INFT3960 – Game Production

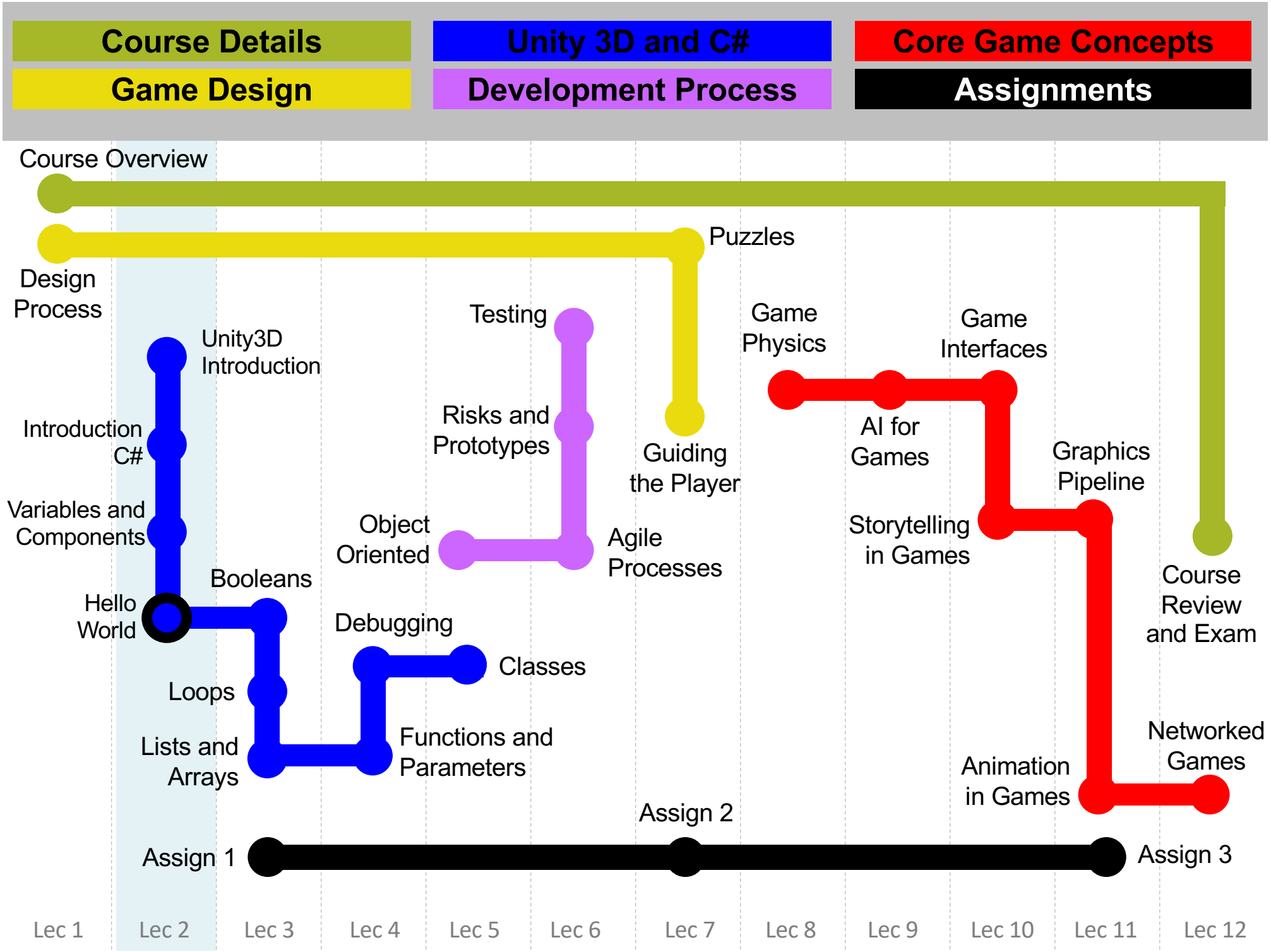
Week 02

Module 2.4

Hello World Program

Course Overview - 2019

Lec	Date	Modules	Assignments
1	Tuesday 30 Jul	Mod 1.1, Mod 1.2	
2	Tuesday 5 Aug	Mod 2.1, Mod 2.2, Mod 2.3, Mod 2.4	
3	Tuesday 12 Aug	Mod 3.1, Mod 3.2, Mod 3.3	 Assign 1 12 Aug, 11:00 pm
4	Tuesday 19 Aug	Mod 4.1, Mod 4.2	
5	Tuesday 26 Aug	Mod 5.1, Mod 5.2	
6	Tuesday 3 Sep	Mod 6.1, Mod 6.2, Mod 6.3	
7	Tuesday 10 Sep	Mod 7.1, Mod 7.2	 Assign 2 12 Sep, 11:00 pm
8	Tuesday 17 Sep	Mod 8.1	
9	Tuesday 24 Sep	Mod 9.1	
10	Tuesday 15 Oct	Mod 10.1, Mod 10.2	
11	Tuesday 22 Oct	Mod 11.1, Mod 11.2	 Assign 3 24 Oct, 11:00pm
12	Tuesday 29 Oct	Mod 12.1, Mod 12.2	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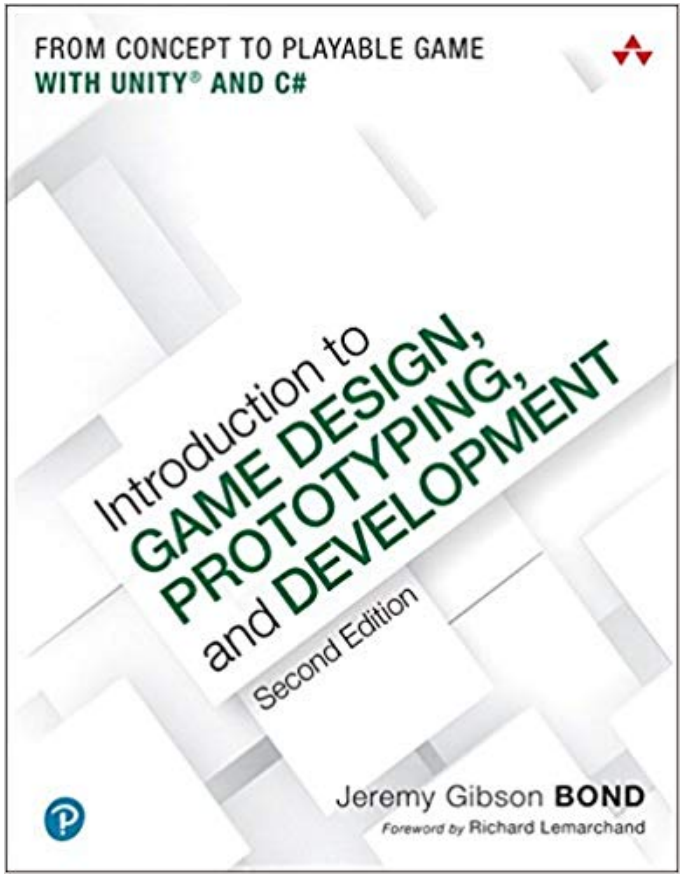
Hello World – (Chapter 19)



