



CRASH COURSE IN ANDROID DEVELOPMENT

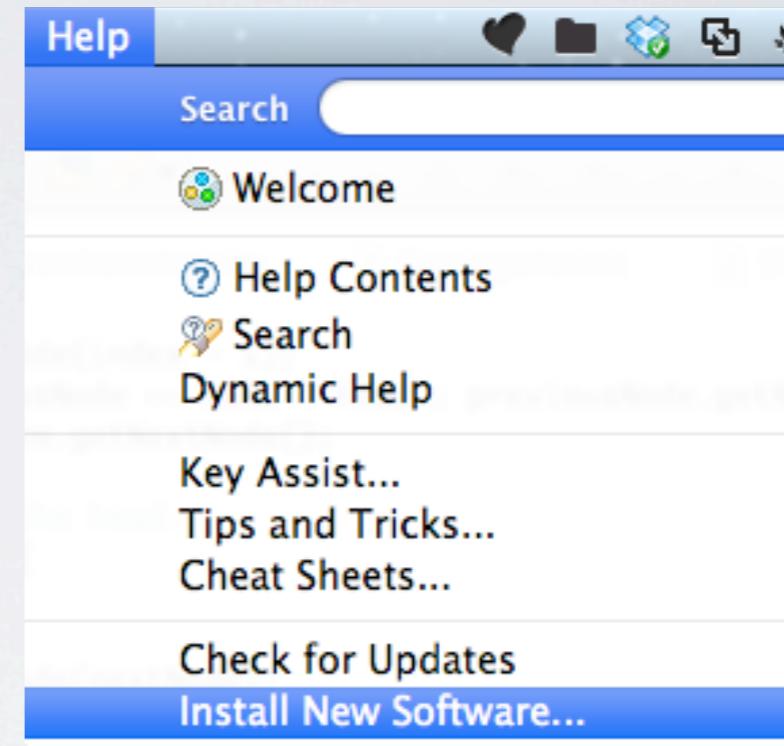
By Chris Theberge

BACKGROUND

- Android is an open source mobile operating system
- Android is supported and maintained by Google
- Applications are written in Java
 - Applications run on custom virtual machine called Dalvik
- Applications are developed in Eclipse

SETTING UP ECLIPSE

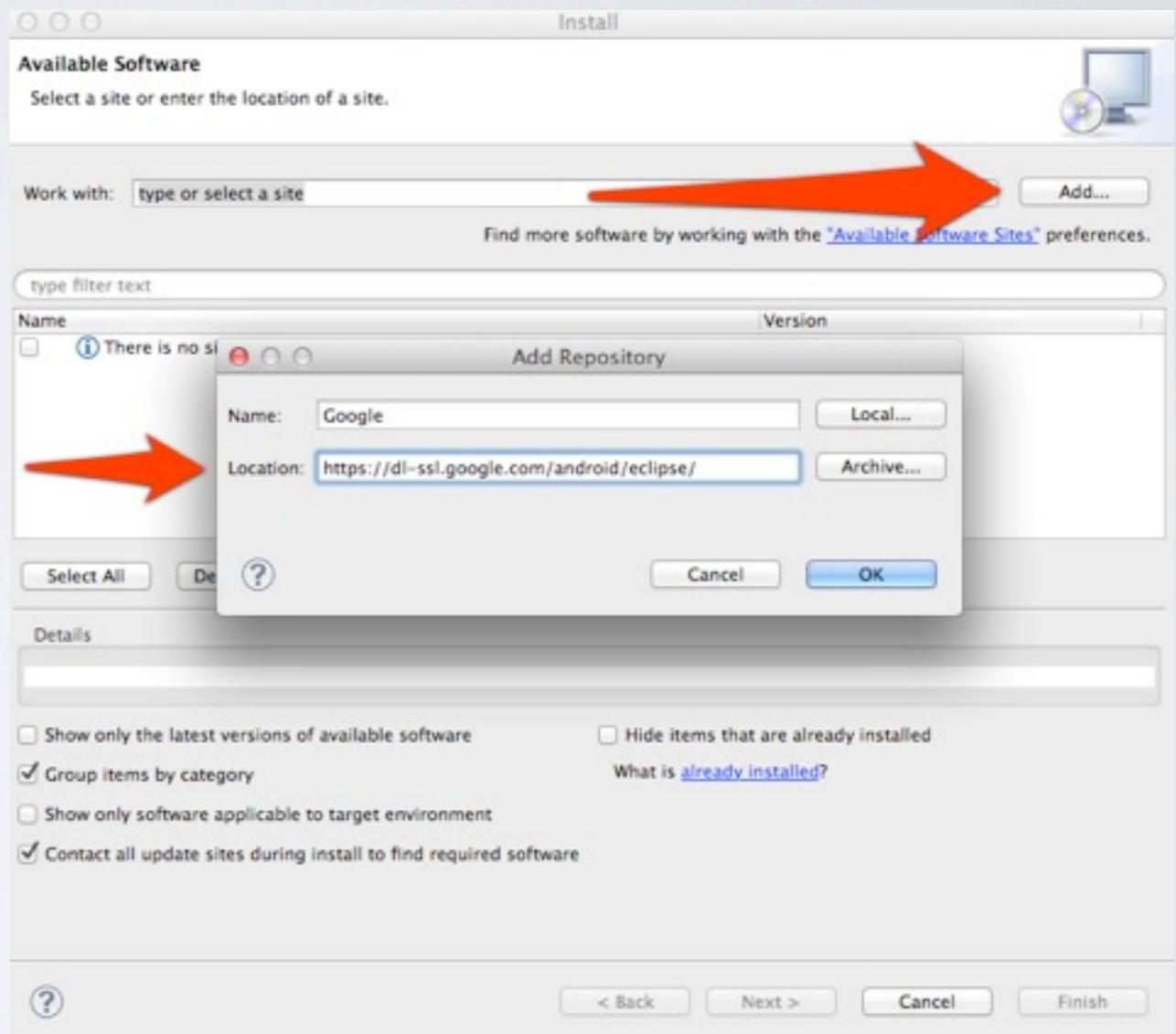
- Download Eclipse Java Edition from <http://eclipse.org>
- Plugin for Eclipse is called Android Development tools (ADT)
 1. Add the plugin by going to Help > “Install New Software...”
 2. Click “Add...” and add the Google repository (Link: <https://dl-ssl.google.com/android/eclipse/>)
 - A. Now add “Android Development Tools”
 - B. Click “Next >” to begin the installation
 3. Open the SDK Manager under Window > Android SDK Manager
 4. Check the boxes for Android SDK Tools, Platform SDK and Android 4.2
 5. Click “Install Packages...”



Source: <http://developer.android.com/tools/sdk/eclipse-adt.html>

SETTING UP ECLIPSE

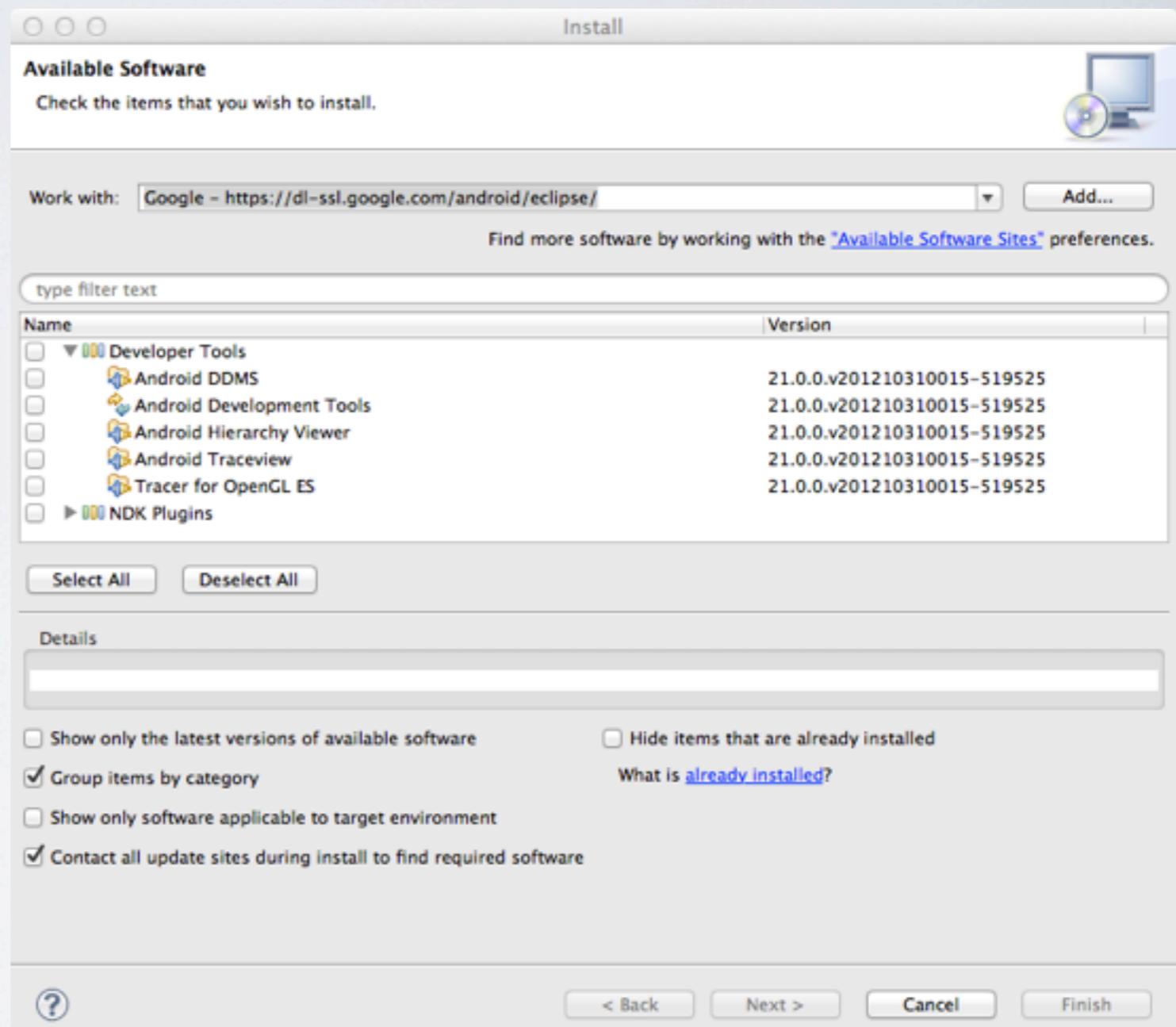
- Download Eclipse Java Edition from <http://eclipse.org>
- Plugin for Eclipse is called Android Development tools (ADT)
 1. Add the plugin by going to Help > “Install New Software...”
 2. Click “Add...” and add the Google repository (Link: <https://dl-ssl.google.com/android/eclipse/>)
 - A. Now add “Android Development Tools”
 - B. Click “Next >” to begin the installation
 3. Open the SDK Manager under Window > Android SDK Manager
 4. Check the boxes for Android SDK Tools, Platform SDK and Android 4.2
 5. Click “Install Packages...”



