CHAPTER 18

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?

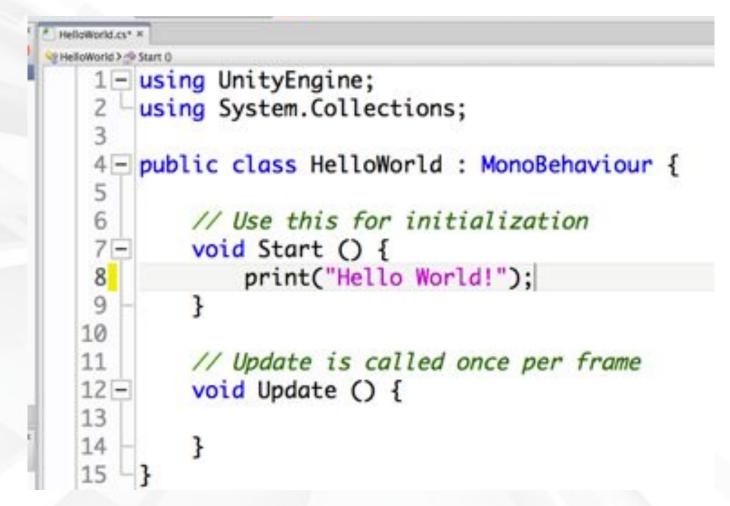
- Hello World is often the first program written by anyone learning a new programming language.
- Outputs "Hello World!" to the Console

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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

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Creating a Unity Project

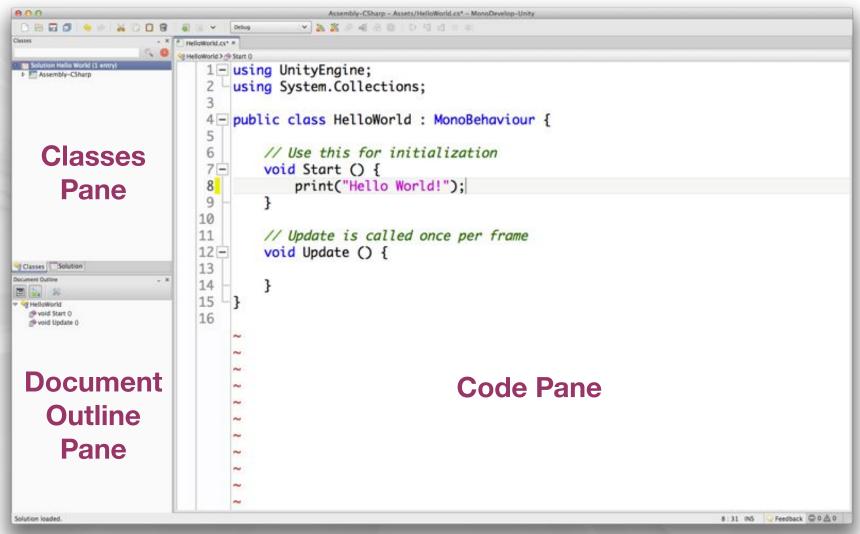
- The Project pane shows the contents of the Assets folder inside your Unity project folder
 - Right-click in the Project pane and choose Reveal in Finder (or Show in Explorer) from the pop-up menu

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MonoDevelop: Unity's Code Editor

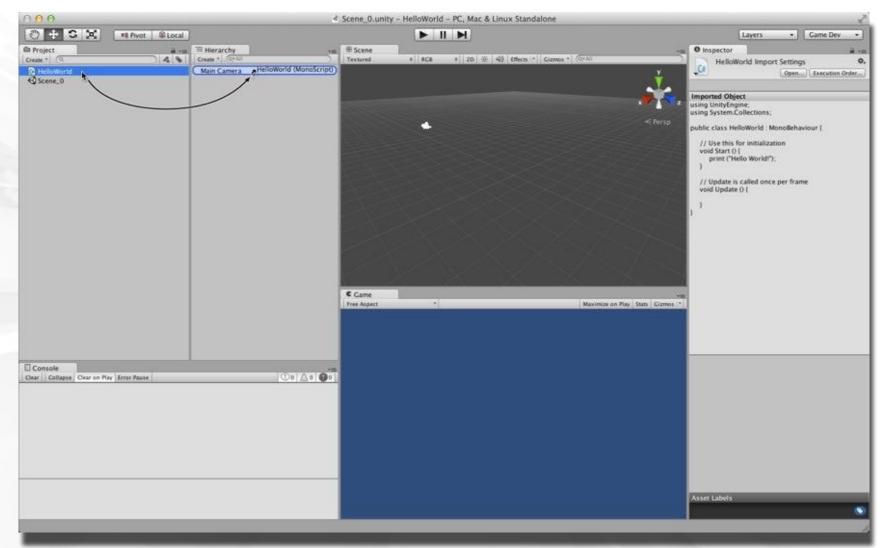
- Unity uses MonoDevelop for code editing
 - MonoDevelop is a separate program developed by a different team
- To open MonoDevelop, double-click any C# script in your Project pane
 - This will launch MonoDevelop
 - Though the launch process takes some time
- You must save a document in MonoDevelop for 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

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Attaching Scripts to GameObjects

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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()

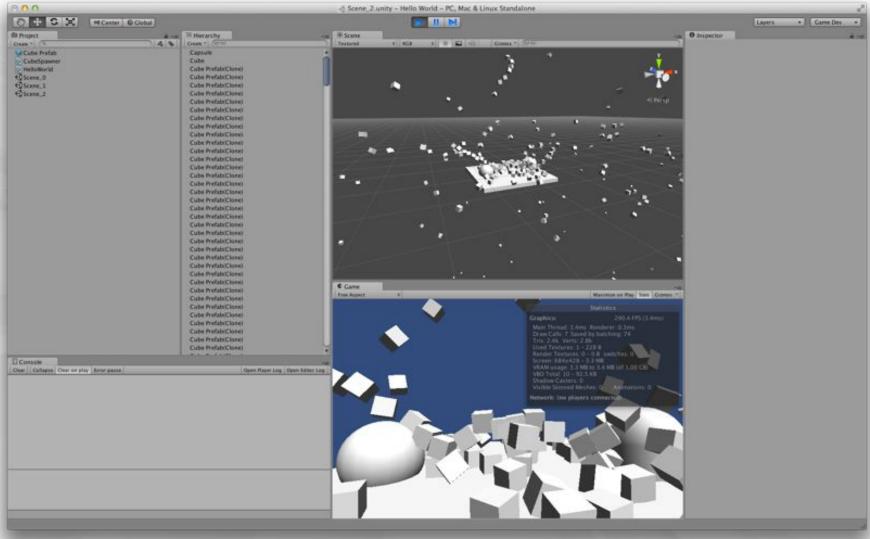
GameObject Prefabs and Instantiation

- 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