Social Media Apps Programming

Developing iPhone / iPad Native Apps with Swift (XCode)

1061SMAP04
TLMXM1A (8648) (M2143) (Fall 2017)
(MIS MBA) (2 Credits, Elective) [Full English Course]
Fri 8,9 (15:10-17:00) B206

Min-Yuh Day, Ph.D.
Assistant Professor
Department of Information Management
Tamkang University

http://mail.tku.edu.tw/myday

2017-10-13
## Course Schedule

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<th>Subject/Topics</th>
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<td>Course Orientation and Introduction to Social Media and Mobile Apps Programming</td>
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<td>Introduction to Android / iOS Apps Programming</td>
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<td>Create Hybrid Apps with Phonegap</td>
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<td>jQuery Mobile/Phonegap</td>
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<td>Google Map API</td>
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<td>Facebook API (Facebook JavaScript SDK) (Integrate Facebook with iOS/Android Apps)</td>
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<td>2018/01/05</td>
<td>Twitter API</td>
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<td>Final Project Presentation</td>
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<td>18</td>
<td>2018/01/19</td>
<td>Final Exam Week (Final Project Presentation)</td>
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Android /iOS Apps Programming

Native Apps

Hybrid Apps

Mobile Web Apps
App Development Comparison

Native Apps
- Device Access: Full
- Speed: Very Fast
- Development Cost: Expensive
- App Store: Available
- Approval Process: Mandatory

Hybrid Apps
- Device Access: Full
- Speed: Native Speed as Necessary
- Development Cost: Reasonable
- App Store: Available
- Approval Process: Low Overhead

Web Apps
- Device Access: Partial
- Speed: Fast
- Development Cost: Reasonable
- App Store: Not Available
- Approval Process: None

Outline

• Developing **iPhone / iPad Native Apps with Swift 4 (Xcode 9)**
  – Mac OS X 10.8, 10.9, 10.10, 10.11, 10.12, 10.13
  – Xcode 6, Xcode 7, Xcode 8, Xcode 9
  – iOS 8, iOS 9, iOS 10, iOS 11

• **Building Your First iOS App with Xcode 9**

Xcode 8  Swift 3  Xcode 9  Swift 4
Building Your First iOS App with Xcode 9
iOS - Native App Development

Native App – Interaction with Mobile Device

Apple App Distribution Workflows

See what’s new for developers.

Learn about all the new technologies and powerful capabilities available in iOS 8, OS X Yosemite, and the new programming language, Swift, available in Xcode 6.

Source: https://developer.apple.com/
Download the latest development tools and SDKs.

iOS Apps  Mac Apps  Xcode

Source: https://developer.apple.com/
developer.apple.com

Become a member.

Enroll in an Apple Developer Program and get everything you need to develop and distribute your apps.

Learn more ›

Source: https://developer.apple.com/

This update of an Apress bestseller teaches you how to create your first iOS 7 app to run on iPhone or iPad, using plain English and practical examples. It cuts through the jargon that surrounds iPhone and iPad app development with simple, step-by-step instructions to get you started.

400 Pages
User Level: Beginner
Publishing October 23, 2013, but available now as part of the Alpha Program

http://www.apress.com/9781430263616
Start Developing iOS Apps Today provides the perfect starting point for iOS development. On your Mac, you can create iOS apps that run on iPad, iPhone, and iPod touch. View this guide’s four short modules as a gentle introduction to building your first app—including the tools you need and the major concepts and best practices that will ease your path.

The first three modules each end with a tutorial, where you’ll implement what you’ve learned. At the end of the last tutorial, you’ll have created a simple to-do list app.

Start Developing iOS Apps Today

To develop iOS apps, you need:

• A Mac computer running OS X 10.8 or later
  – Mac OS X 10.8 (Mountain Lion)
  – Mac OS X 10.9 (Mavericks)
  – Mac OS X 10.10 (Yosemite)
  – Mac OS X 10.11 (El Capitan)
  – macOS Sierra (10.12)
  – macOS High Sierra (10.13)

• Xcode
  – Xcode 6
  – Xcode 7
  – Xcode 8
  – Xcode 9

• iOS SDK

MacBook
Light. Years ahead.

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Source: https://www.apple.com/mac/
The notebook people love.

