

# Android Examples

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*TJHSST*

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## **Foreward**

### *Objectives*

The intent of this book is to provide you, the student, with a hard copy of example Android applications. The personal copy is intended to be annotated, highlighted, and worn from the use that comes as you gain a deeper understanding to the basic design patterns of Android Application development. Peanut Butter and Jelly stains are encouraged!

The examples generally become more complicated the deeper in you go, however this is not a hard and fast rule. Foundational topics, such as user interface design, anonymous classes and fragments are introduced early so that they may be built upon later.

### *Android Overview*

Android projects differ from traditional Java code in that there are dozens, if not hundreds, of supplemental files required to build the App - and at first glance the sheer volume of information to sort through can seem intimidating. However - there are essentially only four groups of files that you, the programmer, will modify in the life of your project. These are:

- the manifest (AndroidManifest.xml), which registers the package name and permissions
- the Java files, which control the programmatic behavior of the app.
- the Resource files, whose files define GUI layout structure as well as hard coded strings, colors, dimensions, images and more.
- the gradle files, which define libraries to import for the project

Android projects are generally developed within Android Studio, and I have created a video that outlines the basic operation of this program here: <https://www.youtube.com/watch?v=MqjE99jdOpl>

An additional convenient feature of Android Development is the availability of Virtual Devices. A video explaining how to use this feature will be posted on the MobileDev1 channel.

## *Book Structure*

Each 'chapter' of the book follows the same basic structure:

- An Overview Page, containing:
  - a brief description of the example
  - a link to the Github for this example
  - a link to a YouTube video showing the operation of the app
  - a list of topics that are covered in this example
- Java Files
  - The first Java file presented will always be the Activity, followed by Fragments and Custom Classes
- Resource Files
  - The first Resource file presented will always be the layout file associated with the Activity. This will be followed by fragment layouts, menus and string resources as appropriate.
- Gradle File
  - the App Module build.gradle will be included in all examples
- Server Files
  - for Apps that require the functionality of an external server, files associated with that server will be included.

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# HelloOnClick

## Overview:

When user presses a Button in an Activity, a message is logged to the console. The OnClickListener is defined using an anonymous class.

## Github:

[https://github.com/pckosek/Android\\_Examples/tree/master/OnClick/HelloOnClick](https://github.com/pckosek/Android_Examples/tree/master/OnClick/HelloOnClick)

## YouTube:

[https://www.youtube.com/watch?v=\\_hl3DzqKzmc](https://www.youtube.com/watch?v=_hl3DzqKzmc)

## Topics:

- OnClickListener Assignment
- ConstraintLayout
- Log
- Anonymous Class

# HelloOnClick

*AndroidManifest.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.helloonclick">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity android:name=".MainActivity">
13             <intent-filter>
14                 <action android:name="android.intent.action.MAIN" />
15
16                 <category android:name="android.intent.category.LAUNCHER" />
17             </intent-filter>
18         </activity>
19     </application>
20
21 </manifest>
```

# HelloOnClick

MainActivity.java

```
1 package com.example.pckosek.helloonclick;
2
3 import android.support.v7.app.AppCompatActivity;
4 import android.os.Bundle;
5 import android.util.Log;
6 import android.view.View;
7 import android.widget.Button;
8
9 public class MainActivity extends AppCompatActivity {
10
11     private final static String TAG = "MAIN_ACTIVITY";
12     Button mButton;
13
14     @Override
15     protected void onCreate(Bundle savedInstanceState) {
16         super.onCreate(savedInstanceState);
17         setContentView(R.layout.activity_main);
18
19         mButton = findViewById(R.id.btn_hello);
20         mButton.setOnClickListener(new View.OnClickListener() {
21             @Override
22             public void onClick(View v) {
23                 Log.i(TAG, "clicked the button");
24             }
25         });
26     }
27 }
28 }
```

# HelloOnClick

*activity\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <Button
11        android:id="@+id	btn_hello"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        android:text="Click Me!"
15        app:layout_constraintBottom_toBottomOf="parent"
16        app:layout_constraintLeft_toLeftOf="parent"
17        app:layout_constraintRight_toRightOf="parent"
18        app:layout_constraintTop_toTopOf="parent" />
19
20 </android.support.constraint.ConstraintLayout>
```

# HelloOnClick

*build.gradle (Module: app)*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <Button
11        android:id="@+id	btn_hello"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        android:text="Click Me!"
15        app:layout_constraintBottom_toBottomOf="parent"
16        app:layout_constraintLeft_toLeftOf="parent"
17        app:layout_constraintRight_toRightOf="parent"
18        app:layout_constraintTop_toTopOf="parent" />
19
20 </android.support.constraint.ConstraintLayout>
```



# HelloOnClick 02

## Overview:

When user presses a Button in an Activity, a message is logged to the console. The OnClickListener is defined by implementing the View.OnClickListener interface.

## Github:

[https://github.com/pckosek/Android\\_Examples/tree/master/OnClick/HelloOnClick\\_02](https://github.com/pckosek/Android_Examples/tree/master/OnClick/HelloOnClick_02)

## YouTube:

<https://www.youtube.com/watch?v=bed0hFfQnUY>

## Topics:

- OnClickListener Assignment
- ConstraintLayout
- Log
- Interface implementation

## HelloOnClick\_02

*AndroidManifest.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.helloonclick_02">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity android:name=".MainActivity">
13             <intent-filter>
14                 <action android:name="android.intent.action.MAIN" />
15
16                 <category android:name="android.intent.category.LAUNCHER" />
17             </intent-filter>
18         </activity>
19     </application>
20
21 </manifest>
```

## HelloOnClick\_02

MainActivity.java

```
1 package com.example.pckosek.helloonclick_02;
2
3 import android.support.v7.app.AppCompatActivity;
4 import android.os.Bundle;
5 import android.util.Log;
6 import android.view.View;
7 import android.widget.Button;
8
9 public class MainActivity extends AppCompatActivity implements View.OnClickListener {
10
11     private final static String TAG = "MAIN_ACTIVITY";
12     Button mButton;
13
14     @Override
15     protected void onCreate(Bundle savedInstanceState) {
16         super.onCreate(savedInstanceState);
17         setContentView(R.layout.activity_main);
18
19         mButton = findViewById(R.id.btn_hello);
20         mButton.setOnClickListener(this);
21     }
22
23     @Override
24     public void onClick(View v) {
25         Log.i(TAG, "clicked the button");
26     }
27 }
```

## HelloOnClick\_02

*activity\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <Button
11        android:id="@+id	btn_hello"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        android:text="Click Me!"
15        app:layout_constraintBottom_toBottomOf="parent"
16        app:layout_constraintLeft_toLeftOf="parent"
17        app:layout_constraintRight_toRightOf="parent"
18        app:layout_constraintTop_toTopOf="parent" />
19
20 </android.support.constraint.ConstraintLayout>
```

## HelloOnClick\_02

buid.gradle (Module: app)

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.helloonclick_02"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     testImplementation 'junit:junit:4.12'
26     androidTestImplementation 'com.android.support.test:runner:1.0.2'
27     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
28 }
```



# HelloOnClick 03

## Overview:

When user presses a Button in an Activity, a message is logged to the console. The OnClickListener is defined by implementing the View.OnClickListener interface within a custom subclass of the MainActivity.