HELLO WORLD:
YOUR FIRST
PROGRAM

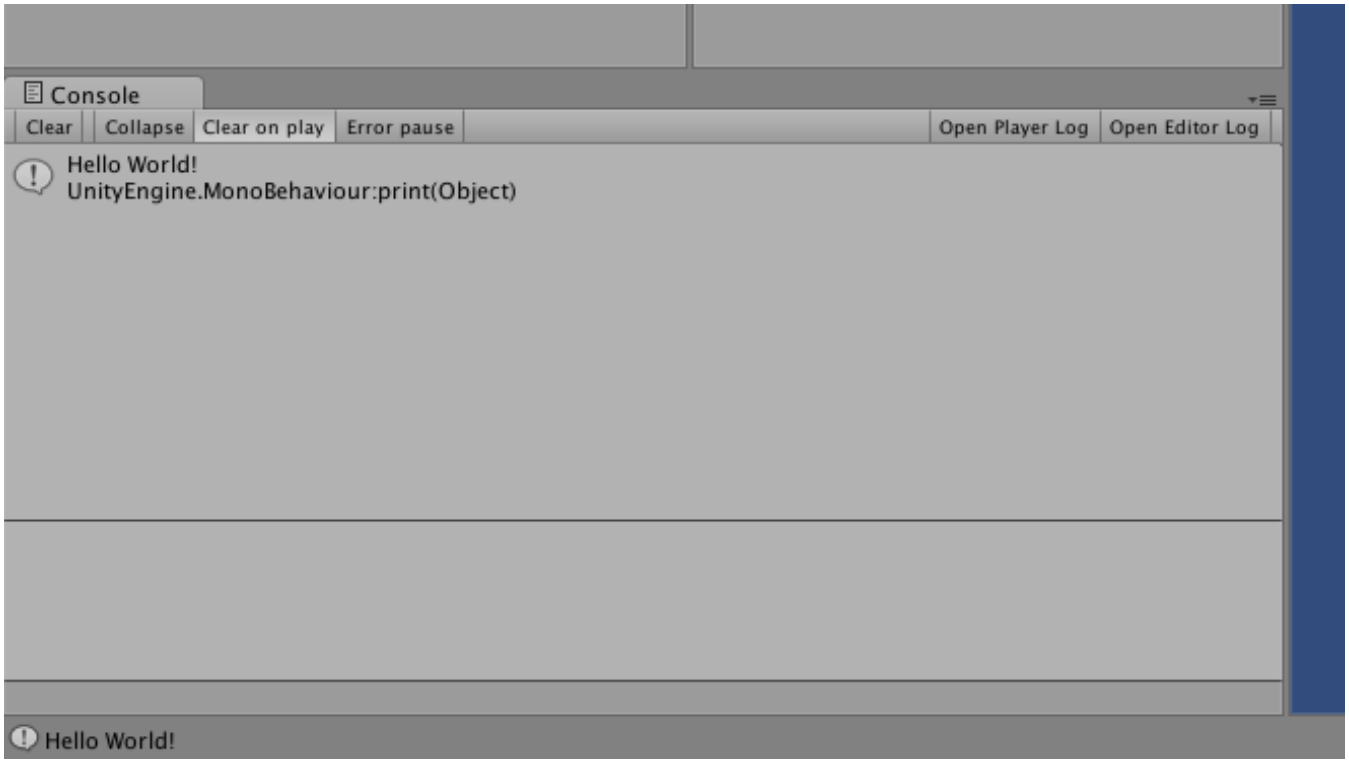
Hello World - Topics

- 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?

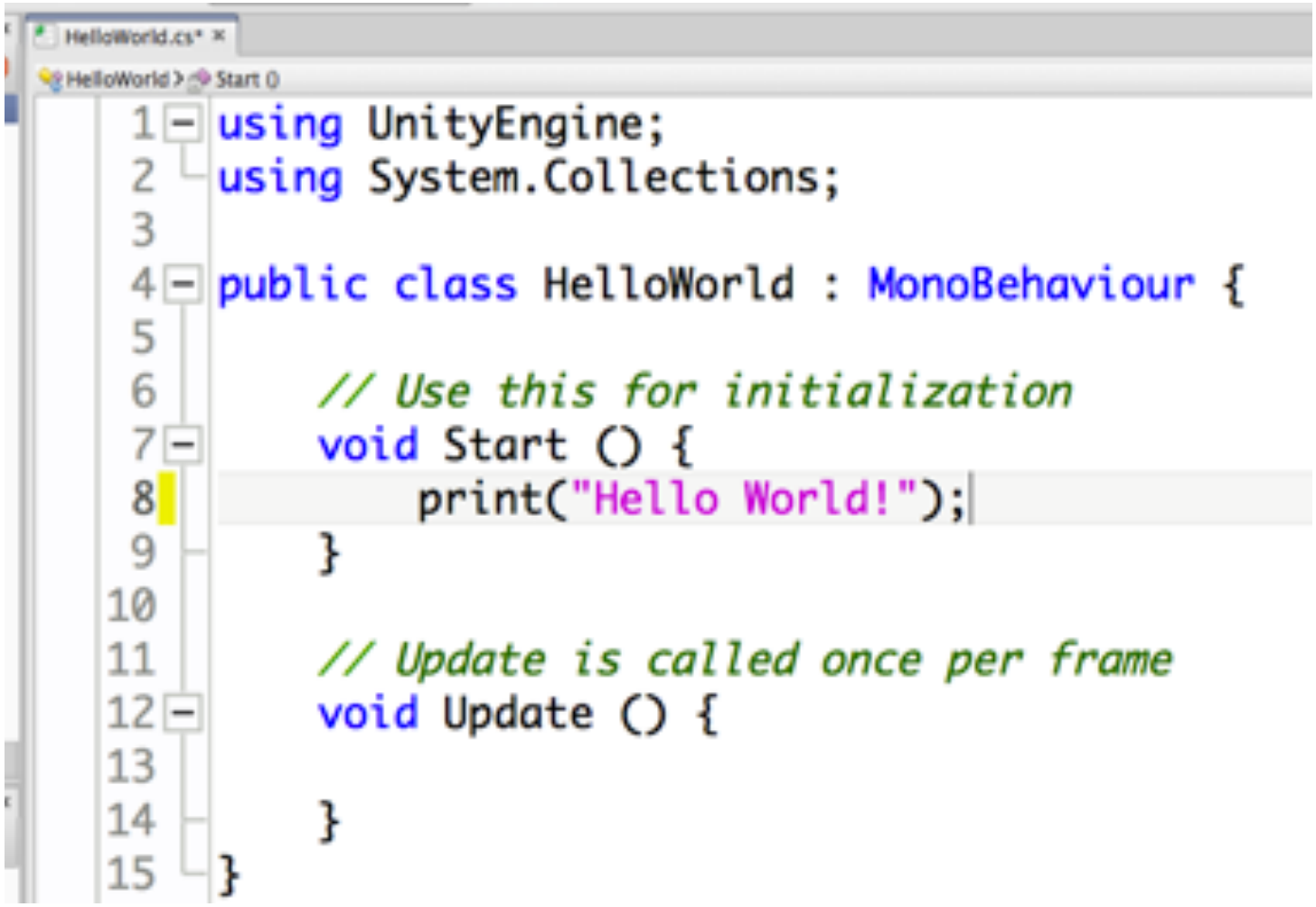
Hello World is often the first program written by anyone learning a new programming language.

Outputs "Hello World!" to the Console



Hello World?