MacBook Air

Source: https://www.apple.com/mac/
MacBook and MacBook Air

MacBook
from $1299
- 12-inch (diagonal) LED-backlit Retina display
- 1.2GHz dual-core Intel Core m3, 1.3GHz dual-core Intel Core i5, or 1.4GHz dual-core Intel Core i7 processor
  Turbo Boost up to 3.6GHz
- Up to 10 hours battery life
- Up to 512GB SSD
- Force Touch trackpad
- 2.03 pounds

MacBook Air 13-inch
from $999
- 13.3-inch (diagonal) LED-backlit widescreen display
- 1.8GHz dual-core Intel Core i5 or 2.2GHz dual-core Intel Core i7 processor
  Turbo Boost up to 3.2GHz
- Up to 12 hours battery life
- Up to 512GB SSD
- Multi-Touch trackpad
- 2.96 pounds

MacBook Pro 15-inch
from $1999
- 15.4-inch (diagonal) LED-backlit Retina display
- 2.2GHz, 2.5GHz, or 2.8GHz quad-core Intel Core i7 processor
  Turbo Boost up to 4.0GHz
- Up to 9 hours battery life
- Up to 1TB SSD
- Force Touch trackpad
- 4.49 pounds

MacBook Pro

MacBook Pro 13-inch
from $1299

- 13.3-inch (diagonal) LED-backlit Retina display
- 2.3GHz dual-core Intel Core i5 or 2.5GHz dual-core Intel Core i7 processor
  Turbo Boost up to 4.0GHz
- Up to 10 hours battery life
- Up to 1TB SSD
- Force Touch trackpad
- 3.02 pounds

MacBook Pro 13-inch
from $1799

- Touch Bar and Touch ID
- 13.3-inch (diagonal) LED-backlit Retina display
- 3.1GHz or 3.3GHz dual-core Intel Core i5 or 3.5GHz dual-core Intel Core i7 processor
  Turbo Boost up to 4.0GHz
- Up to 10 hours battery life
- Up to 1TB SSD
- Force Touch trackpad
- 3.02 pounds

MacBook Pro 15-inch
from $2399

- Touch Bar and Touch ID
- 15.4-inch (diagonal) LED-backlit Retina display
- 2.8GHz, 2.9GHz, or 3.1GHz quad-core Intel Core i7 processor
  Turbo Boost up to 4.1GHz
- Up to 10 hours battery life
- Up to 2TB SSD
- Force Touch trackpad
- 4.02 pounds

iMac

iMac 21.5-inch
from $1099

- 21.5-inch (diagonal) LED-backlit display
- 2.3GHz dual-core Intel Core i5 processor
  Turbo Boost up to 3.6GHz
- 1TB 5400-rpm hard drive; 1TB Fusion Drive; or 256GB SSD²
- Magic Keyboard and

iMac 21.5-inch
from $1299

- 21.5-inch (diagonal) LED-backlit Retina 4K display
- 3.0GHz or 3.4GHz quad-core Intel Core i5 or 3.6GHz quad-core Intel Core i7 processor
  Turbo Boost up to 4.2GHz
- 1TB 5400-rpm hard drive; 1TB Fusion Drive; or up to 1TB SSD²

iMac 27-inch
from $1799

- 27-inch (diagonal) LED-backlit Retina 5K display
- 3.4GHz, 3.5GHz, or 3.8GHz quad-core Intel Core i5 or 4.2GHz quad-core Intel Core i7 processor
  Turbo Boost up to 4.5GHz
- 1TB, 2TB, or 3TB Fusion Drive; or up to 2TB SSD²

Mac mini

from $499

- Highly energy efficient
- Up to 3.0GHz dual-core Intel Core i7 processor
  Turbo Boost up to 3.5GHz
- Up to 1TB hard drive; 256GB, 512GB, or 1TB SSD; or 1TB or 2TB Fusion Drive

Mac Pro

from $2999

- 3.5GHz 6-core, 3.0GHz 8-core, or 2.7GHz 12-core Intel Xeon E5 processor
  Up to 30MB of L3 cache
- Up to 1TB SSD

OS X Yosemite

Every bit as powerful as it looks.

An elegant design that feels entirely fresh, yet inherently familiar. The apps you use every day, enhanced with new features. And a completely new relationship between your Mac and iOS devices. OS X Yosemite changes how you see your Mac. And what you can do with it. Upgrade for free at the Mac App Store.

Source: http://www.apple.com/osx/
OS X El Capitan
A refined experience and improved performance for your Mac.

Learn More ›

Best New Apps & Games

OS X El Capitan
Utilities

⭐⭐⭐⭐⭐ 165 Ratings

GET
macOS Sierra

What can your Mac do now? Just ask.

macOS Sierra
Utilities

DOWNLOAD
macOS Sierra
By Apple

Open the Mac App Store to buy and download apps.

Description
Siri makes its debut on Mac, with new features designed just for the desktop. Your Mac works with iCloud and your Apple devices in smart new ways, and intelligent capabilities make your photos, music, and messaging even more enjoyable.