## Github:

[https://github.com/pckosek/Android\\_Examples/tree/master/OnClick/HelloOnClick\\_03](https://github.com/pckosek/Android_Examples/tree/master/OnClick/HelloOnClick_03)

## YouTube:

<https://www.youtube.com/watch?v=fUxNqoUFjrl>

## Topics:

- OnClickListener Assignment
- ConstraintLayout
- Log
- Interface implementation

# HelloOnClick\_03

*AndroidManifest.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.helloonclick_03">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity android:name=".MainActivity">
13             <intent-filter>
14                 <action android:name="android.intent.action.MAIN" />
15
16                 <category android:name="android.intent.category.LAUNCHER" />
17             </intent-filter>
18         </activity>
19     </application>
20
21 </manifest>
```

## HelloOnClick\_03

MainActivity.java

```
1 package com.example.pckosek.helloonclick_03;
2
3 import android.support.v7.app.AppCompatActivity;
4 import android.os.Bundle;
5 import android.util.Log;
6 import android.view.View;
7 import android.widget.Button;
8
9 public class MainActivity extends AppCompatActivity {
10
11     private final static String TAG = "MAIN_ACTIVITY";
12     Button mButton;
13
14     @Override
15     protected void onCreate(Bundle savedInstanceState) {
16         super.onCreate(savedInstanceState);
17         setContentView(R.layout.activity_main);
18
19         mButton = findViewById(R.id.btn_hello);
20         mButton.setOnClickListener(new MyClickListener());
21     }
22
23     public class MyClickListener implements View.OnClickListener {
24
25         @Override
26         public void onClick(View v) {
27             Log.i(TAG, "clicked the button");
28         }
29     }
30 }
```

## HelloOnClick\_03

*activity\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <Button
11        android:id="@+id	btn_hello"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        android:text="Click Me!"
15        app:layout_constraintBottom_toBottomOf="parent"
16        app:layout_constraintLeft_toLeftOf="parent"
17        app:layout_constraintRight_toRightOf="parent"
18        app:layout_constraintTop_toTopOf="parent" />
19
20 </android.support.constraint.ConstraintLayout>
```

## HelloOnClick\_03

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.helloonclick_03"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     testImplementation 'junit:junit:4.12'
26     androidTestImplementation 'com.android.support.test:runner:1.0.2'
27     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
28 }
```



# HelloRunnable 01

## Overview:

When user presses a Button in an Activity, a Handler posts the delayed execution of a new Runnable for one second. After one second, the Runnable runs and changes the content of a TextView within the Activity to a random number between 0 and 10. The OnClickListener is defined by implementing the View.OnClickListener interface within the MainActivity. The Runnable is a custom class defined within the Activity

## Github:

[## YouTube:](https://github.com/pckosek/Android_Examples/tree/master/Runnable>HelloRunnable_01</a></p></div><div data-bbox=)

<https://www.youtube.com/watch?v=PBFLISH0FSI>

## Topics:

- OnClickListener Assignment
- ConstraintLayout
- Runnable
- Interface implementation

# HelloRunnable\_01

*AndroidManifest.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.hellorunnable_01">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity android:name=".MainActivity">
13             <intent-filter>
14                 <action android:name="android.intent.action.MAIN" />
15
16                 <category android:name="android.intent.category.LAUNCHER" />
17             </intent-filter>
18         </activity>
19     </application>
20
21 </manifest>
```

# HelloRunnable\_01

MainActivity.java

```
1 package com.example.pckosek.hellorunnable_01;
2
3 import android.os.Handler;
4 import android.support.v7.app.AppCompatActivity;
5 import android.os.Bundle;
6 import android.view.View;
7 import android.widget.Button;
8 import android.widget.TextView;
9
10 import java.util.Random;
11
12 public class MainActivity extends AppCompatActivity implements View.OnClickListener {
13
14     Button mButton;
15     TextView mTextView;
16
17     Handler mHandler;
18
19     @Override
20     protected void onCreate(Bundle savedInstanceState) {
21         super.onCreate(savedInstanceState);
22         setContentView(R.layout.activity_main);
23
24         mButton = findViewById(R.id.btn_start);
25         mTextView = findViewById(R.id.tv_display);
26
27         mButton.setOnClickListener(this);
28
29         mHandler = new Handler();
30     }
31
32     @Override
33     public void onClick(View v) {
34
35         mHandler.postDelayed(new MyRunnable(), 1000);
36
37     }
38
39     public class MyRunnable implements Runnable {
40
41         @Override
42         public void run() {
43             Random r = new Random();
44             int rand_num = r.nextInt(11);
45
46             mTextView.setText(Integer.toString(rand_num));
47         }
48     }
49 }
50 }
```

# HelloRunnable\_01

activity\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <Button
11        android:id="@+id/btn_start"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        android:layout_marginEnd="76dp"
15        android:text="Hello World!"
16        app:layout_constraintBottom_toBottomOf="parent"
17        app:layout_constraintEnd_toStartOf="@+id/tv_display"
18        app:layout_constraintLeft_toLeftOf="parent"
19        app:layout_constraintTop_toTopOf="parent" />
20
21    <TextView
22        android:id="@+id/tv_display"
23        android:layout_width="92dp"
24        android:layout_height="53dp"
25        android:layout_marginEnd="16dp"
26        android:text="TextView"
27        app:layout_constraintBottom_toBottomOf="@+id/btn_start"
28        app:layout_constraintEnd_toEndOf="parent"
29        app:layout_constraintTop_toTopOf="@+id/btn_start" />
30
31 </android.support.constraint.ConstraintLayout>
```

# HelloRunnable\_01

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.hellorunnable_01"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     testImplementation 'junit:junit:4.12'
26     androidTestImplementation 'com.android.support.test:runner:1.0.2'
27     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
28 }
```



# HelloRunnable 02

## Overview:

When user presses a Button in an Activity, a Handler posts the delayed execution of a new Runnable for one second. After one second, the Runnable runs and changes the content of a TextView within the Activity to a random number between 0 and 10. The MainActivity implements both the View.OnClickListener and Runnable interfaces.

## Github:

[https://github.com/pckosek/Android\\_Examples/tree/master/Runnable/HelloRunnable\\_02](https://github.com/pckosek/Android_Examples/tree/master/Runnable/HelloRunnable_02)

## YouTube:

[https://www.youtube.com/watch?v=CPD-g\\_WJIKw](https://www.youtube.com/watch?v=CPD-g_WJIKw)

## Topics:

- OnClickListener Assignment
- ConstraintLayout
- Runnable
- Interface implementation

# HelloRunnable\_02

*AndroidManifest.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.hellorunnable_02">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity android:name=".MainActivity">
13             <intent-filter>
14                 <action android:name="android.intent.action.MAIN" />
15
16                 <category android:name="android.intent.category.LAUNCHER" />
17             </intent-filter>
18         </activity>
19     </application>
20
21 </manifest>
```

## HelloRunnable\_02

MainActivity.java

```
1 package com.example.pckosek.hellorunnable_02;
2
3 import android.os.Handler;
4 import android.support.v7.app.AppCompatActivity;
5 import android.os.Bundle;
6 import android.view.View;
7 import android.widget.Button;
8 import android.widget.TextView;
9
10 import java.util.Random;
11
12 public class MainActivity extends AppCompatActivity implements View.OnClickListener, Runnable {
13
14     Button mButton;
15     TextView mTextView;
16
17     Handler mHandler;
18
19     @Override
20     protected void onCreate(Bundle savedInstanceState) {
21         super.onCreate(savedInstanceState);
22         setContentView(R.layout.activity_main);
23
24         mButton = findViewById(R.id.btn_start);
25         mTextView = findViewById(R.id.tv_display);
26
27         mButton.setOnClickListener(this);
28
29         mHandler = new Handler();
30
31     }
32
33     @Override
34     public void onClick(View v) {
35
36         mHandler.postDelayed(this, 1000);
37
38     }
39
40
41     @Override
42     public void run() {
43         Random r = new Random();
44         int rand_num = r.nextInt(11);
45
46         mTextView.setText(Integer.toString(rand_num));
47     }
48
49 }
```

## HelloRunnable\_02

*MainActivity.java*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <Button
11        android:id="@+id	btn_start"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        android:layout_marginEnd="76dp"
15        android:text="Hello World!"
16        app:layout_constraintBottom_toBottomOf="parent"
17        app:layout_constraintEnd_toStartOf="@+id/tv_display"
18        app:layout_constraintLeft_toLeftOf="parent"
19        app:layout_constraintTop_toTopOf="parent" />
20
21    <TextView
22        android:id="@+id/tv_display"
23        android:layout_width="92dp"
24        android:layout_height="53dp"
25        android:layout_marginEnd="16dp"
26        android:text="TextView"
27        app:layout_constraintBottom_toBottomOf="@+id	btn_start"
28        app:layout_constraintEnd_toEndOf="parent"
29        app:layout_constraintTop_toTopOf="@+id	btn_start" />
30
31 </android.support.constraint.ConstraintLayout>
```