The code of HelloWorld.cs is very simple



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

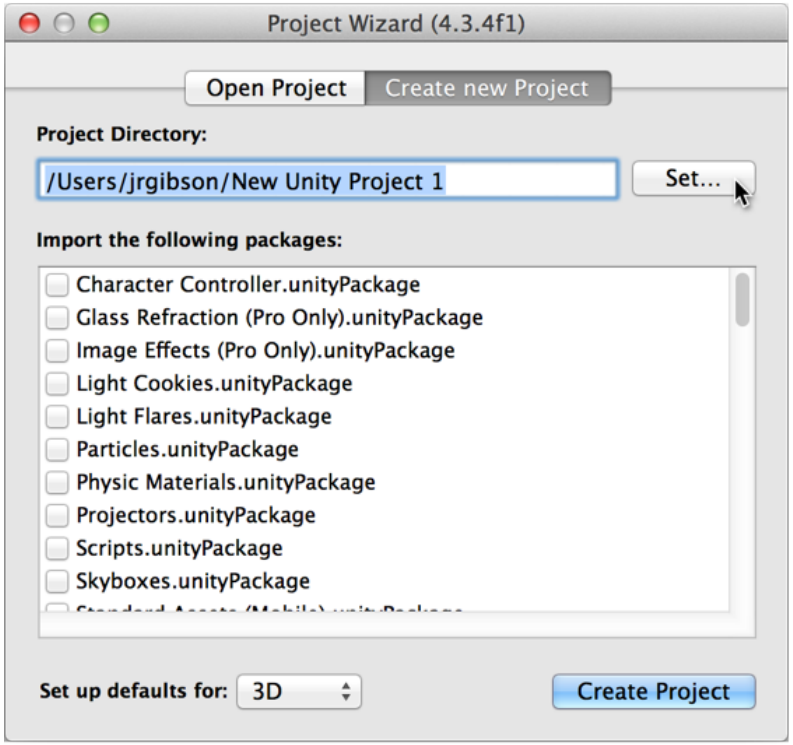
- ❑ Click the Browse… button
- ❑ Navigate to the right location
- ❑ Click the New Folder button and give the new folder the name of your project.
- ❑ Click the Select Folder button

