Mobile Application Design

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What Matters?

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1

Session Objectives

- This session examines the components and principles for designing a mobile application.
- The session cover basic principles in mobile design and provides a background on key issues of concern to guide mobile developers.
- It will also explain how mobile applications can be reviewed and also differences between hybrid applications and native applications.

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Smartphones

According to Apple:

- 63% of all students enrolled in colleges and universities own smartphones
- College students are the fastest growing sector of the market
- Expected growth for 2011 is almost 50%

Apple - Education - Challenge Based Learning. Available at: http://www.apple.com/education/challenge-based-learning/#cbl-engaging-video. Accessed June 5, 2011.

http://www.bumc.bu.edu/facdev-medicine/files/2011/11/Workshop_11_4.ppt

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Mobile Devices

Why are mobile devices so popular?

- Combine the functionality of a computer with portability
- Lower cost
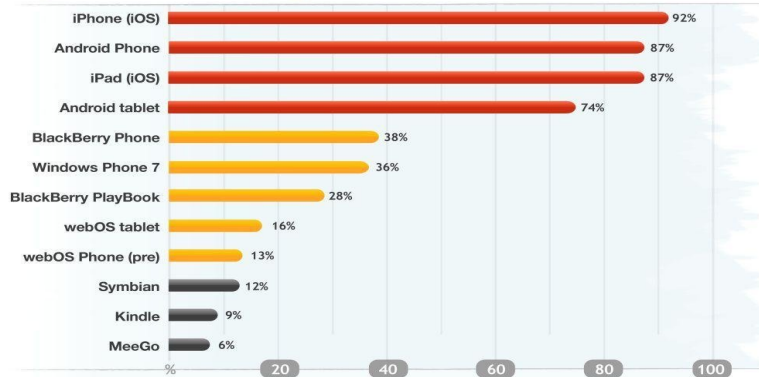- Connect to Internet wirelessly
- Apps

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What are Apps?

Unparalleled App Performance

- The term 'app' stands for a computer application on the mobile device.

- Apps can be e-books, interactive reference materials, training modules, medical software devices, data collection tools, interactive patient handouts, etc.

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Apps … wait, what's my device?

'Very Interested' In Developing For Each Platform

Platform	%
iPhone (iOS)	92%
Android Phone	87%
iPad (iOS)	87%
Android tablet	74%
BlackBerry Phone	38%
Windows Phone 7	36%
BlackBerry PlayBook	28%
webOS tablet	16%
webOS Phone (pre)	13%
Symbian	12%
Kindle	9%
MeeGo	6%

N = 1,971 responses   Source: Appcelerator / IDC - 01/2011   appcelerator   IDC *Analyze the Future*

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Finding Apps

- Apple's App Store for iPod, iPhone and iPad
- Google's Android Market for Android mobile devices
- Blackberry's App World for RIM mobile devices
- Nokia's Avi Store for Nokia mobile devices
- Windows 7 Phone Marketplace
- Third-party app stores (*Caveat emptor*)

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Finding Apps

Apple Apps Store
http://www.apple.com/iphone/apps-for-iphone/

- Largest store - Over 350,000 apps
- Apps for both iPhone and iPad
- Some apps can also be used on some models of iPod Touch

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Finding Apps

Android Market

https://market.android.com/

- Fastest growing market - Over 250,000 apps in less than two years
- Apps for both phones and tablets
- Some apps only work on Android devices made by certain manufacturers

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Finding Apps

BlackBerry App World

http://appworld.blackberry.com/webstore/?lang=en

- Over 35,000 apps
- Apps for both phones and tablets
- Some apps only work on certain BlackBerry devices

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There's an App for That

What's up, Doc?

1) Number of mobile apps and downloads
2) Revenue from apps
3) Proliferation of app stores
4) Most used mobile apps (US)
5) Declining price of mobile apps
6) App failure rates

http://mobithinking.com/mobile-marketing-tools/latest-mobile-stats

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Number of mobile apps and downloads

IDC (December 2010): In 2010 these 300,000+ applications were downloaded 10.9 billion times. IDC predicts that global downloads will reach 76.9 billion in 2014 and will be worth US$35 billion.

ABI Research (October 2011): Predicts that there will be 29 billion apps downloaded in 2011, up from 9 billion in 2010. In Q2 Android overtook Apple in terms of app downloads with 44 percent of downloads, compared to Apple's 31 percent.

