cube instances
 - Over other physically-modeled objects

The HelloWorld Project



The final HelloWorld scene

Chapter 18 – Summary

- **Hello World is a common first program to make in any new language**
- **Unity projects are stored as many files in project folders on your hard drive**
- **MonoDevelop is used to edit code for Unity**
- **Scripts must be attached to GameObjects to run**
- **Start(), Update(), and Awake() are called at different times and have different uses**
- **GameObject prefabs can be instantiated many times**