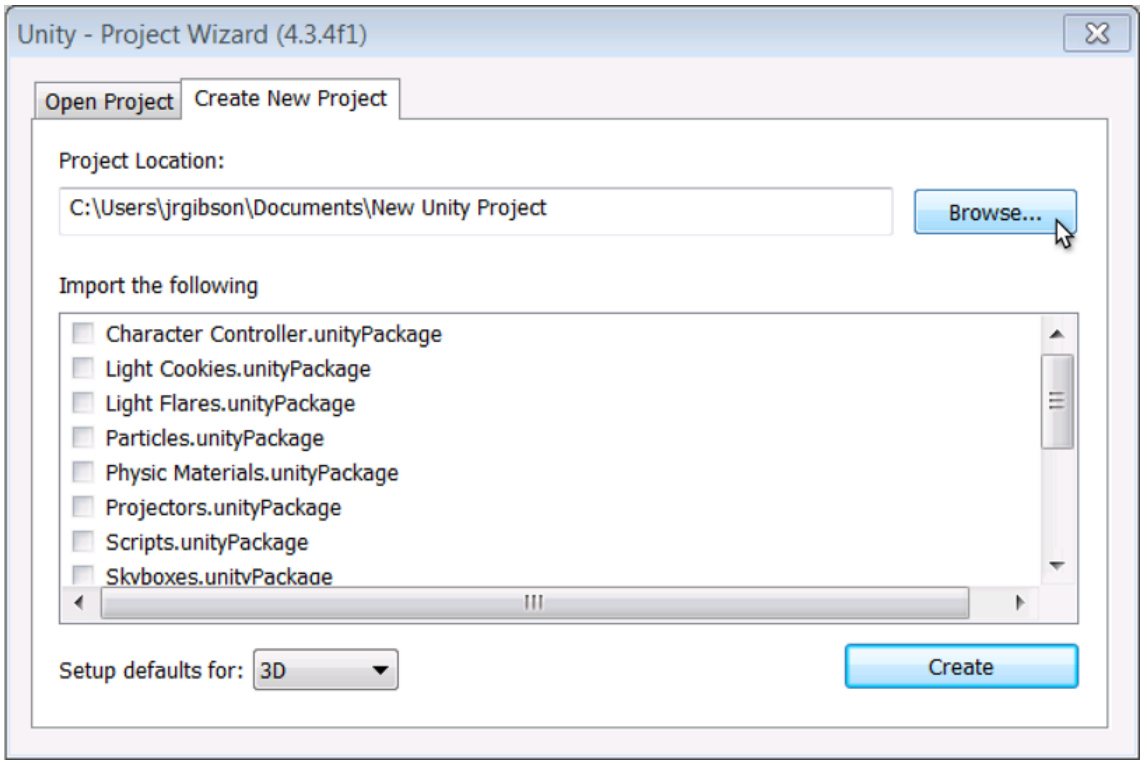
Creating a Unity Project

Set up defaults for 3D

- ❑ Click the Create Project or Create button

Appendix A contains detailed instructions

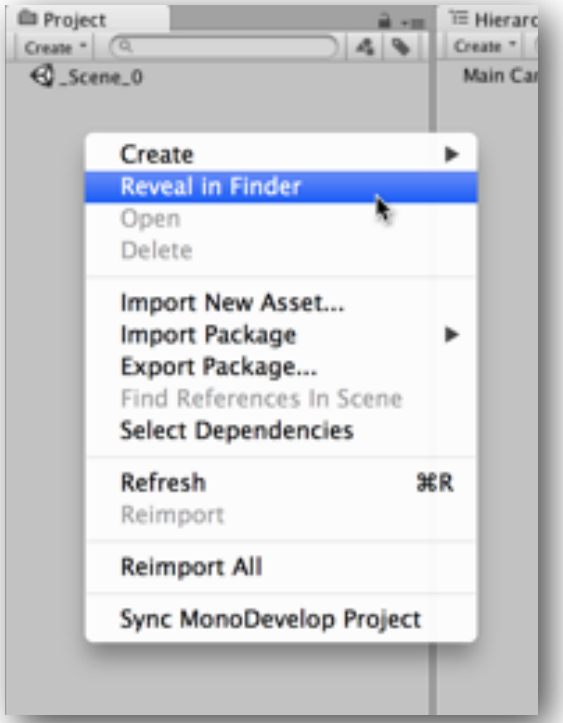


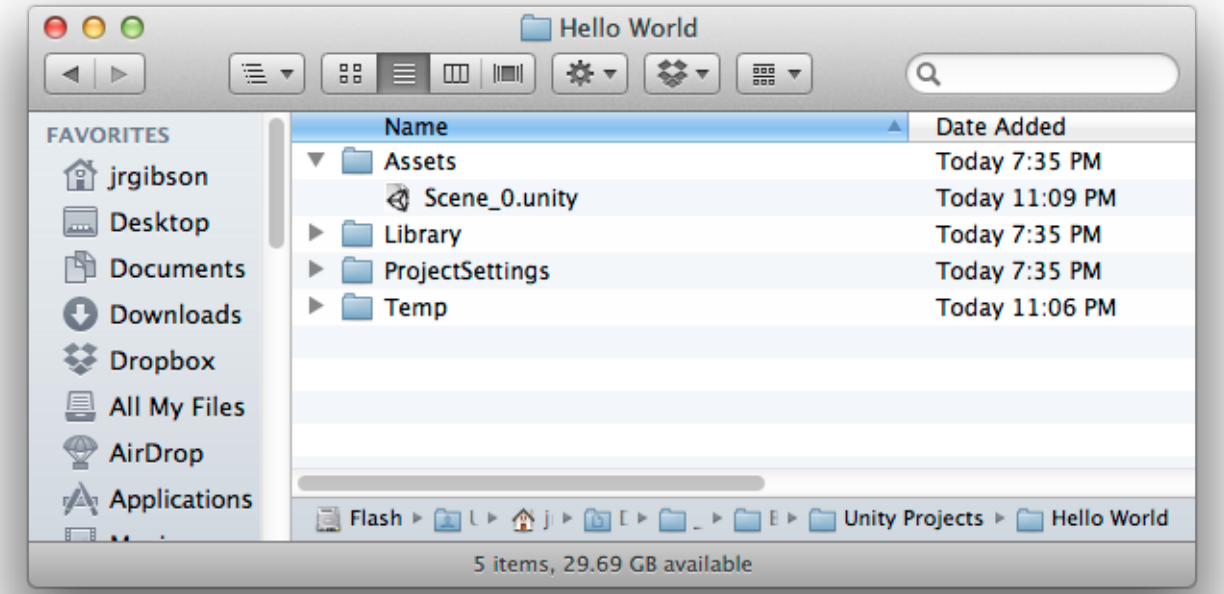


