SMS Apps

“GGS SMS” by Sriganesh Lokanathan/LIRNEasia
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<http://www.flickr.com/photos/lirneasia/4459872700/>
"Radio 1 wap site" by James Cridland
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<http://www.flickr.com/photos/jamescridland/1470202502/>

Web Apps (and WAP)
Smartphone Apps

“iPhone vs. Android” by nrkbeta.no
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<http://www.flickr.com/photos/nrkbeta/3905907681/>
Goal: Make a great demo that can become a product!
What we will cover

• Mobile Component: Android (Java)
• Web Component: Django (Python)
• Advanced topics in software design
  ○ Technologies: Regular expressions, translation...
  ○ Software Lifecycle: Testing/QA/Version Control
  ○ Other topics as needed (SMS? Other platforms?)
This Week

• Android basics
  ○ User Interface: Layouts and controls
  ○ User Interface: App structure and navigation
  ○ Interacting with the web

• Version control and Git, unit tests and JUnit

• Lab: Making a basic app, and building on it
An Introduction to Android
Android Devices

Phones

“Samsung Galaxy Nexus” by Sham Hardy
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<http://www.flickr.com/photos/xshamx/6552938889/>
Android Devices

"Android-based tablet" by Tom Purves
Licensed under a Creative Commons Attribution 2.0 Generic License
<http://www.flickr.com/photos/thomaspurves/4365881879/>

Tablets
Android Apps

• Java-based
• Single, signed app file
• Apps usually on an app store
  ○ e.g. Google Play
• Runs separate from all other apps (usually)
Components of an Android App

- **Activity** – Single screen
- **Service** – Background actions
- **Content Provider** – Shared persistent storage
- **Broadcast Receiver** – Receives notifications

*An app may have only one type of component, or it may have all four!*
Other Android App Concepts

- **Intent** – Message to activate a component
- **Manifest** – Describes app, its permissions
- **View** – Something drawn on the screen
  - Includes *layouts*, *controls*, *dialogs*, etc.
- **Fragment** – Composable sub-activity
- **Widget** – Mini-view (as in home screen)
Android Versions and API Levels

“Dessert plate” by Quinn Dombrowski
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<http://www.flickr.com/photos/quinnanya/5847206255/>
Android Versions and API Levels

Current Distribution

The following pie chart and table is based on the number of Android devices that have accessed Google Play within a 14-day period ending on the data collection date noted below.

<table>
<thead>
<tr>
<th>Version</th>
<th>Codename</th>
<th>API Level</th>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5</td>
<td>Cupcake</td>
<td>3</td>
<td>0.3%</td>
</tr>
<tr>
<td>1.6</td>
<td>Donut</td>
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<td>7</td>
<td>5.2%</td>
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<tr>
<td>2.3 - 2.3.2</td>
<td>Gingerbread</td>
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<td>2.3.3 - 2.3.7</td>
<td></td>
<td>10</td>
<td>64.6%</td>
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<td>3.1</td>
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<td>13</td>
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</tr>
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<td>4.0 - 4.0.2</td>
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<td>14</td>
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<tr>
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Data collected during a 14-day period ending on June 1, 2012

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From “Android | Dashboards: Platform Versions”
<http://developer.android.com/about/dashboards/index.html>

Most still need 2.1 (API Level 7!)
Android Versions and API Levels

public class Spinner extends AbsSpinner
implements DialogInterface.OnClickListener

java.lang.Object
  ↳ android.view.View
    ↳ android.view.ViewGroup
      ↳ android.widget.AdapterView<T extends android.widget.Adapter>
        ↳ android.widget.AbsSpinner
          ↳ android.widget.Spinner

Class Overview

A view that displays one child at a time and lets the user pick among them. The items in the Spinner come from the Adapter associated with this view.

See the Spinner tutorial.

Summary

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Version Control
What is version control?

Version control is a way to manage the history of a project’s source code.
Types of version control

- Client/Server (CVS, SVN, SourceSafe...)
- Distributed (Git, Mercurial, bazaar...)

We will use Git in the labs.
Branches

ffabd4 → 7a98b5 → 897bbc → master
Branches

git branch new

ffabd4 -> 7a98b5 -> 897bbc

master

new
Branches

[edit]; git commit

master

ffabd4 → 7a98b5 → 897bbc

267ff3

new
git checkout master

Branches

- ffabd4
- 7a98b5
- 897bbc
- 267ff3

master

new
Branches

[edit]; git commit

Monday, July 2, 12
Branches

git merge new

Monday, July 2, 12
Version Control Concepts

- **Revision/Commit** – Saved version of source
- **To commit (verb)** – To save the version
- **Repository** – Where the history is stored
Remote Storage: Bitbucket
Git & Eclipse: EGit
Getting Set Up

• Download Eclipse IDE for Java Developers:
  <http://eclipse.org/downloads/>

• Install the Android SDK:
  <http://developer.android.com/sdk/installing/>

• For later: Install Python 2.7.3 and PyDev:
  ○ Python 2.7.3: <http://www.python.org/download/>
  ○ PyDev: <http://pydev.org/download.html>

• How to install Eclipse plugins
  (Android; for PyDev, replace URL with the “main” URL listed in above link):
References


- Videos: Java and Eclipse for Total Beginners: [http://eclipsutorial.sourceforge.net/totalbeginner.html](http://eclipsutorial.sourceforge.net/totalbeginner.html)


- Using Bitbucket: [https://confluence.atlassian.com/display/BITBUCKET/Bitbucket+101](https://confluence.atlassian.com/display/BITBUCKET/Bitbucket+101)

Don’t forget to sign in and register when you get the e-mail!