

Mobile Application Development in iOS

School of EECS

Washington State University

Instructor: Larry Holder

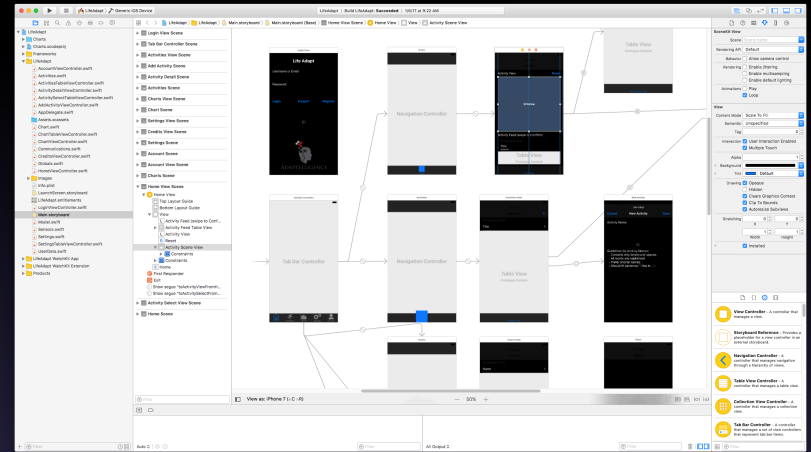
Course Overview

- Mobile application development
- Overview of iOS
- Languages: Swift (and some Objective-C)
- Development environment: Xcode
- Lifecycle: Design, implement, test, deploy
- Model-View-Controller (MVC) paradigm



Course Topics

- Swift
- Storyboarding and UI design
- Navigation and segues
- Tables
- Settings
- Alerts and notifications
- Gestures



Course Topics (cont.)

- Sensors
- Communications
- Data storage
- Graphics and animation
- Sound
- Camera and microphone
- Hot topics (e.g., WatchOS, HomeKit)



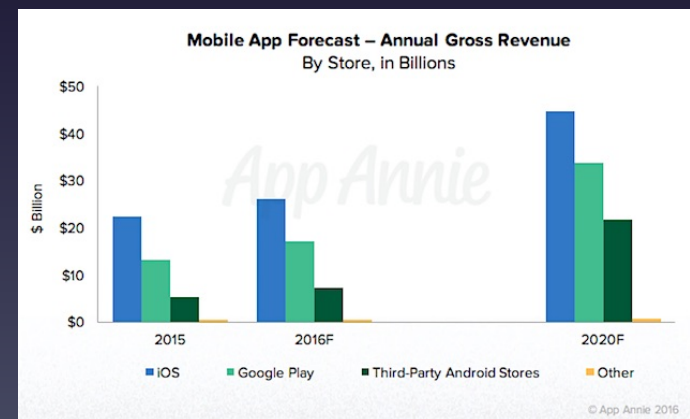
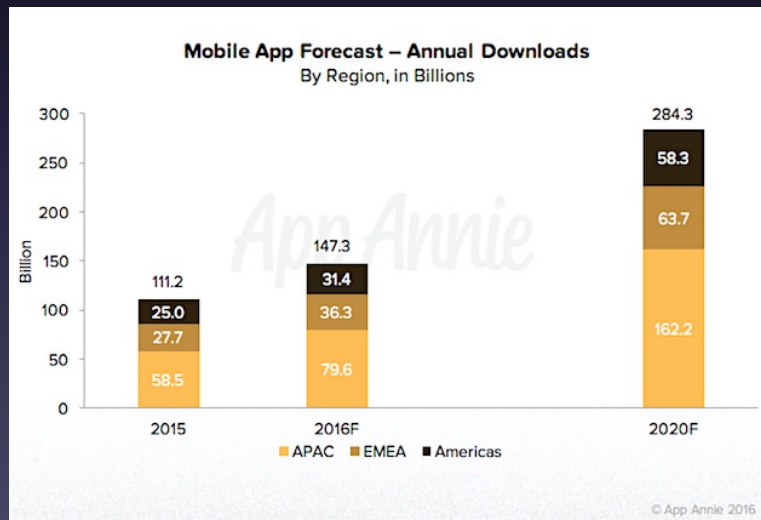
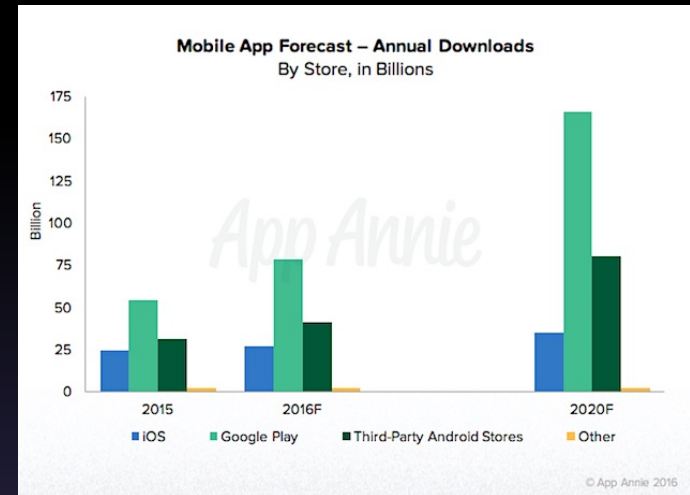
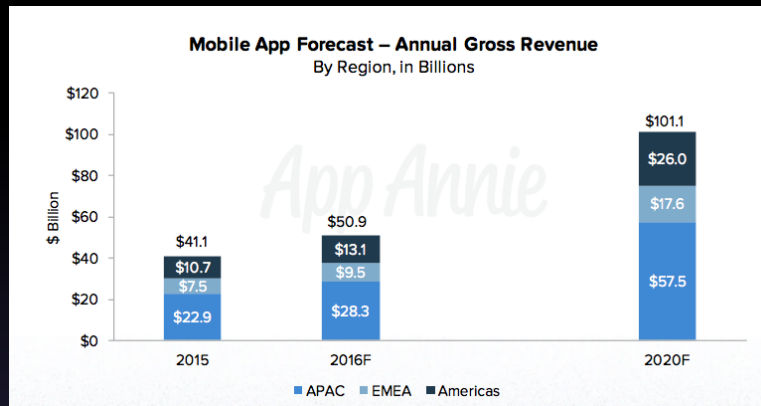
Course Outcomes

