

# iPhone App Development

CM420-09-2016-C

Lesson 1

Lecturer

**Bryant Tang**

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# FAQ

- What you have to bring in every class?

**Macbook & your heart (on time, plz....)**

- What activities in class?

**Topic talk -> coding example -> exercise**

- How to get the resource and material?

Use **Git** ( <https://github.com/bryanttang/iOS-Class-2016-9> )

# Calendar

Sun	Mon	Tue	Wed	Thu	Fri	Sat
18	19	20	21	22	23	24
	• iOS 7 PM		• iOS 7 PM			
25	26	27	28	29	30	1 Oct
	• iOS 7 PM		• iOS 7 PM			
2	3	4	5	6	7	8
	• Holiday 9 AM		• iOS 7 PM			
9	10	11	12	13	14	15
	• Holiday 9 AM		• iOS 7 PM			
16	17	18	19	20	21	22
	• iOS 7 PM		• iOS 7 PM			
23	24	25	26	27	28	29
	• iOS 7 PM		• iOS 7 PM			

# Schedule

Class-1

**19/09**

- - - -

- Introduction
- Xcode
- Your first Project

Class-2

**22/09**

- - - -

- Objective-C
- Storyboard
- Control an UI

Class-3

**26/09**

- - - -

- UIView, UIViewController
- Gesture
- Animation

Class-4

**29/09**

- - - -

- UI Constraint
- Picker View

**03/10**

**Holiday**

Class-5

**6/10**

- - - -

- UITableViewController
- Custom Cell

# Schedule

**10/10**

**Holiday**

Class-6

**13/10**

- - - -

- Navigation Controller
- Tab bar Controller
- Running Mission

Class-7

**17/10**

- - - -

- MapKit
- Third Party Resource
- Core Location
- UIAlertView

Class-8

**20/10**

- - - -

- Network Data (JSON, Image)\*
- Concurrent Programming
- Plist

Class-9

**24/10**

- - - -

- NSTimer
- AVAudioPlayer
- Swift

Class-10

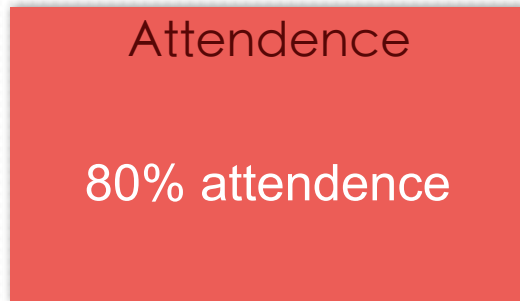
**27/10**

- - - -

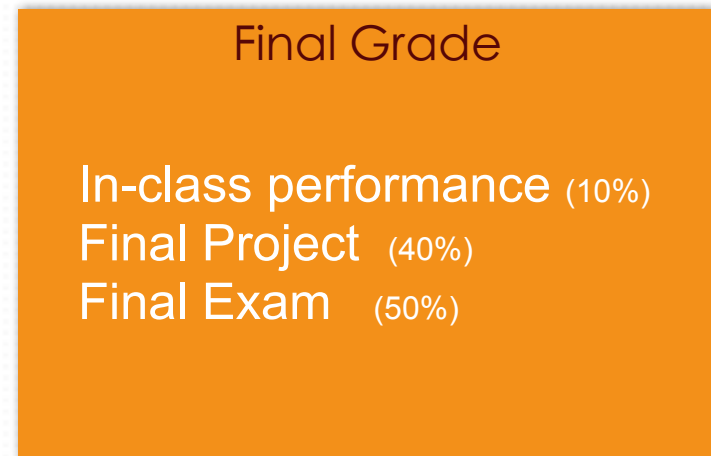
- Distribute your app
- Final exam and Demo

# Grade

How to get the Certificate?



+





# Summary

- Develop in iOS
- Development environment
- Objective-c Part 1



# Benefits of iOS development

- Devices amount are limited
- Friendly development environment
- Simple app distribution channel
- Review process acts as a quality guard
- The OS is designed to work very great in mobile.

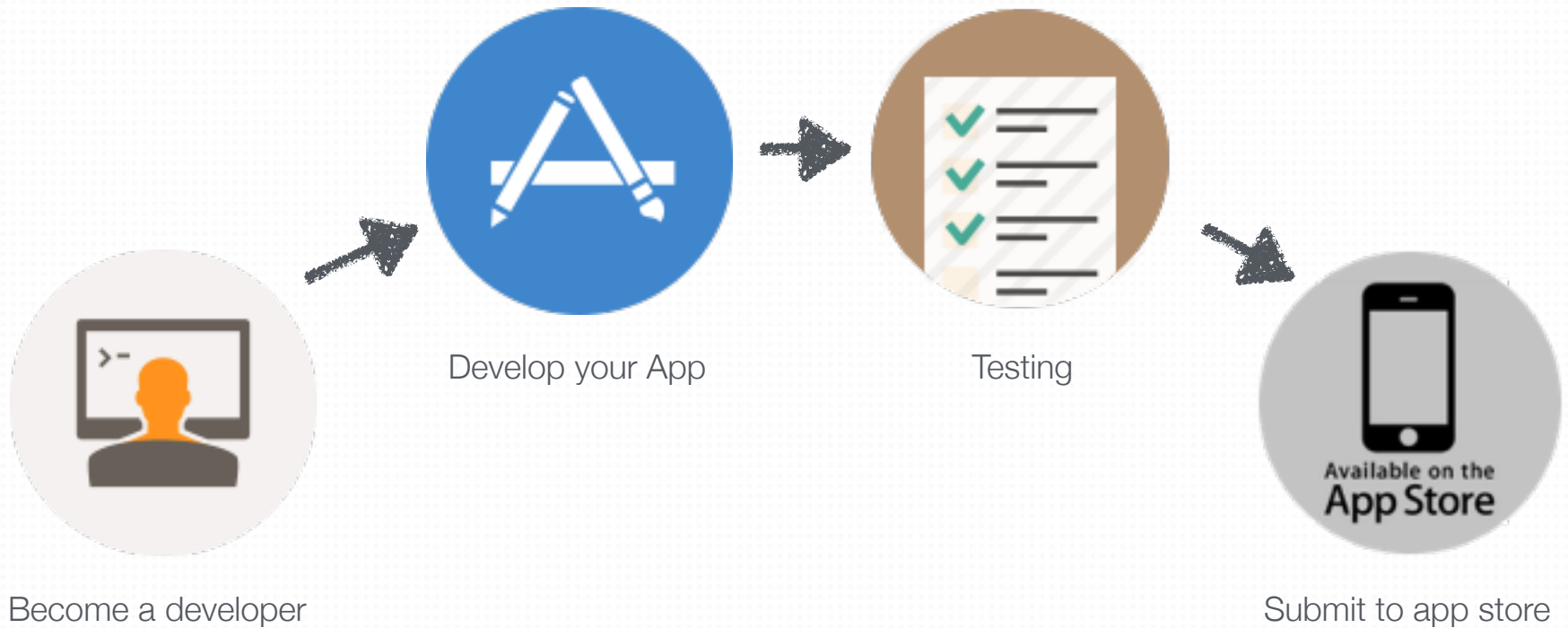
# Weakness of iOS development

- Long waiting time for first submit
- Reviewing process take time
- More constrain(secure) for developing apps than other platform (Android)

We are going to learn...

- How to code by using Objective-C
- How to use storyboard to build an app
- How to use different user interface components in iOS.
- How to build apps and submit to App Store.

# How do I have a app?



# Easy to become a iOS Developer

- Sign in an Apple account
- Enroll a program

# Sign in Member Center

[Technologies](#)[Resources](#)[Programs](#)[Support](#)[Member Center](#)[Create Apple ID](#)[Sign In](#)

# Become an iOS Developer

<http://developers.apple.com>

## iOS

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### iOS Developer Program Individual \$99 / Year

For an individual developer who will be creating free and commercial iOS apps for distribution on the App Store.

### iOS Developer Program Company \$99 / Year

For a company with a development team who will be creating free and commercial iOS apps for distribution on the App Store.

### iOS Developer Enterprise Program \$299 / Year

For a company who will be creating proprietary, in-house iOS apps.

**Note:** A Dun & Bradstreet Number is required.

### iOS Developer University Program Free

For higher education institutions looking to introduce iOS development into their curriculum.



