Android Application Structure
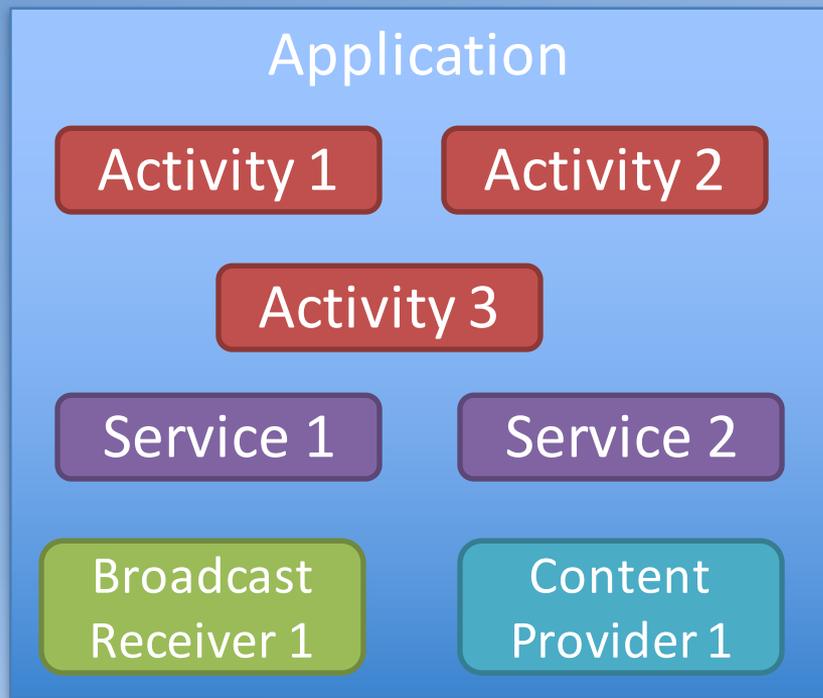
Applications and Components

- An Android application is composed of several components
  - Activities
  - Services
  - Broadcast Receivers
  - Content Providers
- Details of the components specified in the application's Android Manifest file

Application

Activity 1	Activity 2

Activity 3

Service 1	Service 2

Broadcast Receiver 1	Content Provider 1

Example Android Manifest File (GreetFriend)

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="hk.ust.cse.comp107x.greetfriend" >
    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:theme="@style/AppTheme" >
        <activity
            android:name=".MainActivity"
            android:label="@string/app_name" >
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>
</manifest>
```

The Manifest File

- Applications declare their components in a manifest file
  - Bundled into the.apk file
  - Before Android can start an application component, it must learn that the component exists
- Structured XML file
  - Always named AndroidManifest.xml for all applications
  - Also names any API libraries the application needs to be linked against (e.g., Google Maps Library) besides the default Android library
  - Identifies any permissions the application expects to be granted

Activity

- An application typically consists of one or more activities:
  - Each activity has a default window to draw in (the UI)
  - One activity usually marked as the main activity (started when the application begins)
  - Moving from one activity to another is accomplished by having the current activity start the next one
  - An activity may return a result to the previous activity.

Exercise

- Off to the next exercise
  - Extend GreetFriend with an additional activity to display the greeting message
    - Add a new activity to the application
  - Use an Intent to start a new activity