Apple Web Site › macOS Sierra Support ›

Screenshots

Free
Category: Utilities
Updated: Sep 20, 2016
Version: 10.12
Size: 4.77 GB
Languages: English, Arabic, Catalan, Croatian, Czech, Danish, Dutch, Finnish, French, German, Greek, Hebrew, Hungarian, Indonesian, Italian, Japanese, Korean, Malay, Norwegian, Polish, Portuguese, Romanian, Russian, Simplified Chinese, Slovak, Spanish, Swedish, Thai, Traditional Chinese, Turkish, Ukrainian, Vietnamese
Seller: Apple Inc.
© 2016 Apple, Inc.
Rated 4+
macOS Sierra

To set up the installation of macOS Sierra, click Continue.
macOS High Sierra

New technologies at the heart of the system make your Mac more reliable, capable and responsive — and lay the foundation for future innovations. macOS High Sierra also refines the features and apps you use every day. It's macOS at its highest level yet.

- Easily organise, edit and view your photos in Photos.
- Make short videos from your Live Photos using new Loop and Bounce effects.
- Easily locate and organise your content with the new sidebar.
- Conveniently access all of your editing tools in the redesigned Edit View.
- Fine-tune colour and contrast in your photos with new Curves and Selective Color tools.
- Access third-party apps directly from Photos and save the edited images back to your Photos library. ...

Information
Category: Utilities
Updated: 12 October 2017
Version: 10.13
Price: Free
Size: 4.80 GB
Family Sharing: Yes
Languages: English, Arabic, Catalan, Croatian, Czech, Danish, Dutch, Finnish, French, German, Greek, Hebrew, Hindi, Hungarian, Indonesian, Italian, Japanese, Korean, Malay, Norwegian, Polish, Portuguese, Romanian, Russian, Simplified Chinese, Slovak, Spanish, Swedish, Thai, Traditional Chinese, Turkish, Ukrainian, Vietnamese
Xcode 6

The complete toolset for building great apps.

Source: https://developer.apple.com/xcode/
Xcode 7

The complete toolset for building great apps.

Swift 2

Source: https://developer.apple.com/xcode/
Xcode 8

The complete toolset for building great apps.

Swift 3

Source: https://developer.apple.com/xcode/
Xcode 9

The complete toolset for building great apps.

Swift 4

Source: https://developer.apple.com/xcode/
iOS 9
for Developers

Developing for iOS 9

iOS 9 SDK includes new APIs and services that enable new categories of apps and features. Multitasking and gaming APIs help enhance app functionality and create immersive games. Expanded search capabilities, and new support for CloudKit, HomeKit, HealthKit, and MapKit extend iOS to more places than ever before.

Source: https://developer.apple.com/ios/
The iOS 10 SDK includes new APIs and services that enable new categories of apps and features. Your apps can now extend to Messages, Siri, Phone, and Maps to provide more engaging functionality like never before.

Source: https://developer.apple.com/ios/
## iOS 10

The world’s most advanced mobile operating system.

iOS 10 is compatible with these devices.

### iPhone
- iPhone 7
- iPhone 7 Plus
- iPhone 6s
- iPhone 6s Plus
- iPhone 6
- iPhone 6 Plus
- iPhone SE
- iPhone 5s
- iPhone 5c
- iPhone 5

### iPad
- iPad Pro 12.9-inch
- iPad Pro 9.7-inch
- iPad Air 2
- iPad Air
- iPad 4th generation
- iPad mini 4
- iPad mini 3
- iPad mini 2

### iPod
- iPod touch 6th generation

Xcode 6

Source: https://developer.apple.com/xcode/
Get the Tools

Mac App Store → Xcode (FREE) → Download

Xcode 7

This release includes the Xcode IDE, Swift 2 compiler, Instruments, Simulator, and latest SDKs for OS X, iOS, and watchOS.

Build
7A220
Posted Date
Sep 16, 2015
SDK
iOS 9
OS X v10.11
watchOS 2

Source: https://developer.apple.com/xcode/download/
Xcode 8

requires a Mac running macOS Sierra 10.12 or OS X El Capitan 10.11.5 or later. Xcode 8 includes SDKs for iOS 10.0, watchOS 3.0, macOS Sierra 10.12, and tvOS 10.0.

Build 8A218a
Posted Date Sep 13, 2016
SDKs
iOS 10
macOS 10.12
watchOS 3
tvOS 10

Source: https://developer.apple.com/xcode/download/
Xcode 8

Get the latest beta releases of Xcode, iOS, macOS, watchOS, tvOS, and more.

Xcode 8.1 beta 2

- Download Xcode 8.1
- Release Notes

Xcode 8

- Download Xcode 8
- Release Notes

Source: https://developer.apple.com/xcode/download/
Xcode includes everything developers need to create great applications for Mac, iPhone, iPad, Apple TV, and Apple Watch. Xcode provides developers a unified workflow for user interface design, coding, testing, and debugging. The Xcode IDE combined with the Swift programming language make developing apps easier and more fun than ever before.

