

Android Give It A Go!

Who Are We



Matt Oakes

Android Developer at ribot
oakesm9@cs.man.ac.uk
matt@ribot.co.uk



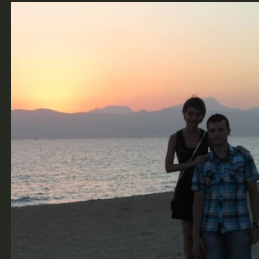
Daniela Florescu

Man-UP Treasurer
floresm1@cs.man.ac.uk



Martin Kehayov

Android Developer
kehayom1@cs.man.ac.uk
mkehayov92@gmail.com



Dragos Rosu

Man-UP Chairman
rosud1@cs.man.ac.uk



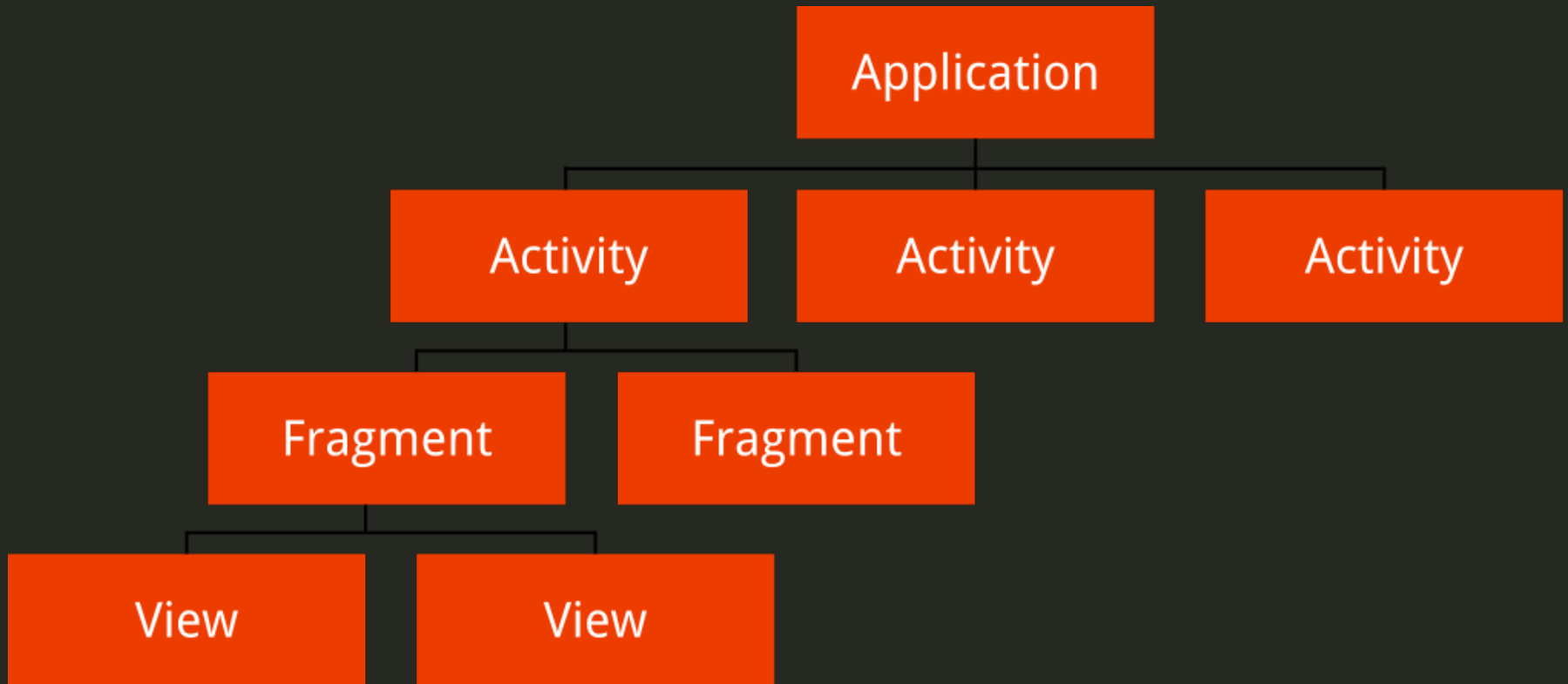
Giles Reger

Man-UP secretary
regerg@cs.man.ac.uk

What's Happening Today

- This talk
 - Lasts about half an hour
 - Gives a basic overview of Android development
 - Don't worry about taking notes as the slides will be available later!
- Setting up
 - We'll move rooms
 - Make sure everybody is set up ok
- Basic Tutorial
 - We'll walk through the "Hello World " tutorial
- Giving it a go
 - We'll split into small groups and have a go at writing a small app