## HelloRunnable\_02

*build.gradle (Module: app)*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <Button
11        android:id="@+id/btn_start"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        android:layout_marginEnd="76dp"
15        android:text="Hello World!"
16        app:layout_constraintBottom_toBottomOf="parent"
17        app:layout_constraintEnd_toStartOf="@+id/tv_display"
18        app:layout_constraintLeft_toLeftOf="parent"
19        app:layout_constraintTop_toTopOf="parent" />
20
21    <TextView
22        android:id="@+id/tv_display"
23        android:layout_width="92dp"
24        android:layout_height="53dp"
25        android:layout_marginEnd="16dp"
26        android:text="TextView"
27        app:layout_constraintBottom_toBottomOf="@+id/btn_start"
28        app:layout_constraintEnd_toEndOf="parent"
29        app:layout_constraintTop_toTopOf="@+id/btn_start" />
30
31 </android.support.constraint.ConstraintLayout>
```



# HelloRunnable 03

## Overview:

When user presses a Button in an Activity, a Handler posts the delayed execution of a new Runnable for one second. After one second, the Runnable runs and changes the content of a TextView within the Activity to a random number between 0 and 10. The MainActivity implements Runnable interface. The View.OnClickListener interface is overridden in an anonymous class.

## Github:

[https://github.com/pckosek/Android\\_Examples/tree/master/Runnable/HelloRunnable\\_03](https://github.com/pckosek/Android_Examples/tree/master/Runnable/HelloRunnable_03)

## YouTube:

<https://www.youtube.com/watch?v=XgffrQkARws>

## Topics:

- OnClickListener Assignment
- ConstraintLayout
- Runnable
- Interface implementation
- Anonymous class

# HelloRunnable\_03

*AndroidManifest.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.hellorunnable_03">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity android:name=".MainActivity">
13             <intent-filter>
14                 <action android:name="android.intent.action.MAIN" />
15
16                 <category android:name="android.intent.category.LAUNCHER" />
17             </intent-filter>
18         </activity>
19     </application>
20
21 </manifest>
```

# HelloRunnable\_03

MainActivity.java

```
1 package com.example.pckosek.hellorunnable_03;
2
3 import android.os.Handler;
4 import android.support.v7.app.AppCompatActivity;
5 import android.os.Bundle;
6 import android.view.View;
7 import android.widget.Button;
8 import android.widget.TextView;
9
10 import java.util.Random;
11
12 public class MainActivity extends AppCompatActivity implements Runnable {
13
14     Button mButton;
15     TextView mTextView;
16
17     Handler mHandler;
18
19     @Override
20     protected void onCreate(Bundle savedInstanceState) {
21         super.onCreate(savedInstanceState);
22         setContentView(R.layout.activity_main);
23
24         mButton = findViewById(R.id.btn_start);
25         mTextView = findViewById(R.id.tv_display);
26
27         mButton.setOnClickListener(new View.OnClickListener() {
28             @Override
29             public void onClick(View v) {
30                 mHandler.postDelayed(MainActivity.this, 1000);
31             }
32         });
33
34         mHandler = new Handler();
35
36     }
37
38
39     @Override
40     public void run() {
41         Random r = new Random();
42         int rand_num = r.nextInt(11);
43
44         mTextView.setText(Integer.toString(rand_num));
45     }
46
47 }
```

# HelloRunnable\_03

activity\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <Button
11        android:id="@+id/btn_start"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        android:layout_marginEnd="76dp"
15        android:text="Hello World!"
16        app:layout_constraintBottom_toBottomOf="parent"
17        app:layout_constraintEnd_toStartOf="@+id/tv_display"
18        app:layout_constraintLeft_toLeftOf="parent"
19        app:layout_constraintTop_toTopOf="parent" />
20
21    <TextView
22        android:id="@+id/tv_display"
23        android:layout_width="92dp"
24        android:layout_height="53dp"
25        android:layout_marginEnd="16dp"
26        android:text="TextView"
27        app:layout_constraintBottom_toBottomOf="@+id/btn_start"
28        app:layout_constraintEnd_toEndOf="parent"
29        app:layout_constraintTop_toTopOf="@+id/btn_start" />
30
31 </android.support.constraint.ConstraintLayout>
```

## HelloRunnable\_03

*build.gradle (Module: app)*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <Button
11        android:id="@+id/btn_start"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        android:layout_marginEnd="76dp"
15        android:text="Hello World!"
16        app:layout_constraintBottom_toBottomOf="parent"
17        app:layout_constraintEnd_toStartOf="@+id/tv_display"
18        app:layout_constraintLeft_toLeftOf="parent"
19        app:layout_constraintTop_toTopOf="parent" />
20
21    <TextView
22        android:id="@+id/tv_display"
23        android:layout_width="92dp"
24        android:layout_height="53dp"
25        android:layout_marginEnd="16dp"
26        android:text="TextView"
27        app:layout_constraintBottom_toBottomOf="@+id/btn_start"
28        app:layout_constraintEnd_toEndOf="parent"
29        app:layout_constraintTop_toTopOf="@+id/btn_start" />
30
31 </android.support.constraint.ConstraintLayout>
```



# HelloFragment

## Overview:

A basic fragment placed inside of an Activity. There is no interactive functionality in this app, rather it's purpose is to demonstrate hierarchical form.

## Github:

[https://github.com/pckosek/Android\\_Examples/tree/master/ViewHierarchy>HelloFragment\\_01](https://github.com/pckosek/Android_Examples/tree/master/ViewHierarchy>HelloFragment_01)

## YouTube:

<https://www.youtube.com/watch?v=vFicOW9tkBk>

## Topics:

- CoordinatorLayout
- Fragment

# HelloFragment

*AndroidManifest.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.hellofragment">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity android:name=".MainActivity">
13             <intent-filter>
14                 <action android:name="android.intent.action.MAIN" />
15
16                 <category android:name="android.intent.category.LAUNCHER" />
17             </intent-filter>
18         </activity>
19     </application>
20
21 </manifest>
```

# HelloFragment

*MainActivity.java*

```
1 package com.example.pckosek.hellofragment;
2
3 import android.support.v7.app.AppCompatActivity;
4 import android.os.Bundle;
5
6 public class MainActivity extends AppCompatActivity {
7
8     @Override
9     protected void onCreate(Bundle savedInstanceState) {
10         super.onCreate(savedInstanceState);
11         setContentView(R.layout.activity_main);
12     }
13 }
```

# HelloFragment

*MyFragment.java*

```
1 package com.example.pckosek.hellofragment;
2
3
4 import android.os.Bundle;
5 import android.support.v4.app.Fragment;
6 import android.view.LayoutInflater;
7 import android.view.View;
8 import android.view.ViewGroup;
9
10
11 public class MyFragment extends Fragment {
12
13     private static final String TAG = "MY_FRAGMENT";
14
15     public MyFragment() {}
16
17     @Override
18     public View onCreateView(LayoutInflater inflater, ViewGroup container,
19                             Bundle savedInstanceState) {
20
21         return inflater.inflate(R.layout.fragment_my, container, false);
22     }
23
24 }
```

# HelloFragment

*activity\_main.xml*