Source: <http://developer.android.com/tools/sdk/eclipse-adt.html>

SETTING UP ECLIPSE

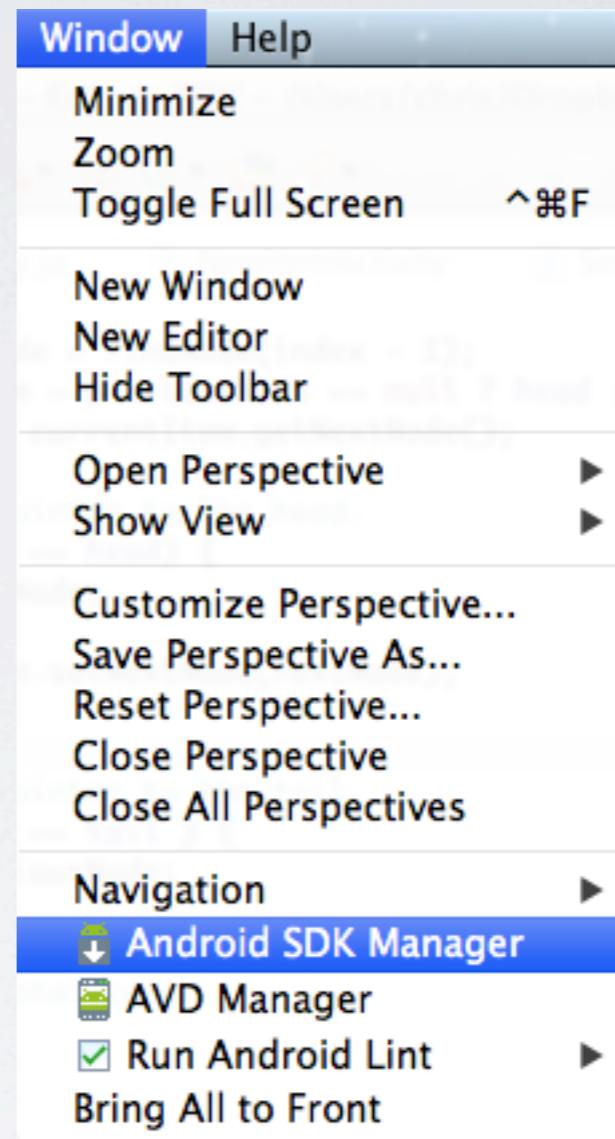
- Download Eclipse Java Edition from <http://eclipse.org>
- Plugin for Eclipse is called Android Development tools (ADT)
 1. Add the plugin by going to Help > “Install New Software...”
 2. Click “Add...” and add the Google repository (Link: <https://dl-ssl.google.com/android/eclipse/>)
 - A. Now add “Android Development Tools”
 - B. Click “Next >” to begin the installation
 3. Open the SDK Manager under Window > Android SDK Manager
 4. Check the boxes for Android SDK Tools, Platform SDK and Android 4.2
 5. Click “Install Packages...”



Source: <http://developer.android.com/tools/sdk/eclipse-adt.html>

SETTING UP ECLIPSE

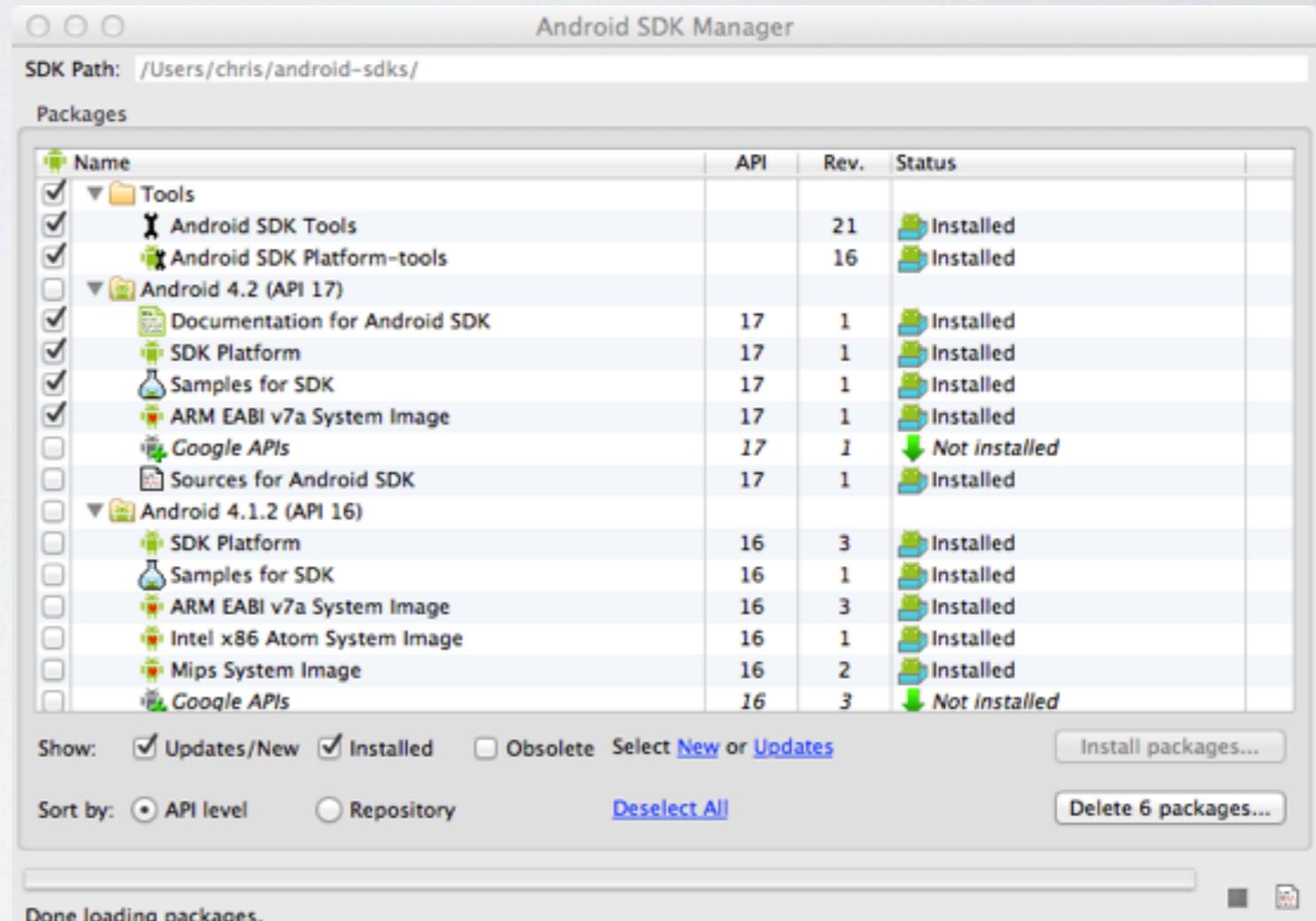
- Download Eclipse Java Edition from <http://eclipse.org>
- Plugin for Eclipse is called Android Development tools (ADT)
 1. Add the plugin by going to Help > “Install New Software...”
 2. Click “Add...” and add the Google repository (Link: <https://dl-ssl.google.com/android/eclipse/>)
 - A. Now add “Android Development Tools”
 - B. Click “Next >” to begin the installation
 3. Open the SDK Manager under Window > Android SDK Manager
 4. Check the boxes for Android SDK Tools, Platform SDK and Android 4.2
 5. Click “Install Packages...”



Source: <http://developer.android.com/tools/sdk/eclipse-adt.html>

SETTING UP ECLIPSE

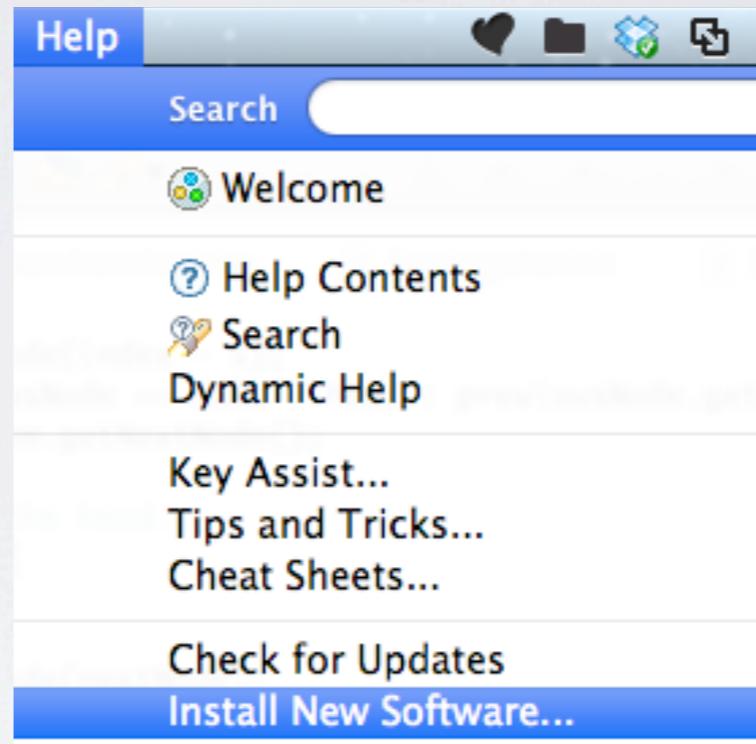
- Download Eclipse Java Edition from <http://eclipse.org>
- Plugin for Eclipse is called Android Development tools (ADT)
 1. Add the plugin by going to Help > “Install New Software...”
 2. Click “Add...” and add the Google repository (Link: <https://dl-ssl.google.com/android/eclipse/>)
 - A. Now add “Android Development Tools”
 - B. Click “Next >” to begin the installation
 3. Open the SDK Manager under Window > Android SDK Manager
 4. Check the boxes for Android SDK Tools, Platform SDK and Android 4.2
 5. Click “Install Packages...”



Source: <http://developer.android.com/tools/sdk/eclipse-adt.html>

SETTING UP ECLIPSE

- Download Eclipse Java Edition from <http://eclipse.org>
- Plugin for Eclipse is called Android Development tools (ADT)
 1. Add the plugin by going to Help > “Install New Software...”
 2. Click “Add...” and add the Google repository (Link: <https://dl-ssl.google.com/android/eclipse/>)
 - A. Now add “Android Development Tools”
 - B. Click “Next >” to begin the installation
 3. Open the SDK Manager under Window > Android SDK Manager
 4. Check the boxes for Android SDK Tools, Platform SDK and Android 4.2
 5. Click “Install Packages...”



Source: <http://developer.android.com/tools/sdk/eclipse-adt.html>

SETTING UP ECLIPSE

Download Eclipse Java Edition from <http://eclipse.org>

Eclipse is called Android Development tools (ADT)

the plugin by going to Help > “Install New Software...”

“Add...” and add the Google repository (Link: <https://dl.google.com/android/eclipse/>)

Now add “Android Development Tools”

Click “Next >” to begin the installation

Open the SDK Manager under Window > Android SDK Manager

Check the boxes for Android SDK Tools, Platform SDK and Android 4.2

“Install Packages...”

Source: <http://developer.android.com/tools/sdk/eclipse-adt.html>

SETTING UP ECLIPSE

- Download Eclipse Java Edition from <http://eclipse.org>
- Plugin for Eclipse is called Android Development tools (ADT)
 1. Add the plugin by going to Help > “Install New Software...”
 2. Click “Add...” and add the Google repository (Link: <https://dl-ssl.google.com/android/eclipse/>)
 - A. Now add “Android Development Tools”
 - B. Click “Next >” to begin the installation
 3. Open the SDK Manager under Window > Android SDK Manager
 4. Check the boxes for Android SDK Tools, Platform SDK and Android 4.2
 5. Click “Install Packages...”

