Introduction to Mobile Apps

CSE 5236: Mobile Application Development
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Essence of A Mobile Device?

• (Potentially) available to serve everywhere, any time.
• Interwoven into daily life – live, work, play, study
• Represents and intimately “knows” the user
  – Much more than just a small computer, it represents the user
• Brings in the outside world – sensing, location, communication
• Now the dominant end-user device
  – See:  
Varied Shapes, Sizes, Capabilities
Mobile Application Development Challenges

- Competitive, fluid vendor landscape (Apple, Android consortium incl. Amazon, RIM, HP) means apps need to be multi-platform for wide adoption
- No “standard” device (what about iOS, Windows Phone devices?)
- Low bandwidth input (in most cases – what about tablets?)
- Limited screen size (tablets?)
- Unreliability in connectivity and device (network access, power, ambient light, noise, at least for now)
- Integration tradeoffs with cloud and enterprise services
Application Development Support

- 3rd Generation Object-Oriented Languages (iOS – Objective C, Android – Java, Windows Phone – C#)
- Scripting languages (JavaScript, Ruby)
- Cross-platform frameworks – Titanium, RhoMobile, Xamarin, PhoneGap
- C and C++
- Integrated into “frameworks” specifically for mobile application development
Framework Support (e.g. Android)
Framework Capabilities and Add-Ons

- **Built-In Services:**
  - GUI, OS services (file I/O, threads, device management), Graphics, Device access (GPS, camera, music and video players, sensors), Web-services, Networking, XML processing, standard language libraries

- **Add-ons:**
  - Maps
  - Database support (SQLite)
  - WebKit
IDE Support

• Open IDEs – Eclipse/Android Studio for Android)
• Proprietary (Xcode for iOS, MS Visual Studio)
• Testing tools (test management, unit tests)
• Performance profiling tools
• SCM integration (Git, SVN, CVS)
• Software emulators
• Sensor injection (GPS, accelerometer, others)
Thank You

Questions and comments?