

# A Brief Introduction to openFrameworks and Unity

CC Lab 2016 openFrameworks Week 1



## openFrameworks

openFrameworks is an open source **C++ toolkit** designed to assist the creative process by providing a simple and intuitive framework for experimentation.



# openFrameworks is a well integrated collection of libraries

- OpenGL, GLEW, GLUT, libtess2 and cairo for **graphics**
- rtAudio, PortAudio, OpenAL and Kiss FFT or FMOD for **audio** input, output and analysis
- FreeType for **fonts**
- FreeImage for **image** saving and loading
- Quicktime, GStreamer and videoInput for **video** playback and grabbing
- Poco for a variety of **utilities**
- OpenCV for **computer vision**
- Assimp for **3D model** loading

Look at the range of things you can do with oF!

You don't have to know these libraries in order to use openFrameworks.  
The point of using oF is that it provides you with **a unified way to use all these functions.**

ofxaddons.com

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ofxAddons is directory of extensions and libraries for the [openFrameworks](#) creative coding toolkit. Compiled fresh from [Github](#) daily.

## Computer Vision

**ofx3hreeSpace**

*3hreeSpace offers a method for 3D tracking using two cameras*

Maintained by  [islandrabe](#)  
Last updated [2 years ago](#)  
Release? ~0.8.3  
★ 1  
Examples 1  
Categories: Computer Vision

**ofxActiveScan**

*Active 3D scan for uncalibrated projector-camera/Kinect*

Maintained by  [micuat](#)  
Last updated [2 years ago](#)  
Release? ~0.8.3  
★ 41  
Makefile  
Examples 6  
Categories: Computer Vision

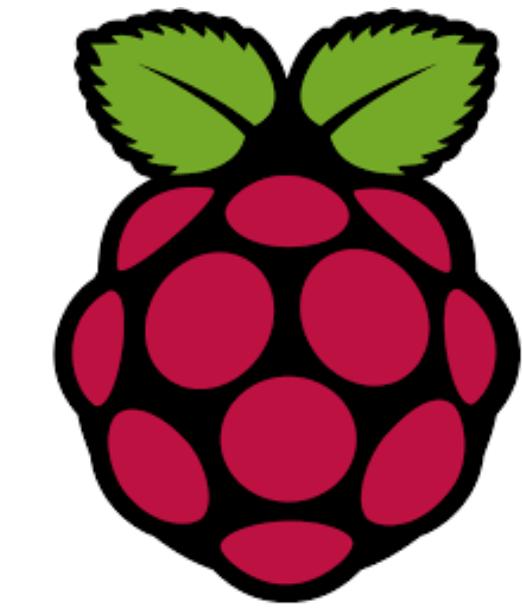
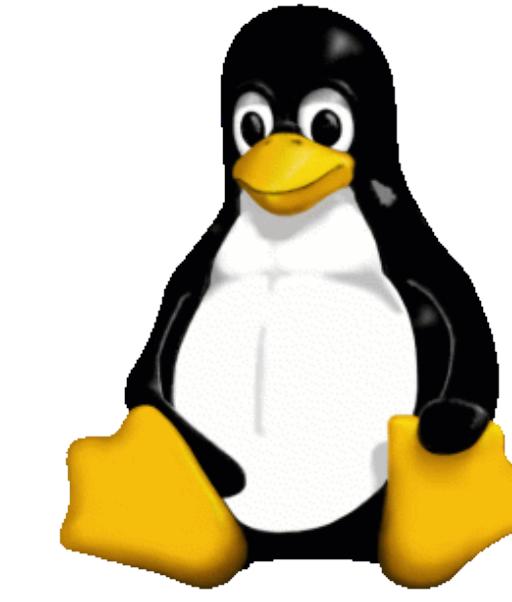
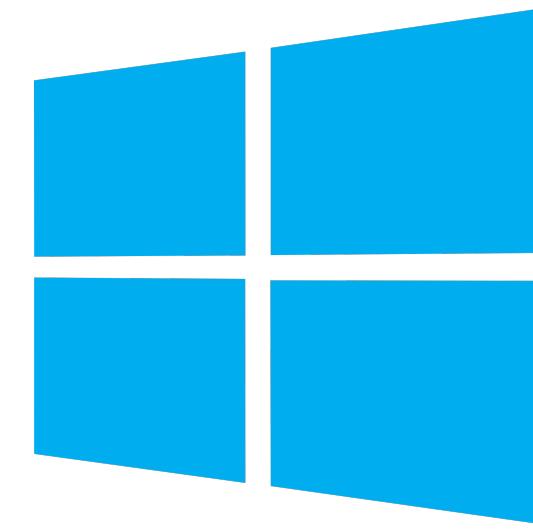
**OfxAddonCombo**

