Mobile Application Development in iOS

School of EECS
Washington State University
Instructor: Larry Holder
Course Overview

• Mobile application development
• Overview of iOS
• Language: Swift
• 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
- Multimedia
- Hot topics (e.g., Apple Watch)
Course Outcomes

• Proficient with iOS development environment
• Design, implement, test and deploy iOS app
• Able to use various iOS frameworks and kits
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 Forecast – Annual Downloads
By Region, in Billions

<table>
<thead>
<tr>
<th>Region</th>
<th>2016</th>
<th>2017F</th>
<th>2021F</th>
</tr>
</thead>
<tbody>
<tr>
<td>APAC</td>
<td>149.3</td>
<td>37.3</td>
<td>352.9</td>
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<tr>
<td>EMEA</td>
<td>33.9</td>
<td>79.3</td>
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<tr>
<td>Americas</td>
<td>86.2</td>
<td>117.7</td>
<td>198.9</td>
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</table>

5-Yr CAGR: 19%

Mobile App Forecast – Annual Revenue
Gross Consumer Spend, By Region, in Billions

<table>
<thead>
<tr>
<th>Region</th>
<th>2016</th>
<th>2017F</th>
<th>2021F</th>
</tr>
</thead>
<tbody>
<tr>
<td>APAC</td>
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<td>$35.1</td>
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<tr>
<td>EMEA</td>
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<td>Americas</td>
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5-Yr CAGR: 18%

Mobile App Forecast – Annual Downloads
Worldwide, By Store, in Billions

<table>
<thead>
<tr>
<th>Store</th>
<th>2016</th>
<th>2017F</th>
<th>2021F</th>
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<tbody>
<tr>
<td>iOS</td>
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<td>104</td>
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<tr>
<td>Google Play</td>
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<tr>
<td>Third-Party Android Stores</td>
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</table>

Mobile App Forecast – Annual Revenue
Worldwide, Gross Consumer Spend, By Store, in Billions

<table>
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<tr>
<th>Store</th>
<th>2016</th>
<th>2017F</th>
<th>2021F</th>
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<tbody>
<tr>
<td>iOS</td>
<td>$34</td>
<td>$17</td>
<td>$40</td>
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<tr>
<td>Google Play</td>
<td>$17</td>
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<tr>
<td>Third-Party Android Stores</td>
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<td>$20</td>
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</table>

Mobile Application Development in iOS 7
Mobile App Development:
Hiring Trends

- CNN Money Best Jobs in America 2017*
  - Mobile App Developer ranked #1
  - Median 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)
iOS Devices

- iPad
- iPhone
- Apple Watch
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)
Overview of iOS: Frameworks

- ARKit
- CloudKit
- HealthKit
- HomeKit
- GameKit
- MapKit
- SceneKit
- MusicKit
- WebKit
- UIKit
- CoreData
- CoreLocation
- CoreMotion
- CoreML
- WatchOS/WatchKit
- Over 50 more...
Development Environment: Xcode
Resources

• developer.apple.com

• swift.org

• www.raywenderlich.com

• stackoverflow.com