Mobile Application Development in iOS

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Course Outline

• Mobile application development
• Overview of iOS
• Languages: Objective-C and Swift
• Development environment: Xcode
• Lifecycle: Design, implement, test, deploy
• Model, view, controller (MVC) paradigm
Course Outline (cont.)

• Storyboarding and UI design
• Navigation and segues
• Tables
• User interaction
• Settings
• Alerts and notifications
Course Outline (cont.)

- Sensors
- Communications
- Data storage
- Graphics and animation
- Sound
- Camera and microphone
- Other: developer.apple.com/resources/
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
Mobile App Development: Market Trends

- 2 billion: Number of global smartphone users in 2015
- 180 billion: Number of global app downloads expected in 2015
- $10 billion: Revenue generated by the iOS App Store in 2014
- $77 billion: Annual worldwide app revenue projected by 2017
- $143 billion: Estimated total market size for mobile apps by 2016

Mobile App Development: Revenue Trends

Source (Sep 2014): www.business2community.com
Mobile App Development: Hiring Trends

• 627,000: U.S. jobs created by the iOS App Store to date
• 110%: Job growth for Android developers 2012 – 2014
• 54%: Job growth for iOS developers 2012 – 2014
• 43%: Enterprise app developers who currently earn at least $120,000 per year
• 19%: Consumer app developers who earn the same

Mobile App Development: Platforms

- iOS (Xcode with Objective-C → 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., UIKit)
- **Media Layer**: Graphics, Audio and Video technologies (e.g., OpenGL)
- **Core Services Layer**: Services and basic types (e.g., networking)
- **Core OS Layer**: Low-level services (e.g., file I/O)
Overview of iOS: Frameworks

- AVKit
- CloudKit
- CoreAudioKit
- GameKit
- HealthKit
- HomeKit
- MapKit
- WatchKit
- UIKit
- CoreData
- CoreFoundation
- CoreLocation
- CoreMotion
- ...

Mobile Application Development in iOS
Objective-C and Swift

- Objective-C = C++ with lots of brackets []
- Swift ~= Python
- Example: TipCalculator
  - [github.com/tony/iOS-TipCalculator](https://github.com/tony/iOS-TipCalculator)
  - [www.raywenderlich.com/115253/swift-2-tutorial-a-quick-start](https://www.raywenderlich.com/115253/swift-2-tutorial-a-quick-start)
Development Environment: Xcode
First App

• Hello, world. My name is Larry.