*Combining open frameworks libraries can be challenging. This app combines the ofx postprocessing library with the ofx optical flow library.*

Maintained by  [crecord](#)  
Last updated [4 years ago](#)  
Release? ~0.7.3  
★ 1  
Categories: Computer Vision

# openFrameworks is even enhanced by addons!

Addons are user-developed openFrameworks extensions. They provide popular functions which have not yet been integrated into the core code repo of oF. They may **save you a ton of time** and efforts.



## openFrameworks is cross-platform

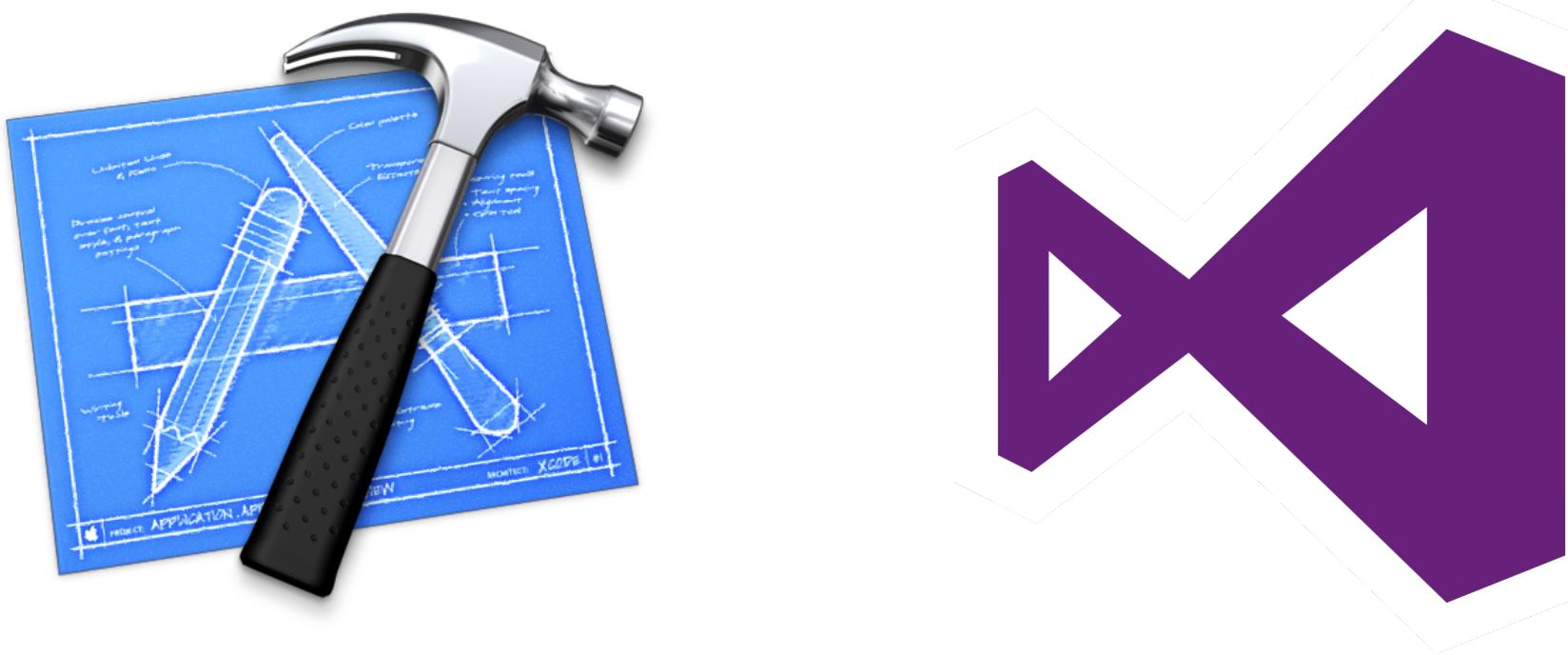
You can use it to develop a desktop app for Mac or PC or a mobile app. Your code even compiles on a Raspberry Pi. This means you can take advantage of what all these platforms offer. It also means you can write openFrameworks code for your **interactive installation**.