Source: <http://developer.android.com/tools/sdk/eclipse-adt.html>

SETTING UP ECLIPSE

Download Eclipse Java Edition from <http://eclipse.org>

Eclipse is called Android Development tools (ADT)

the plugin by going to Help > "Install New Software..."

Click "Add..." and add the Google repository (Link: <https://dl-ssl.google.com/android/eclipse/>)

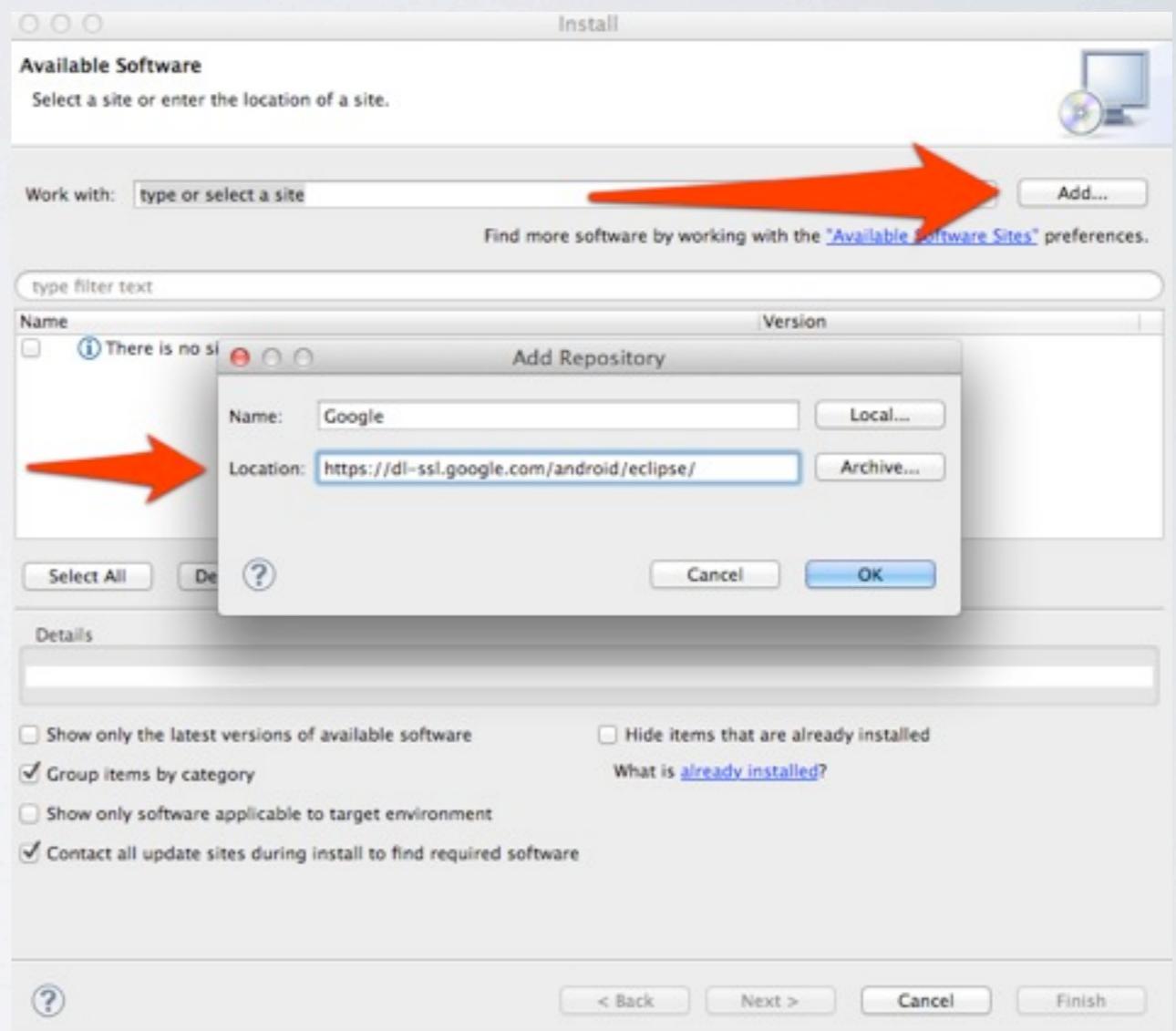
Now add "Android Development Tools"

Click "Next >" to begin the installation

Open the SDK Manager under Window > Android SDK Manager

Select the boxes for Android SDK Tools, Platform SDK and Android 4.2

"Install Packages..."



Source: <http://developer.android.com/tools/sdk/eclipse-adt.html>

SETTING UP ECLIPSE

Download Eclipse Java Edition from <http://eclipse.org>

Eclipse is called Android Development tools (ADT)

the plugin by going to Help > "Install New Software..."

Click "Add..." and add the Google repository (Link: <https://dl.google.com/android/eclipse/>)

Now add "Android Development Tools"

Click "Next >" to begin the installation

Open the SDK Manager under Window > Android SDK Manager

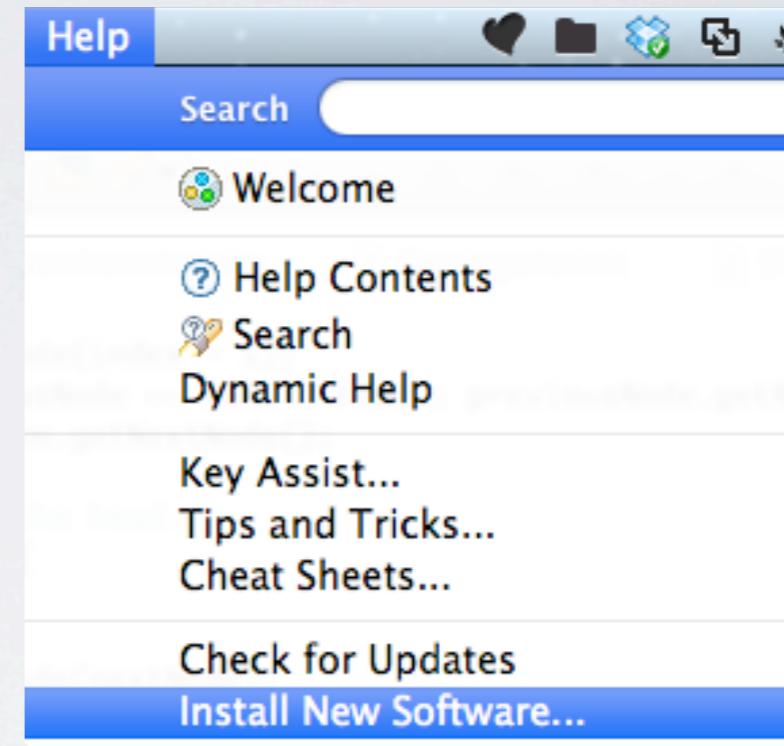
Select the boxes for Android SDK Tools, Platform SDK and Android 4.2

"Install Packages..."

Source: <http://developer.android.com/tools/sdk/eclipse-adt.html>

SETTING UP ECLIPSE

- Download Eclipse Java Edition from <http://eclipse.org>
- Plugin for Eclipse is called Android Development tools (ADT)
 1. Add the plugin by going to Help > “Install New Software...”
 2. Click “Add...” and add the Google repository (Link: <https://dl-ssl.google.com/android/eclipse/>)
 - A. Now add “Android Development Tools”
 - B. Click “Next >” to begin the installation
 3. Open the SDK Manager under Window > Android SDK Manager
 4. Check the boxes for Android SDK Tools, Platform SDK and Android 4.2
 5. Click “Install Packages...”



Source: <http://developer.android.com/tools/sdk/eclipse-adt.html>

SETTING UP ECLIPSE

Download Eclipse Java Edition from <http://eclipse.org>

Eclipse is called Android Development tools (ADT)

the plugin by going to Help > "Install New Software..."

Click "Add..." and add the Google repository (Link: <https://dl-ssl.google.com/android/eclipse/>)

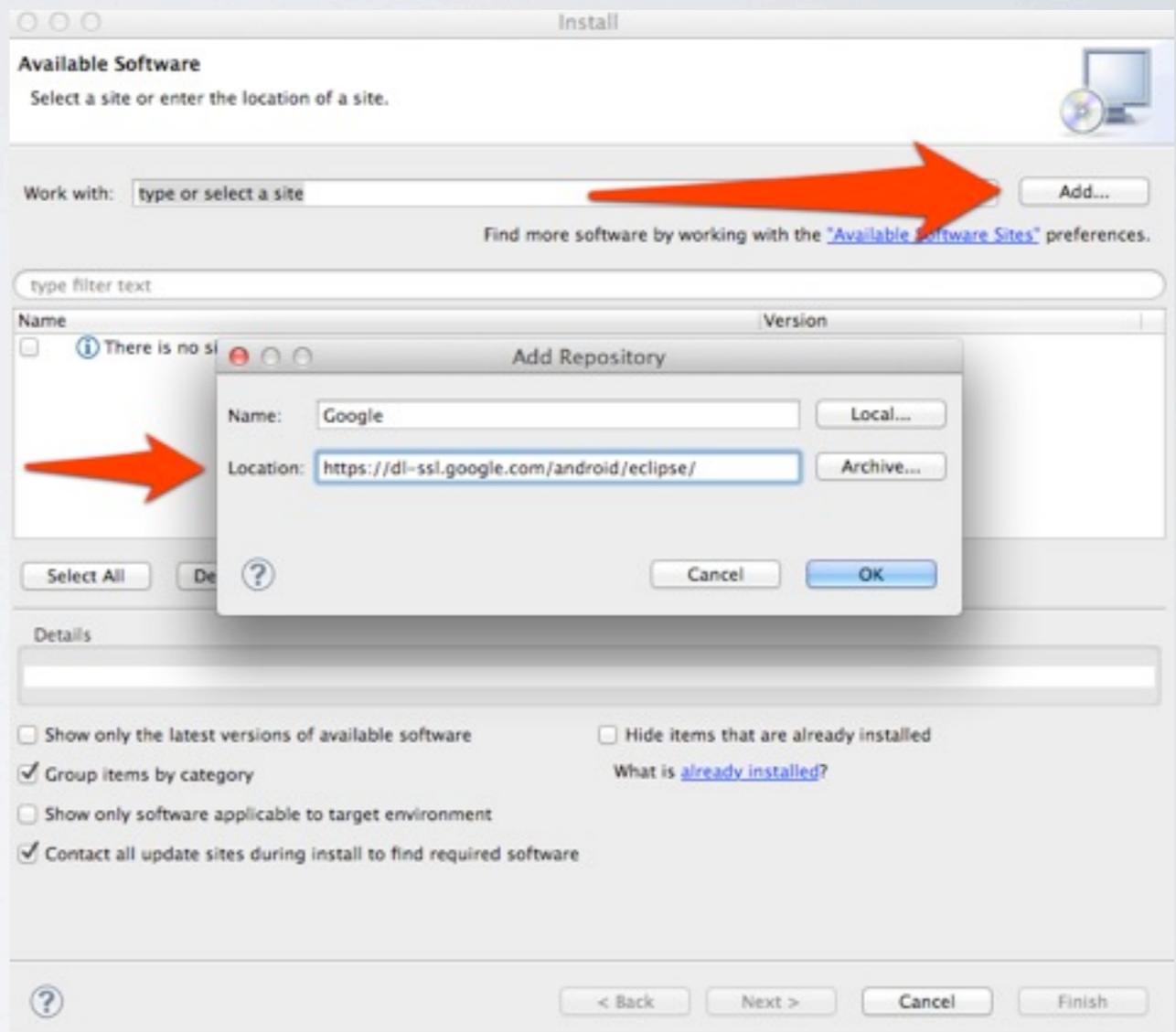
Now add "Android Development Tools"

Click "Next >" to begin the installation

Open the SDK Manager under Window > Android SDK Manager

Select the boxes for Android SDK Tools, Platform SDK and Android 4.2

"Install Packages..."