Structure Of An Android App

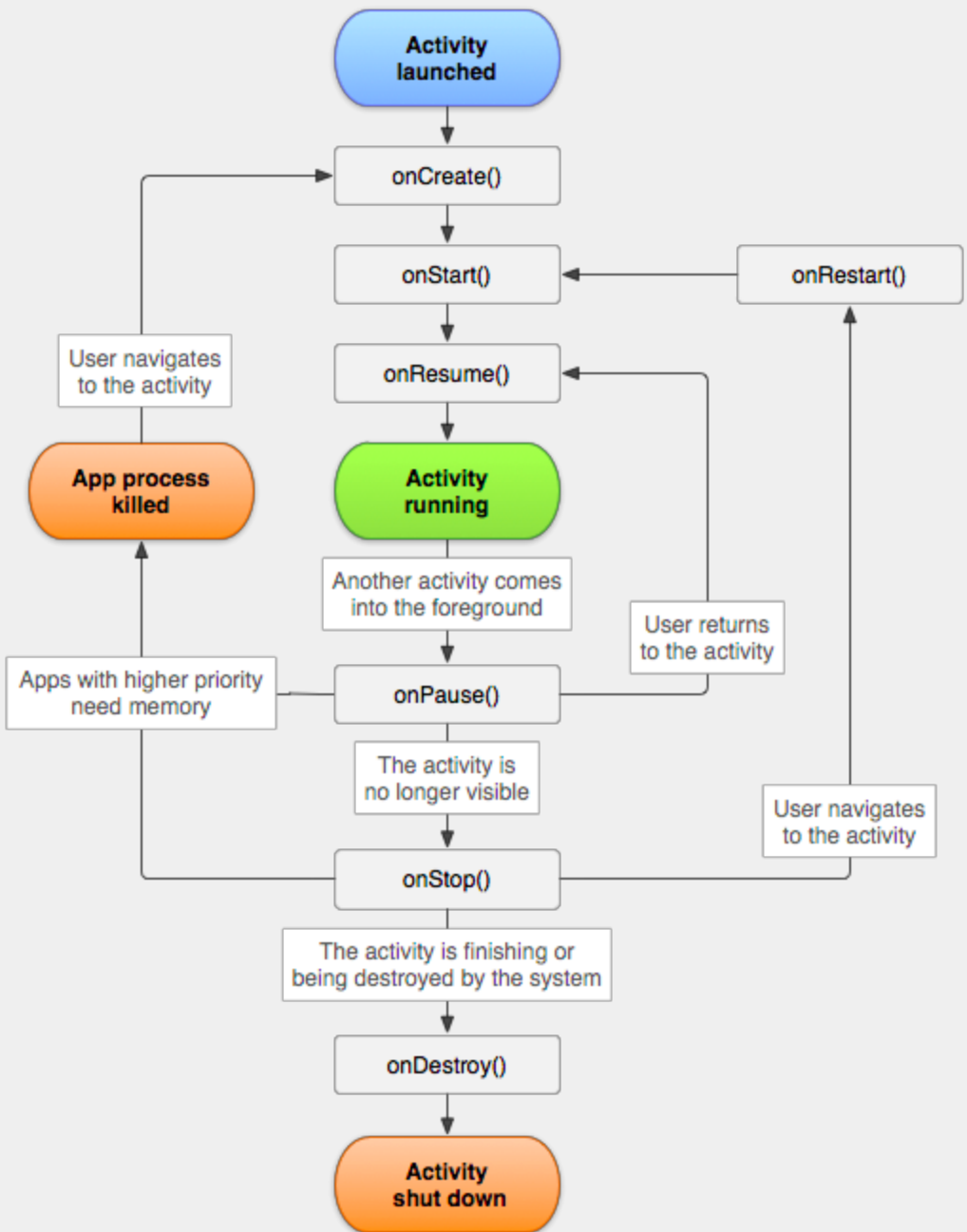


```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.matto1990.BlankProject"
4     android:versionCode="1"
5     android:versionName="1.0">
6     <application
7         android:label="@string/app_name"
8         android:icon="@drawable/ic_launcher">
9         <activity
10             android:name=".HomeActivity"
11             android:label="@string/app_name">
12             <intent-filter>
13                 <action android:name="android.intent.action.MAIN" />
14                 <category android:name="android.intent.category.LAUNCHER" />
15             </intent-filter>
16         </activity>
17     </application>
18 </manifest>
```