What's New in Version 8.0
Xcode 8 includes Swift 3, and SDKs for iOS 10, watchOS 3, tvOS 10, and macOS Sierra.
Xcode 8

Xcode 8 includes everything you need to create amazing apps for iPhone, iPad, Mac, Apple Watch, and Apple TV. This radically faster version of the IDE features new editor extensions that you can use to completely customize your coding experience. New runtime issues alert you to hidden bugs by pointing out memory leaks, and a new Memory Debugger dives deep into your object graph. Swift 3 includes more natural and consistent API naming, which you can experiment with in the new Swift Playgrounds app for iPad.

Source: https://developer.apple.com/xcode/
Xcode 9

Xcode includes everything developers need to create great applications for Mac, iPhone, iPad, Apple TV, and Apple Watch. Xcode provides developers a unified workflow for user interface design, coding, testing, and debugging. The Xcode IDE combined with the Swift programming language make developing apps easier and more fun than ever before.

What's New in Version 9.0
Xcode 9 includes Swift 4 and SDKs for iOS 11, watchOS 4, tvOS 11, and macOS High Sierra 10.13

Information
- Category: Developer Tools
- Updated: 19 September 2017
- Version: 9.0
- Price: Free
- Size: 5.39 GB
- Family Sharing: Yes
- Language: English
- Developer: Apple Distribution International
- © 1999–2017 Apple Inc.
- Rated 4+
- Compatibility: macOS 10.12.6 or later
Swift 3 is the first major release of the innovative programming language built completely in the open with the community of developers at Swift.org. This release unifies core API naming rules under a new public API Naming Guidelines document that makes writing Swift code feel even more natural. You can also experiment with Swift 3 in the new Swift Playgrounds app for iPad.

Source: https://developer.apple.com/xcode/
Swift 3

Download Swift

Releases

Swift 3.0

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<td>September 13, 2016</td>
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<td>(Toolchain)</td>
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<td>(Debugging Symbols)</td>
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<td><strong>Ubuntu 15.10</strong></td>
<td>September 13, 2016</td>
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<tr>
<td>(Signature)</td>
<td></td>
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<tr>
<td><strong>Ubuntu 14.04</strong></td>
<td>September 13, 2016</td>
</tr>
<tr>
<td>(Signature)</td>
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*Swift 3.0 is available as part of Xcode 8.*

Source: https://swift.org/download/#releases
# Swift 4

## Download Swift

### Releases

**Swift 4.0**

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<td><strong>Xcode 9.0</strong> (Toolchain)</td>
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</tr>
<tr>
<td><strong>Ubuntu 14.04</strong> (Signature)</td>
<td>September 19, 2017</td>
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Source: [https://swift.org/download/#releases](https://swift.org/download/#releases)
Xcode
Xcode

Toolbar

Editor area

Navigator area

Utilities area

Source: Xcode 6 Documentation
Getting Started with Xcode 9 Development

1. Get a Mac
2. Register as an Apple Developer
3. Install Xcode
4. Enroll in the Apple Developer Program (Optional)

http://www.appcoda.com/learnswift/get-started.html
Swift.

A modern programming language that is safe, fast, and interactive.

https://developer.apple.com/swift/
Swift

• Swift is a powerful and intuitive programming language for iOS, OS X, and watchOS.
• Writing Swift code is interactive and fun, the syntax is concise yet expressive, and apps run lightning-fast.
• Swift is ready for your next project — or addition into your current app — because Swift code works side-by-side with Objective-C.

Source: https://developer.apple.com/swift/
Swift Language

• Swift is a new object-oriented programming language for iOS and OS X development.

• Swift is modern, powerful, expressive, and easy to use.

Source: https://developer.apple.com/swift/
Swift Language

• Unified
  A complete replacement for both the C and Objective-C languages.
  – Swift provides full object-oriented features, and includes low-level language primitives such as types, flow control, and operators.

• Fast
• Complete platform
• Safe by design
• Modern
• Interactive

Source: https://developer.apple.com/swift/
print("Hello world")
println("Hello world")

print("Hello world")

'Sprintln' has been renamed to 'print'

Fix-it Replace "print" with "print"
let count = 10
var price = 23.55

let firstMessage = "Swift is awesome."
let secondMessage = "What do you think?"
var message = firstMessage + secondMessage

print(message)
Objective-C

```objective-c
const int count = 10;
double price = 23.55;

NSString *firstMessage = @"Swift is awesome. ";
NSString *secondMessage = @"What do you think?";
NSString *message = [NSString stringWithFormat:@"%@%@", firstMessage, secondMessage];

NSLog(@"%@", message);
```

http://www.appcoda.com/learnswift/playgrounds.html
var s = "Hello" + " World"
var myVariable = 82
myVariable = 90
let myConstant = 82
let individualScores = [75, 43, 93, 87, 12]
var teamScore = 0
for score in individualScores {
    if score > 60 {
        teamScore += 3
    } else {
        teamScore += 1
    }
}

print(teamScore)
let individualScores = [75, 43, 93, 87, 12]
var teamScore = 0
for score in individualScores {
    if score > 60 {
        teamScore += 3
    } else {
        teamScore += 1
    }
}
print(teamScore)
The Swift Programming Language (Swift 4)

```swift
print("Hello, world!")
```
Welcome to Xcode

Version 9.0 (9A235)

Get started with a playground
Explore new ideas quickly and easily.