Source: <http://developer.android.com/tools/sdk/eclipse-adt.html>

SETTING UP ECLIPSE

Download Eclipse Java Edition from <http://eclipse.org>

Eclipse is called Android Development tools (ADT)

Install the plugin by going to Help > "Install New Software..."

Click "Add..." and add the Google repository (Link: <https://dl-ssl.google.com/android/eclipse/>)

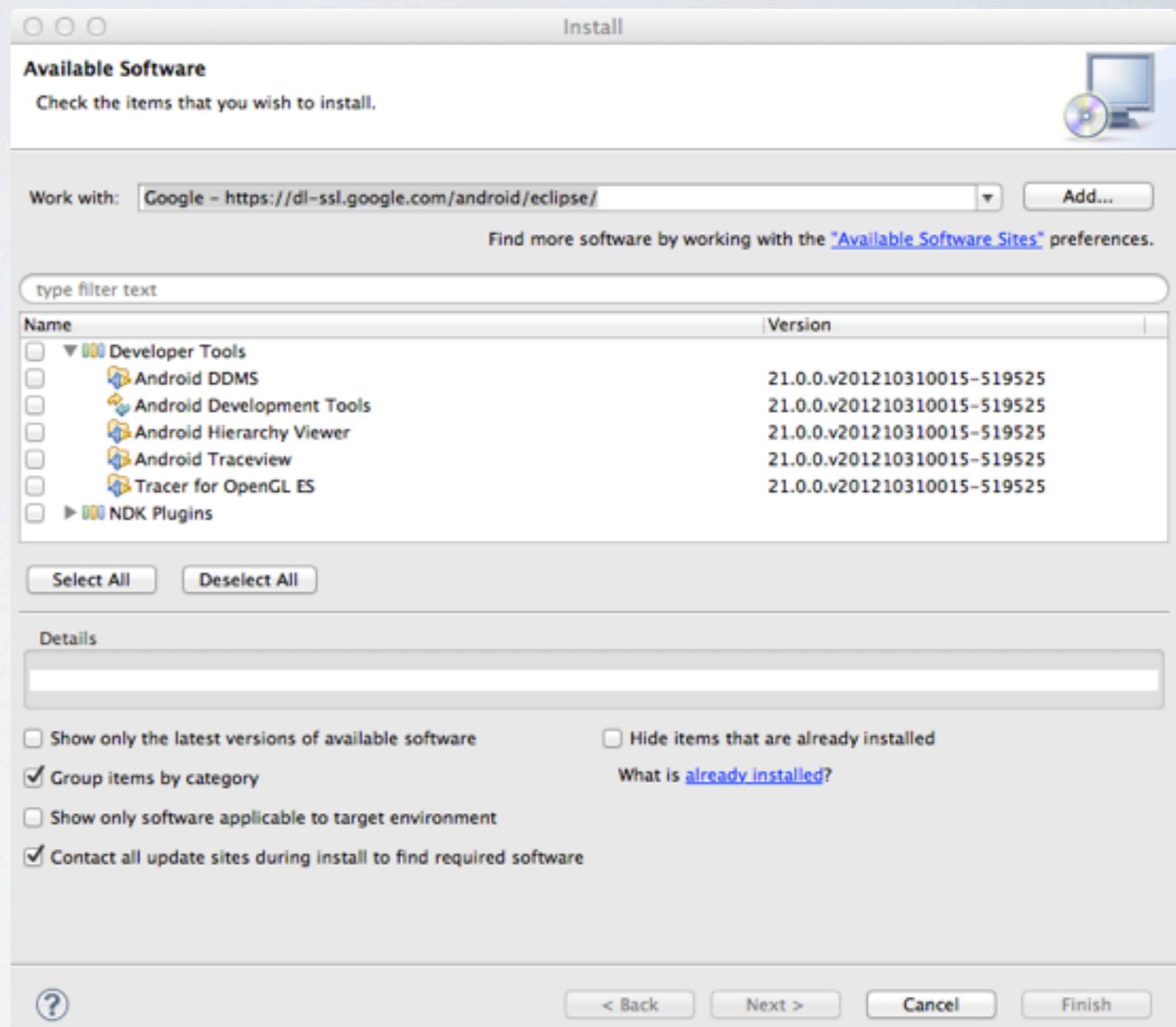
Now add "Android Development Tools"

Click "Next >" to begin the installation

Open the SDK Manager under Window > Android SDK Manager

Select the boxes for Android SDK Tools, Platform SDK and Android 4.2

"Install Packages..."



Source: <http://developer.android.com/tools/sdk/eclipse-adt.html>

SETTING UP ECLIPSE

Download Eclipse Java Edition from <http://eclipse.org>

Eclipse is called Android Development tools (ADT)

the plugin by going to Help > "Install New Software..."

Click "Add..." and add the Google repository (Link: <https://dl.google.com/android/eclipse/>)

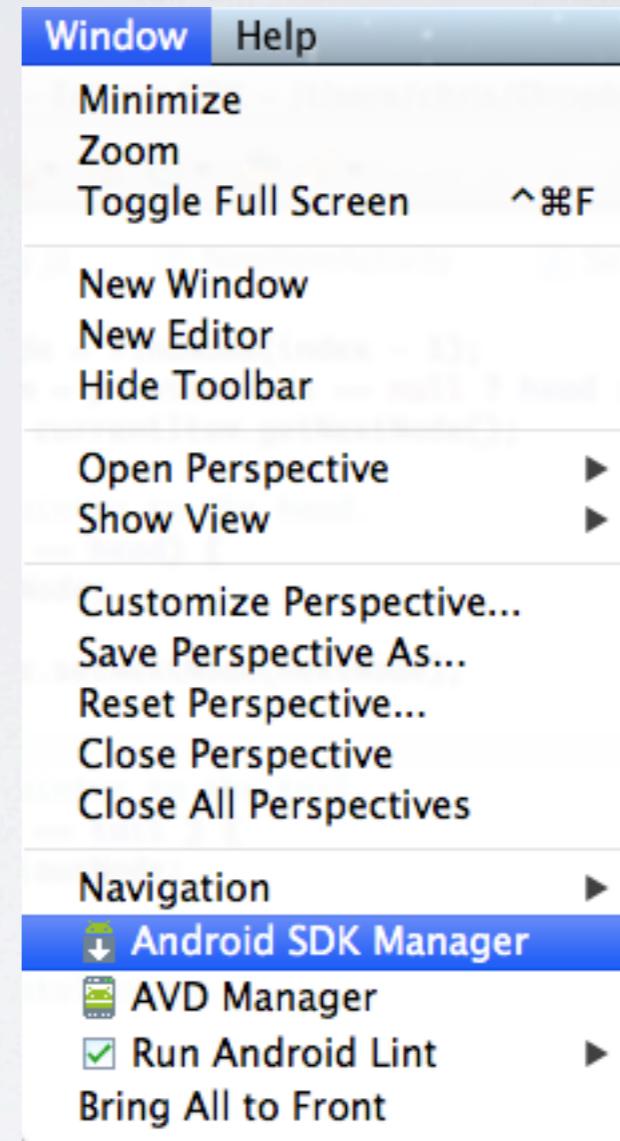
Now add "Android Development Tools"

Click "Next >" to begin the installation

Open the SDK Manager under Window > Android SDK Manager

Select the boxes for Android SDK Tools, Platform SDK and Android 4.2

"Install Packages..."



Source: <http://developer.android.com/tools/sdk/eclipse-adt.html>

SETTING UP ECLIPSE

Download Eclipse Java Edition from <http://eclipse.org>

Eclipse is called Android Development tools (ADT)

the plugin by going to Help > "Install New Software..."

Click "Add..." and add the Google repository (Link: <https://dl.google.com/android/eclipse/>)

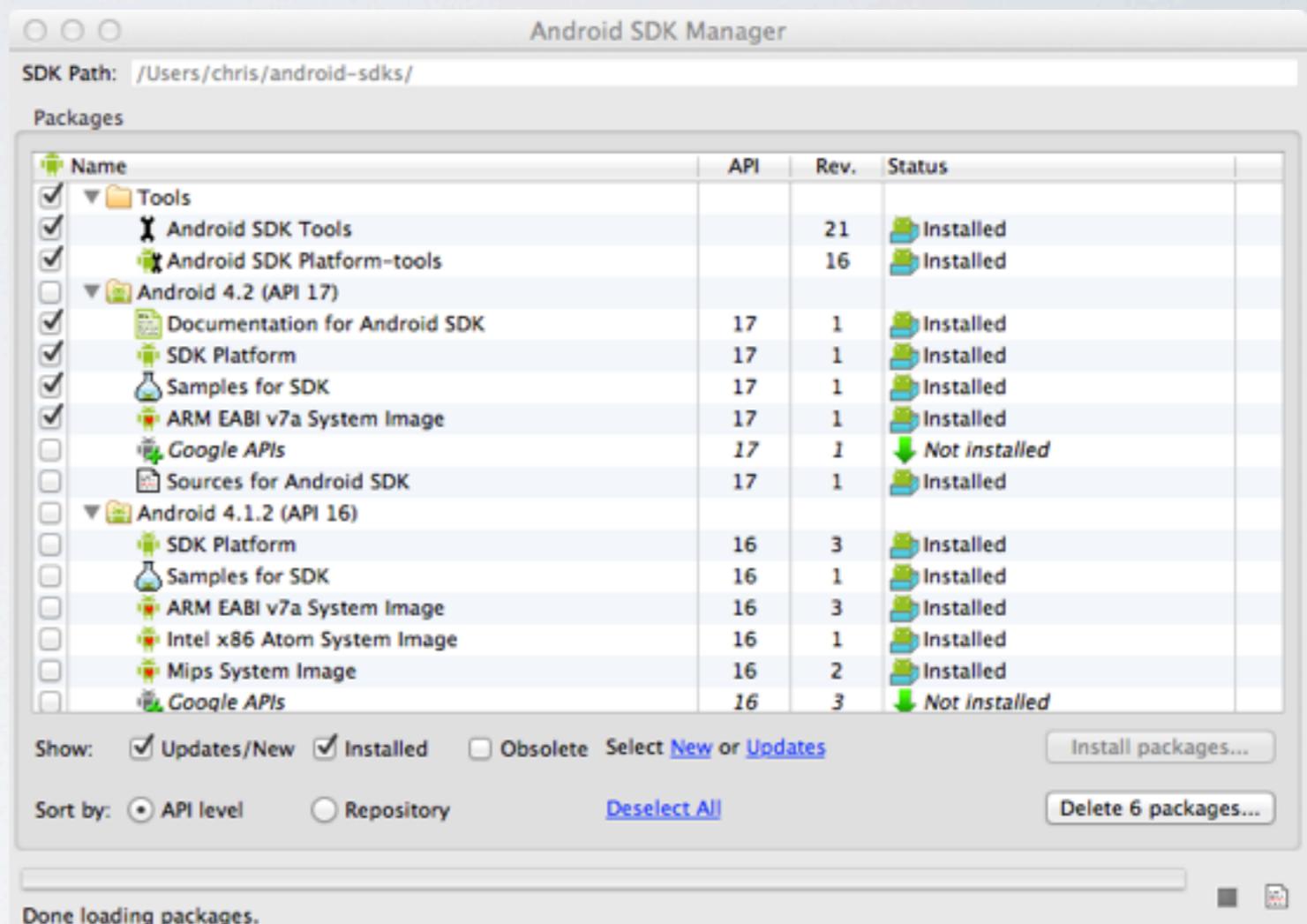
Now add "Android Development Tools"

Click "Next >" to begin the installation

Open the SDK Manager under Window > Android SDK Manager

Select the boxes for Android SDK Tools, Platform SDK and Android 4.2

"Install Packages..."