AndroidManifest.xml

Activities

- Activities have their own lifecycle
- You can treat them (almost) as separate applications
- Sharing state between Activities is generally not a good idea
 - Can lead to memory leaks in some cases
- Activities should normally contain Fragments which handle the UI
- Activities should be used to maintain the link between activities



```
1 package com.matto1990.BlankProject;
2
3 import android.app.Activity;
4 import android.os.Bundle;
5
6 public class HomeActivity extends Activity
7 {
8     /** Called when the activity is first created. */
9     @Override
10    public void onCreate(Bundle savedInstanceState)
11    {
12        super.onCreate(savedInstanceState);
13        setContentView(R.layout.main);
14    }
15 }
```

Creating A Basic Activity

Layouts

- Contains and lays out the views on the screen
- Many different types
 - LinearLayout
 - FrameLayout
 - RelativeLayout

```
1  <?xml version="1.0" encoding="utf-8"?>
2  <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
3      android:orientation="horizontal"
4      android:layout_width="fill_parent"
5      android:layout_height="fill_parent">
6      <fragment
7          android:layout_width="0dp"
8          android:layout_height="fill_parent"
9          android:layout_weight="1"
10         android:id="@+id/fragmet_one"
11         android:name="com.matto1990.fragments.FragmentOne" />
12     <fragment
13         android:layout_width="0dp"
14         android:layout_height="fill_parent"
15         android:layout_weight="3"
16         android:id="@+id/fragmet_two"
17         android:name="com.matto1990.fragments.FragmentTwo" />
18 </LinearLayout>
```

LinearLayout

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
3     android:orientation="horizontal"
4     android:layout_width="fill_parent"
5     android:layout_height="fill_parent">
6     <fragment
7         android:layout_width="200dp"
8         android:layout_height="fill_parent"
9         android:layout_alignParentLeft="true"
10        android:layout_alignParentTop="true"
11        android:id="@+id/fragment_one"
12        android:name="com.matto1990.fragments.FragmentOne" />
13    <fragment
14        android:layout_width="fill_parent"
15        android:layout_height="100dp"
16        android:layout_alignParentTop="true"
17        android:layout_toRightOf="@id/fragment_one"
18        android:id="@+id/fragment_two"
19        android:name="com.matto1990.fragments.FragmentTwo" />
20    <fragment
21        android:layout_width="fill_parent"
22        android:layout_height="fill_parent"
23        android:layout_toRightOf="@id/fragment_one"
24        android:layout_below="@id/fragment_two"
25        android:id="@+id/fragment_three"
26        android:name="com.matto1990.fragments.FragmentThree" />
27 </RelativeLayout>
```

RelativeLayout

Intents

- Intents are small messages which are passed between activities and other components
- Contain either a URI or a direct reference to another component
- Can also contain small amounts of data called Extras

```
14 Intent intent = new Intent(context, AnotherActivity.class);
15 intent.putExtra(SOME_DATA_EXTRA, "This is a small bit of data");
16 intent.putExtra(AN_ID_EXTRA, 12321);
17 startActivity(intent);
```

Opening a new Activity via an Intent

Fragments

- Should be used to encapsulate a UI element
- Can only be used inside an Activity
- Can have different configurations of fragments based on the device type

```
1  package com.matto1990.fragments;
2
3  import android.app.Fragment;
4  import android.os.Bundle;
5  import android.view.LayoutInflater;
6  import android.view.View;
7  import android.view.ViewGroup;
8
9  public class FragmentOne extends Fragment {
10      public FragmentOne() {
11          super();
12      }
13
14      @Override
15      public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState) {
16          return inflater.inflate(R.layout.fragment_one, container);
17      }
18  }
```

FragmentOne.java