- Setup iOS development environment
- Design, implement, test and deploy iOS app
- Familiarity with various iOS frameworks

Course Details

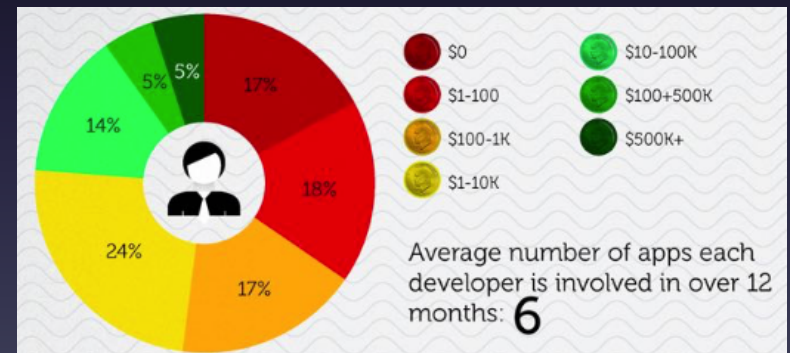
- Course website
 - www.eecs.wsu.edu/~holder/courses/MAD/
- Prerequisites
 - Advanced Data Structures
 - Object-oriented design
- Grading (curved)
 - 12 homeworks (80%)
 - 1 final project (20%)
 - Submissions via Blackboard Learn (learn.wsu.edu)

Mobile App Market Trends



Mobile App Development: Hiring Trends

- CNN Money Best Jobs in America 2017*
 - Mobile App Developer ranked #1
 - Media Pay: \$97,100
 - Top Pay: \$133,000
 - 10-year job growth: 19%



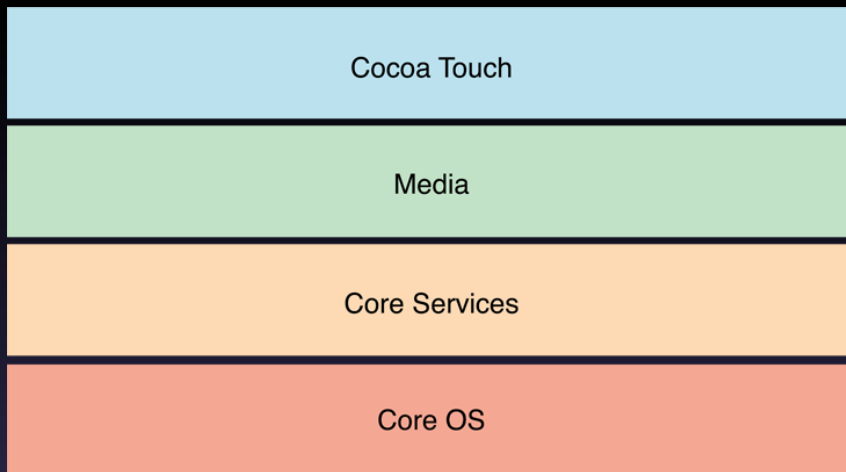
* Source (Jan 2017): <http://money.cnn.com/gallery/pf/2017/01/05/best-jobs-2017>

Mobile App Development: Platforms

- iOS (Xcode with Swift)
- Android (Eclipse with Java)
- Windows (Visual Studio with C#)
 - Xamarin (C# → iOS/Android/Windows)