Creating a Unity Project

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 : Code Editor

Unity uses MonoDevelop for code editing

- MonoDevelop is a separate program developed by a different team

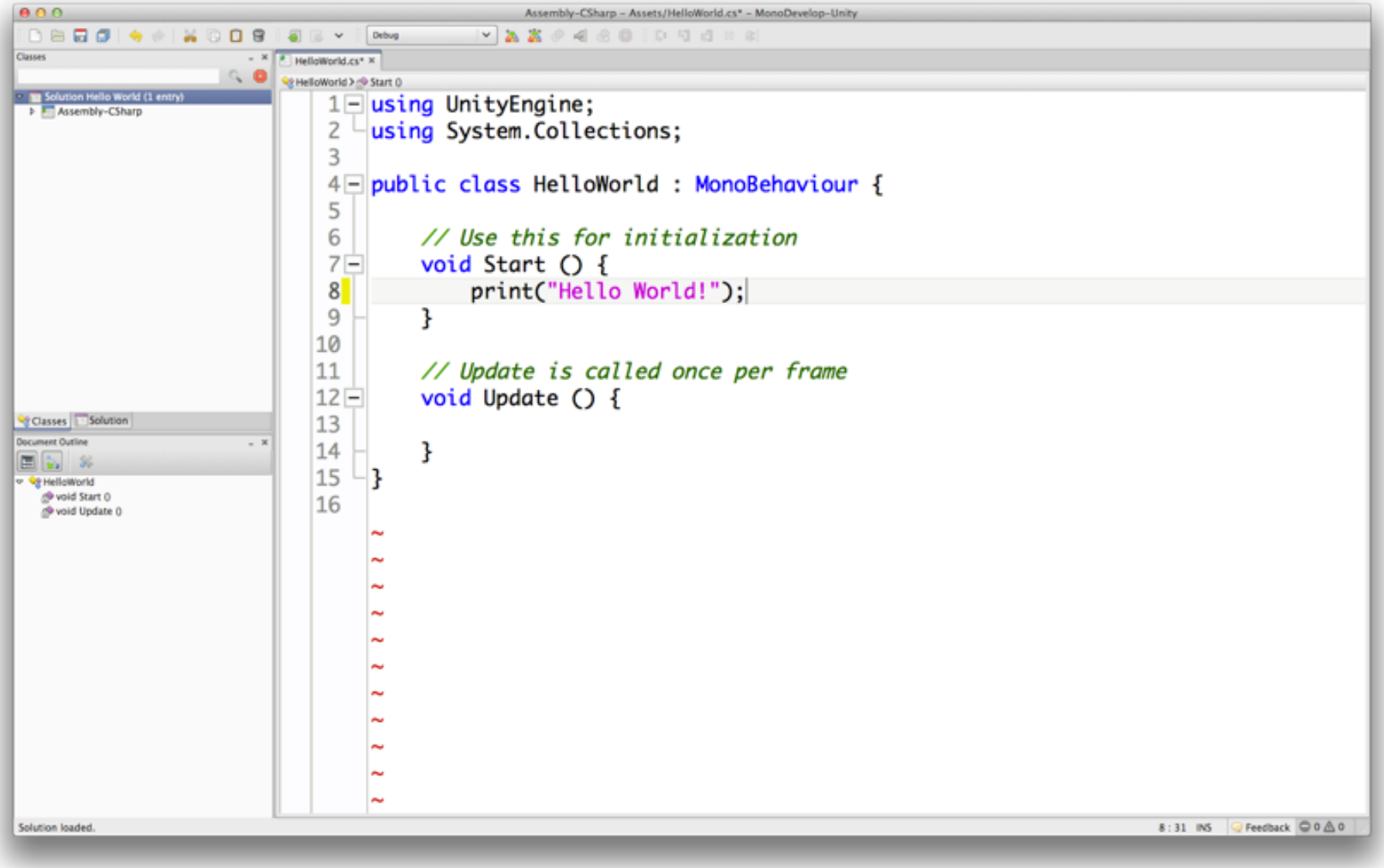