```
1 | <?xml version="1.0" encoding="utf-8"?>
2 | <android.support.constraint.ConstraintLayout
3 |     xmlns:android="http://schemas.android.com/apk/res/android"
4 |     xmlns:tools="http://schemas.android.com/tools"
5 |     android:layout_width="match_parent"
6 |     android:layout_height="match_parent"
7 |     tools:context=".MainActivity">
8 |
9 |     <fragment
10 |         android:name="com.example.pckosek.hellofragment.MyFragment"
11 |         android:layout_height="match_parent"
12 |         android:layout_width="match_parent"
13 |         android:id="@+id/frag_01" />
14 |
15 | </android.support.constraint.ConstraintLayout>
```

# HelloFragment

*fragment\_my.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MyFragment">
9
10    <Button
11        android:id="@+id	btn_hello"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        android:text="Click Me!"
15        app:layout_constraintBottom_toBottomOf="parent"
16        app:layout_constraintLeft_toLeftOf="parent"
17        app:layout_constraintRight_toRightOf="parent"
18        app:layout_constraintTop_toTopOf="parent" />
19
20 </android.support.constraint.ConstraintLayout>
```

# HelloFragment

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.hellofragment"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     implementation 'com.android.support:support-v4:27.1.1'
26     testImplementation 'junit:junit:4.12'
27     androidTestImplementation 'com.android.support.test:runner:1.0.2'
28     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
29 }
```



# **HelloFragment\_02**

## **Overview:**

A basic fragment placed inside of an Activity, 99% from Android Studio boilerplate code. This app differs from HelloFragment in that it includes a Menu and a FloatingActionButton. There is no interactive functionality in this app, rather its purpose is to demonstrate hierarchical form.

## **Github:**

[https://github.com/pckosek/Android\\_Examples/tree/master/ViewHierarchy/HelloFragment\\_02](https://github.com/pckosek/Android_Examples/tree/master/ViewHierarchy/HelloFragment_02)

## **YouTube:**

<https://www.youtube.com/watch?v=KgS3VTaIBSQ>

## **Topics:**

- CoordinatorLayout
- ConstraintLayout
- Fragment
- View.OnClickListener
- Anonymous Class
- Menu
- FloatingActionButton

# HelloFragment\_02

*AndroidManifest.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.hellofragment_02">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity
13             android:name=".MainActivity"
14             android:label="@string/app_name"
15             android:theme="@style/AppTheme.NoActionBar">
16             <intent-filter>
17                 <action android:name="android.intent.action.MAIN" />
18
19                 <category android:name="android.intent.category.LAUNCHER" />
20             </intent-filter>
21         </activity>
22     </application>
23
24 </manifest>
```

# HelloFragment\_02

MainActivity.java

```
1 package com.example.pckosek.hellofragment_02;
2
3 import android.os.Bundle;
4 import android.support.design.widget.FloatingActionButton;
5 import android.support.design.widget.Snackbar;
6 import android.support.v7.app.AppCompatActivity;
7 import android.support.v7.widget.Toolbar;
8 import android.view.View;
9 import android.view.Menu;
10 import android.view.MenuItem;
11
12 public class MainActivity extends AppCompatActivity {
13
14     @Override
15     protected void onCreate(Bundle savedInstanceState) {
16         super.onCreate(savedInstanceState);
17         setContentView(R.layout.activity_main);
18         Toolbar toolbar = (Toolbar) findViewById(R.id.toolbar);
19         setSupportActionBar(toolbar);
20
21         FloatingActionButton fab = (FloatingActionButton) findViewById(R.id.fab);
22         fab.setOnClickListener(new View.OnClickListener() {
23             @Override
24             public void onClick(View view) {
25                 Snackbar.make(view, "Replace with your own action", Snackbar.LENGTH_LONG)
26                     .setAction("Action", null).show();
27             }
28         });
29     }
30
31     @Override
32     public boolean onCreateOptionsMenu(Menu menu) {
33         // Inflate the menu; this adds items to the action bar if it is present.
34         getMenuInflater().inflate(R.menu.menu_main, menu);
35         return true;
36     }
37
38     @Override
39     public boolean onOptionsItemSelected(MenuItem item) {
40         // Handle action bar item clicks here. The action bar will
41         // automatically handle clicks on the Home/Up button, so long
42         // as you specify a parent activity in AndroidManifest.xml.
43         int id = item.getItemId();
44
45         //noinspection SimplifiableIfStatement
46         if (id == R.id.action_settings) {
47             return true;
48         }
49
50         return super.onOptionsItemSelected(item);
51     }
52 }
```

# HelloFragment\_02

*MyFragment.java*

```
1 package com.example.pckosek.hellofragment_02;
2
3
4 import android.os.Bundle;
5 import android.support.v4.app.Fragment;
6 import android.view.LayoutInflater;
7 import android.view.View;
8 import android.view.ViewGroup;
9
10
11 public class MyFragment extends Fragment {
12
13     private static final String TAG = "MY_FRAGMENT";
14
15     public MyFragment() {}
16
17     @Override
18     public void onCreate(Bundle savedInstanceState) {
19         super.onCreate(savedInstanceState);
20     }
21
22     @Override
23     public View onCreateView(LayoutInflater inflater, ViewGroup container,
24                             Bundle savedInstanceState) {
25
26         return inflater.inflate(R.layout.fragment_my, container, false);
27     }
28
29 }
```

## HelloFragment\_02

activity\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.design.widget.CoordinatorLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <android.support.design.widget.AppBarLayout
11        android:layout_width="match_parent"
12        android:layout_height="wrap_content"
13        android:theme="@style/AppTheme.AppBarOverlay">
14
15        <android.support.v7.widget.Toolbar
16            android:id="@+id/toolbar"
17            android:layout_width="match_parent"
18            android:layout_height="?attr/actionBarSize"
19            android:background="?attr/colorPrimary"
20            app:popupTheme="@style/AppTheme.PopupOverlay" />
21
22    </android.support.design.widget.AppBarLayout>
23
24    <include layout="@layout/content_main" />
25
26    <android.support.design.widget.FloatingActionButton
27        android:id="@+id/fab"
28        android:layout_width="wrap_content"
29        android:layout_height="wrap_content"
30        android:layout_gravity="bottom|end"
31        android:layout_margin="@dimen/fab_margin"
32        app:srcCompat="@android:drawable/ic_dialog_email" />
33
34 </android.support.design.widget.CoordinatorLayout>
```

## HelloFragment\_02

*content\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     app:layout_behavior="@string/appbar_scrolling_view_behavior"
9     tools:context=".MainActivity"
10    tools:showIn="@layout/activity_main">
11
12    <fragment
13        android:name="com.example.pckosek.hellofragment_02.MyFragment"
14        android:layout_height="match_parent"
15        android:layout_width="match_parent"
16        android:id="@+id/frag_01" />
17
18 </android.support.constraint.ConstraintLayout>
```

## HelloFragment\_02

*fragment\_my.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MyFragment">
9
10    <Button
11        android:id="@+id	btn_hello"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        android:text="Click Me!"
15        app:layout_constraintBottom_toBottomOf="parent"
16        app:layout_constraintLeft_toLeftOf="parent"
17        app:layout_constraintRight_toRightOf="parent"
18        app:layout_constraintTop_toTopOf="parent" />
19
20 </android.support.constraint.ConstraintLayout>
```

## HelloFragment\_02

menu/menu\_main.xml