open source

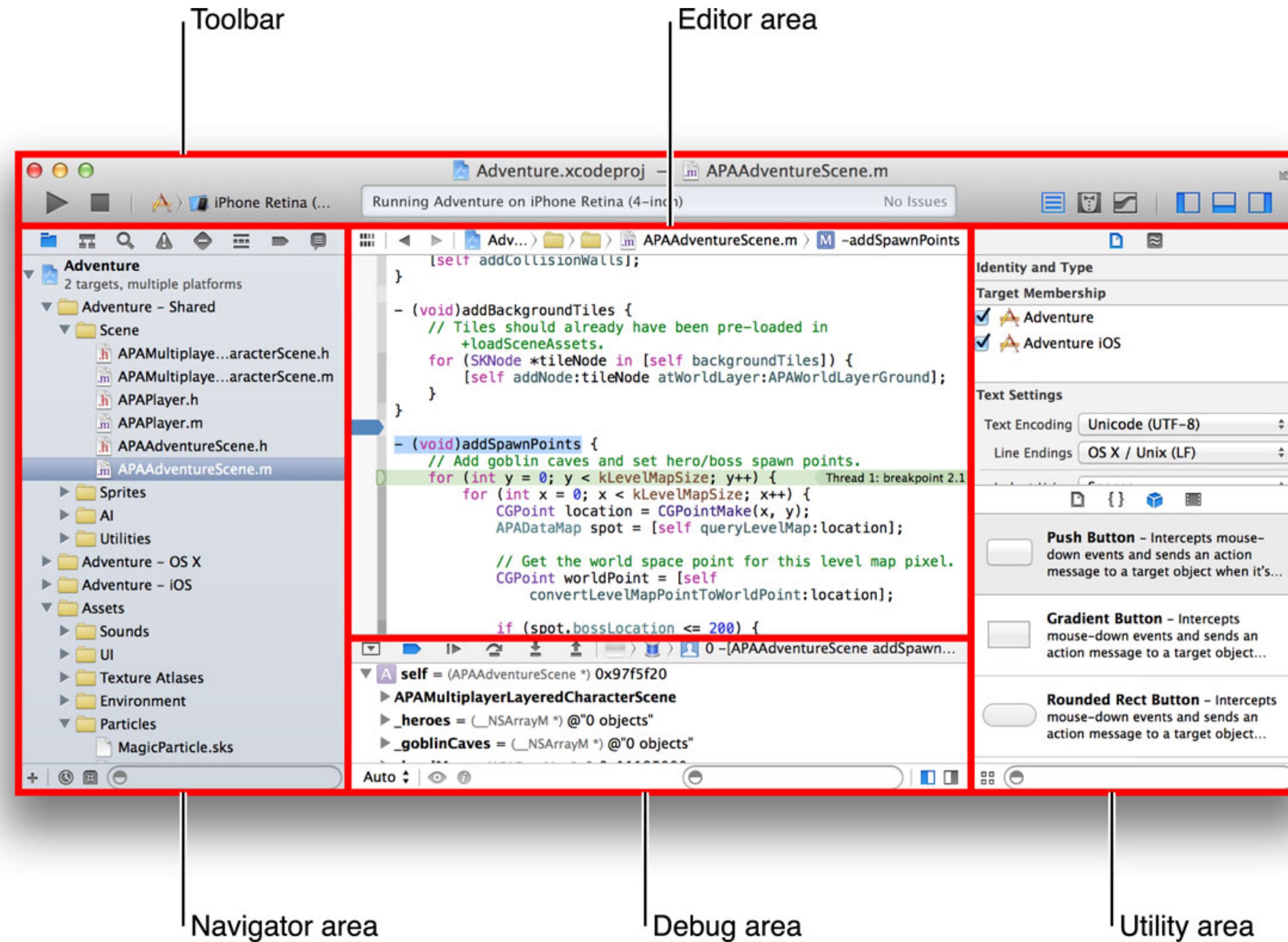
## openFrameworks is open source.

openFrameworks is distributed under the **MIT License**. This gives everyone the freedoms to use openFrameworks in any context: commercial or non-commercial, public or private, open or closed source.