Overview of iOS: Layers

iOS Layers



- Cocoa Touch Layer: Frameworks that define appearance of app (e.g., GameKit, MapKit, UIKit)
- Media Layer: Graphics, Audio and Video technologies (e.g., CoreAudioKit, GLKit, SpriteKit, SceneKit)
- Core Services Layer: Services and basic types (e.g., Network, CoreData, CoreLocation, CoreMotion, CloudKit, HealthKit, HomeKit, StoreKit, WebKit)
- Core OS Layer: Low-level services (e.g., file I/O, networking, security)

Overview of iOS: Frameworks

- CloudKit
- CoreAudioKit
- GameKit
- HealthKit
- HomeKit
- MapKit
- SceneKit
- UIKit
- CoreData
- CoreFoundation
- CoreLocation
- CoreMotion
- ... (72 as of Jan 2017)
- WatchOS/WatchKit

Objective-C and Swift

- Objective-C ~ C++ with lots of brackets []
- Swift ~ Python with lots of ?'s and !'s
- Example: TipCalculator

- Objective C

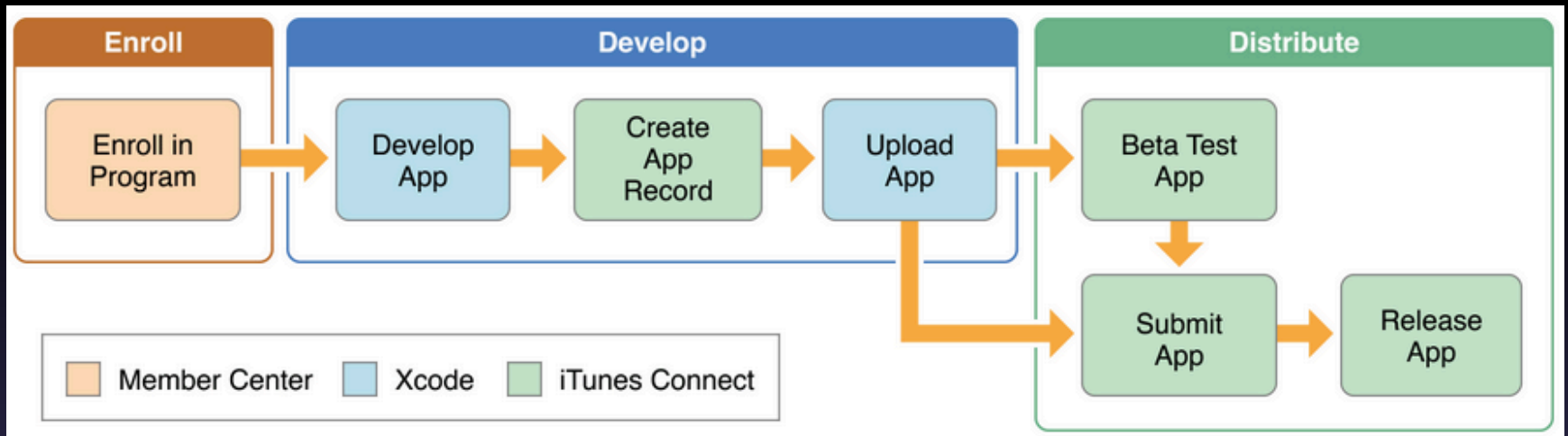
- <https://github.com/jeffreybergier/tipCalculatorGuide>

- Swift

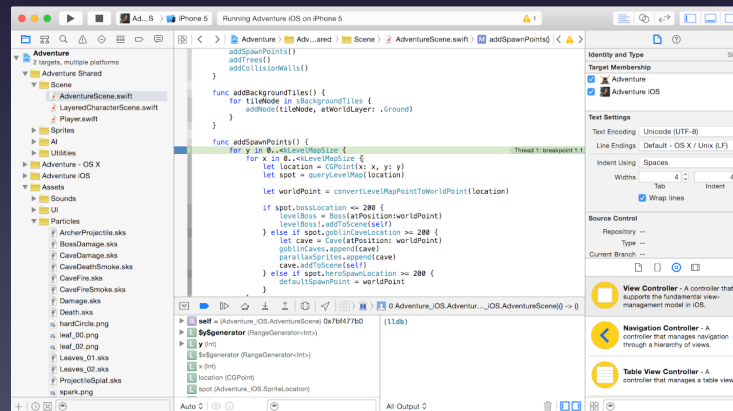
- <http://dev.raywenderlich.com/115279/swift-2-tutorial-a-simple-ios-app>
 - <http://www.raywenderlich.com/wp-content/uploads/2015/09/TipCalculator-Demo4.zip>



Development Environment: Xcode



Xcode



Resources

- <http://developer.apple.com>
- <http://swift.org>