```
1 <menu xmlns:android="http://schemas.android.com/apk/res/android"
2     xmlns:app="http://schemas.android.com/apk/res-auto"
3     xmlns:tools="http://schemas.android.com/tools"
4     tools:context="com.example.pckosek.hellofragment_02.MainActivity">
5     <item
6         android:id="@+id/action_settings"
7         android:orderInCategory="100"
8         android:title="@string/action_settings"
9         app:showAsAction="never" />
10    </menu>
```

## HelloFragment\_02

*values/strings.xml*

```
1 | <resources>
2 |     <string name="app_name">HelloFragment_02</string>
3 |     <string name="action_settings">Settings</string>
4 | </resources>
```

## HelloFragment\_02

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.hellofragment_02"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     implementation 'com.android.support:design:27.1.1'
26     implementation 'com.android.support:support-v4:27.1.1'
27     testImplementation 'junit:junit:4.12'
28     androidTestImplementation 'com.android.support.test:runner:1.0.2'
29     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
30 }
```

# **HelloFragment\_03**

## **Overview:**

A basic fragment placed inside of an Activity, 99% from Android Studio boilerplate code. This app differs from HelloFragment\_02 in that it includes a DrawerLayout that gives the user the ability to navigate the app. There is no added interactive functionality in this app, rather the purpose is to demonstrate hierarchical form.

## **Github:**

[https://github.com/pckosek/Android\\_Examples/tree/master/ViewHierarchy>HelloFragment\\_03](https://github.com/pckosek/Android_Examples/tree/master/ViewHierarchy>HelloFragment_03)

## **YouTube:**

<https://www.youtube.com/watch?v=Qg4MeC4ueeQ>

## **Topics:**

- CoordinatorLayout
- ConstraintLayout
- DrawerLayout
- Fragment
- View.OnClickListener
- Anonymous Class
- Menu
- FloatingActionButton

# HelloFragment\_03

*AndroidManifest.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.hellofragment_03">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity
13             android:name=".MainActivity"
14             android:label="@string/app_name"
15             android:theme="@style/AppTheme.NoActionBar">
16             <intent-filter>
17                 <action android:name="android.intent.action.MAIN" />
18
19                 <category android:name="android.intent.category.LAUNCHER" />
20             </intent-filter>
21         </activity>
22     </application>
23
24 </manifest>
```

# HelloFragment\_03

MainActivity.java

```
1 package com.example.pckosek.hellofragment_03;
2
3 import android.os.Bundle;
4 import android.support.design.widget.FloatingActionButton;
5 import android.support.design.widget.Snackbar;
6 import android.view.View;
7 import android.support.design.widget.NavigationView;
8 import android.support.v4.view.GravityCompat;
9 import android.support.v4.widget.DrawerLayout;
10 import android.support.v7.app.ActionBarDrawerToggle;
11 import android.support.v7.app.AppCompatActivity;
12 import android.support.v7.widget.Toolbar;
13 import android.view.Menu;
14 import android.view.MenuItem;
15
16 public class MainActivity extends AppCompatActivity
17     implements NavigationView.OnNavigationItemSelected {
18
19     @Override
20     protected void onCreate(Bundle savedInstanceState) {
21         super.onCreate(savedInstanceState);
22         setContentView(R.layout.activity_main);
23         Toolbar toolbar = (Toolbar) findViewById(R.id.toolbar);
24         setSupportActionBar(toolbar);
25
26         FloatingActionButton fab = (FloatingActionButton) findViewById(R.id.fab);
27         fab.setOnClickListener(new View.OnClickListener() {
28             @Override
29             public void onClick(View view) {
30                 Snackbar.make(view, "Replace with your own action", Snackbar.LENGTH_LONG)
31                     .setAction("Action", null).show();
32             }
33         });
34
35         DrawerLayout drawer = (DrawerLayout) findViewById(R.id.drawer_layout);
36         ActionBarDrawerToggle toggle = new ActionBarDrawerToggle(
37             this,
38             drawer,
39             toolbar,
40             R.string.navigation_drawer_open,
41             R.string.navigation_drawer_close);
42         drawer.addDrawerListener(toggle);
43         toggle.syncState();
44
45         NavigationView navigationView = (NavigationView) findViewById(R.id.nav_view);
46         navigationView.setNavigationItemSelectedListener(this);
47     }
48
49     @Override
50     public void onBackPressed() {
51         DrawerLayout drawer = (DrawerLayout) findViewById(R.id.drawer_layout);
52         if (drawer.isDrawerOpen(GravityCompat.START)) {
```

```

53         drawer.closeDrawer(GravityCompat.START);
54     } else {
55         super.onBackPressed();
56     }
57 }
58
59 @Override
60 public boolean onCreateOptionsMenu(Menu menu) {
61     // Inflate the menu; this adds items to the action bar if it is present.
62     getMenuInflater().inflate(R.menu.main, menu);
63     return true;
64 }
65
66 @Override
67 public boolean onOptionsItemSelected(MenuItem item) {
68     // Handle action bar item clicks here. The action bar will
69     // automatically handle clicks on the Home/Up button, so long
70     // as you specify a parent activity in AndroidManifest.xml.
71     int id = item.getItemId();
72
73     //noinspection SimplifiableIfStatement
74     if (id == R.id.action_settings) {
75         return true;
76     }
77
78     return super.onOptionsItemSelected(item);
79 }
80
81 @SuppressWarnings("StatementWithEmptyBody")
82 @Override
83 public boolean onNavigationItemSelected(MenuItem item) {
84     // Handle navigation view item clicks here.
85     int id = item.getItemId();
86
87     if (id == R.id.nav_camera) {
88         // Handle the camera action
89     } else if (id == R.id.nav_gallery) {
90
91     } else if (id == R.id.nav_slideshow) {
92
93     } else if (id == R.id.nav_manage) {
94
95     } else if (id == R.id.nav_share) {
96
97     } else if (id == R.id.nav_send) {
98
99     }
100
101     DrawerLayout drawer = (DrawerLayout) findViewById(R.id.drawer_layout);
102     drawer.closeDrawer(GravityCompat.START);
103     return true;
104 }
105 }
```

# HelloFragment\_03

*MyFragment.java*

```
1 package com.example.pckosek.hellofragment_03;
2
3
4 import android.os.Bundle;
5 import android.support.v4.app.Fragment;
6 import android.view.LayoutInflater;
7 import android.view.View;
8 import android.view.ViewGroup;
9
10
11 public class MyFragment extends Fragment {
12
13     private static final String TAG = "MY_FRAGMENT";
14
15     public MyFragment() {
16     }
17
18     @Override
19     public void onCreate(Bundle savedInstanceState) {
20         super.onCreate(savedInstanceState);
21     }
22
23     @Override
24     public View onCreateView(LayoutInflater inflater, ViewGroup container,
25                             Bundle savedInstanceState) {
26
27         return inflater.inflate(R.layout.fragment_my, container, false);
28     }
29 }
```

# HelloFragment\_03

activity\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.v4.widget.DrawerLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:id="@+id/drawer_layout"
7     android:layout_width="match_parent"
8     android:layout_height="match_parent"
9     android:fitsSystemWindows="true"
10    tools:openDrawer="start">
11
12    <include
13        layout="@layout/app_bar_main"
14        android:layout_width="match_parent"
15        android:layout_height="match_parent" />
16
17    <android.support.design.widget.NavigationView
18        android:id="@+id/nav_view"
19        android:layout_width="wrap_content"
20        android:layout_height="match_parent"
21        android:layout_gravity="start"
22        android:fitsSystemWindows="true"
23        app:headerLayout="@layout/nav_header_main"
24        app:menu="@menu/activity_main_drawer" />
25
26 </android.support.v4.widget.DrawerLayout>
```