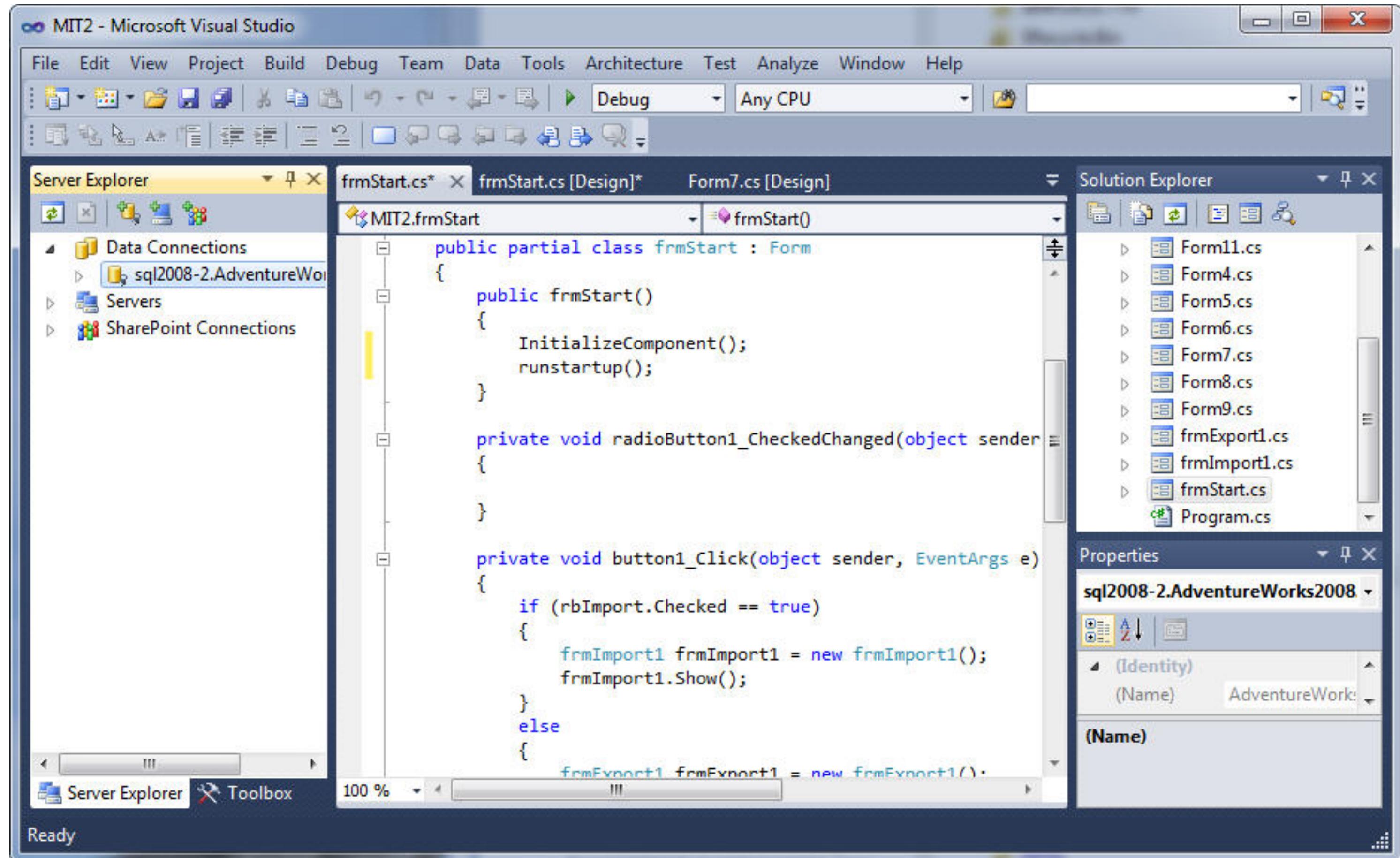


## You develop openFrameworks applications with an IDE

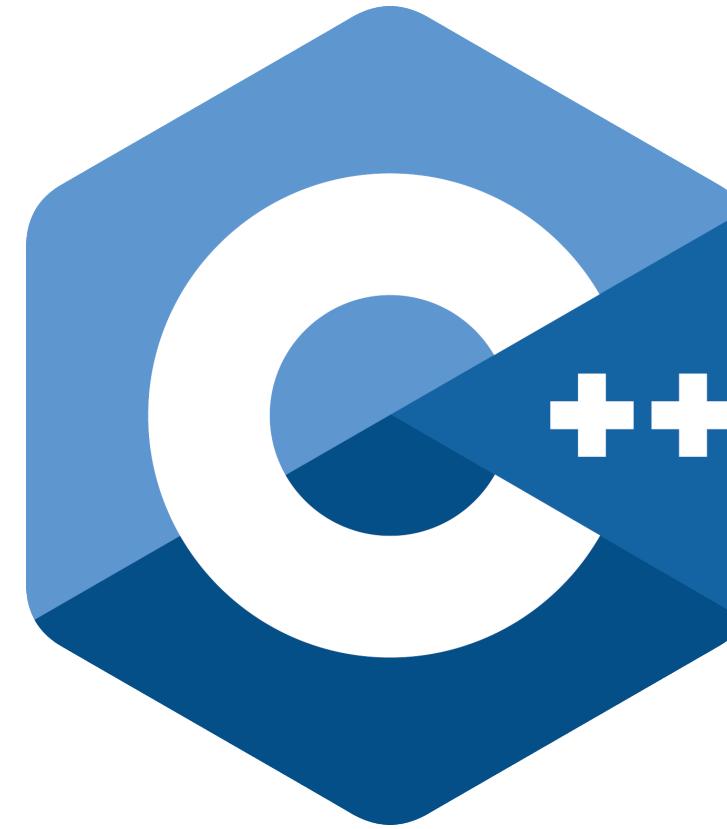
IDE is basically where you write your code and where you debug your app. An IDE normally consists of a **source code editor**, **build automation tools** and a **debugger**. Most modern IDEs have intelligent **code completion**.



On a Mac you use Xcode to develop oF applications.

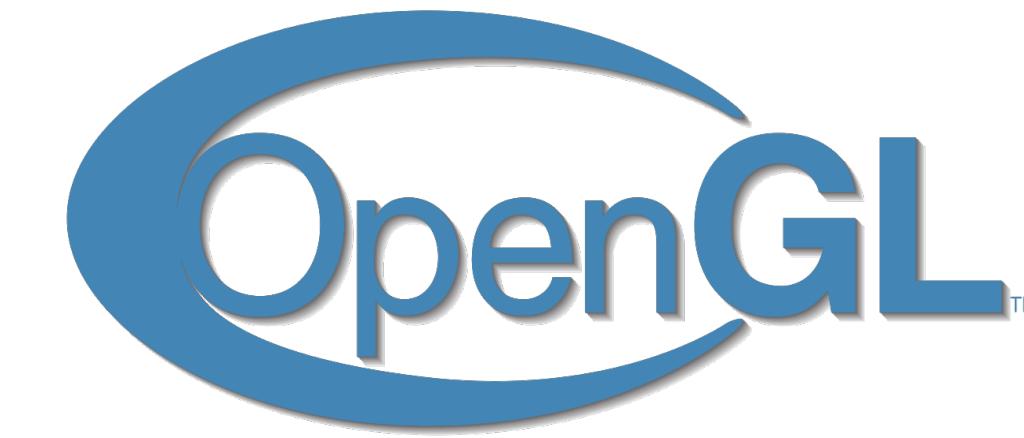


On a PC you use **Visual Studio** to develop oF applications.



## C++ Programming Language

openFrameworks is written in C++, and you write your oF applications in C++. C++ is a general-purpose programming language. It is **object-oriented**, that means it is designed for the development of modern and large-scale applications. It also provides facilities for **low-level memory manipulation**, that means when well written, C++ code is powerful and efficient.