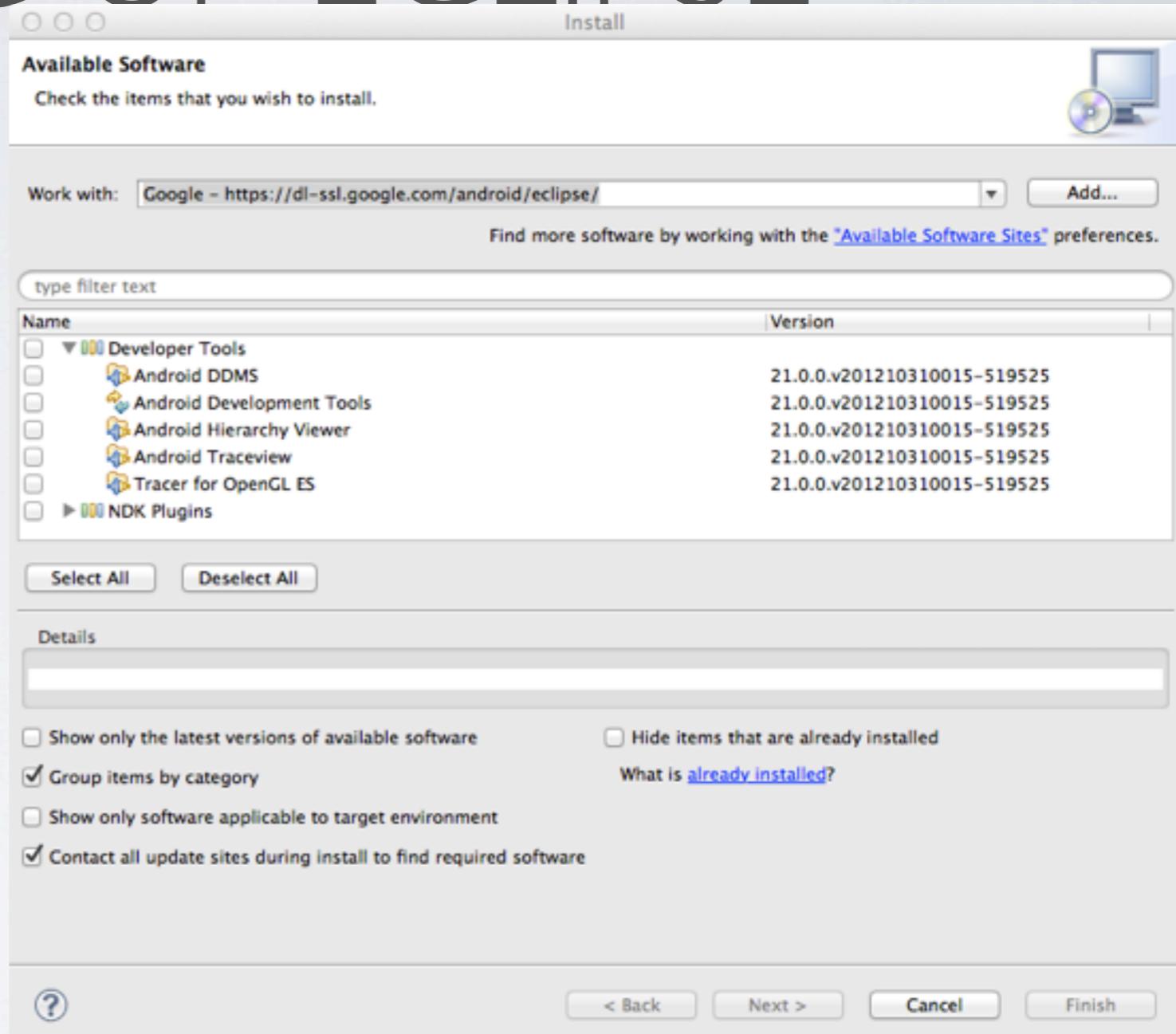
Source: <http://developer.android.com/tools/sdk/eclipse-adt.html>

SETTING UP ECLIPSE

- Download Eclipse Java Edition from <http://eclipse.org>
- Plugin for Eclipse is called Android Development tools (ADT)
 1. Add the plugin by going to Help > “Install New Software...”
 2. Click “Add...” and add the Google repository (Link: <https://dl-ssl.google.com/android/eclipse/>)
 - A. Now add “Android Development Tools”
 - B. Click “Next >” to begin the installation
 3. Open the SDK Manager under Window > Android SDK Manager
 4. Check the boxes for Android SDK Tools, Platform SDK and Android 4.2
 5. Click “Install Packages...”

Source: <http://developer.android.com/tools/sdk/eclipse-adt.html>

SETTING UP ECLIPSE



Source: <http://developer.android.com/tools/sdk/eclipse-adt.html>

SETTING UP ECLIPSE

Download Eclipse Java Edition from <http://eclipse.org>

Eclipse is called Android Development tools (ADT)

the plugin by going to Help > “Install New Software...”

“Add...” and add the Google repository (Link: <https://dl.google.com/android/eclipse/>)

Now add “Android Development Tools”

Click “Next >” to begin the installation

Open the SDK Manager under Window > Android SDK Manager

Check the boxes for Android SDK Tools, Platform SDK and Android 4.2

“Install Packages...”

Source: <http://developer.android.com/tools/sdk/eclipse-adt.html>

SETTING UP ECLIPSE

- Download Eclipse Java Edition from <http://eclipse.org>
- Plugin for Eclipse is called Android Development tools (ADT)
 1. Add the plugin by going to Help > “Install New Software...”
 2. Click “Add...” and add the Google repository (Link: <https://dl-ssl.google.com/android/eclipse/>)
 - A. Now add “Android Development Tools”
 - B. Click “Next >” to begin the installation
 3. Open the SDK Manager under Window > Android SDK Manager
 4. Check the boxes for Android SDK Tools, Platform SDK and Android 4.2
 5. Click “Install Packages...”

Source: <http://developer.android.com/tools/sdk/eclipse-adt.html>

SETTING UP ECLIPSE

Download Eclipse Java Edition from <http://eclipse.org>

Eclipse is called Android Development tools (ADT)

the plugin by going to Help > "Install New Software..."

Click "Add..." and add the Google repository (Link: <https://dl.google.com/android/eclipse/>)

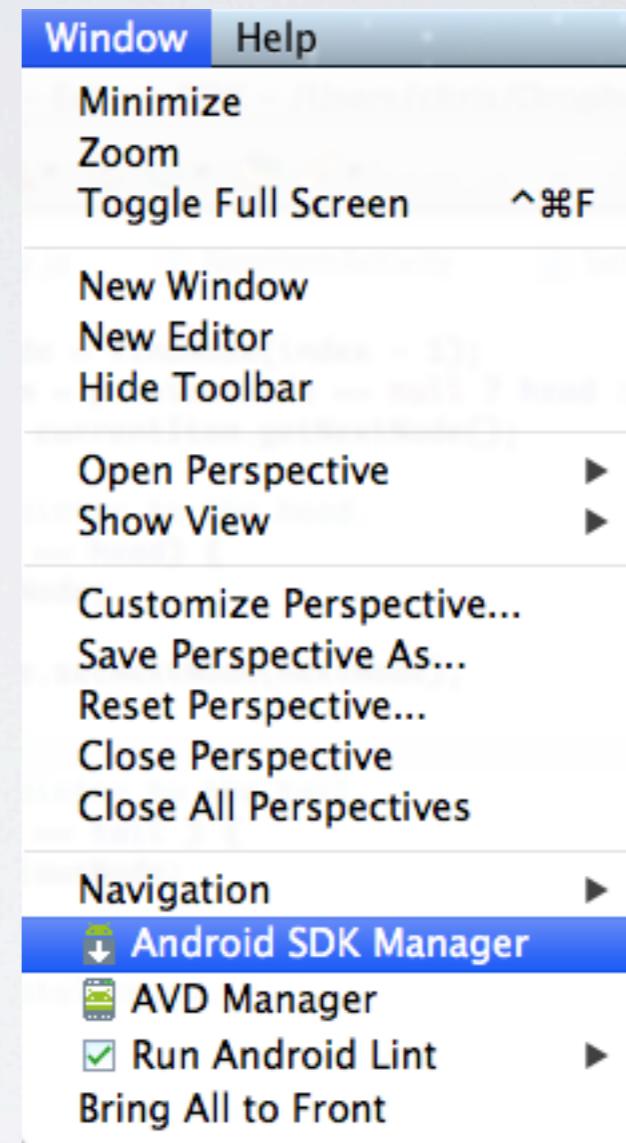
Now add "Android Development Tools"

Click "Next >" to begin the installation

Open the SDK Manager under Window > Android SDK Manager

Select the boxes for Android SDK Tools, Platform SDK and Android 4.2

"Install Packages..."



Source: <http://developer.android.com/tools/sdk/eclipse-adt.html>

SETTING UP ECLIPSE

Download Eclipse Java Edition from <http://eclipse.org>

Eclipse is called Android Development tools (ADT)

the plugin by going to Help > “Install New Software...”

“Add...” and add the Google repository (Link: <https://dl.google.com/android/eclipse/>)

Now add “Android Development Tools”

Click “Next >” to begin the installation

Open the SDK Manager under Window > Android SDK Manager

Check the boxes for Android SDK Tools, Platform SDK and Android 4.2

“Install Packages...”

Source: <http://developer.android.com/tools/sdk/eclipse-adt.html>

SETTING UP ECLIPSE

- Download Eclipse Java Edition from <http://eclipse.org>
- Plugin for Eclipse is called Android Development tools (ADT)
 1. Add the plugin by going to Help > “Install New Software...”
 2. Click “Add...” and add the Google repository (Link: <https://dl-ssl.google.com/android/eclipse/>)
 - A. Now add “Android Development Tools”
 - B. Click “Next >” to begin the installation
 3. Open the SDK Manager under Window > Android SDK Manager
 4. Check the boxes for Android SDK Tools, Platform SDK and Android 4.2
 5. Click “Install Packages...”