# HelloFragment\_03

app\_bar\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.design.widget.CoordinatorLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <android.support.design.widget.AppBarLayout
11        android:layout_width="match_parent"
12        android:layout_height="wrap_content"
13        android:theme="@style/AppTheme.AppBarOverlay">
14
15        <android.support.v7.widget.Toolbar
16            android:id="@+id/toolbar"
17            android:layout_width="match_parent"
18            android:layout_height="?attr/actionBarSize"
19            android:background="?attr/colorPrimary"
20            app:popupTheme="@style/AppTheme.PopupOverlay" />
21
22    </android.support.design.widget.AppBarLayout>
23
24    <include layout="@layout/content_main" />
25
26    <android.support.design.widget.FloatingActionButton
27        android:id="@+id/fab"
28        android:layout_width="wrap_content"
29        android:layout_height="wrap_content"
30        android:layout_gravity="bottom|end"
31        android:layout_margin="@dimen/fab_margin"
32        app:srcCompat="@android:drawable/ic_dialog_email" />
33
34 </android.support.design.widget.CoordinatorLayout>
```

# HelloFragment\_03

*content\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     app:layout_behavior="@string/appbar_scrolling_view_behavior"
9     tools:context=".MainActivity"
10    tools:showIn="@layout/app_bar_main">
11
12    <fragment
13        android:name="com.example.pckosek.hellofragment_03.MyFragment"
14        android:layout_height="match_parent"
15        android:layout_width="match_parent"
16        android:id="@+id/frag_01" />
17
18 </android.support.constraint.ConstraintLayout>
```

## HelloFragment\_03

*fragment\_my.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MyFragment">
9
10    <Button
11        android:id="@+id	btn_hello"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        android:text="Click Me!"
15        app:layout_constraintBottom_toBottomOf="parent"
16        app:layout_constraintLeft_toLeftOf="parent"
17        app:layout_constraintRight_toRightOf="parent"
18        app:layout_constraintTop_toTopOf="parent" />
19
20 </android.support.constraint.ConstraintLayout>
```

# HelloFragment\_03

menu/activity\_main\_drawer.xml

```
1  <?xml version="1.0" encoding="utf-8"?>
2  <menu xmlns:android="http://schemas.android.com/apk/res/android"
3      xmlns:tools="http://schemas.android.com/tools"
4      tools:showIn="navigation_view">
5
6      <group android:checkableBehavior="single">
7          <item
8              android:id="@+id/nav_camera"
9              android:icon="@drawable/ic_menu_camera"
10             android:title="Import" />
11
12          <item
13              android:id="@+id/nav_gallery"
14              android:icon="@drawable/ic_menu_gallery"
15              android:title="Gallery" />
16
17          <item
18              android:id="@+id/nav_slideshow"
19              android:icon="@drawable/ic_menu_slideshow"
20              android:title="Slideshow" />
21
22          <item
23              android:id="@+id/nav_manage"
24              android:icon="@drawable/ic_menu_manage"
25              android:title="Tools" />
26
27      </group>
28
29      <item android:title="Communicate">
30          <menu>
31              <item
32                  android:id="@+id/nav_share"
33                  android:icon="@drawable/ic_menu_share"
34                  android:title="Share" />
35
36              <item
37                  android:id="@+id/nav_send"
38                  android:icon="@drawable/ic_menu_send"
39                  android:title="Send" />
40
41          </menu>
42      </item>
43
44  </menu>
```

# HelloFragment\_03

menu/main.xml

```
1 | <?xml version="1.0" encoding="utf-8"?>
2 | <menu xmlns:android="http://schemas.android.com/apk/res/android"
3 |   xmlns:app="http://schemas.android.com/apk/res-auto">
4 |   <item
5 |     android:id="@+id/action_settings"
6 |     android:orderInCategory="100"
7 |     android:title="@string/action_settings"
8 |     app:showAsAction="never" />
9 | </menu>
```

# HelloFragment\_03

values/strings.xml

```
1 <resources>
2     <string name="app_name">HelloFragment_03</string>
3     <string name="navigation_drawer_open">Open navigation drawer</string>
4     <string name="navigation_drawer_close">Close navigation drawer</string>
5     <string name="nav_header_title">Android Studio</string>
6     <string name="nav_header_subtitle">android.studio@android.com</string>
7     <string name="nav_header_desc">Navigation header</string>
8     <string name="action_settings">Settings</string>
9 </resources>
```

# HelloFragment\_03

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.hellofragment_03"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support:support-v4:27.1.1'
25     implementation 'com.android.support:design:27.1.1'
26     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
27     testImplementation 'junit:junit:4.12'
28     androidTestImplementation 'com.android.support.test:runner:1.0.2'
29     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
30 }
```



# ScrollView 01

## Overview:

Implementation of a vertical ScrollView. Content (abbreviated in this document) is stored in a string resource file.

## Github:

[https://github.com/pckosek/Android\\_Examples/tree/master/ScrollView/ScrollView\\_01](https://github.com/pckosek/Android_Examples/tree/master/ScrollView/ScrollView_01)

## YouTube:

<https://www.youtube.com/watch?v=c3T0zlcEiQo>

## Topics:

- ScrollView
- String Resource
- ConstraintLayout

# ScrollView\_01

*AndroidManifest.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.scrollview_01">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity android:name=".MainActivity">
13             <intent-filter>
14                 <action android:name="android.intent.action.MAIN" />
15
16                 <category android:name="android.intent.category.LAUNCHER" />
17             </intent-filter>
18         </activity>
19     </application>
20
21 </manifest>
```

# ScrollView\_01

MainActivity.java

```
1 package com.example.pckosek.scrollView_01;
2
3 import android.support.v7.app.AppCompatActivity;
4 import android.os.Bundle;
5
6 public class MainActivity extends AppCompatActivity {
7
8     @Override
9     protected void onCreate(Bundle savedInstanceState) {
10         super.onCreate(savedInstanceState);
11         setContentView(R.layout.activity_main);
12     }
13 }
```

# ScrollView\_01

activity\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10
11    <ScrollView
12        android:layout_width="match_parent"
13        android:layout_height="match_parent"
14        android:layout_marginBottom="8dp"
15        android:layout_marginEnd="16dp"
16        android:layout_marginStart="16dp"
17        android:layout_marginTop="8dp"
18        app:layout_constraintBottom_toBottomOf="parent"
19        app:layout_constraintEnd_toEndOf="parent"
20        app:layout_constraintStart_toStartOf="parent"
21        app:layout_constraintTop_toTopOf="parent"
22        app:layout_constraintVertical_bias="1.0">
23
24        <TextView
25            android:id="@+id/tv_lorem"
26            android:layout_width="368dp"
27            android:layout_height="495dp"
28            android:text="@string/lorem_ipsum"
29            app:layout_constraintBottom_toBottomOf="parent"
30            app:layout_constraintEnd_toEndOf="parent"
31            app:layout_constraintTop_toTopOf="parent"
32            app:layout_constraintVertical_bias="0.429"
33            tools:layout_editor_absoluteX="8dp"
34            tools:layout_editor_absoluteY="8dp" />
35
36    </ScrollView>
37
38
39 </android.support.constraint.ConstraintLayout>
```

# ScrollView\_01

values/strings.xml

```
1 <resources>
2     <string name="app_name">ScrollView_01</string>
3     <string name="lorem_ipsum">
4         Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor ... \n
5         \n
6         Volutpat lacus laoreet non curabitur gravida arcu ac tortor. Id diam maecenas ... \n
7         \n
8         Orci nulla pellentesque dignissim enim sit. Aliquam sem et tortor consequat id ... \n
9         \n
10        Vitae turpis massa sed elementum tempus egestas sed. Vitae congue eu consequat ac. .... \n
11        \n
12        Vel risus commodo viverra maecenas accumsan lacus vel facilisis volutpat. Orci a ...
13    </string>
14 </resources>
```