ABI Research - http://tinyurl.com/cerjwwv
IDC - http://tinyurl.com/cnkd4r4

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Revenue from apps

Canalys (June 2011): Predicts that direct revenue from the sale of apps, in-app purchases and subscriptions across smartphones and tablets will be $7.3 billion in 2011 rising to $36.7 billion by 2015.

Canalys expects MNOs to take more of a share of app revenues, exploiting their relationships with the customer and the serious problem of application discovery for both developers and users in the overcrowded vendor app stores.

http://www.canalys.com/pr/2011/r2011064.html

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Proliferation of app stores

Mobyaffiliates recently established a directory of mobile app stores. They found a staggering 70 app stores, which they categorized by

Cross-platform (26);

Android (13);

iOS (5);

BlackBerry (3);

Manufacturer-operated (7);

carrier-operated (16) app stores.

http://www.mobyaffiliates.com/blog/mobile-app-stores-list

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Most used mobile apps (US)

- **Nielsen** (June 2010): note that's used as opposed to downloaded – in the US are Facebook, Google Maps and The Weather Channel (TWC). The most popular categories are games; news; maps; social networking and music.

- The Facebook App has been downloaded 100 million times from the independent app store GetJar, according to **GetJar**(December 2010) (making this the most downloaded app from any app store).

mobiThinking says: the irony is that this is not a download app it's a short cut to the Facebook mobile site – Facebook is a Web app, available for anyone with any Web-enabled handset.

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Declining price of mobile apps

- **The average price of a mobile app is falling rapidly on all vendor app stores, except Android**.

- **The Distimo report** (January 2011) finds that in December the average the cost of downloading an app was considerably cheaper than it was in January 2010. Distimo makes analytics tools for mobile apps.

http://mobithinking.com/mobile-marketing-tools/latest-mobile-stats/e#lotsofapps

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Failure rates of mobile apps

- **One in four mobile apps once downloaded is never used again**.

A study by Localytics (January 2010) found that many apps are downloaded, tried once and then discarded.

• "Tracking downloads is often a first step to gauging an app's success, but download stats often provide an incomplete and inflated view. High download numbers always feel great, but if those customers never open the app or abandon it after just a few uses, those high download numbers are really part of a high churn rate."

http://mobithinking.com/mobile-marketing-tools/latest-mobile-stats/e#lotsofapps

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App Types: native-vs-mobile web-vs-hybrid

- **Native apps** are built for a specific platform with the platform SDK, tools and languages, typically provided by the platform vendor.

- e.g. xCode/Objective-C for iOS, Eclipse/Java for Android, Visual Studio/C# for Windows Phone.

http://icenium.com/community/blog/icenium-team-blog/2012/06/14/what-is-a-hybrid-mobile-app-

App Types: native-vs-mobile web-vs-hybrid

- **Mobile Web** apps are server-side apps, built with any server-side technology (PHP, Node.js, ASP.NET) that render HTML that has been styled so that it renders well on a device form factor.

Mobile Applications

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19

App Types: native-vs-mobile web-vs-hybrid

- **Hybrid apps**, like native apps, run on the device, and are written with web technologies (HTML5, CSS and JavaScript). Hybrid apps run inside a native container, and leverage the device's browser engine (but not the browser) to render the HTML and process the JavaScript locally.

- A hybrid app is one that is written with the **same technology used for websites and mobile web implementations**, and that is hosted or runs inside a **native container on a mobile device**. It is the marriage of web technology and native execution.

http://icenium.com/community/blog/icenium-team-blog/2012/06/14/what-is-a-hybrid-mobile-app-

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App Types: Which Choice??

- **Native apps** will always provide the **fastest performance**, at the cost of being *more complex* to code when compared to a hybrid app, while a hybrid app will be easier to build, using HTML5 and JavaScript, at the cost of giving up a little bit of speed.
- If the user experience you want to create is a ***Need for Speed style game***, chances are you'll want to use native technology to implement **the app for each mobile platform** you're targeting in order to get the best graphics performance.

http://icenium.com/community/blog/icenium-team-blog/2012/06/14/what-is-a-hybrid-mobile-app-

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Hybrid App

- …a hybrid app is a perfect solution and enables you to build it once, publish it through app stores, and have it work on several platforms.

- A hybrid app is one that is written with the same **technology used for websites and mobile web implementations**, and that is hosted or runs inside a native container on a mobile device. It is the marriage of web technology and native execution.

http://icenium.com/community/blog/icenium-team-blog/2012/06/14/what-is-a-hybrid-mobile-app-

Hybrid App

Hybrid apps are a great option for you if you:

- Want to target multiple mobile platforms
- Want to take advantage of device capabilities like geolocation, accelerometer or the camera
- Want the app to be useable when the device is offline
- Don't need the advanced graphics performance that you can only get from a native app.
- Hybrid apps are built with web technologies which means there are millions of web developers who already have the base skill set to build mobile apps.