# iOS Platform

# iOS Version

							
Version	iPhone OS 2	iPhone OS 3	iOS 4	iOS 5	iOS 6	iOS 7	
Codename	Big Bear	Kirkwood	Apex	Telluride	Sundance	Innsbruck	
New APIs	n/a	1000	1500	1500	n/a	1500	
New Features	n/a	100	100	200	200	n/a	
Tentpoles	4	12	7	10	10	10	
	Enterprise enhancements	In app purchase	Multitasking	Notification Center	Apple maps	Control Center	
	Microsoft Exchange	Peer-to-peer connectivity	Folders	Newsstand	Siri enhancements	Notification Center enhancements	
	iPhone SDK	Accessories access	Mail enhancements	Reminders	Facebook integration	Multitasking enhancements	
	App Store	Embedded Maps	iBooks for iPhone	Twitter integration	Shared Photo Streams	Camera enhancements	
		Push notifications (redux)	Enterprise enhancements	Camera enhancements	Passbook	Photos enhancements	
		Cut, copy, and paste	Game Center	Photo enhancements	FaceTime over cellular	Airdrop	
		Landscape	iAd	Safari enhancements	Phone enhancements	Safari enhancements	
		MMS		PC free	Mail enhancements	iTunes Radio	
		Voice Memos		Game Center	Safari enhancements	Siri enhancements	
		Calendar enhancements		iMessage	Accessibility enhancements	iOS in the Car	
		Stocks enhancements		(iCloud)	(Chinese enhancements)		
		Spotlight search					
Additional Features	Contact search	Voice Control	FaceTime	Siri	Panoramas	n/a	
	Quick look enhancements	Video Recording	720p	1080p			
	Mail enhancements						
	Scientific calculator						
	Parental controls						
	Languages						
	MobileMe						
	3G + GPS						

What's breakthrough in iOS 8



Swift

# iOS Architecture

Your app

Cocoa Touch

Media

Core Services

Core OS

Hardware

• **Core OS**

• OSX Kernel

Power Management

• Mach 3.0

Keychain Access

• BSD

Certificates

• Sockets

File System

• Security

Bonjour

.....

# iOS Architecture

Your app

Cocoa Touch

Media

Core Services

Core OS

Hardware

• **Core Services**

• Collections      Core Location

• Address Book    Net Services

• Networking      Threading

• File Access      Preferences

• SQLite            URL Utilities

# iOS Architecture

Your app

Cocoa Touch

Media

Core Services

Core OS

Hardware

- **Media**

- Core Audio      JPEG, PNG, TIFF

- OpenAL      PDF

- Audio Mixing      Quartz(2D)

- Audio Recording      Core Animation

- Video Playback      OpenGL ES

- Airplay

# iOS Architecture

Your app

Cocoa Touch

Media

Core Services

Core OS

Hardware

.....  
• **Cocoa Touch**

• Multi-Touch

Alerts

• Core Motion

Web View

• View Hierarchy

Map Kit

• Localization

Image Picker

• Controls

Camera



Development resource

Hello, WWDC 16.



<https://developer.apple.com/videos/wwdc2016/>

# iOS developer Library

<https://developer.apple.com/library/ios/navigation/>



## Guides and Sample Code

### Guides and Sample Code

#### ▼ Platforms

iOS  
macOS  
watchOS  
tvOS

#### ▼ Resource Types

Guides  
Release Notes  
Sample Code  
Technical Notes  
Technical Q&As  
Xcode Tasks

#### ▼ Topics

Apple Applications  
Audio, Video, & Visual Effects  
Cross Platform  
Data Management  
Drivers, Kernel, & Hardware  
General

## Looking for API reference documentation?

Browse our new [API Reference](#) pages.



Documents

1830 of 1830

Title	Resource Type	Topic	Technology	Date
▶ <a href="#">AVCamManual: Extending AVCam to Use Manual Capture API</a>	Sample Code	Audio, Video, & Visual Effects	AVFoundation	2016-09-15 Minor Change
▶ <a href="#">AVCamBarcode: Using AVFoundation to Detect Barcodes and Faces</a>	Sample Code	Audio, Video, & Visual Effects	AVFoundation	2016-09-15 Minor Change
▶ <a href="#">AVCam-iOS: Using AVFoundation to Capture Images and Movies</a>	Sample Code	Audio, Video, & Visual Effects	AVFoundation	2016-09-15 Minor Change
▶ <a href="#">Network Service Type Settings</a>	Technical Q&As	Networking, Internet, & Web	Foundation	2016-09-14 First Publication

# Learning on iTunes

iTunes U > Stanford



Stanford  
Category: Computer Science  
Language: English  
Published 18 Apr, 2016  
When viewed using the iTunes U app for iOS, this course may include enhanced materials such as instructor notes and assignments.

## Developing iOS 9 Apps with Swift

Paul Hegarty

[Details](#) [Ratings and Reviews](#) [Related](#)

### Description

Updated for iOS 9 and Swift. Tools and APIs required to build applications for the iPhone and iPad platforms using the iOS SDK. User interface design for mobile devices and unique user interactions using multi-touch technologies. Object-oriented design using model-view-controller paradigm, memory management, Swift programming language. Other topics include: animation, mobile device power management, multi-threading, networking and performance considerations.

[more](#)

### Course Outline

- I. Introduction to iOS, Xcode 7, and Swift
- II. Using MVC in iOS
- III. Swift and the Foundation Framework
- IV. Views and Gestures
- V. Core Data

[more](#)

▲	NAME		TIME	RELEASED	DESCRIPTION		POPULARITY	PRICE
1	1. Course Overview and Int...	📺	1 hr 17 min		Paul Hegarty pr...	i	<div><div></div></div>	<a href="#">Get</a> ▼
2	Lecture 1 Slides						<div><div></div></div>	<a href="#">Get</a> ▼
3	Reading 1: Intro to Swift						<div><div></div></div>	<a href="#">Get</a> ▼
4	2. Applying MVC	📺	1 hr 21 min		Paul Hegarty ex...	i	<div><div></div></div>	<a href="#">Get</a> ▼

Getting Your Hand Dirty

# Development Environment



- **OS X v10.11.6**

- Download:

<https://developer.apple.com/xcode/downloads/>

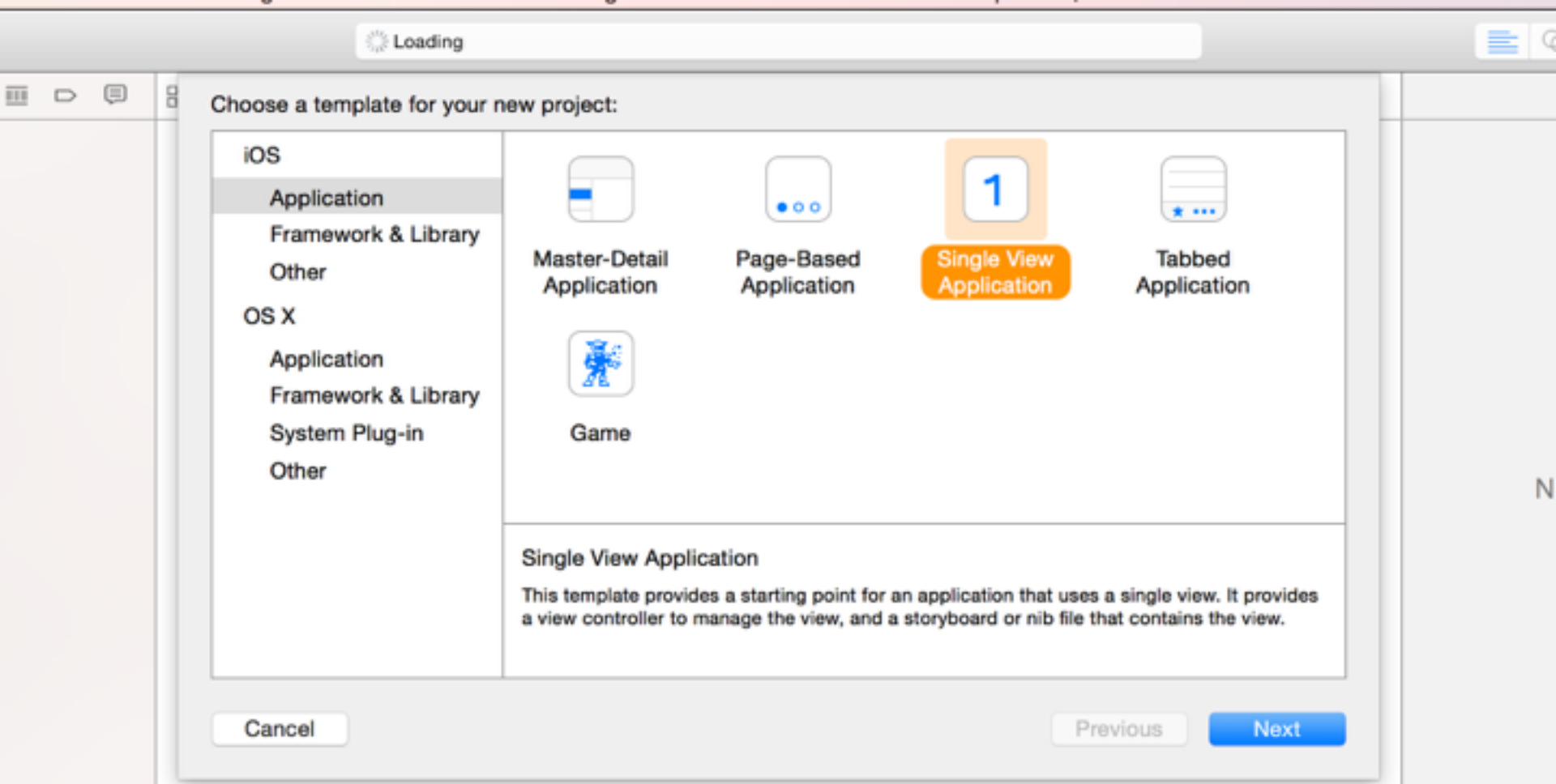
Xcode 7.3.1 or 8.0

Open your first project



# Open a new project

File -> New -> Project



# App name & Information

Choose options for your new project:

Product Name:

Organization Name:

Organization Identifier:

Bundle Identifier:  Your organization's bundle identifier prefix

Language:

Devices:

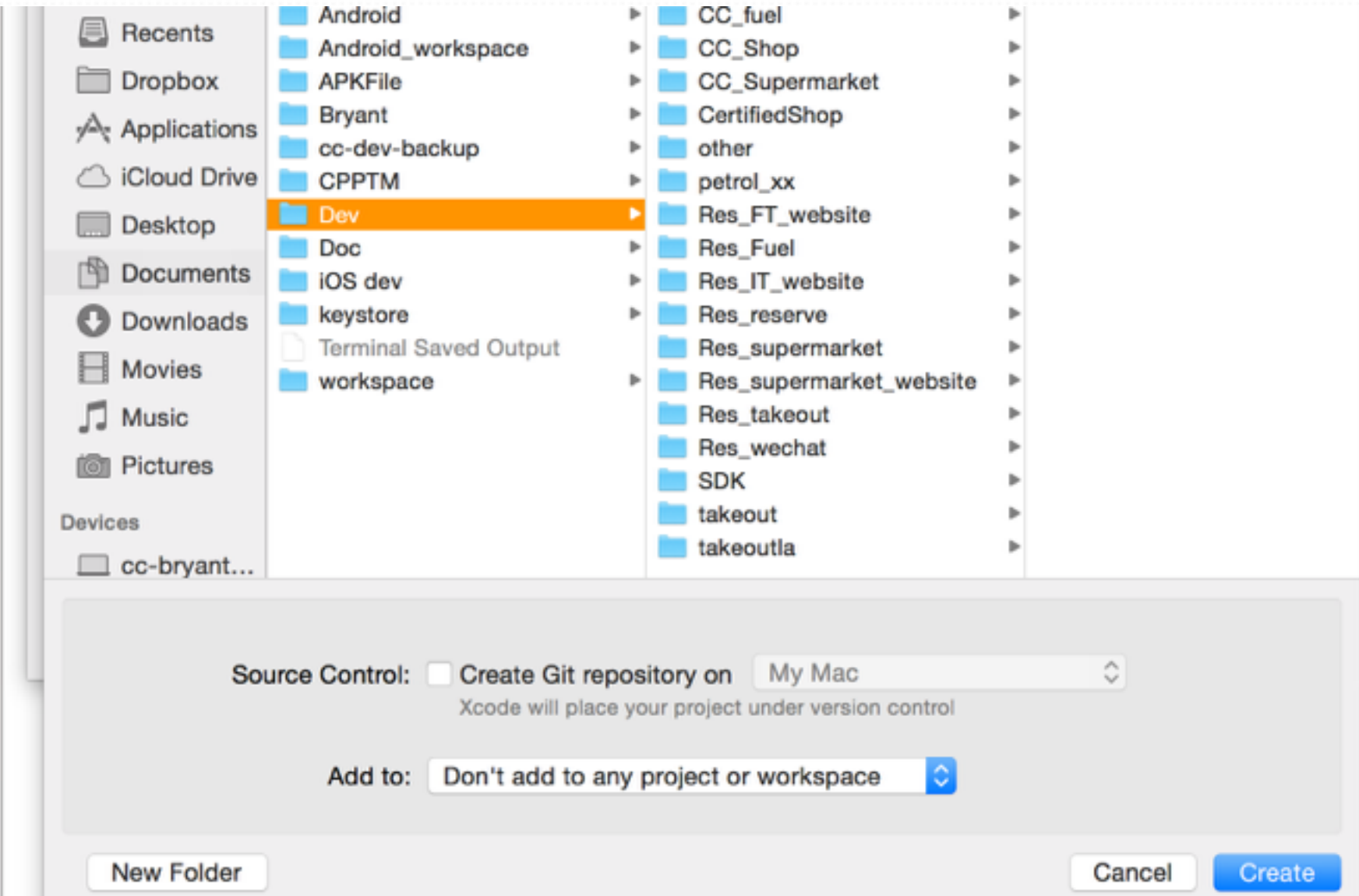
☐ Use Core Data

Cancel

Previous

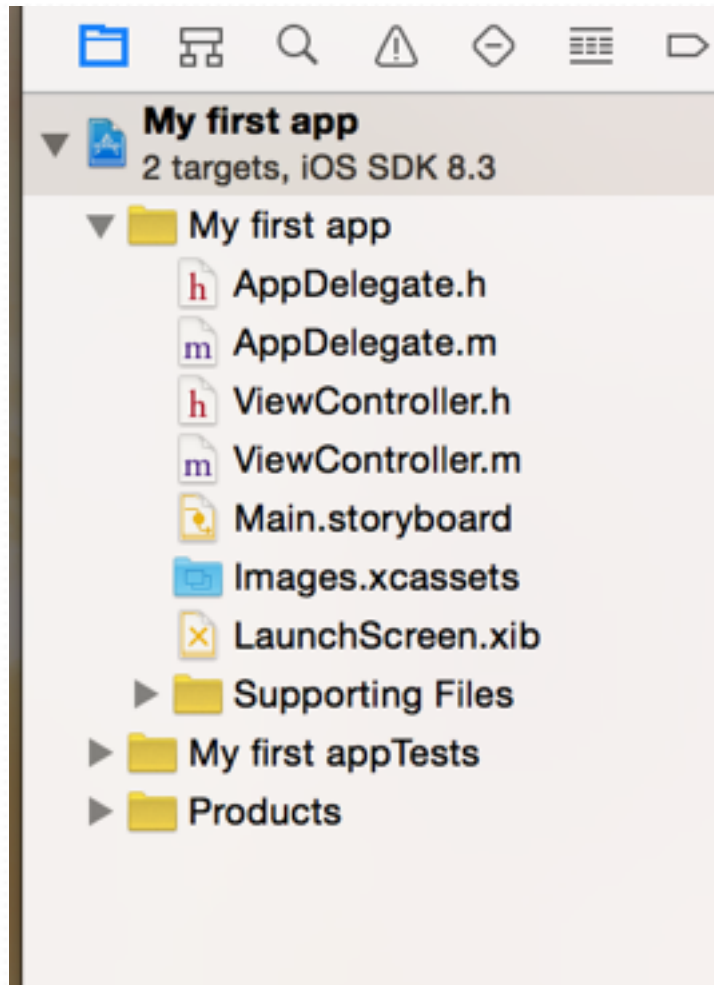
Next

# Save to ...



# File Architecture

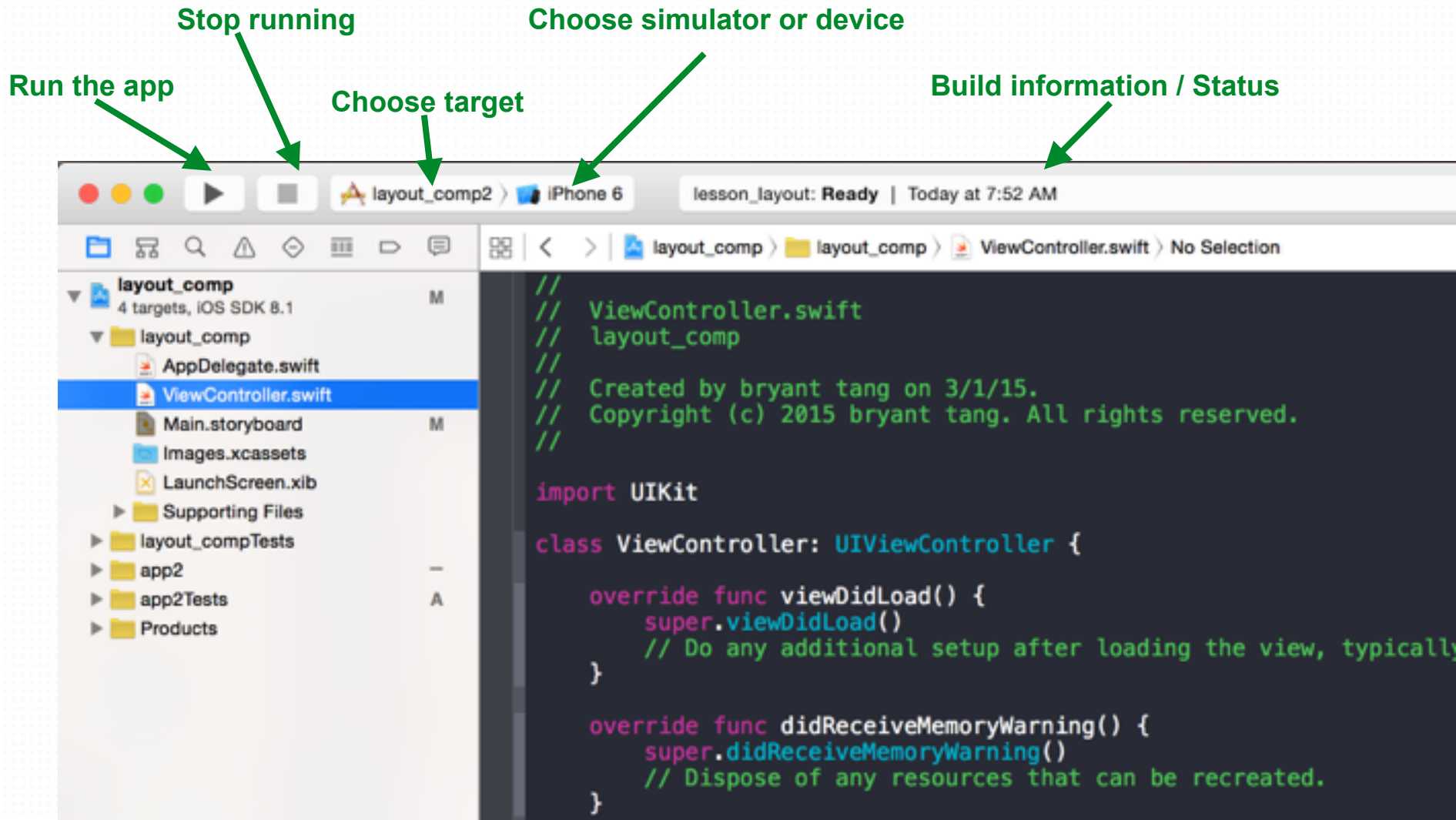
# File architecture



- Target
- AppDelegate