**high-level tool**  
**basic**  
**intuitive**

**low-level tool**  
**powerful**  
**hard to learn**

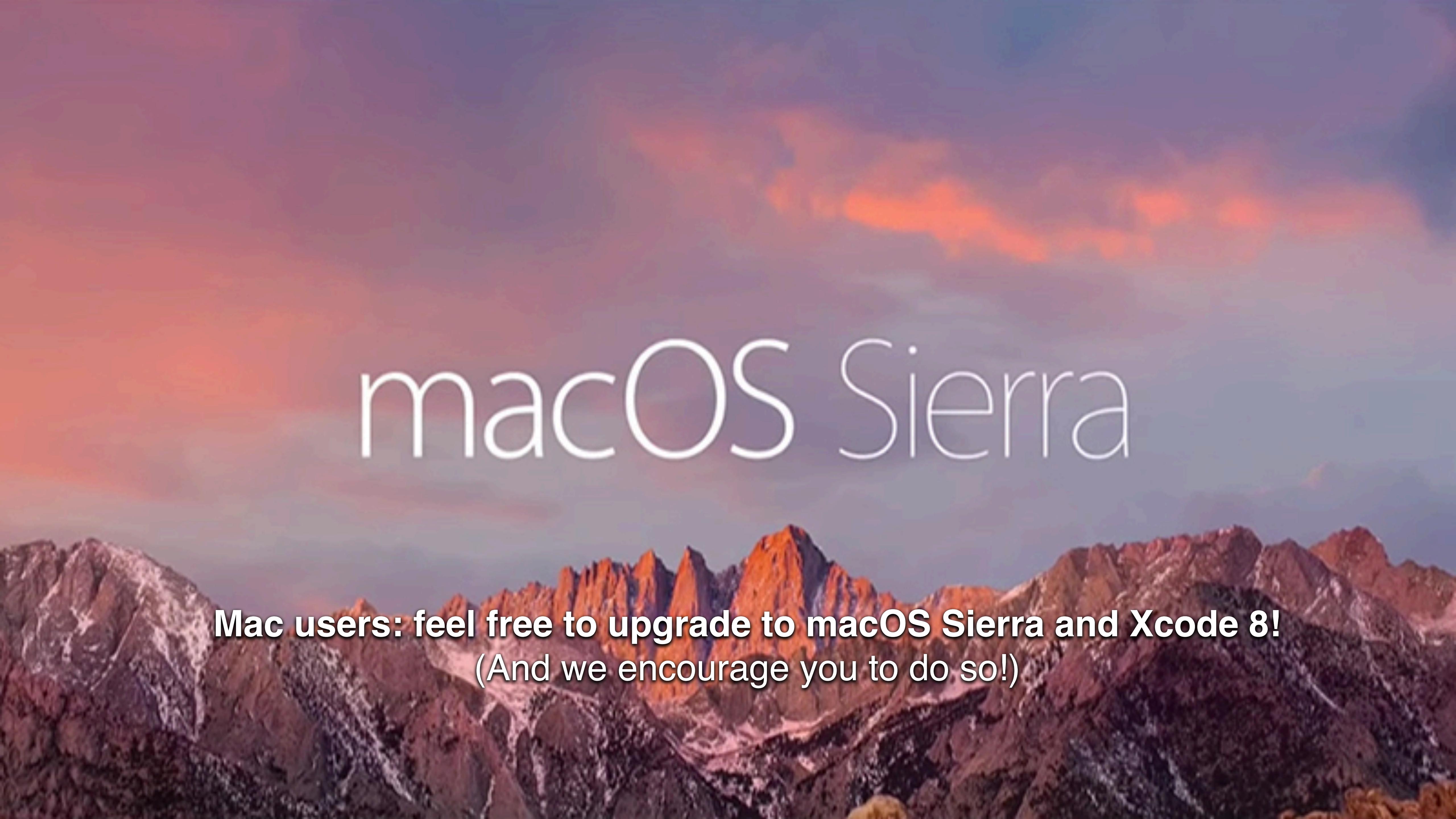
## Comparing creative coding environments...





## **Next steps: what if I like openFrameworks?**

- Creative Coding: openFrameworks
- Currents: Developing Interactive Installations with Cinder

The background of the slide is a scenic photograph of a mountain range at sunset or sunrise. The sky is filled with warm, orange and red hues, transitioning into cooler blues and purples. The mountain peaks in the foreground are rugged and rocky, with some snow or ice visible on their slopes. The overall atmosphere is serene and majestic.