Create a new Xcode project
Create an app for iPhone, iPad, Mac, Apple Watch or Apple TV.

Clone an existing project
Start working on something from an SCM repository.

✔️ Show this window when Xcode launches
Xcode 9 Playground

Choose a template for your new playground:

- iOS
- tvOS
- macOS

Playground:
- Blank
- Game
- Map
- Single View

Buttons:
- Cancel
- Previous
- Next
Swift 4 in Xcode 9 Playground

```swift
1 //: Playground – noun: a place where people can play
2
3 import UIKit
4
5 var str = "Hello, playground"
```

```swift
1 //: Playground – noun: a place where people can play
2
3 import UIKit
4
5 var str = "Hello, playground"
```
Swift 4 in Xcode 9 Playground

```swift
//: Playground - noun: a place where people can play

import UIKit

var str = "Hello, playground"
print(str)
```

"Hello, playground"
"Hello, playground\n"
```
var message = "Hello World"
print(message)
var a = 7
var b = 2
var total = a + b
if (total < 10)
{
    print("Hello Swift 3")
}
```
Swift 4 in Xcode 9 Playground

```swift
import UIKit

var str = "Hello, playground"
print(str)

var message = "Hello World"
print(message)
var a = 7
var b = 2
var total = a + b
if (total < 10) {
    print("Hello Swift 3")
}
```

```
"Hello, playground"
"Hello, playground\n"

"Hello World"
"Hello World\n"
7
2
9

"Hello Swift 3\n"
```

Hello, playground
Hello World
Hello Swift 3
var strS = "Your score is "
var score = 90
var yourScore = strS + String(score)
print(yourScore)
if (score >= 60) {
    print("Pass")
}
else {
    print("Fail")
}
Swift 4 in Xcode 9 Playground

import UIKit

var str = "Hello, playground"

var strS = "Your score is 
var score = 90
var yourScore = strS + String(score)
print(yourScore)

if (score >= 60) {
    print("Pass")
} else {
    print("Fail")
}
iOS App Development Process

Focus: Primary Target

- Think top down
- Consistent UI
- Gestures
- Orientation?
- Check target size
- Reduce settings

iOS App Development Process

- Defining the Concept
- Designing a User Interface
- Defining the Interaction
- Implementing the Behavior

Objects Communicate Through Messages

Current Execution Point

... [somePerson sayHello];
...

XYZPerson Implementation

@implementation XYZPerson
-
(void)sayHello {
    NSLog(@"Hello, world!");
}
@end

Protocols Define Messaging Contracts

Designing a User Interface

Use Storyboards to Lay Out Views

Defining the Interaction

View Controllers

Application controller layer

View layer

Window

View

Image View

Text View

Button

UIView

Lorum ipsum dolor sit er elit
lamet, consectetur cillum
adipiscing pecu, sed do eius
mod tempor incidunt ut labo

Button

Use Storyboards to Define Navigation

Segue

View Controller

View Controller

Storyboards

Incorporating the Data

Using Design Patterns

Model-View-Controller (MVC)

Target-Action

Delegation

windowShouldClose:

No

IBOutlet and IBAction

• IBOutlet
  – Interface Builder Outlet

• IBAction
  – Interface Builder Action
Demo: Building Your First iOS App with Xcode 9 (Swift 4)
Building Your First iOS App with Xcode 9
Your First iOS App

Xcode 8 with Swift 3
Xcode 9 with Swift 4
Launchpad ➔ Xcode
Welcome to Xcode

Version 9.0 (9A235)

- Get started with a playground
  Explore new ideas quickly and easily.

- **Create a new Xcode project**
  Create an app for iPhone, iPad, Mac, Apple Watch or Apple TV.

- Clone an existing project
  Start working on something from an SCM repository.

Show this window when Xcode launches
Xcode Single View App
Swift Language
Main.storyboard (UI)
Main.storyboard (UI)
ViewController.swift (Code)
Main.storyboard (UI)
ViewController.swift (Code)
Label

- UILabel:
  - Implements a read-only text view. A label can contain an arbitrary amount of text, but UILabel may shrink, wrap, or truncate the text, depending on the size of the bounding rectangle and properties you set. You can control the font, text color, alignment, highlighting, and shadowing of the text in the label.