- Default View Controller
- Storyboard
- Images assets

# Development Environment

# Xcode



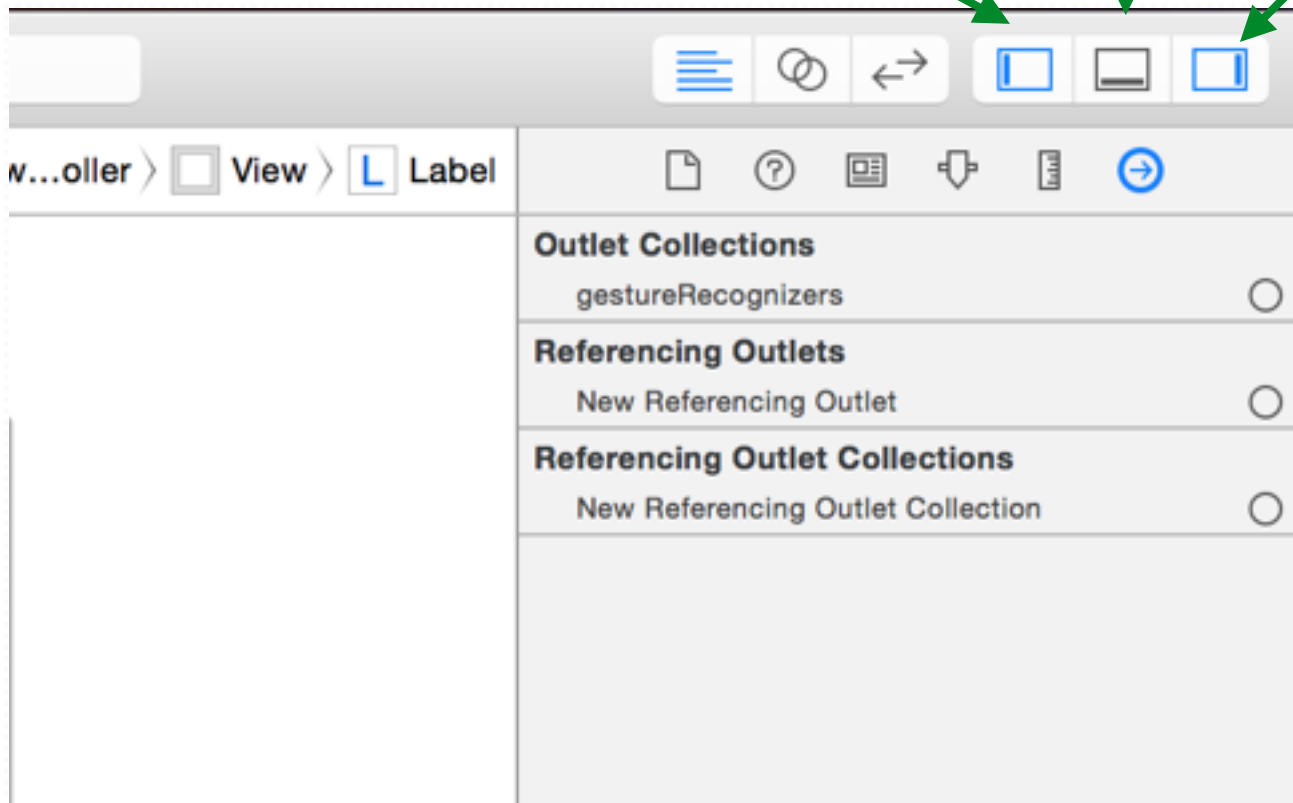


# Xcode

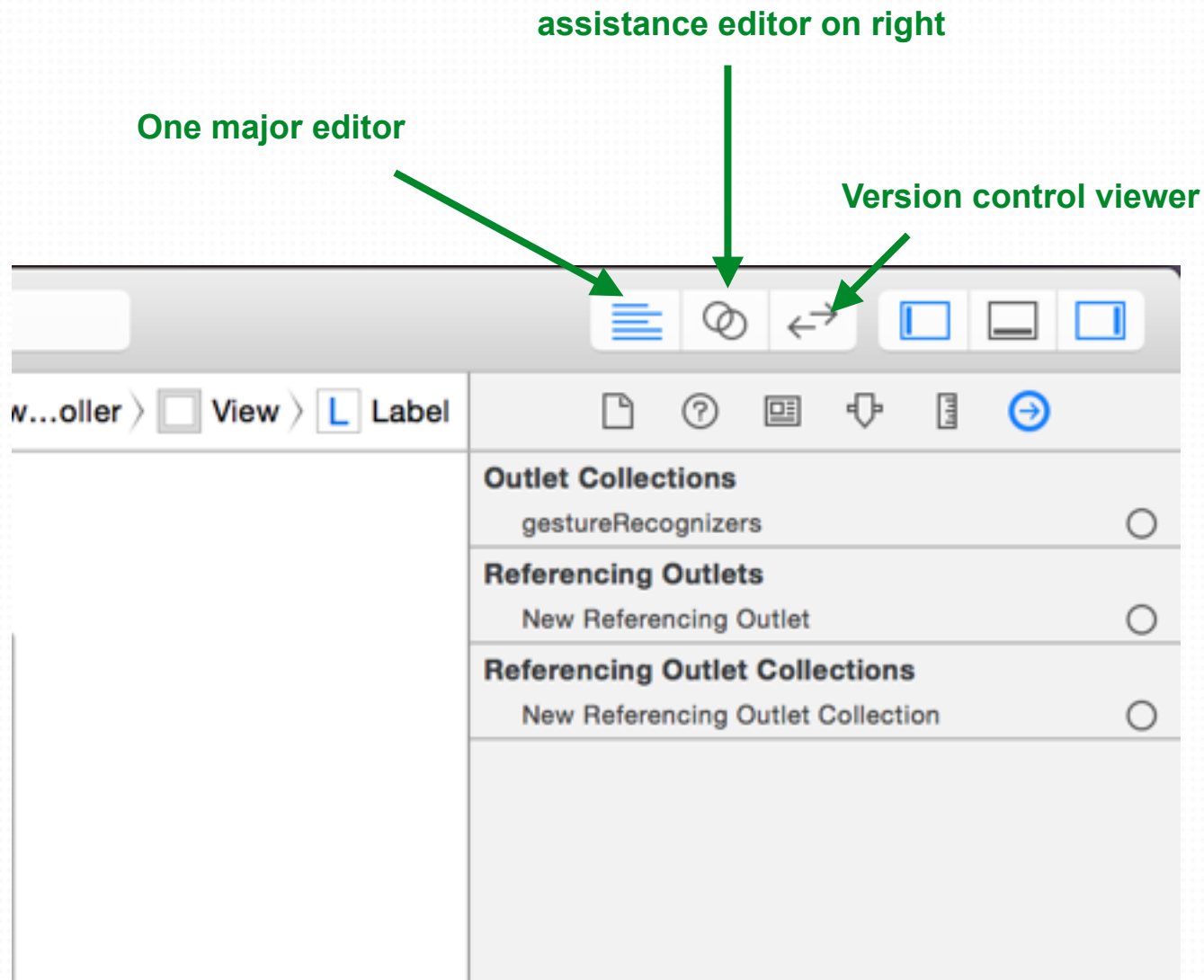
Toggle bottom panel/ **Debug**

Toggle left panel/ **Files**