Source: <http://developer.android.com/tools/sdk/eclipse-adt.html>

SETTING UP ECLIPSE

Download Eclipse Java Edition from <http://eclipse.org>

Eclipse is called Android Development tools (ADT)

the plugin by going to Help > "Install New Software..."

Click "Add..." and add the Google repository (Link: <https://dl.google.com/android/eclipse/>)

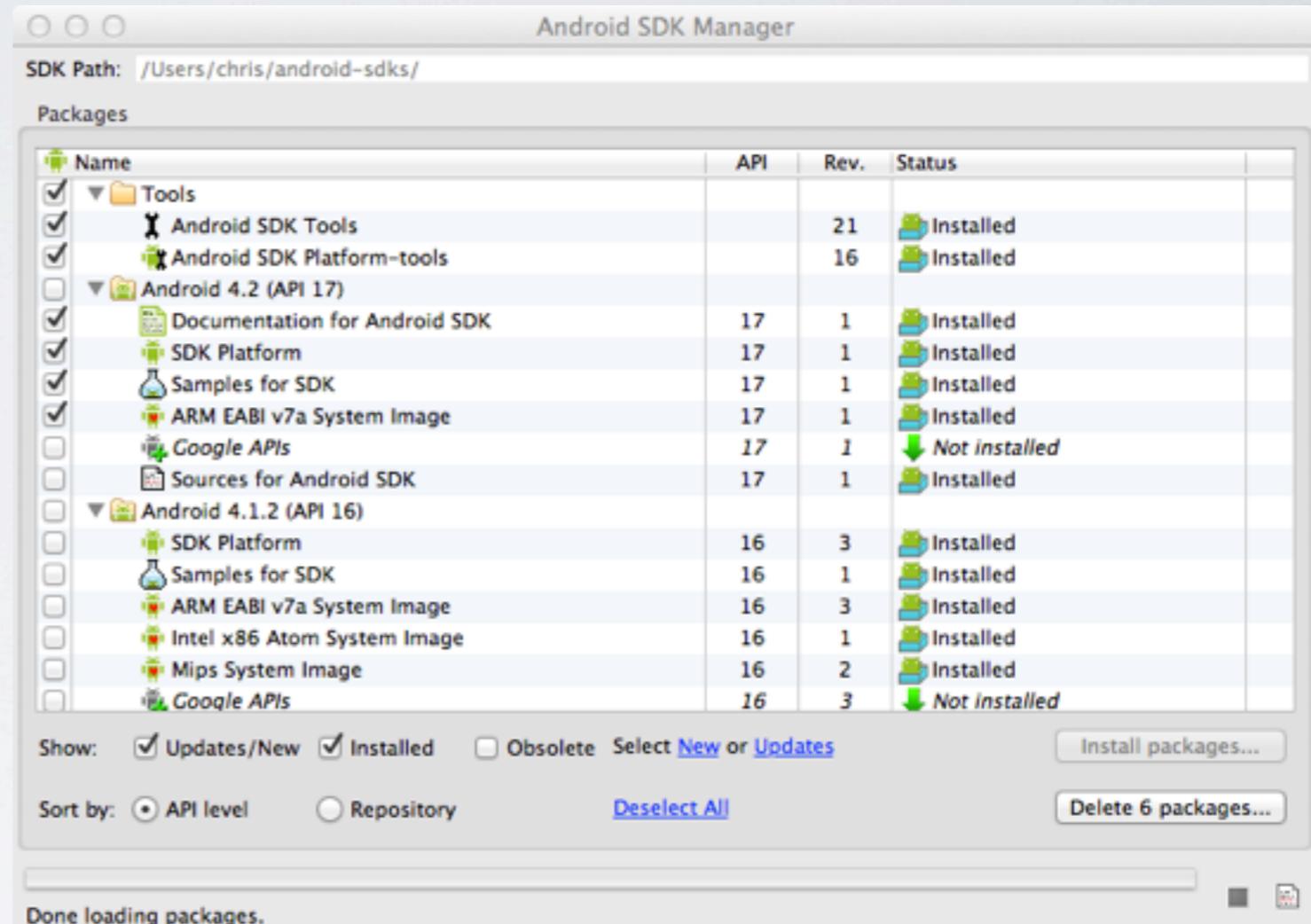
Now add "Android Development Tools"

Click "Next >" to begin the installation

Open the SDK Manager under Window > Android SDK Manager

Select the boxes for Android SDK Tools, Platform SDK and Android 4.2

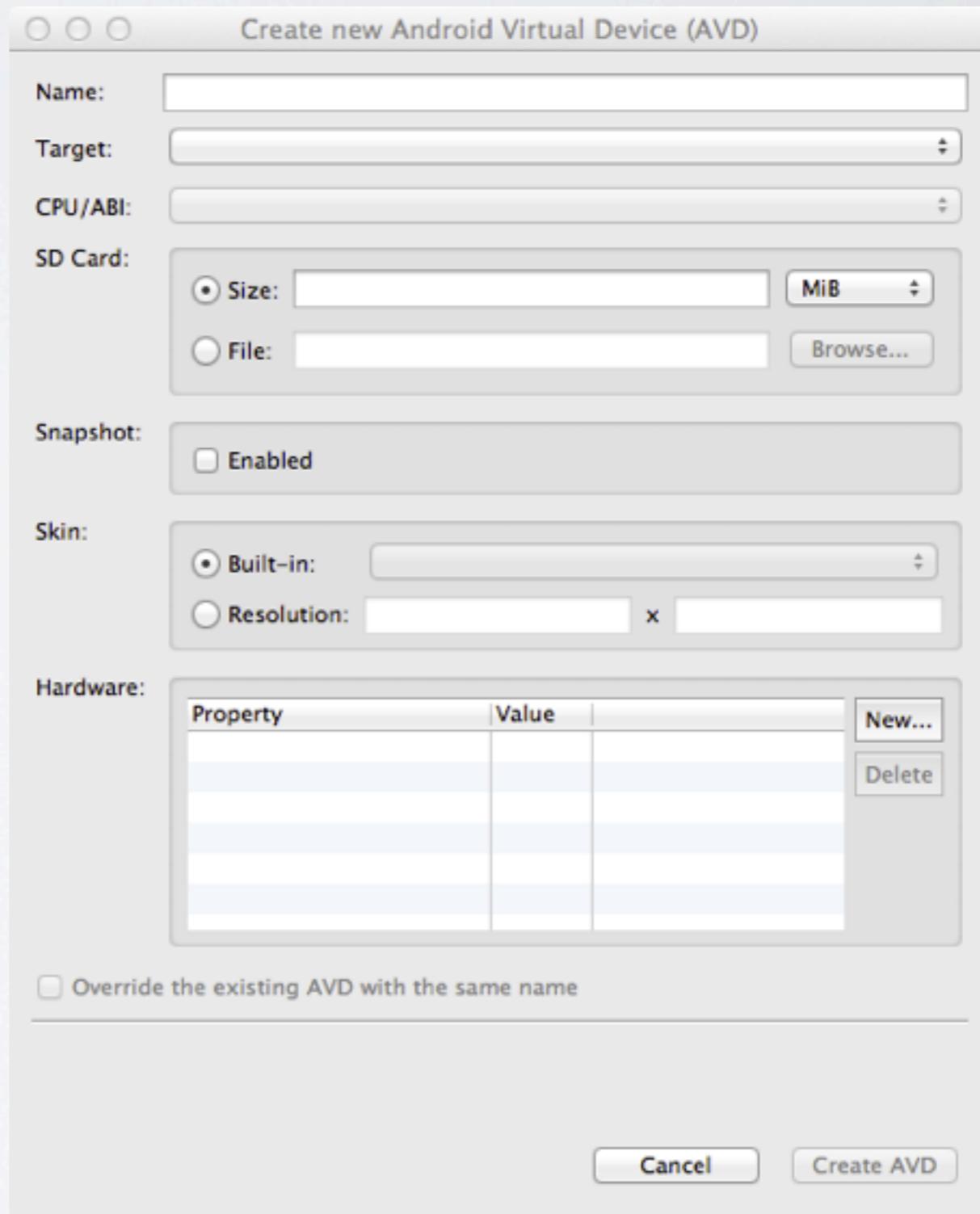
"Install Packages..."



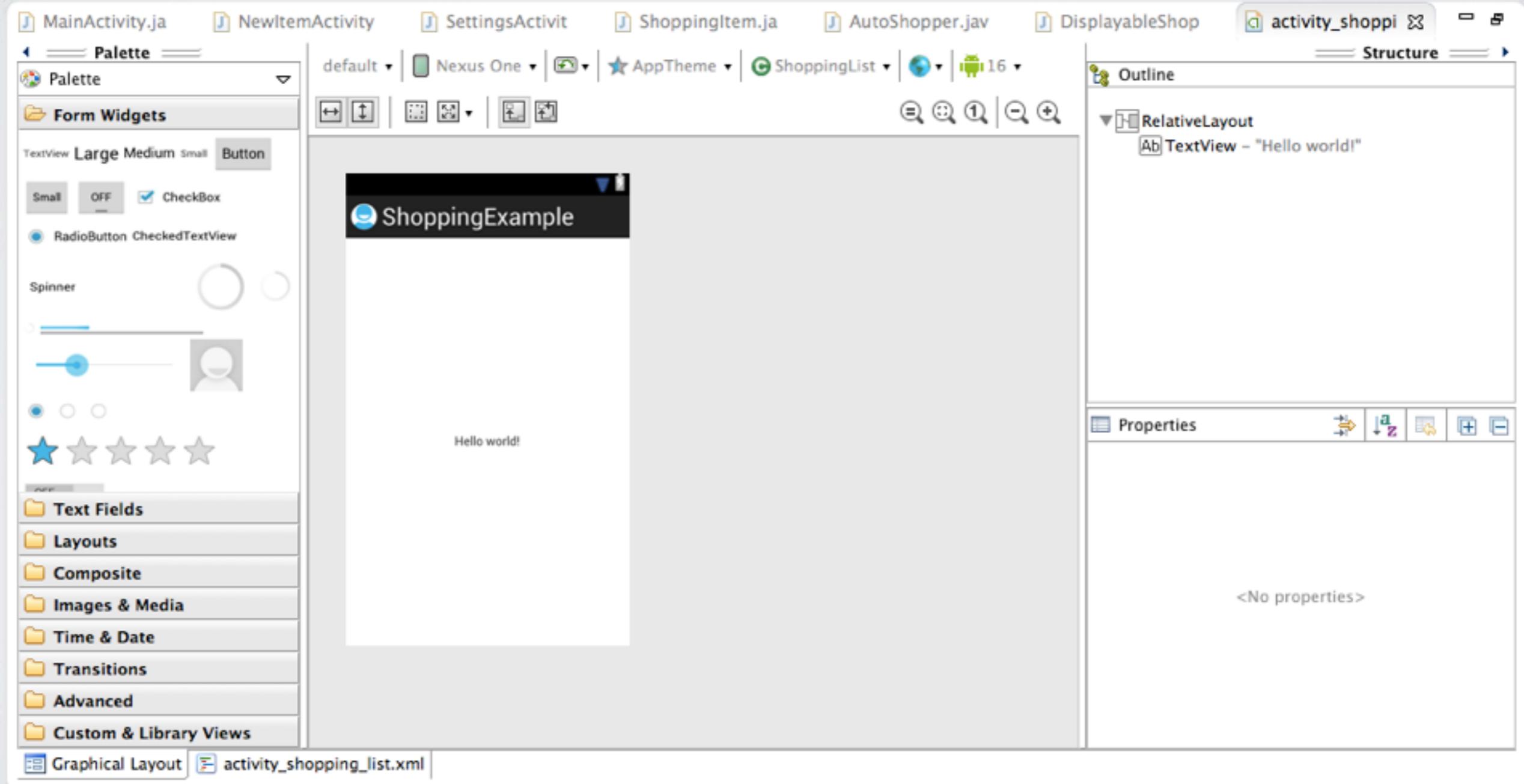
Source: <http://developer.android.com/tools/sdk/eclipse-adt.html>

