Why are we here?

- Learn a bit about the Android platform
- Become familiar with the tools you’ll build with
- Build and run a simple application
Android
What is Android?

0 What comes to your mind?

0 Two things:
   0 Operating System for Mobile phones
   0 Open Source
      (http://source.android.com)

0 Intersection of OSS and cool, easy to program gadgets
Architecture

Android Framework

Dalvik VM

Native Libraries

Linux
Vocabulary
Resource: Text, pictures, sound, etc. Everything is broken out of the code into a resource, which is referenced in a class called R.
Activity

- A single screen in an android app
- An app is composed of one or more activities
- Changing an activity:
  - Hardware buttons
  - Software (Coding)
**Intent**

0 Facilitates activity to activity communication

0 Basically, it’s a code to accomplish a verb like “take a pic” or “open contacts”
Setting Up The Environment
Java JDK

- Google Java JDK
- Go to the first link
- Download the latest version of Java JDK

Eclipse IDE

- Google Eclipse
- Go to the first link and click on Downloads
- Download the latest version of Eclipse Classic
Android SDK

- Google Android SDK
- Go to the first link
- Download Windows Installer (.exe file)
- Set your default browser at no proxy
- Run the above downloaded exe file and let it download the required components
- Go to [http://developer.android.com/sdk/eclipse-adt.html](http://developer.android.com/sdk/eclipse-adt.html) and follow the instructions to install ADT plugin
Introduction to Eclipse
package com.yourname.main;

import java.io.DataInputStream;

*/

public class BluetoothChat extends Activity {
    // Debugging
    private static final String TAG = "BluetoothChat";
    private static final boolean D = true;
    int cmd;

    // Message types sent from the BluetoothChatService Handler
    public static final int MESSAGE_STATE_CHANGE = 1;
    public static final int MESSAGE_READ = 2;
    public static final int MESSAGE_WRITE = 3;
    public static final int MESSAGE_DEVICE_NAME = 4;
    public static final int MESSAGE_TOAST = 5;
    int h,w;

    // Key names received from the BluetoothChatService Handler
    public static final String DEVICE_NAME = "device_name";
    public static final String TOAST = "toast";

    /**
     * This is the main Activity that displays the current chat session.
     */
}
Introduction to JAVA
Comparison (Java and C)

<table>
<thead>
<tr>
<th>C</th>
<th>JAVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIM (Popular Ubuntu Editor)</td>
<td>Eclipse (Popular Java Editor)</td>
</tr>
<tr>
<td>GCC (Compiles to a .out file)</td>
<td>JAVAC (Compiles to a .class file)</td>
</tr>
<tr>
<td>Code needs to be changed for different platform (runs directly on OS)</td>
<td>Code is platform independent (runs in a VM)</td>
</tr>
</tbody>
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Java on Android

- VM used is optimized for Android (Dalvik VM)

- Java files are compiled to .dex file (compatible with Dalvik VM)

- The entire project is packaged into a .apk file (Similar to .jar for default VM)
Java Basics

0 Java is composed of classes.

0 All the classes in a project are in a single package declared at the top.
  0 package com.example.first;
  0 public class Example 1{
    }

0 Activity and Intent are classes existing already in Android Architecture.
Java Basics

0 Use extends Activity keyword to make an Activity (Automatically generated)

0 Every class that extend activity must start with onCreate() function (This is also automatically generated).
Building Your First App
You will...

- Learn how to work with Eclipse
- Learn your way around an android project
- Get familiar with activities and intents
- Make a flashlight app
Steps

- Make the background red and bring a label red at the center
- Make a green button
- Make a second activity
- Make an intent