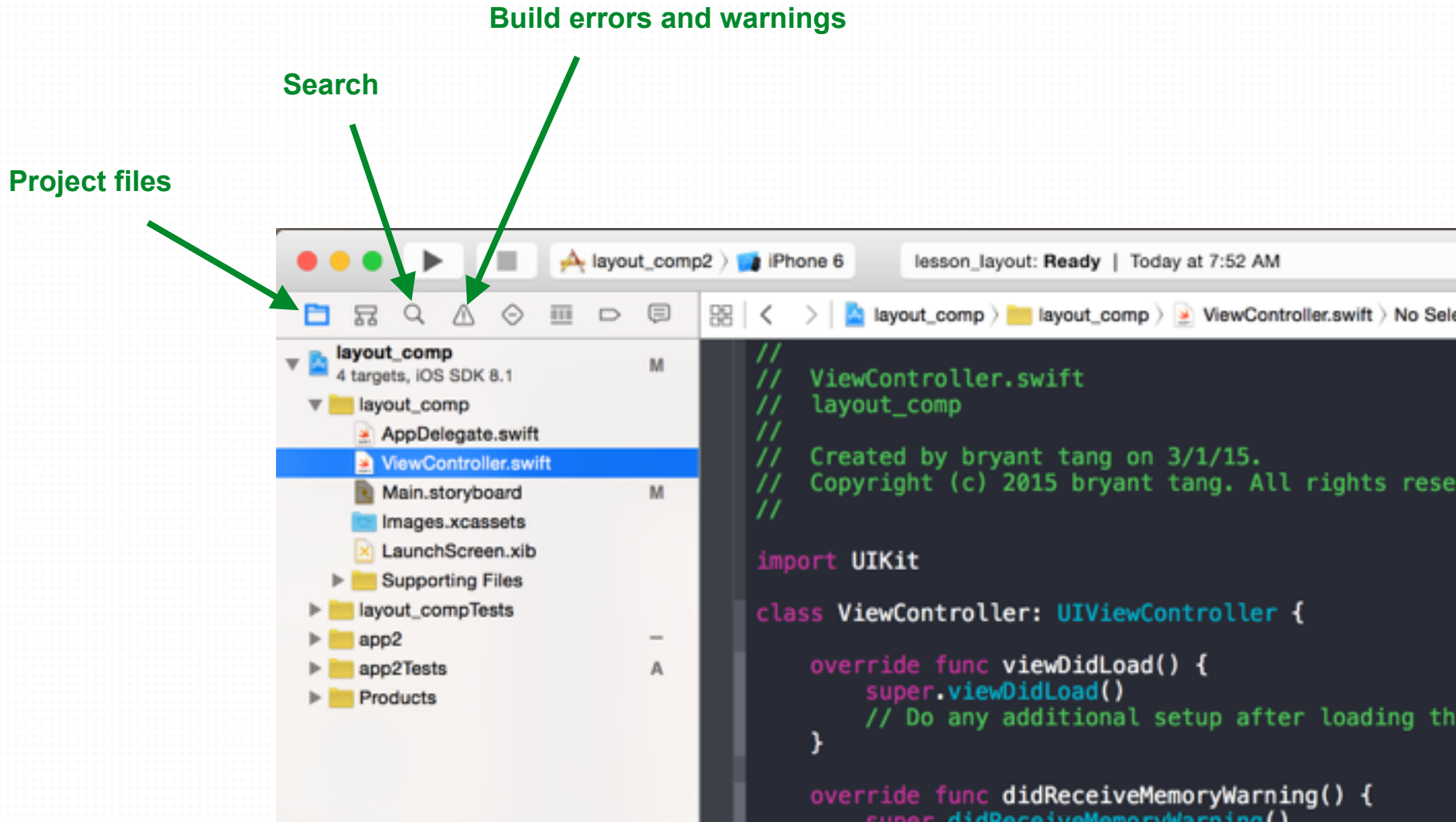
Toggle right panel/ **Inspector**



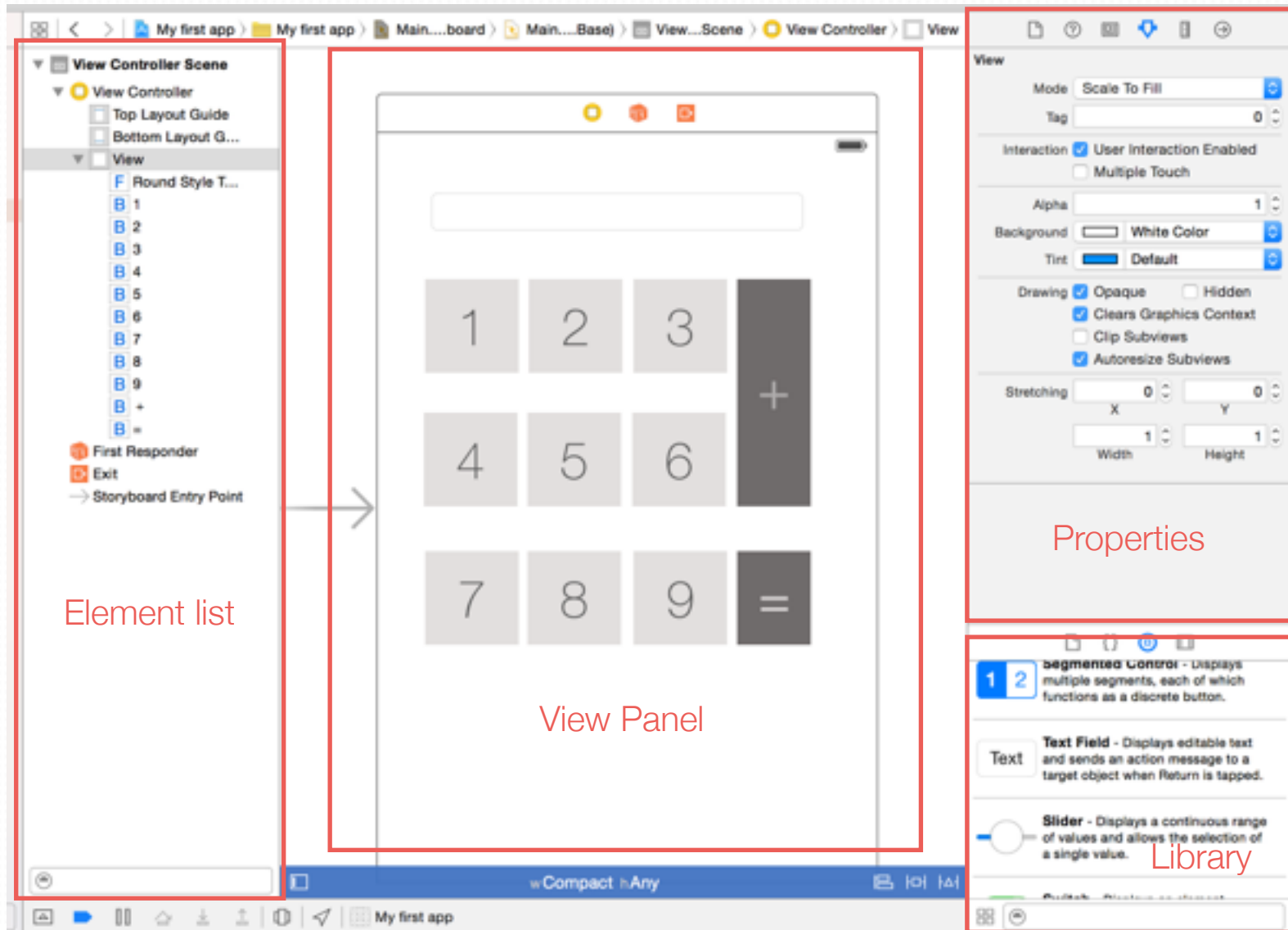
# Xcode



# Xcode

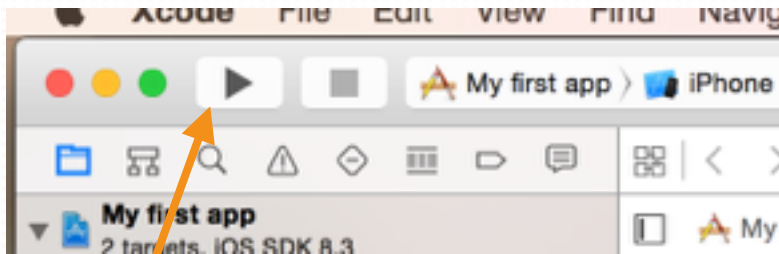


# Storyboard

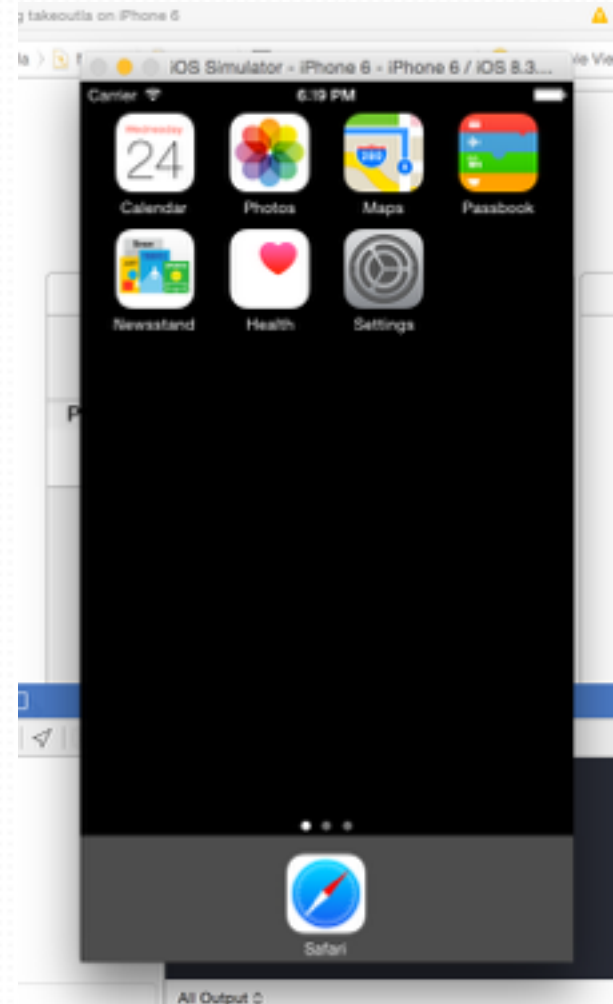