ANDROID VIRTUAL DEVICE MANAGER

- AVD Manager for short
- Allows you to emulate having an Android device
- Simulates having an Android Device on your PC
- Quick Tip: Use the Android Intel x86 Image to improve performance

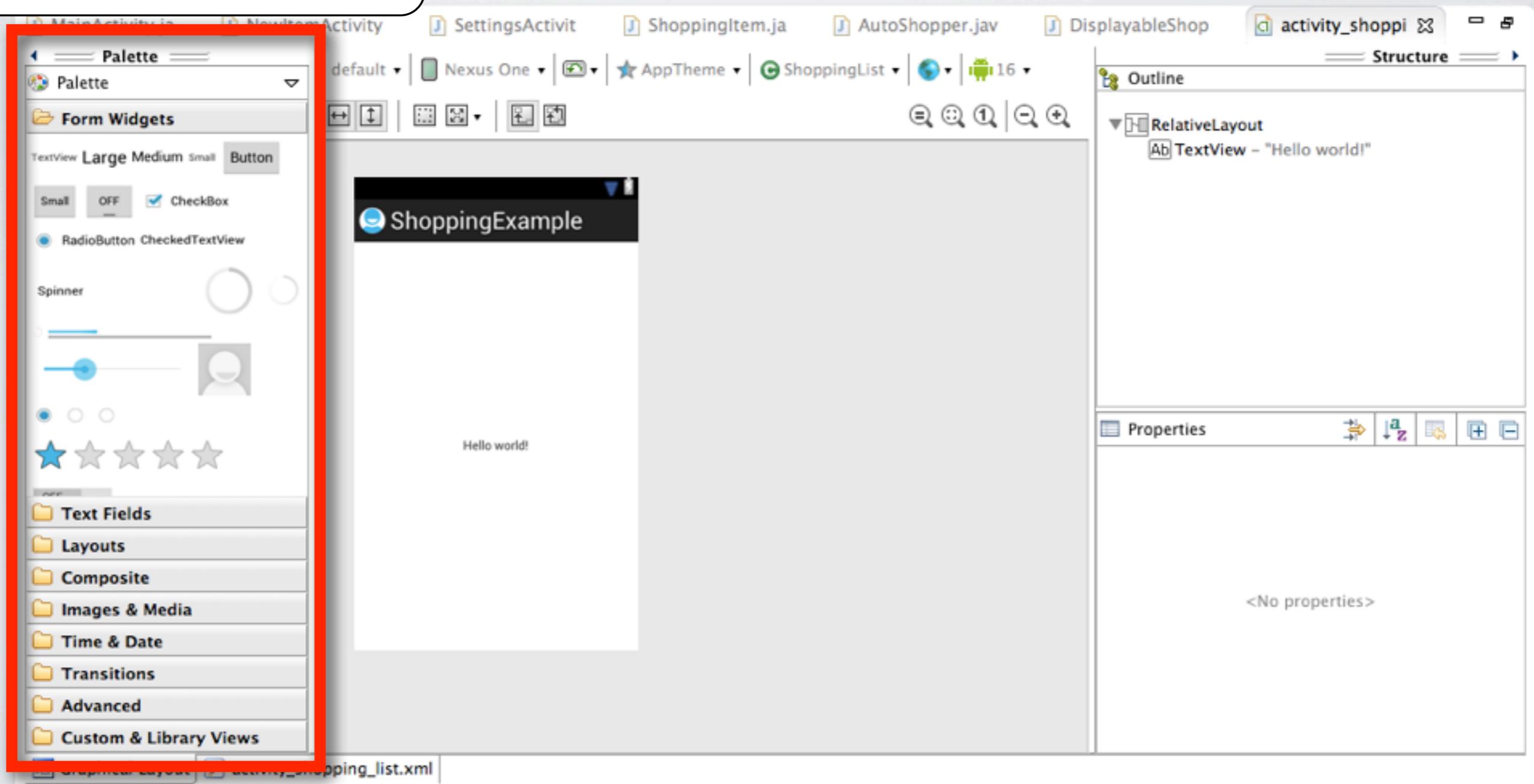


ANDROID DESIGNER

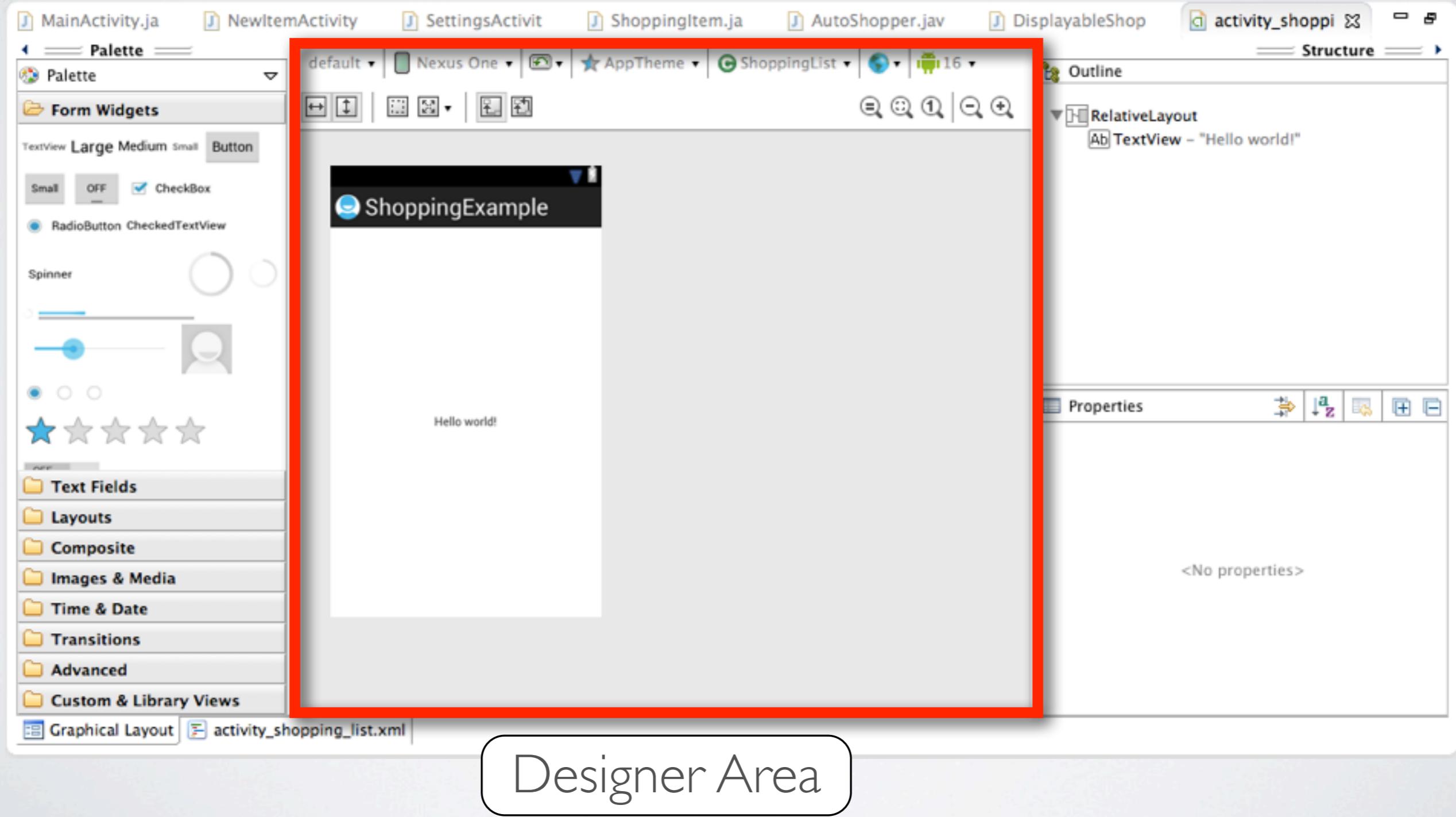


ANDROID DESIGNER

Control Palette



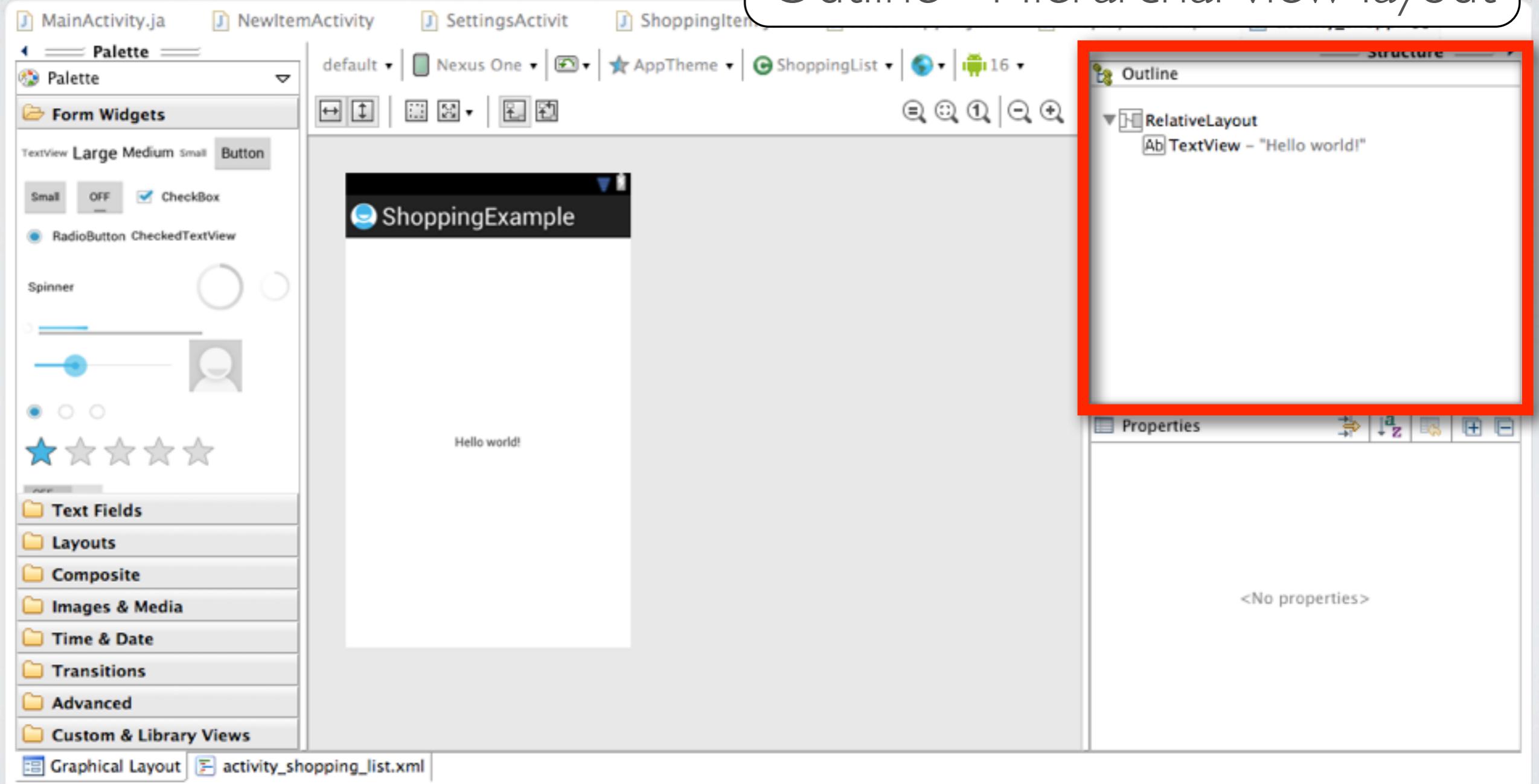
ANDROID DESIGNER



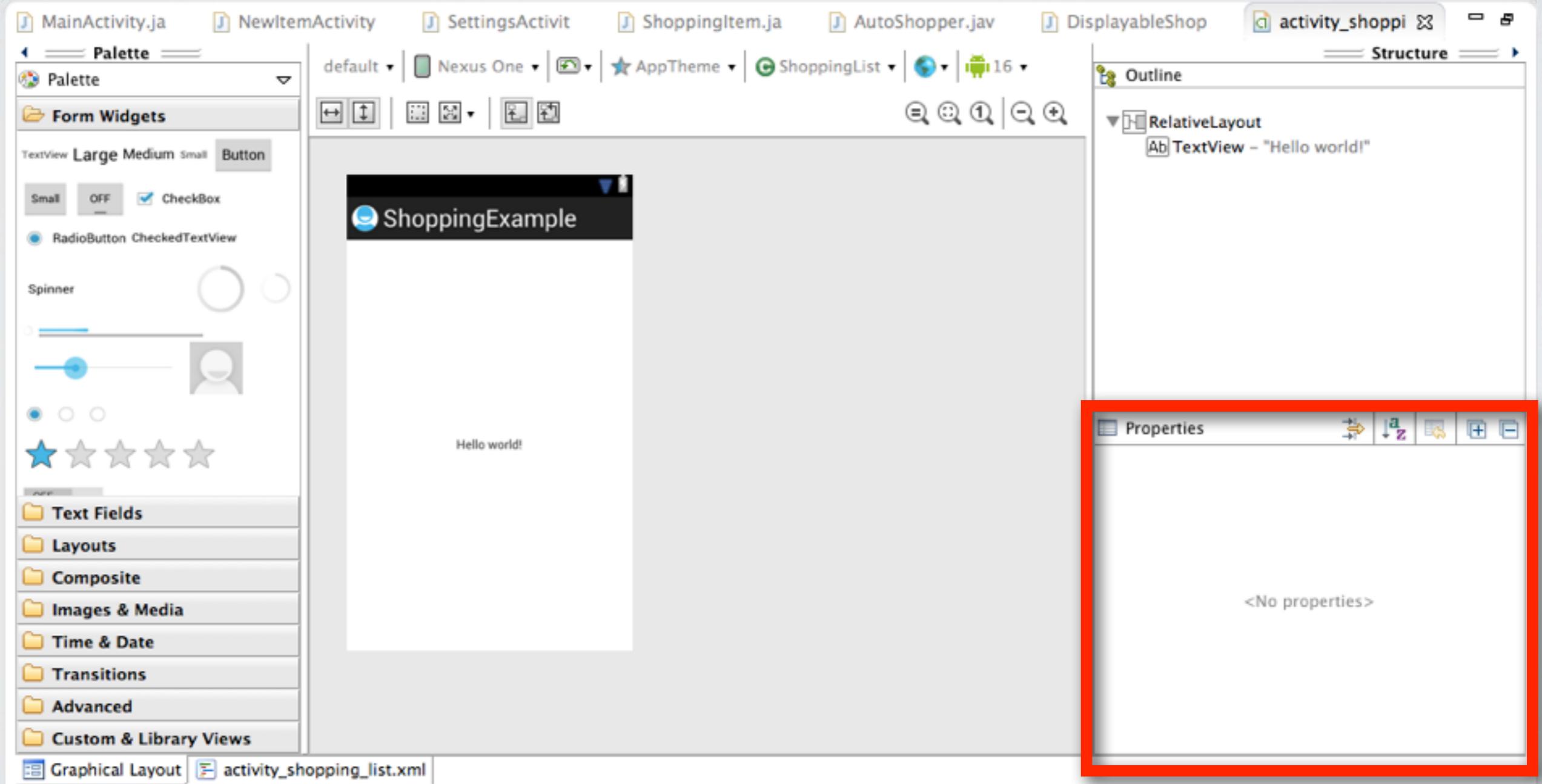
Designer Area

ANDROID DESIGNER

Outline - Hierarchal view layout



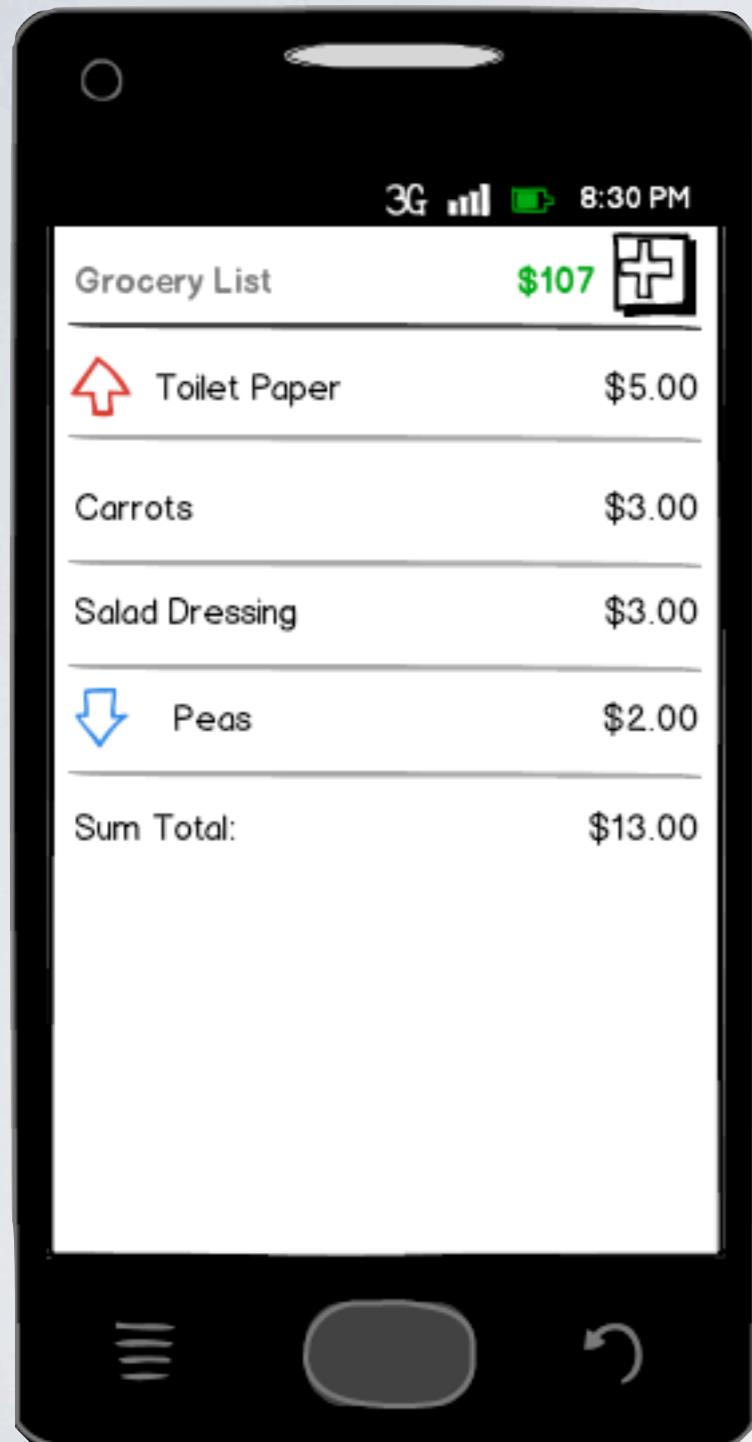
ANDROID DESIGNER



Property Editor

DEMO

BUILDING AN ANDROID APP



- Where do you start to build a shopping list application on Android?
 - User Interface
 - Shopping List
 - Simple list with a header
 - New Item View
 - Pass User Input back to Shopping List

KEY CONCEPTS

- Activities
 - Term used for the user interface of a single view
 - Intended to be used for a single purpose
- Intents
 - Allows information to be exchanged between views
- Services
 - Perform long running or persistent actions
 - Used for things such as handling background uploads, etc.

NEW ITEM ACTIVITY



- Using an intent to pass data between views
 - When the user taps the Add Item button the intent will set the intent data
 - When the view returns, onActivityResult is invoked
- ```
public void onActivityResult(int requestCode, int resultCode, Intent data)
```
- Use Intent methods to get the data such as getStringExtra, getIntExtra, etc.

# CREATING A LIST

- Key Components
  - ListView - UI Component for displaying lists of data
    - <http://developer.android.com/reference/android/widget/ListView.html>