```
1  <?xml version="1.0" encoding="utf-8"?>
2  <TextView xmlns:android="http://schemas.android.com/apk/res/android"
3      android:layout_width="fill_parent"
4      android:layout_height="fill_parent"
5      android:gravity="center"
6      android:background="#FF00A4E5"
7      android:textColor="#FFFFFF"
8      android:textSize="25dp"
9      android:text="Fragment One" />
```

res/layout/fragment_one.xml

Views

- The building blocks of any app
- Lots of different types:
 - TextView
 - EditText
 - ImageView
 - Button
 - ListView
 - GridView
 - Spinner
 - ProgressBar
 - Gallery
 - Over 50 all together

Patterns



1

Action Bar

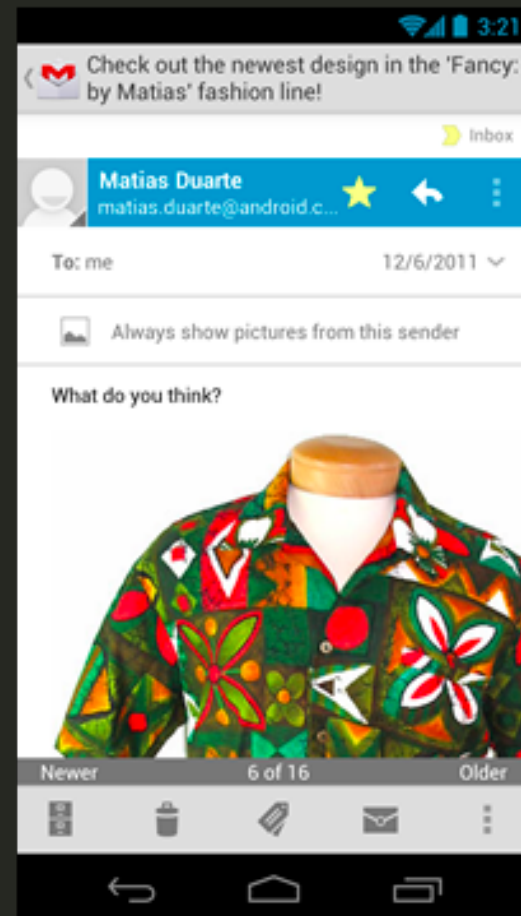
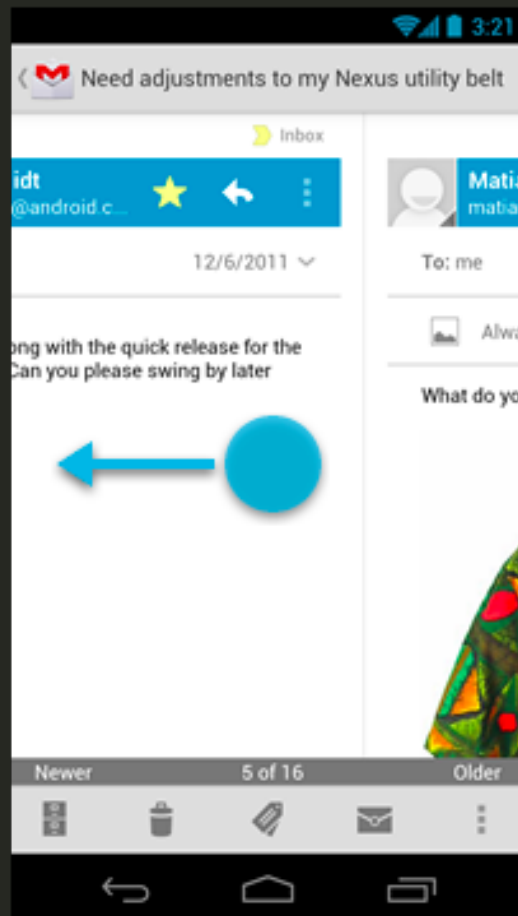
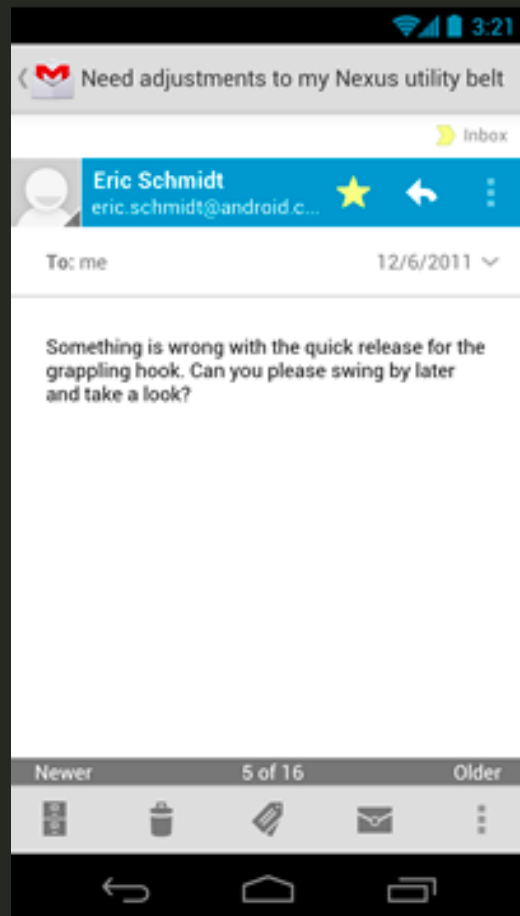
2



3



4





Developers ▾

Design

Develop

Distribute



Get Started ^

Creative Vision

Design Principles

UI Overview

Style ▾

Patterns ▾

Building Blocks ▾

Downloads

Videos

img
img



Welcome to **Android Design**, your place for learning how to design exceptional Android apps.

[Creative Vision](#) >



+1 3.8k

Required Reading - <http://developer.android.com/design/>

Services

- Used to run tasks in the background
- Can be the shared state between activities
- By default run on the same thread
 - Can be made to run of a different thread
 - Or use `AsyncTasks` internally
- Interact with them via
 - Binding
 - Intents

Go Play!