To open MonoDevelop, double-click any C# script in your Project pane

- 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

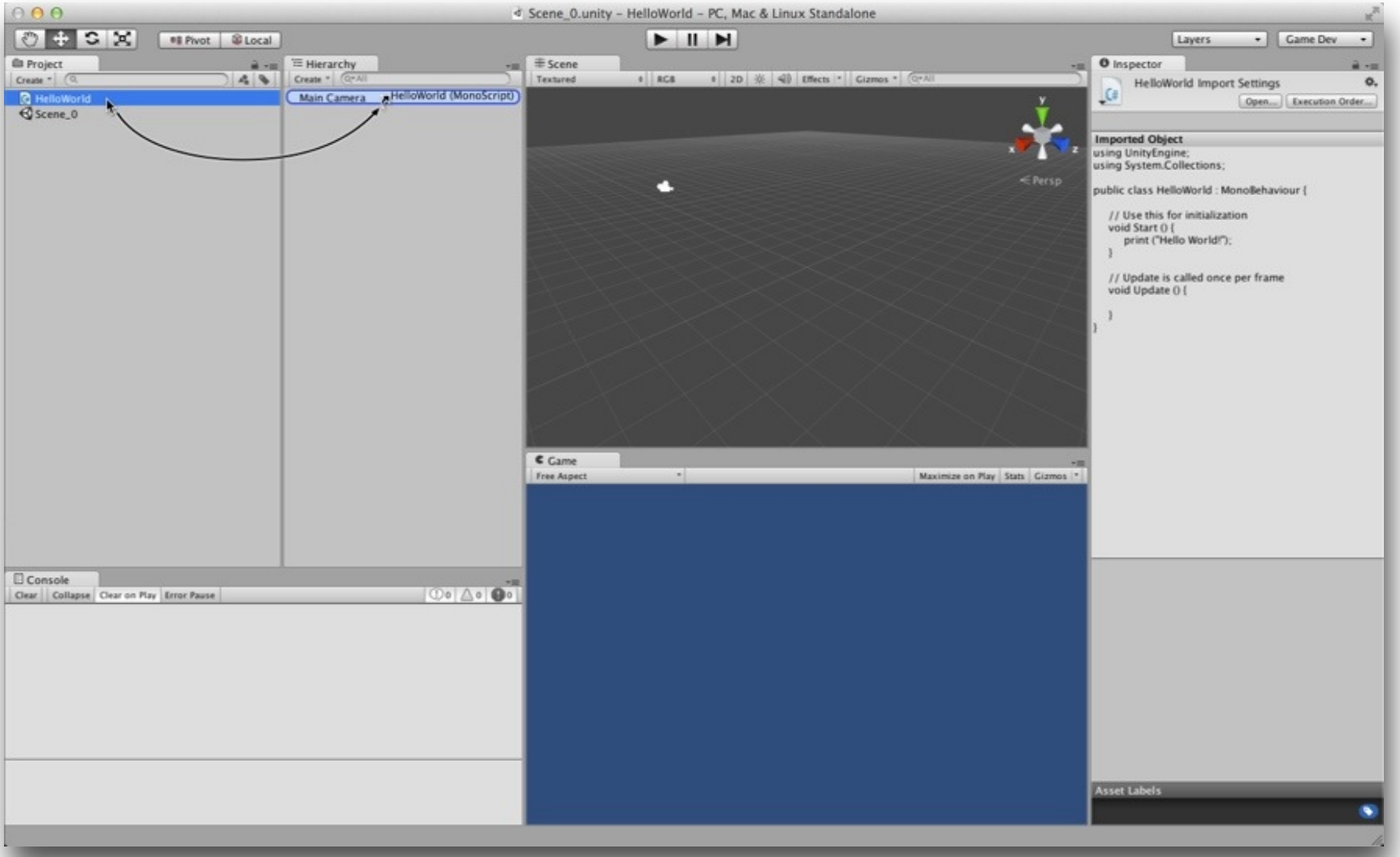
On Windows, Microsoft Visual Studio may be used - Instructions for this can be found online