# macOS Sierra

**Mac users: feel free to upgrade to macOS Sierra and Xcode 8!**  
**(And we encourage you to do so!)**

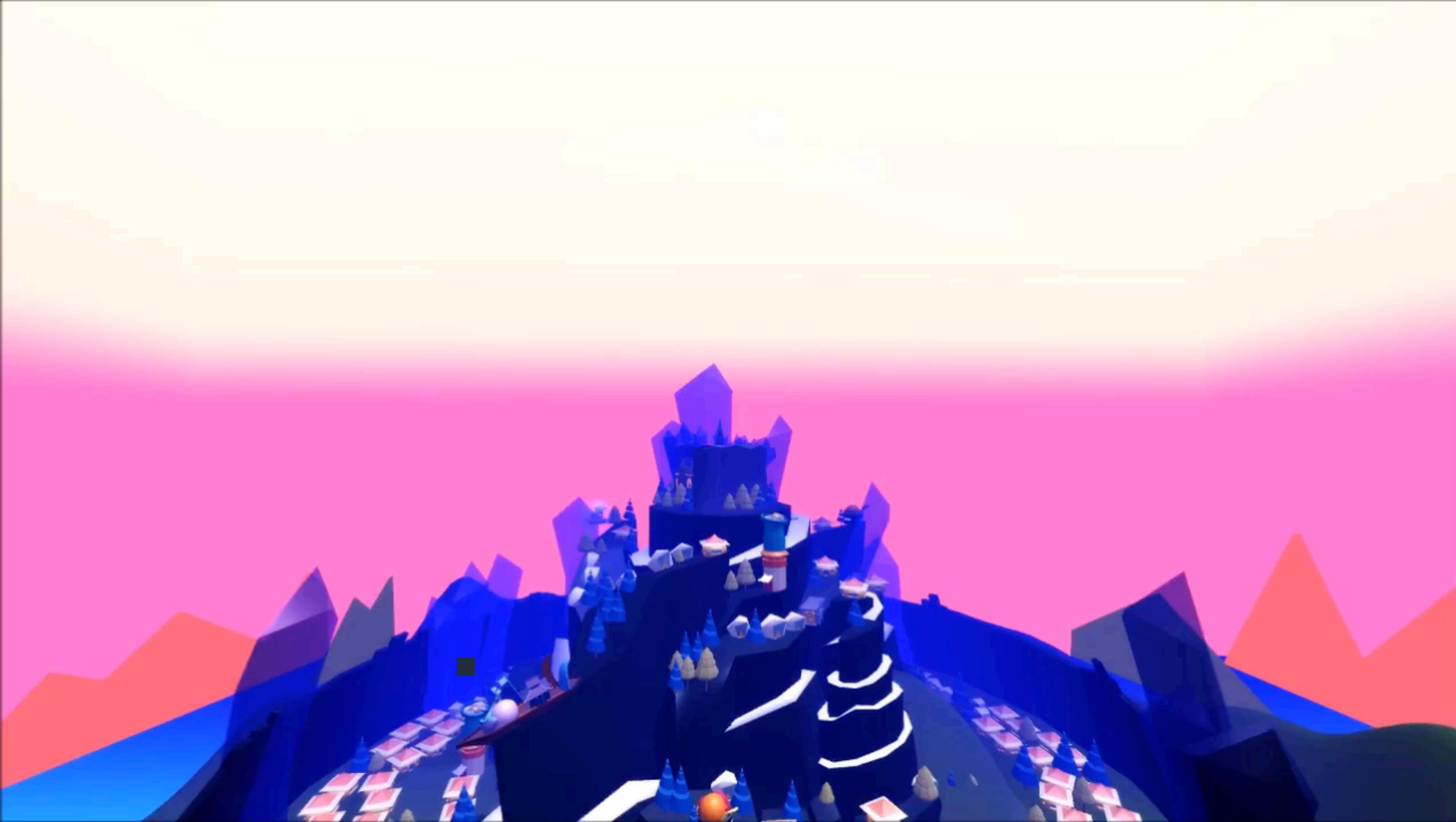


Unity is a **game engine**. You can create any 2D or 3D game with Unity. You can make it with ease, you can make it highly-optimized and beautiful, and you can deploy it with a click to more platforms (including **VR** headsets!) than you have fingers and toes.