- Label - A variably sized amount of static text.

- Button - Intercepts touch events and sends an action message to a target object when it’s tapped.

- Segmented Control - Displays multiple segments, each of which functions as a discrete button.

- Text Field - Displays editable text and sends an action message to a target object when Return is tapped.
**Button**

- **Button** - Intercepts touch events and sends an action message to a target object when it's tapped.
- **Label** - A variably sized amount of static text.
- **Segmented Control** - Displays multiple segments, each of which functions as a discrete button.
- **Text Field** - Displays editable text and sends an action message to a target object when Return is tapped.
Text Field

Displays a rounded rectangle that can contain editable text. When a user taps a text field, a keyboard appears; when a user taps Return in the keyboard, the keyboard disappears and the text field can handle the input in an application-specific way. UITextField supports overlay views to display additional information, such as a bookmarks icon. UITextField also provides a clear text control: a user taps to erase the contents of the text field.
Text Field
Text Field

- **Text Field**
  - **Text**: Plain
  - **Color**: Default
  - **Font**: System 14.0
  - **Alignment**: None
  - **Placeholder**: Placeholder Text
  - **Background**: Background Image
  - **Clear Button**: Never appears
  - **Min Font Size**: 17
  - **Adjust to Fit**: None
  - **Correction**: Default
  - **Spell Checking**: Default
  - **Keyboard Keys**: Default

- **Label** - A variably sized amount of static text.
- **Button** - Intercepts touch events and sends an action message to a target object when it’s tapped.
- **Segmented Control** - Displays multiple segments, each of which functions as a discrete button.
- **Text Field** - Displays editable text and sends an action message to a target object when Return is tapped.
Label

Label - A variably sized amount of static text.

Button - Intercepts touch events and sends an action message to a target object when it's tapped.

Segmented Control - Displays multiple segments, each of which functions as a discrete button.

Text - Displays editable text and sends an action message to a target object when Return is tapped.
**Label**

A variably sized amount of static text.

**Button**

Intercepts touch events and sends an action message to a target object when it’s tapped.

**Segmented Control**

Displays multiple segments, each of which functions as a discrete button.

**TextField**

Displays editable text and sends an action message to a target object when Return is tapped.
Hello World
Button
Button

Hello World

Label - A variably sized amount of static text.

Button - Intercepts touch events and sends an action message to a target object when it's tapped.

Segmented Control - Displays multiple segments, each of which functions as a discrete button.

TextField - Displays editable text and sends an action message to a target object when Return is tapped.
Set the active scheme
iOS Simulator: iPhone
iOS Simulators: iPhone 7
Build and Run
iOS Simulator: iPhone 7 - iOS 10
Simulator: Quit Simulator
Main.storyboard (UI)
ViewController.swift (Code)
// ViewController.swift
// HelloWorld
// Created by iMyday on 10/5/16.
// Copyright © 2016 iMyday. All rights reserved.
//
import UIKit

class ViewController: UIViewController {

    override func viewDidLoad() {
        super.viewDidLoad()
        // Do any additional setup after loading the view, typically from a nib.
    }

    override func didReceiveMemoryWarning() {
        super.didReceiveMemoryWarning()
        // Dispose of any resources that can be recreated.
    }
}
IBOutlet and IBAction

• IBOutlet
  – Interface Builder Outlet

• IBAction
  – Interface Builder Action
import UIKit

class ViewController: UIViewController {
    override func viewDidLoad() {
        super.viewDidLoad()
        // Do any additional setup after loading the view, typically from a nib.
    }

    override func didReceiveMemoryWarning() {
        super.didReceiveMemoryWarning()
        // Dispose of any resources that can be recreated.
    }
}
// ViewController.swift
// HelloWorld
//
// Created by imtku on 10/6/16.
// Copyright © 2016 imtku. All rights reserved.
//
import UIKit

class ViewController: UIViewController {
    override func viewDidLoad() {
        super.viewDidLoad()
        // Do any additional setup after loading the view, typically from a nib.
    }

    override func didReceiveMemoryWarning() {
        super.didReceiveMemoryWarning()
        // Dispose of any resources that can be recreated.
    }
}

Hello World
Hold on control drag and drop button to Assistant Editor
import UIKit

class ViewController: UIViewController {

override func viewDidLoad() {
    super.viewDidLoad()
    // Do any additional setup after loading the view, typically from a nib.
}

override func didReceiveMemoryWarning() {
    super.didReceiveMemoryWarning()
    // Dispose of any resources that can be recreated.
}
}
import UIKit

class ViewController: UIViewController {

    override func viewDidLoad() {
        super.viewDidLoad()

        // Do any additional setup after loading the view, typically from a nib.
    }

    override func didReceiveMemoryWarning() {
        super.didReceiveMemoryWarning()

        // Dispose of any resources that can be recreated.
    }
}
btnHello
IBAction

Interface Builder Action

btnHello

@IBAction func btnHello(_ sender: AnyObject) {
}

IBAction (Interface Builder Action)
Hold on control drag and drop to Assistant Editor
@IBOutlet weak var txtYourName: UITextField!

