Mobile Application Development in iOS

School of EECS

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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%

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

- **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)

Mobile Application Development in iOS
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
  - Swift
Development Environment: Xcode
Resources

• http://developer.apple.com

• http://swift.org