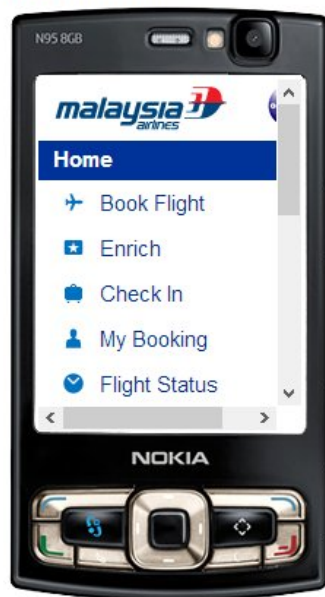http://icenium.com/community/blog/icenium-team-blog/2012/06/14/what-is-a-hybrid-mobile-app-

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NATIVE APPS
- Single platform affinity
- Written with platform SDKs
- Must be written for each platform
- Access to all native APIs
- Faster graphics performance
- AppStore distribution

HYBRID APPS
- Cross-platform affinity
- Written with web technologies (HTML5, CSS3 and JavaScript)
- Runs locally on the device, supports offline
- Access to native APIs
- AppStore distribution

MOBILE WEB APPS
- Cross-platform affinity
- Written with web technologies (HTML, CSS, JavaScript, or Server-side (PHP, ASP.NET, etc.)
- Runs on web server, viewable on multiple devices
- Centralized updates

ACCESS TO DEVICE CAPABILITIES

PLATFORM AFFINITY

http://icenium.com/community/blog/icenium-team-blog/2012/06/14/what-is-a-hybrid-mobile-app-

Key Basic Considerations

1. An Idea that is a solution or fills a need
   - Entertainment, Sports, Education, Business, Medicine, Recreation...
   - Target Market and Audience and Reach
2. Content Development and Provision
   - A web-based environment to create and manage content…. Wordpress, facebook, twitter….
3. Mobile Application Container
   - Software or application which will link the content to a mobile interface: mobile.conduit.com; http://icenium.com/mobile-app-platform
   - Consideration of distribution platform – iOS, Android and Windows
4. User Interactivity and Branding Elements
   - App Menu, Logo for App, App Name, App Updates, App Colours, Splash Screen et cetera

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flymas.mobi

- App Menu
- Logo for App
- App Name
- App Updates
- App Colours
- App Splash Screen

REVIEWING APPS

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C #1: Creator

Creator:

- Who made the app?
- Is this individual or organization credible?
- Creator information should be easy to find; if not, this may be an indication of questionable quality.

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C #1: Creator

- Individual Creator(s)
  - Professional developer vs. enthusiast developer
  - Professional vs Practitioner
  - For profit, non-profit, affiliation, disclaimer, etc.
  - Business entrepreneur

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C #1: Creator

- Organization(s)
  - Government agency, institute, etc.
  - Non-profit vs. for-profit
  - Well established company vs. start-up company
  - Pharmaceutical company
  - Health insurance company

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C #2: Content

Content:

- What is the scope of the app?
- What does it contain?
- Who is the intended audience?

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31

C #2: Content

- Apps that quiz, test or educate via games
  - TopDoc – a visual medical quiz app developed by Elsevier and Legacy Interactive.
  - Speed Muscles MD - a quiz by a developer specializing in medical education.
  - Brush It Up! – a game to teach kids how to brush their teeth.

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C #2: Content

- If you're going to recommend an app to a particular audience first try to categorize its content and the level of content
  - General reference
  - Entertainment
  - Guidelines
  - Educational resources
  - Productivity
  - Communication tools

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33

C #3: Context

Context:

- Is this app easy to use?
- To read? To view images?
- To navigate?
- Does it load quickly? Do I need internet connection?
- Does it crash often?
- Software updates

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C #4: Comments

Comments:

From users:

- What do users think of this app?
- Do multiple users have the same comments or complaints?
- How many people have made comments?

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C #4: Comments

Comments:

From Tech Experts:

- What do magazines and web sites devoted to technology say about this app or device?

From Professionals and Practitioners

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36

C #5 Connect

Connect:

- There are thousands of free apps, and most paid apps have "lite" or free versions.
- Many paid apps cost less than $5, so if you are interested take the plunge.

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Key References

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