

Android Development: The Basics

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Android Development: Parts and Pieces

- ▶ Android applications are built from activities and activity fragments.
- ▶ Activities and fragments are built using two main components:
 - 1.XML
 - 2.Java
- ▶ XML is used to provide the look and feel of an android application, although this can also be achieved in java, it is best to defer it to XML as that allows for faster compile times. It is important to note that XML is also used to hold resources such as ids and the such.
- ▶ Java is used as the brains of android, it manipulates the UI and handles any complex logic that the android application must do.

XML: Trees, Trees... More Trees?

- ▶ XML or Extensible Markup Language is a language used to define a set of rules for encoding documents in a format that is readable by both humans and machines.
- ▶ XML is built in a tree structure with the root node being the top most tag.
- ▶ In XML a node is opened with an opening tag → `<tag>` and is closed with a closing tag → `</tag>`.
Note: Tags can also be closed in the opening tag → `<tag/>`. This is not always useable though.
- ▶ Example of XML file:

```
<LinearLayout xmlns:android = "http://schemas.android.com/apk/res/android">  
    <TextView android:id = "@+id/text"  
        android:text = "Hello"/>  
</LinearLayout>
```

Java: Classes, Objects and Methods

- ▶ Classes are the rules on which an object can be created. (Think of them as a species)
Example: `public class Person { //rules go in here. }`
- ▶ Objects (instances) are the things that are created by the rules of the class. (Members of the given species; they may share a general figure and abilities but each has its own attributes.)
Example: `Person aj = new Person();`
- ▶ Methods (functions) are parts of code that can be called at need. (Actions of which a member can do.)
Example: `aj.run();`

Android Activities:

The XML, The Java & The Fragment

- ▶ As mentioned before Xml and Java are the components that build an activity, these components are also used to build fragments.
- ▶ Android Activities are a mixture of an XML File and a Java class.
Declaration of an activity in Java:
`public class nameOfYourActivity extends Activity{}`
- ▶ Android activities can also hold what is known as Fragments.
- ▶ Fragments are mini activities that enable Activities to perform as if they were Dynamic Activities.
Declaration of a fragment in Java:
`public class nameOfYourFragment extends ActivityFragment{}`
- ▶ ProTip: Use of fragments, although unnecessary, is advised, as they are very powerful tools when building a complex application.

Android Activities: Intents

- ▶ Navigating between activities requires one to use Intents.
- ▶ “An Intent is abstract description of an operation to be performed. It can be used with startActivity to launch an Activity , broadcastIntent to send it to any interested BroadcastReceiver components, and startService(Intent) or bindService(Intent, ServiceConnection, int) to communicate with a background Service.” - Android Api
<http://developer.android.com/reference/android/content/Intent.html>
- ▶ Intents are used in the Java part of android and have the following format:

```
Intent next = new Intent(this, nextActivity.class);  
startActivity(next);
```

Model View Presenter - MVP Architecture

- ▶ What is MVP?
- ▶ Why is MVP useful?
- ▶ How does MVP relate to Android Development?
- ▶ Who is the Model?
- ▶ Who is the View?
- ▶ Who is the Presenter?
- ▶ Can android development use another architecture?