# ScrollView\_01

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.scrollView_01"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     testImplementation 'junit:junit:4.12'
26     androidTestImplementation 'com.android.support.test:runner:1.0.2'
27     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
28 }
```

# ScrollView 02

## Overview:

Demonstration of ScrollView. Within the ScrollView is an extensive tree of Layouts, including a HorizontalScrollView and a layout loaded via the "include" tag.

## Github:

[https://github.com/pckosek/Android\\_Examples/tree/master/ScrollView/ScrollView\\_01](https://github.com/pckosek/Android_Examples/tree/master/ScrollView/ScrollView_01)

## YouTube:

<https://www.youtube.com/watch?v=Y4QOrMfqYMw>

## Topics:

- ScrollView
- String Resource
- ConstraintLayout

## ScrollView\_02

*AndroidManifest.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.scrollview_02">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity android:name=".MainActivity">
13             <intent-filter>
14                 <action android:name="android.intent.action.MAIN" />
15
16                 <category android:name="android.intent.category.LAUNCHER" />
17             </intent-filter>
18         </activity>
19     </application>
20
21 </manifest>
```

## ScrollView\_02

*MainActivity.java*

```
1 package com.example.pckosek.scrollView_02;
2
3 import android.support.v7.app.AppCompatActivity;
4 import android.os.Bundle;
5
6 public class MainActivity extends AppCompatActivity {
7
8     @Override
9     protected void onCreate(Bundle savedInstanceState) {
10         super.onCreate(savedInstanceState);
11         setContentView(R.layout.activity_main);
12     }
13 }
```

## ScrollView\_02

activity\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <ScrollView
11        android:layout_width="match_parent"
12        android:layout_height="match_parent"
13        android:layout_marginBottom="8dp"
14        android:layout_marginEnd="16dp"
15        android:layout_marginStart="16dp"
16        android:layout_marginTop="8dp"
17        app:layout_constraintBottom_toBottomOf="parent"
18        app:layout_constraintEnd_toEndOf="parent"
19        app:layout_constraintStart_toStartOf="parent"
20        app:layout_constraintTop_toTopOf="parent"
21        app:layout_constraintVertical_bias="1.0">
22
23        <LinearLayout
24            android:layout_width="match_parent"
25            android:layout_height="wrap_content"
26            android:orientation="vertical" >
27
28            <Button
29                android:layout_width="100dp"
30                android:layout_height="40dp" />
31
32            <HorizontalScrollView
33                android:layout_width="match_parent"
34                android:layout_height="match_parent">
35
36                <LinearLayout
37                    android:layout_width="wrap_content"
38                    android:layout_height="match_parent"
39                    android:orientation="horizontal">
40
41                    <Button
42                        android:layout_width="130dp"
43                        android:layout_height="60dp" />
44
45                    <Button
46                        android:layout_width="130dp"
47                        android:layout_height="60dp" />
48
49                    <Button
50                        android:layout_width="130dp"
51                        android:layout_height="60dp" />
52
```

```
53         <Button  
54             android:layout_width="130dp"  
55             android:layout_height="60dp" />  
56  
57         <Button  
58             android:layout_width="130dp"  
59             android:layout_height="60dp" />  
60  
61         <Button  
62             android:layout_width="130dp"  
63             android:layout_height="60dp" />  
64     </LinearLayout>  
65  
66 </HorizontalScrollView>  
67  
68     <Button  
69         android:layout_width="100dp"  
70         android:layout_height="40dp" />  
71  
72     <Button  
73         android:layout_width="100dp"  
74         android:layout_height="40dp" />  
75  
76     <include layout="@layout/layout_hi" />  
77  
78     <Button  
79         android:layout_width="130dp"  
80         android:layout_height="60dp"  
81         android:layout_marginBottom="20dp"/>  
82  
83     <Button  
84         android:layout_width="130dp"  
85         android:layout_height="60dp"  
86         android:layout_marginBottom="20dp"/>  
87  
88     <Button  
89         android:layout_width="130dp"  
90         android:layout_height="60dp"  
91         android:layout_marginBottom="20dp"/>  
92  
93     <Button  
94         android:layout_width="130dp"  
95         android:layout_height="60dp"  
96         android:layout_marginBottom="20dp"/>  
97  
98     <Button  
99         android:layout_width="200dp"  
100        android:layout_height="200dp" />  
101  
102     <Button  
103        android:layout_width="200dp"  
104        android:layout_height="200dp" />  
105  
106     </LinearLayout>  
107 </ScrollView>  
108 </android.support.constraint.ConstraintLayout>
```

## ScrollView\_02

*layout\_hi.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <HorizontalScrollView
3     android:layout_width="match_parent"
4     android:layout_height="match_parent"
5     xmlns:android="http://schemas.android.com/apk/res/android">
6
7     <LinearLayout
8         android:layout_width="wrap_content"
9         android:layout_height="match_parent"
10        android:orientation="horizontal" >
11
12         <LinearLayout
13             android:layout_width="wrap_content"
14             android:layout_height="wrap_content"
15             android:orientation="vertical"
16             android:layout_marginEnd="20dp">
17
18             <Button
19                 android:layout_width="60dp"
20                 android:layout_height="60dp" />
21
22             <TextView
23                 android:layout_width="60dp"
24                 android:layout_height="wrap_content"
25                 android:text="hi!!!"
26                 android:textSize="16dp"/>
27
28         </LinearLayout>
29
30         <LinearLayout
31             android:layout_width="wrap_content"
32             android:layout_height="wrap_content"
33             android:orientation="vertical"
34             android:layout_marginEnd="20dp">
35
36             <Button
37                 android:layout_width="60dp"
38                 android:layout_height="60dp" />
39
40             <TextView
41                 android:layout_width="60dp"
42                 android:layout_height="wrap_content"
43                 android:text="hi!!!"
44                 android:textSize="16dp"/>
45
46         </LinearLayout>
47
48         <LinearLayout
49             android:layout_width="wrap_content"
50             android:layout_height="wrap_content"
51             android:orientation="vertical"
52             android:layout_marginEnd="20dp">
```

```
53
54     <Button
55         android:layout_width="60dp"
56         android:layout_height="60dp" />
57
58     <TextView
59         android:layout_width="60dp"
60         android:layout_height="wrap_content"
61         android:text="hi!!!"
62         android:textSize="16dp"/>
63
64 </LinearLayout>
65
66 <LinearLayout
67     android:layout_width="wrap_content"
68     android:layout_height="wrap_content"
69     android:orientation="vertical"
70     android:layout_marginEnd="20dp">
71
72     <Button
73         android:layout_width="60dp"
74         android:layout_height="60dp" />
75
76     <TextView
77         android:layout_width="60dp"
78         android:layout_height="wrap_content"
79         android:text="hi!!!"
80         android:textSize="16dp"/>
81
82 </LinearLayout>
83
84 <LinearLayout
85     android:layout_width="wrap_content"
86     android:layout_height="wrap_content"
87     android:orientation="vertical"
88     android:layout_marginEnd="20dp">
89
90     <Button
91         android:layout_width="60dp"
92         android:layout_height="60dp" />
93
94     <TextView
95         android:layout_width="60dp"
96         android:layout_height="wrap_content"
97         android:text="hi!!!"
98         android:textSize="16dp"/>
99
100    </LinearLayout>
101
102    <LinearLayout
103        android:layout_width="wrap_content"
104        android:layout_height="wrap_content"
105        android:orientation="vertical"
106        android:layout_marginEnd="20dp">
107
108
```

```
109 <Button  
110     android:layout_width="60dp"  
111     android:layout_height="60dp" />  
112  
113     <TextView  
114         android:layout_width="60dp"  
115         android:layout_height="wrap_content"  
116         android:text="hi!!!"  
117         android:textSize="16dp"/>  
118  
119     </LinearLayout>  
120  
121 </LinearLayout>  
122  
123 </HorizontalScrollView>
```