# How to run a project?

Press the run button,  
then the simulator will appear

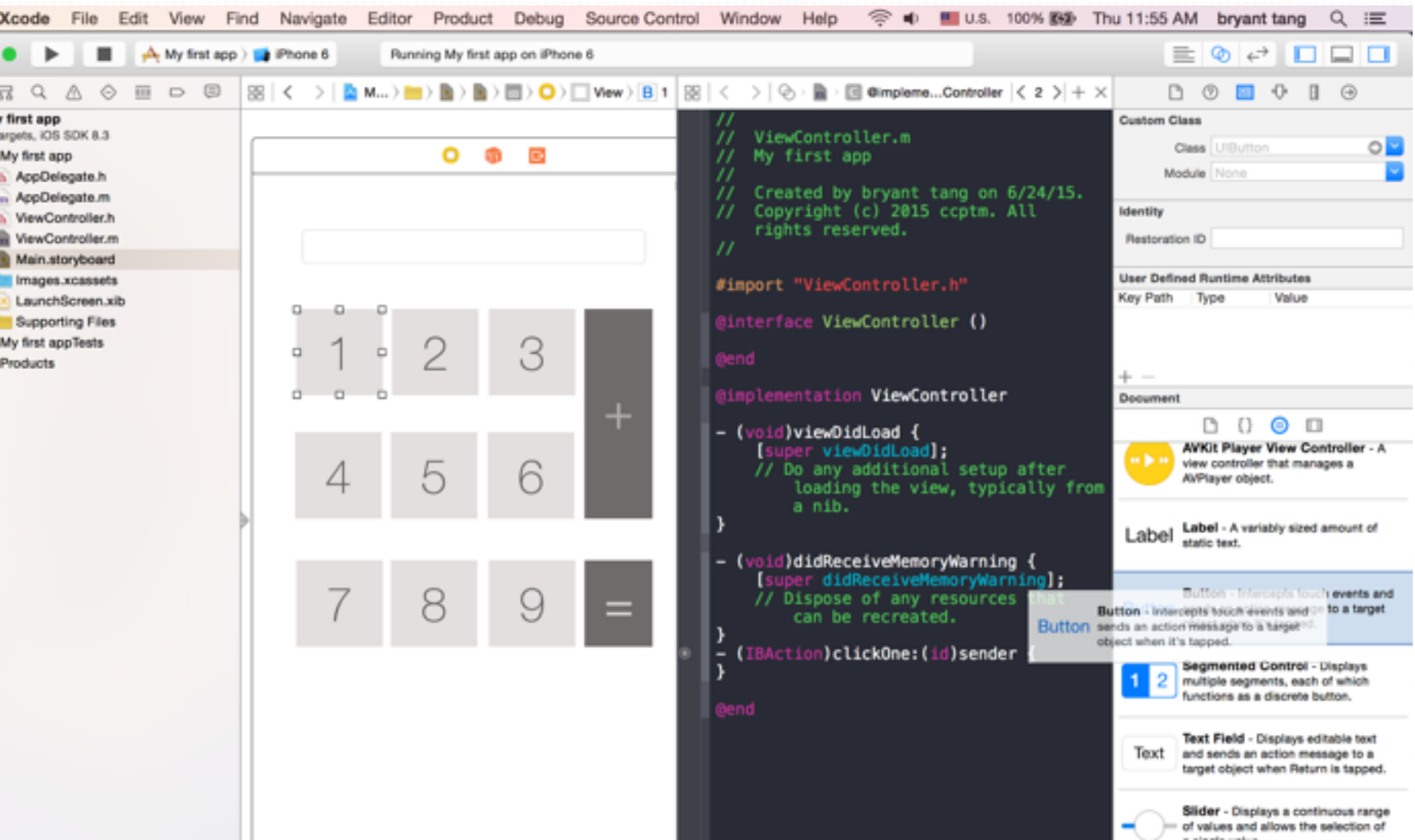


Run button



Calculator

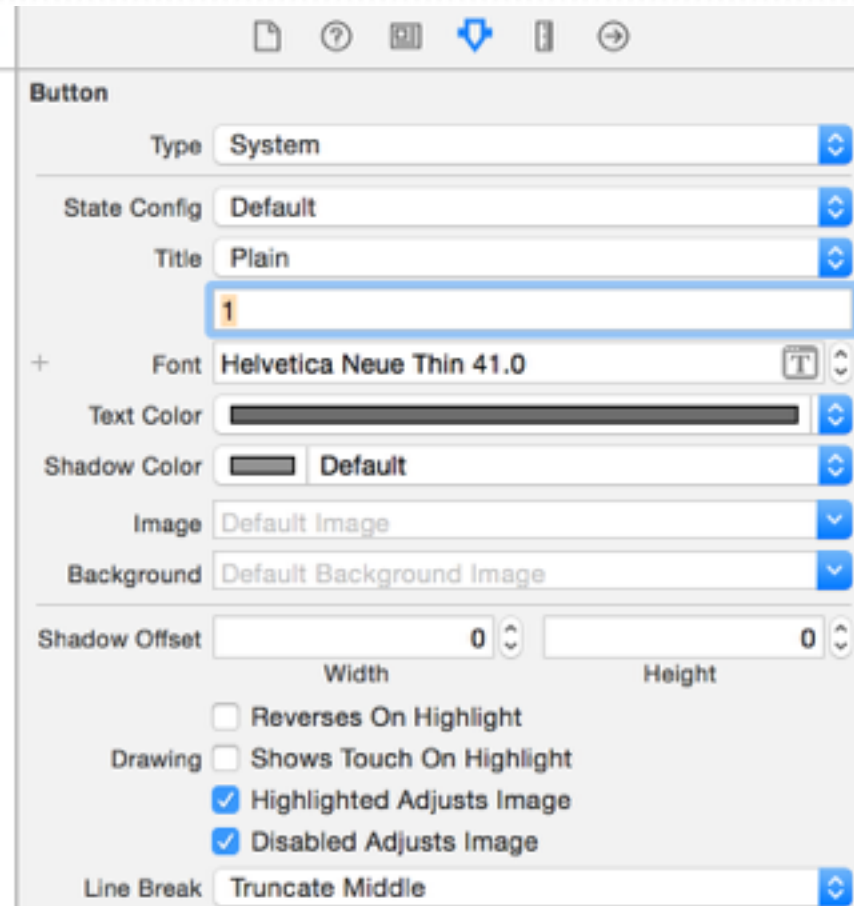
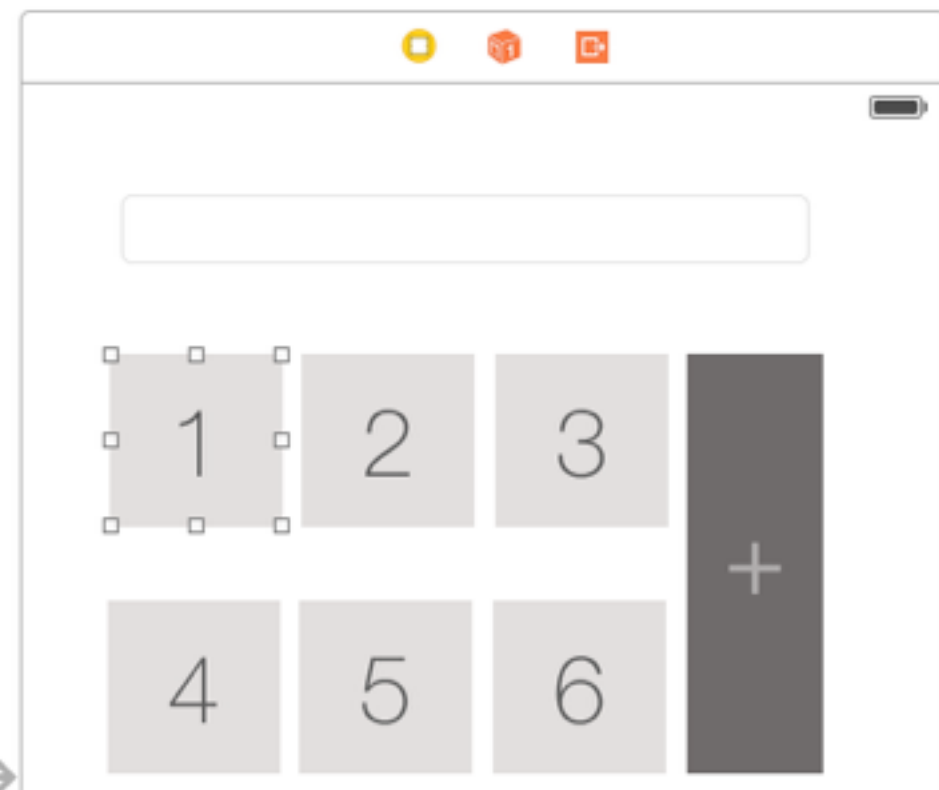
# Add elements on storyboard