MonoDevelop Window



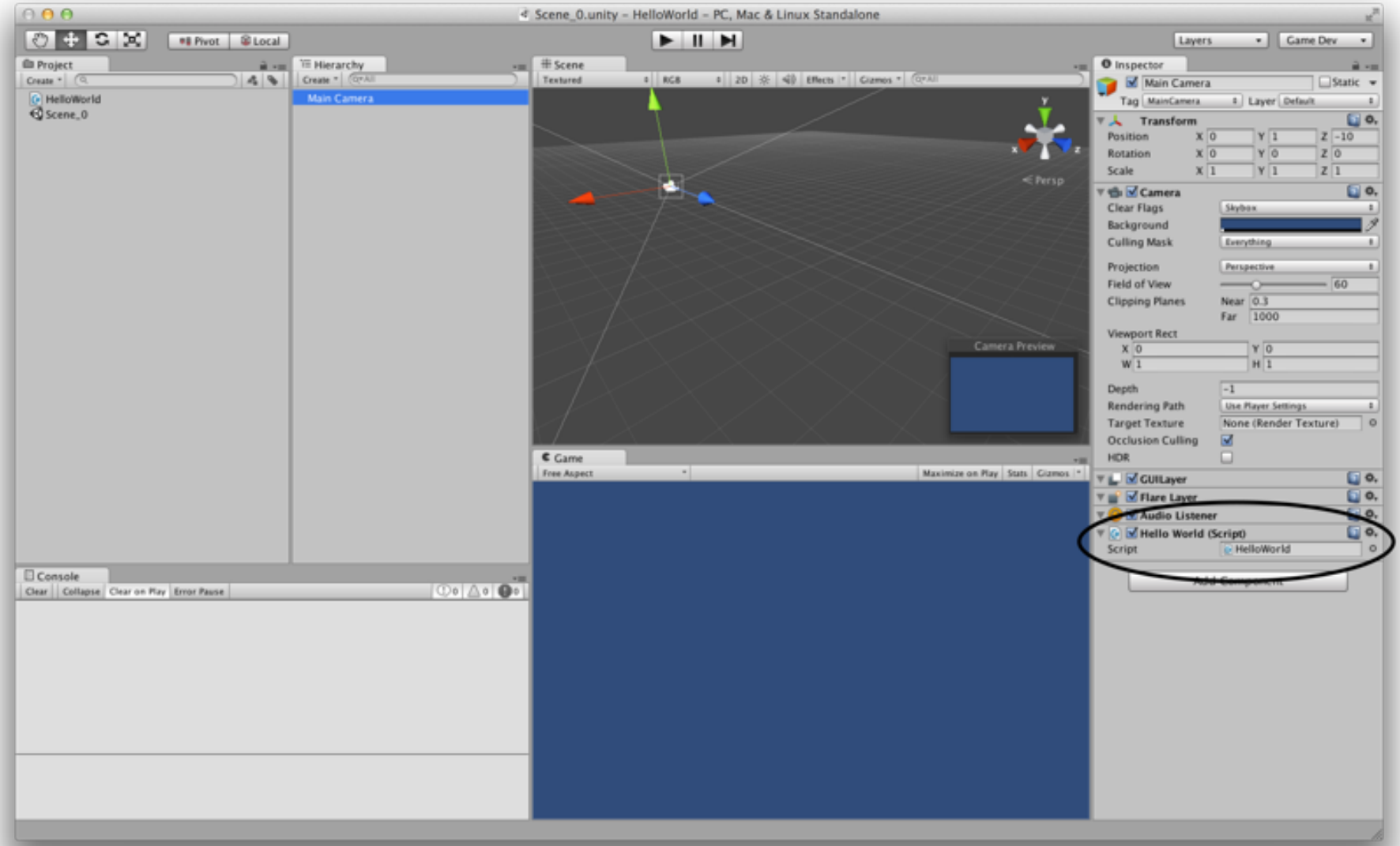
Attaching Scripts

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



Attaching Scripts

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 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