IBOutlet
(Interface Builder Outlet)
Hold on control drag and drop to Assistant Editor
myLabel

```swift
import UIKit

class ViewController: UIViewController {

override func viewDidLoad() {
    // Do any additional setup after loading the view, typically from a nib.
}

override func didReceiveMemoryWarning() {
    super.didReceiveMemoryWarning()
    // Dispose of any resources that can be recreated.
}

@IBOutlet weak var txtYourName: UITextField!
@IBAction func btnHello(_: sender: AnyObject) {
}
```
IBOutlet (Interface Builder Outlet)

@IBOutlet weak var myLabel: UILabel!
import UIKit

class ViewController: UIViewController {

    override func viewDidLoad() {
        super.viewDidLoad()
        // Do any additional setup after loading the view, typically from a nib.
    }

    override func didReceiveMemoryWarning() {
        super.didReceiveMemoryWarning()
        // Dispose of any resources that can be recreated.
    }

    @IBOutlet weak var txtYourName: UITextField!
    @IBOutlet weak var myLabel: UILabel!

    @IBAction func btnHello(_ sender: AnyObject) {
    }
}
@IBAction func btnHello() {
    // ViewController.swift
    // HelloWorld
    // Created by imyday on 18/5/16.
    // Copyright © 2016 imtku. All rights reserved.
    //
    import UIKit
    class ViewController: UIViewController {
        override func viewDidLoad() {
            super.viewDidLoad()
            // Do any additional setup after loading the view, typically from a nib.
        }
        override func didReceiveMemoryWarning() {
            super.didReceiveMemoryWarning()
            // Dispose of any resources that can be recreated.
        }
        @IBOutlet weak var txtYourName: UITextField!
        @IBOutlet weak var myLabel: UILabel!
        @IBAction func btnHello(_ sender: AnyObject) {
            let strYourNameString = txtYourName.text
            myLabel.text = "Hello, " + strYourNameString
            txtYourName.text = ""
        }
    }
}
@IBAction func btnHello() {
    let strYourName: String! = txtYourName.text
    myLabel.text = "Hello, " + strYourName
    txtYourName.text = ""
}
@IBAction func btnHello() {

@IBOutlet weak var txtYourName: UITextField!

@IBOutlet weak var myLabel: UILabel!

@IBAction func btnHello(_ sender: AnyObject) {
    let strYourName: String! = txtYourName.text
    myLabel.text = "Hello, " + strYourName
    txtYourName.text = ""
}
Build and Run
```swift
import UIKit

class ViewController: UIViewController {
    override func viewDidLoad() {
        super.viewDidLoad()
        // Do any additional setup after loading the view, typically from a nib.
    }

    override func didReceiveMemoryWarning() {
        super.didReceiveMemoryWarning()
        // Dispose of any resources that can be recreated.
    }

    @IBOutlet weak var txtYourName: UITextField!
    @IBOutlet weak var myLabel: UILabel!

    @IBAction func btnHello(_ sender: AnyObject) {
        let strYourName: String = txtYourName.text
        myLabel.text = "Hello, " + strYourName
        txtYourName.text = ""
import UIKit

class ViewController: UIViewController {
    override func viewDidLoad() {
        super.viewDidLoad()
        // Do any additional setup after loading the view, typically from a nib.
    }

    override func didReceiveMemoryWarning() {
        super.didReceiveMemoryWarning()
        // Dispose of any resources that can be recreated.
    }

    @IBOutlet weak var txtYourName: UITextField!
    @IBOutlet weak var myLabel: UILabel!

    @IBAction func btnHello(_ sender: AnyObject) {
        let strYourName: String! = txtYourName.text
        myLabel.text = "Hello, " + strYourName
        txtYourName.text = ""
    }
}
Hello, Myday

Hello

@IBOutlet weak var txtYourName: UITextField!

@IBOutlet weak var myLabel: UILabel!

@IBAction func btnHello(_ sender: AnyObject) {
    let strYourName: String! = txtYourName.text
    myLabel.text = "Hello, " + strYourName
    txtYourName.text = ""
}
import UIKit

class ViewController: UIViewController {
    override func viewDidLoad() {
        super.viewDidLoad()
        // Do any additional setup after loading the view, typically from a nib.
    }

    override func didReceiveMemoryWarning() {
        super.didReceiveMemoryWarning()
        // Dispose of any resources that can be recreated.
    }

    @IBAction func btnHello(_ sender: AnyObject) {
        let strYourName = txtYourName.text!
        myLabel.text = "Hello, " + strYourName
    }
    txtYourName.text = ""
}
import UIKit

class ViewController: UIViewController {

    override func viewDidLoad() {
        super.viewDidLoad()
        // Do any additional setup after loading the view, typically from a nib.
    }

    override func didReceiveMemoryWarning() {
        super.didReceiveMemoryWarning()
        // Dispose of any resources that can be recreated.
    }

    @IBOutlet weak var txtYourName: UITextField!
    @IBOutlet weak var myLabel: UILabel!

    @IBAction func btnHello(_ sender: AnyObject) {
        let strYourName: String! = txtYourName.text
        myLabel.text = "Hello, " + strYourName
        txtYourName.text = ""
    }
}
class ViewController: UIViewController {

override func viewDidLoad() {
    super.viewDidLoad()
    // Do any additional setup after loading the view, typically from a nib.
}

override func didReceiveMemoryWarning() {
    super.didReceiveMemoryWarning()
    // Dispose of any resources that can be recreated.
    outlet weak var txtYourName: UITextField!
    outlet weak var myLabel: UILabel!
}

@IBAction func btnHello(_, sender: AnyObject) {
    let strYourNameString! = txtYourName.text
    myLabel.text = "Hello, " + strYourNameString
    txtYourName.text = ""
}
}
Hello, Myday

Hello World