  - ArrayAdapter<T> - Generically adapter for relating an array of data to List Items
    - <http://developer.android.com/reference/android/widget/ArrayAdapter.html>

# STEPS

# STEPS

- I. Create a new project (Use the Blank Activity)

# STEPS

1. Create a new project (Use the Blank Activity)
2. Create the Shopping List Activity

# STEPS

1. Create a new project (Use the Blank Activity)
2. Create the Shopping List Activity
  - a) Bind the UI to our shopping list

# STEPS

1. Create a new project (Use the Blank Activity)
2. Create the Shopping List Activity
  - a) Bind the UI to our shopping list
  - b) Launch the New Item Activity for adding items

# STEPS

1. Create a new project (Use the Blank Activity)
2. Create the Shopping List Activity
  - a) Bind the UI to our shopping list
  - b) Launch the New Item Activity for adding items
3. Create the New Item Activity

# STEPS

1. Create a new project (Use the Blank Activity)
2. Create the Shopping List Activity
  - a) Bind the UI to our shopping list
  - b) Launch the New Item Activity for adding items
3. Create the New Item Activity
  - a) Put data into Intent

# STEPS

1. Create a new project (Use the Blank Activity)
2. Create the Shopping List Activity
  - a) Bind the UI to our shopping list
  - b) Launch the New Item Activity for adding items
3. Create the New Item Activity
  - a) Put data into Intent
  - b) Retrieve data from Intent

# RESOURCES

- The New Boston on YouTube
  - <http://thenewboston.org/list.php?cat=6>
- Google Android Documentation
  - <http://developer.android.com/guide/components/index.html>

# QUESTIONS?