Hello World Project

Output "Hello World!" to the Console pane

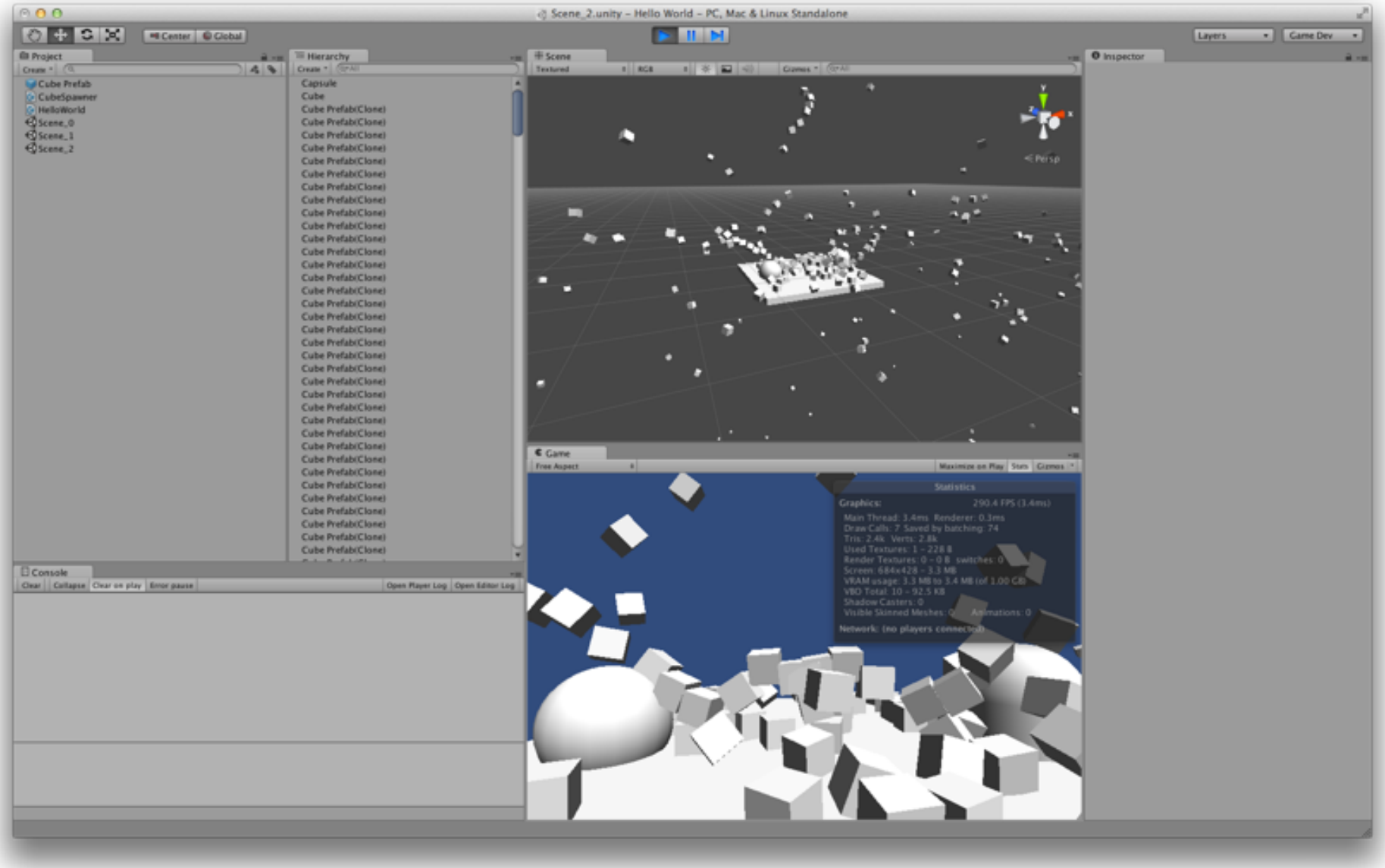
- Once using Start()
- Many times using Update()

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

Hello World Scene



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