```
import UIKit

class ViewController: UIViewController {

    override func viewDidLoad() {
        super.viewDidLoad()
        // Do any additional setup after loading the view, typically from a nib.
    }

    override func didReceiveMemoryWarning() {
        super.didReceiveMemoryWarning()
        // Dispose of any resources that can be recreated.
    }

    @IBOutlet weak var txtYourName: UITextField!
    @IBOutlet weak var myLabel: UILabel!

    @IBAction func btnHello(_ sender: AnyObject) {
        let strYourName: String! = txtYourName.text
        myLabel.text = "Hello, " + strYourName
        txtYourName.text = ""
    }

}
```
import UIKit

class ViewController: UIViewController {

    override func viewDidLoad() {
        super.viewDidLoad()
        // Do any additional setup after loading the view, typically
        // from a nib.
    }

    override func didReceiveMemoryWarning() {
        super.didReceiveMemoryWarning()
        // Dispose of any resources that can be recreated.
    }

    @IBOutlet weak var txtYourName: UITextField!
    @IBOutlet weak var myLabel: UILabel!
    @IBAction func btnHello(_ sender: AnyObject) {
        let strYourName = String(describing: sender)
        txtYourName.text = "Hello, " + strYourName
    }
}
// ViewController.swift
// HelloWorld
//
// Created by iMyday on 10/5/16.
// Copyright © 2016 imtku. All rights reserved.

import UIKit

class ViewController: UIViewController {

    override func viewDidLoad() {
        super.viewDidLoad()
        // Do any additional setup after loading the view, typically from a nib.
    }

    override func didReceiveMemoryWarning() {
        super.didReceiveMemoryWarning()
        // Dispose of any resources that can be recreated.
    }

    @IBOutlet weak var txtYourName: UITextField!

    @IBOutlet weak var myLabel: UILabel!

    @IBAction func btnHello(_ sender: AnyObject) {
        let strYourName: String! = txtYourName.text
        myLabel.text = "Hello, " + strYourName
        txtYourName.text = ""
    }
}

@IBOutlet weak var txtYourName: UITextField!

@IBOutlet weak var myLabel: UILabel!

@IBAction func btnHello(_ sender: AnyObject) {
    let strYourName: String! = txtYourName.text
    myLabel.text = "Hello, " + strYourName
    txtYourName.text = ""
}
ViewController.swift
(Interface)

//
// ViewController.swift
// HelloWorld
//
// Created by iMyday on 10/5/16.
// Copyright © 2016 imtku. All rights reserved.
//

import UIKit

internal class ViewController : UIViewController {

    override internal func viewDidLoad()
    {

    }

    override internal func didReceiveMemoryWarning()
    {

    }

    @IBOutlet weak internal var txtYourName: UITextField!

    @IBOutlet weak internal var myLabel: UILabel!

    @IBAction internal func btnHello(_ sender: AnyObject)
    {

    }
}
Hello, Myday

Hello
Summary

• Developing **iPhone / iPad Native Apps with Swift 4 (Xcode 9)**
  – Mac OS X 10.8, 10.9, 10.10, 10.11, 10.12, 10.13
  – Xcode 6, Xcode 7, Xcode 8, Xcode 9
  – iOS 8, iOS 9, iOS 10, iOS 11

• **Building Your First iOS App with Xcode 9**

  ![Xcode 8](image1.png)  ![Swift 3](image2.png)  ![Xcode 9](image3.png)  ![Swift 4](image4.png)
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