# Edit properties of element


My...pp > Ma...rd > M...ase) > Vie...ne > Vie...ller > View > B 1

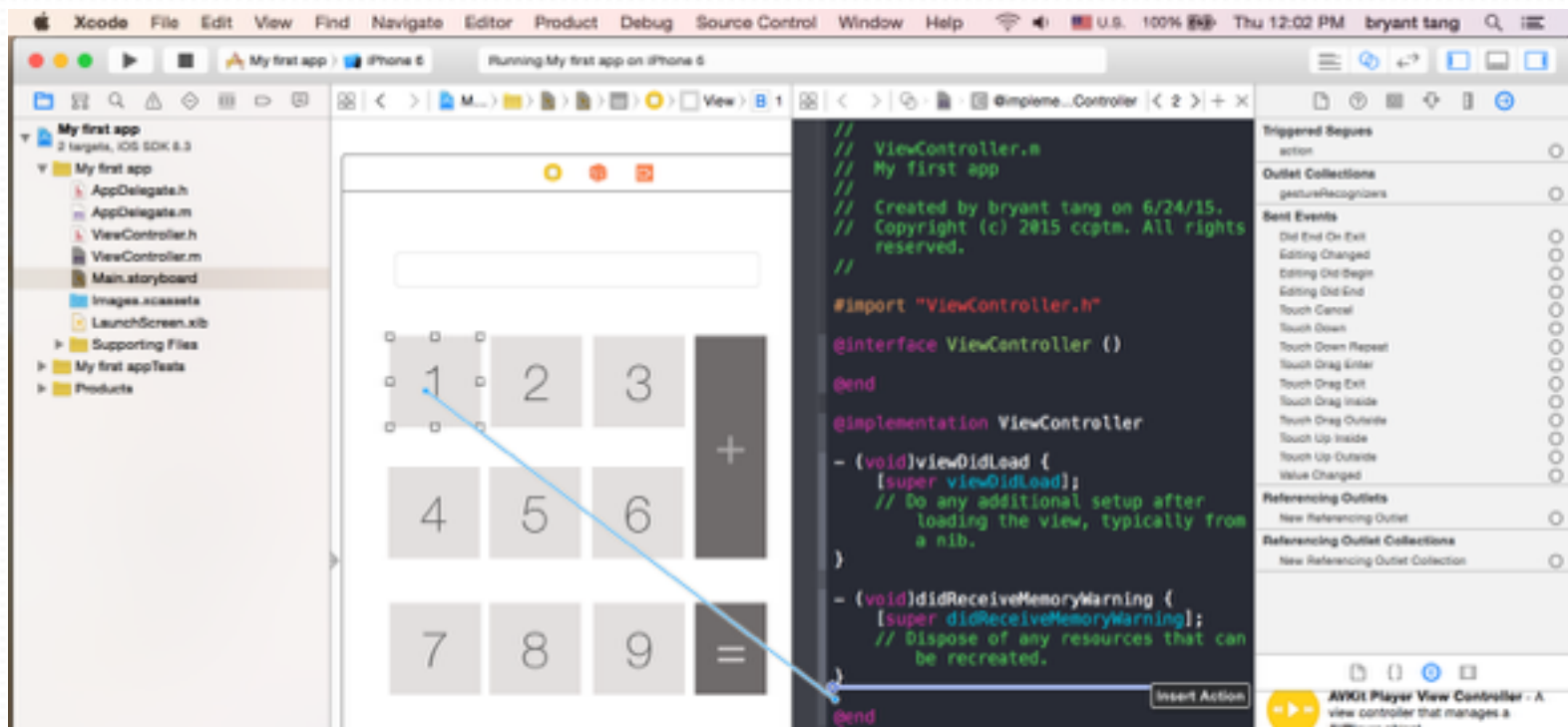




# Action Connection - storyboard vs code

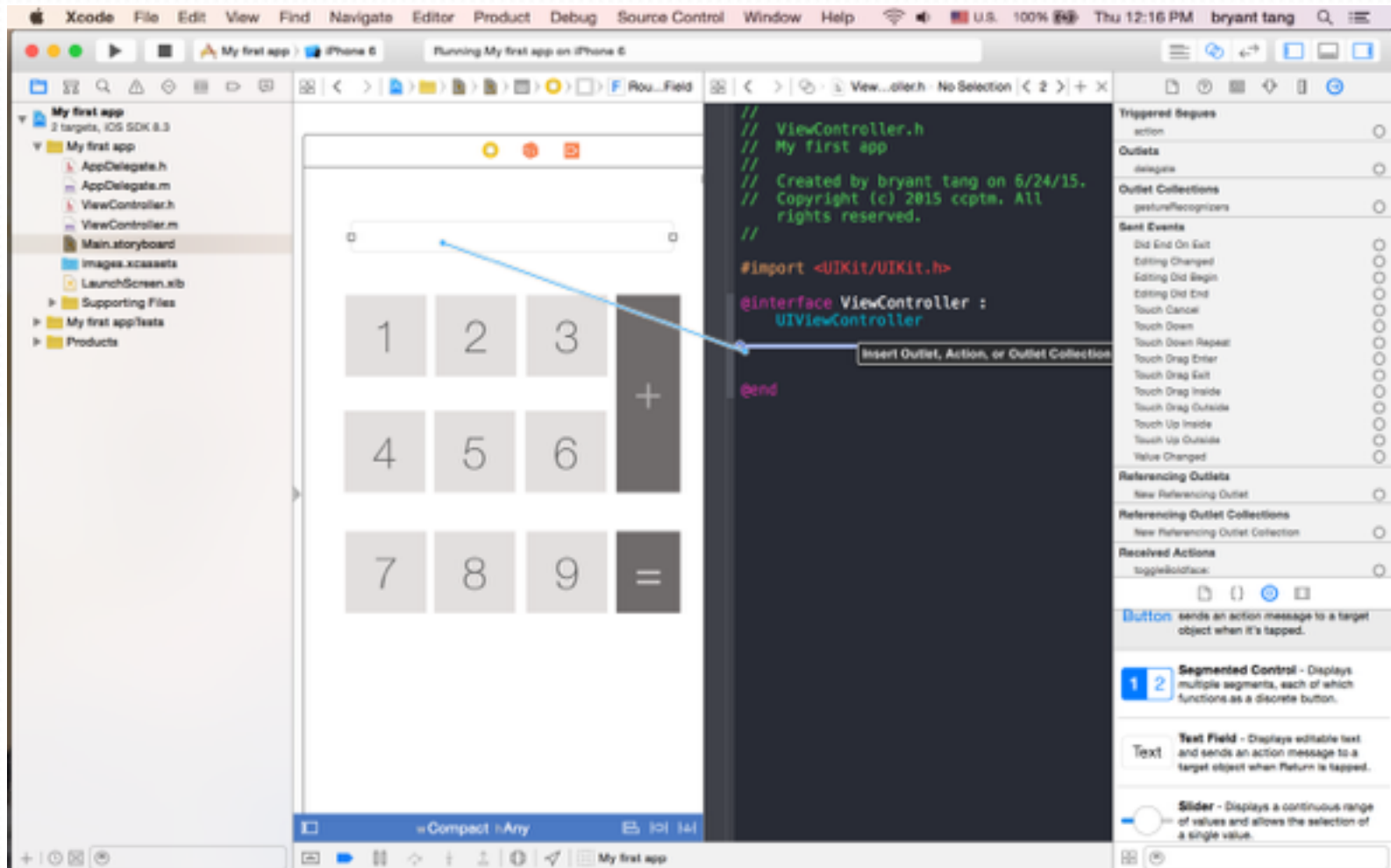
- **Storyboard** - layout design and work flow
- **Program** (.h or .m) - Control the element
- Connect - Storyboard and .m file

Use  to view both storyboard and program  
Press "control", hold and drag from the element



# Element Connection

- Connect - Storyboard and .h file



# Objective-C Basic Coding

display one when press '1'

```
- (IBAction)clickOne:(id)sender {  
    //Show 1 on textfield  
    _display.text = [_display.text stringByAppendingString:@"1"];  
}
```

Press '+' - save the input and clean display

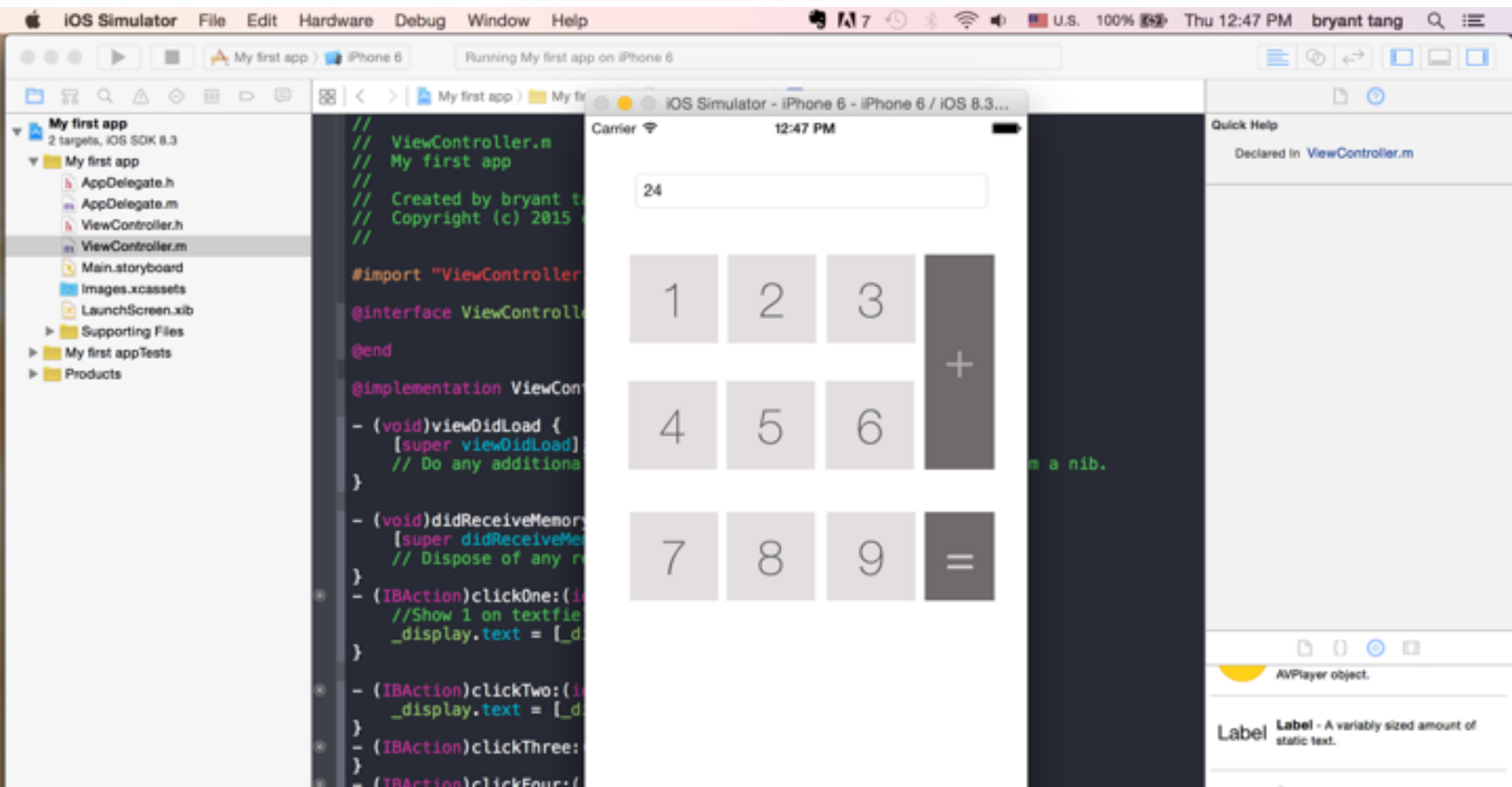
```
- (IBAction)clickPlus:(id)sender {  
    store = store + [_display.text intValue];  
    _display.text = @"";  
}
```

Press '=' - Add two input and show on display

```
- (IBAction)clickEqual:(id)sender {  
    result = store + [_display.text intValue];  
    _display.text = [NSString stringWithFormat:@"%d", result];  
    store = 0;  
}
```

# Objective-C Basic Coding

Run your app by press 'command + r' or



# Practice

Browse the App Store. Find some apps that impress you. Discuss why they are good.

Improve your first app by adding a 'Reset' button or adding another functions like '-' or 'x'

## Resource

<https://github.com/bryanttang/iOS-Class-2016-9>