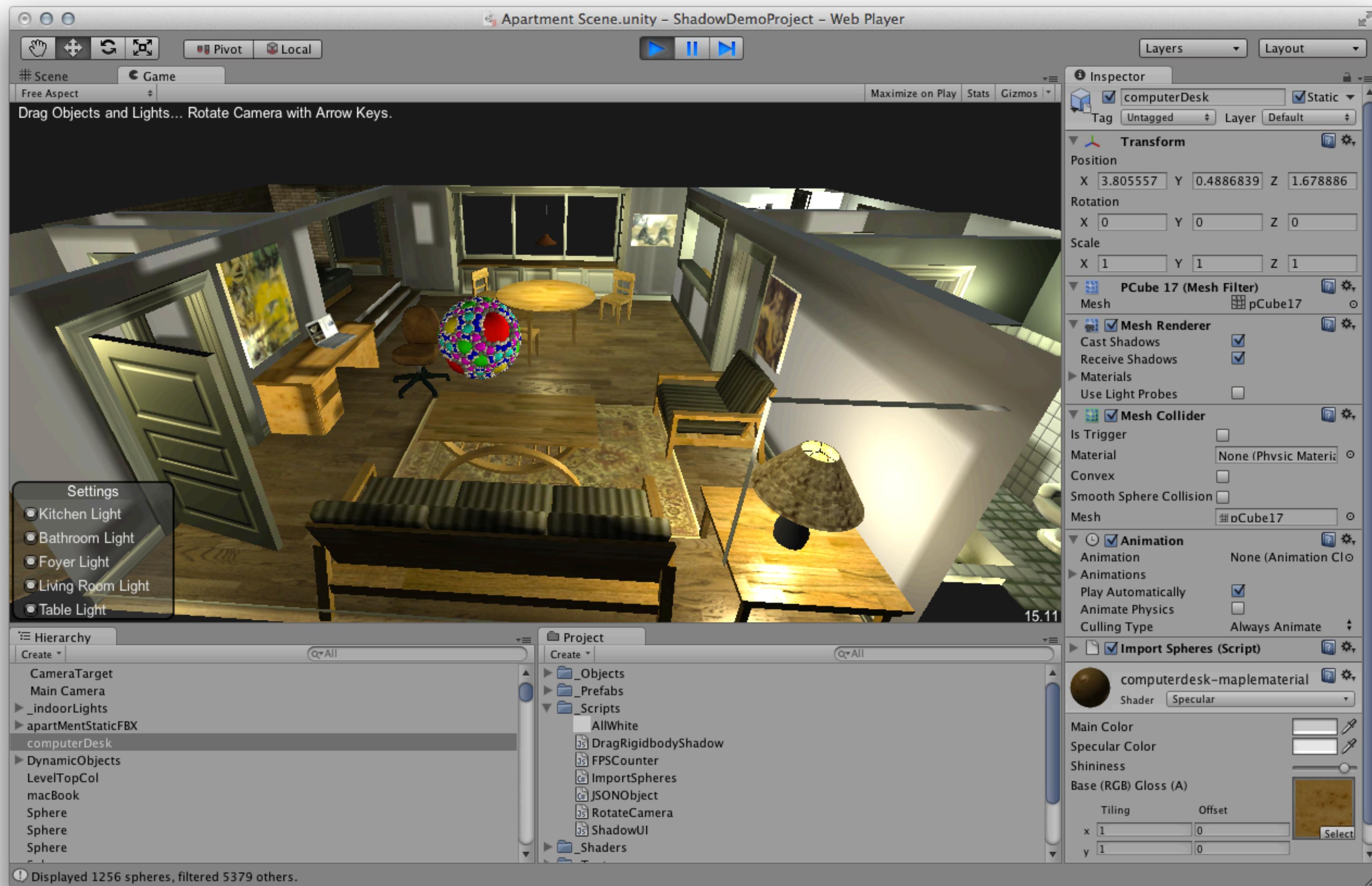


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You also use an IDE to develop Unity games/applications.



## C# Programming Language

You still have to write some code in order to implement your game logic. You'll write your code in C#, which is a programming language similar but simpler than C++.



## **Next steps: what if I like Unity?**

- Building Worlds
- Recursive Reality

Homework (*optional*):

**Download, and try to install openFrameworks!**

**Mac users:**

1. Download **openFrameworks for OS X** at  
<http://openframeworks.cc/download/>.
2. Follow the **Xcode Setup Guide** at  
<http://openframeworks.cc/setup/xcode/>.

**Windows users:**

1. Download **openFrameworks for Visual Studio (2015)** at  
<http://openframeworks.cc/download/>.
2. Follow the **Visual Studio Setup Guide** at  
<http://openframeworks.cc/setup/vs/>.