***Notes on “Android Workshop” 1***

**Step 0: Setting Up**

Make sure you have the latest version of Java installed. If you don’t have it already, please download from <http://www.oracle.com/technetwork/java/javase/downloads/index.html> the *Java JDK Standard Edition*. Install by double-clicking and follow the instructions (be careful not to change your homepage to *Bing* along the way)

* Download Eclipse, unzip to some directory, and start it to make sure it works
* Download the Android SDK from <http://developer.android.com/sdk/index.html#download>
* Integrating the Android SDK into Eclipse via the ADT plugin

**Download the ADT Plugin**

1. Start Eclipse, then select **Help** > **Install New Software**.
2. Click **Add**, in the top-right corner.
3. In the Add Repository dialog that appears, enter "ADT Plugin" for the *Name* and the following URL for the *Location*:

https://dl-ssl.google.com/android/eclipse/

1. Click **OK**.

If you have trouble acquiring the plugin, try using "http" in the Location URL, instead of "https" (https is preferred for security reasons).

1. In the Available Software dialog, select the checkbox next to Developer Tools and click **Next**.
2. In the next window, you'll see a list of the tools to be downloaded. Click **Next**.
3. Read and accept the license agreements, then click **Finish**.

If you get a security warning saying that the authenticity or validity of the software can't be established, click **OK**.

1. When the installation completes, restart Eclipse.

**Configure the ADT Plugin**

Once Eclipse restarts, you must specify the location of your Android SDK directory:

1. In the "Welcome to Android Development" window that appears, select **Use existing SDKs**.
2. Browse and select the location of the Android SDK directory you recently downloaded and unpacked.
3. Click **Next**.

Your Eclipse IDE is now set up to develop Android apps, but you need to add the latest SDK platform tools and an Android platform to your environment. To get these packages for your SDK, continue to [Adding Platforms and Packages](http://developer.android.com/sdk/installing/adding-packages.html).

* Start Eclipse, pick a location for your Android projects and choose “Window | Android Virtual Device Manager” to create a “New” AVD (make sure to use no more than 512 MB as memory for your new virtual device. Then “Start” that AVD – be prepared to wait, it’ll take quite some time.

**Step 1: Creating your first Project**

* Start Eclipse and create a new project named **GeoQuiz** with main activity **QuizActivity**
* Explore and explain the directories and files in the new project
* Run your new project as an “Android Application”
* Create proper layout resource to include some text, a true, and a false button
* Create proper String resources
* Take a look at the menu resources (add a “New” menu item and remove it again)
* Look at the source code of the Activity
* Edit the Eclipse preferences (Windows | Preferences | Java | Code Style | Formatter -> Create new Formatter that puts opening braces in a line by themselves) Apply new style (Source | Format)
* Setting up the OnClickListener as an inner class handling both buttons, two inner classes, or anonymous inner classes. Pros and cons. Show how to not use one inner class for both buttons but instantiating it twice.

**Source Listing**

**activity\_quiz.xml**

<LinearLayout xmlns:android=*"http://schemas.android.com/apk/res/android"*

 xmlns:tools=*"http://schemas.android.com/tools"*

 android:layout\_width=*"match\_parent"*

 android:layout\_height=*"match\_parent"*

 android:gravity=*"center\_vertical|center\_horizontal"*

 android:orientation=*"vertical"*

 tools:context=*".QuizActivity"* >

 <TextView

 android:id=*"@+id/id\_question\_text"*

 android:layout\_width=*"fill\_parent"*

 android:layout\_height=*"wrap\_content"*

 android:ems=*"10"*

 android:text=*"@string/question\_text"*

 android:textSize=*"@dimen/text\_size"* >

 </TextView>

 <LinearLayout

 android:layout\_width=*"fill\_parent"*

 android:layout\_height=*"wrap\_content"*

 android:gravity=*"center\_vertical|center\_horizontal"*

 android:orientation=*"horizontal"* >

 <Button

 android:id=*"@+id/id\_button\_false"*

 android:layout\_width=*"wrap\_content"*

 android:layout\_height=*"wrap\_content"*

 android:text=*"@string/false\_button"* />

 <Button

 android:id=*"@+id/id\_button\_true"*

 android:layout\_width=*"wrap\_content"*

 android:layout\_height=*"wrap\_content"*

 android:text=*"@string/true\_button"* />

 </LinearLayout>

 </LinearLayout>

**Strings.xml**

<?xml version=*"1.0"* encoding=*"utf-8"*?>

<resources>

 <string name=*"app\_name"*>Geo Quiz</string>

 <string name=*"action\_settings"*>Settings</string>

 <string name=*"true\_button"*>True</string>

 <string name=*"false\_button"*>False</string>

 <string name=*"question\_text"*>Constantinople is the largest city in Turkey</string>

 <string name=*"toast\_correct"*>&quot;Correct, well done&quot;</string>

 <string name=*"toast\_incorrect"*>Wrong (sorry)</string>

</resources>

**Dimens.xml**

<resources>

 <dimen name=*"text\_size"*>24dp</dimen>

</resources>

**QuizActivity**

**package** org.mathcs.geoquiz;

**import** android.os.Bundle;

**import** android.app.Activity;

**import** android.view.Menu;

**import** android.view.View;

**import** android.widget.Button;

**import** android.widget.Toast;

**public** **class** QuizActivity **extends** Activity

{

 **private** Button buttonTrue = **null**;

 **private** Button buttonFalse = **null**;

 @Override

 **protected** **void** onCreate(Bundle savedInstanceState)

 {

 **super**.onCreate(savedInstanceState);

 setContentView(R.layout.*activity\_quiz*);

 buttonFalse = (Button)**this**.findViewById(R.id.*id\_button\_false*);

 buttonTrue = (Button)**this**.findViewById(R.id.*id\_button\_true*);

 buttonTrue.setOnClickListener(**new** View.OnClickListener()

 {

 @Override

 **public** **void** onClick(View v)

 {

 // **TODO** Auto-generated method stub

 Toast.*makeText*(QuizActivity.**this**, "True Button clicked",

 Toast.*LENGTH\_SHORT*).show();

 }

 });

 buttonFalse.setOnClickListener(**new** View.OnClickListener()

 {

 @Override

 **public** **void** onClick(View v)

 {

 // **TODO** Auto-generated method stub

 Toast.*makeText*(QuizActivity.**this**, "False Button clicked",

 Toast.*LENGTH\_SHORT*).show();

 }

 });

 }

 @Override

 **public** **boolean** onCreateOptionsMenu(Menu menu)

 {

 // Inflate the menu; this adds items to the action bar if it is present.

 getMenuInflater().inflate(R.menu.*quiz*, menu);

 **return** **true**;

 }

}