## ScrollView\_02

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.scrollView_02"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     testImplementation 'junit:junit:4.12'
26     androidTestImplementation 'com.android.support.test:runner:1.0.2'
27     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
28 }
```



# **DynamicLayout\_01**

## **Overview:**

Programmatically generate a button and add it to the active layout at runtime.

## **Github:**

[https://github.com/pckosek/Android\\_Examples/tree/master/DynamicLayout/DynamicLayout\\_01](https://github.com/pckosek/Android_Examples/tree/master/DynamicLayout/DynamicLayout_01)

## **YouTube:**

<https://www.youtube.com/watch?v=hmB9LRVFpPU>

## **Topics:**

- Dynamic Layout Creation
- ConstraintLayout
- LinearLayout

# DynamicLayout\_01

AndroidManifest.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3   package="com.example.pckosek.dynamiclayout_01">
4
5   <application
6     android:allowBackup="true"
7     android:icon="@mipmap/ic_launcher"
8     android:label="@string/app_name"
9     android:roundIcon="@mipmap/ic_launcher_round"
10    android:supportsRtl="true"
11    android:theme="@style/AppTheme">
12      <activity android:name=".MainActivity">
13        <intent-filter>
14          <action android:name="android.intent.action.MAIN" />
15
16          <category android:name="android.intent.category.LAUNCHER" />
17        </intent-filter>
18      </activity>
19    </application>
20
21 </manifest>
```

# DynamicLayout\_01

MainActivity.java

```
1 package com.example.pckosek.dynamiclayout_01;
2
3 import android.support.v7.app.AppCompatActivity;
4 import android.os.Bundle;
5 import android.view.ViewGroup;
6 import android.widget.Button;
7 import android.widget.LinearLayout;
8
9 public class MainActivity extends AppCompatActivity {
10
11     LinearLayout mMyLinearLayout;
12
13     @Override
14     protected void onCreate(Bundle savedInstanceState) {
15         super.onCreate(savedInstanceState);
16         setContentView(R.layout.activity_main);
17
18         mMyLinearLayout = findViewById(R.id.ll_dynamic);
19
20         setupViews();
21     }
22
23     protected void setupViews() {
24         Button b1 = new Button(this);
25         b1.setText("Hi, I'm a Button");
26         b1.setLayoutParams(new ViewGroup.LayoutParams(
27                 ViewGroup.LayoutParams.WRAP_CONTENT,
28                 ViewGroup.LayoutParams.WRAP_CONTENT));
29
30         mMyLinearLayout.addView(b1);
31     }
32 }
```

# DynamicLayout\_01

*activity\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <LinearLayout
11        android:id="@+id/ll_dynamic"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        android:orientation="vertical"
15        app:layout_constraintTop_toTopOf="parent"
16        app:layout_constraintBottom_toBottomOf="parent"
17        app:layout_constraintStart_toStartOf="parent"
18        app:layout_constraintEnd_toEndOf="parent" >
19    </LinearLayout>
20
21 </android.support.constraint.ConstraintLayout>
```

# DynamicLayout\_01

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.dynamiclayout_01"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     testImplementation 'junit:junit:4.12'
26     androidTestImplementation 'com.android.support.test:runner:1.0.2'
27     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
28 }
```



# **DynamicLayout\_02**

## **Overview:**

From inside of a fragment, produce new Views and add them to the current LinearLayout when a Button is pressed.

## **Github:**

[https://github.com/pckosek/Android\\_Examples/tree/master/DynamicLayout/DynamicLayout\\_02](https://github.com/pckosek/Android_Examples/tree/master/DynamicLayout/DynamicLayout_02)

## **YouTube:**

<https://www.youtube.com/watch?v=2qeC4W7tJjg>

## **Topics:**

- Dynamic Layout Creation
- ConstraintLayout
- LinearLayout
- String Resources
- Fragment
- OnClickListener
- strings Resource file

## DynamicLayout\_02

*AndroidManifest.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.dynamiclayout_02">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity android:name=".MainActivity">
13             <intent-filter>
14                 <action android:name="android.intent.action.MAIN" />
15
16                 <category android:name="android.intent.category.LAUNCHER" />
17             </intent-filter>
18         </activity>
19     </application>
20
21 </manifest>
```

## DynamicLayout\_02

MainActivity.java

```
1 package com.example.pckosek.dynamiclayout_02;
2
3 import android.support.v7.app.AppCompatActivity;
4 import android.os.Bundle;
5
6 public class MainActivity extends AppCompatActivity {
7
8     @Override
9     protected void onCreate(Bundle savedInstanceState) {
10         super.onCreate(savedInstanceState);
11         setContentView(R.layout.activity_main);
12     }
13 }
```

## DynamicLayout\_02

*MyFragment.java*

```
1 package com.example.pckosek.dynamiclayout_02;
2
3
4 import android.graphics.Color;
5 import android.os.Bundle;
6 import android.support.annotation.NonNull;
7 import android.support.annotation.Nullable;
8 import android.support.v4.app.Fragment;
9 import android.view.LayoutInflater;
10 import android.view.View;
11 import android.view.ViewGroup;
12 import android.widget.Button;
13 import android.widget.LinearLayout;
14 import android.widget.TextView;
15
16 import java.util.Random;
17
18
19 public class MyFragment extends Fragment implements View.OnClickListener {
20
21     LinearLayout mLLContent;
22     Button mButtonCreate;
23
24     public MyFragment() {}
25
26
27     @Override
28     public View onCreateView(LayoutInflater inflater, ViewGroup container,
29                             Bundle savedInstanceState) {
30         return inflater.inflate(R.layout.fragment_my, container, false);
31     }
32
33     @Override
34     public void onViewCreated(@NonNull View view, @Nullable Bundle savedInstanceState) {
35         super.onViewCreated(view, savedInstanceState);
36
37         mButtonCreate = view.findViewById(R.id.btn_create);
38         mLLContent = view.findViewById(R.id.ll_content);
39
40         mButtonCreate.setOnClickListener(this);
41     }
42
43     @Override
44     public void onClick(View v) {
45         addView();
46     }
47
48
49
50
51
52
```

```
53 |     protected void addView() {
54 |         Random rand = new Random();
55 |
56 |         int rand_R = rand.nextInt(256);
57 |         int rand_G = rand.nextInt(256);
58 |         int rand_B = rand.nextInt(256);
59 |
60 |         int rand_Color = Color.argb(255, rand_R, rand_G, rand_B);
61 |
62 |         View v = new View(getContext());
63 |         v.setBackgroundColor(rand_Color);
64 |         v.setLayoutParams(new ViewGroup.LayoutParams(
65 |             100,
66 |             100));
67 |
68 |         mLContent.addView(v);
69 |
70 |     }
70 | }
```

## DynamicLayout\_02

activity\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <fragment
11        android:id="@+id/fragment_my"
12        android:name="com.example.pckosek.dynamiclayout_02.MyFragment"
13        android:layout_width="match_parent"
14        android:layout_height="match_parent"
15        app:layout_constraintBottom_toBottomOf="parent"
16        app:layout_constraintLeft_toLeftOf="parent"
17        app:layout_constraintRight_toRightOf="parent"
18        app:layout_constraintTop_toTopOf="parent" />
19
20 </android.support.constraint.ConstraintLayout>
```

## DynamicLayout\_02

*fragment\_my.xml*

```
1  <?xml version="1.0" encoding="utf-8"?>
2  <android.support.constraint.ConstraintLayout
3      xmlns:android="http://schemas.android.com/apk/res/android"
4      xmlns:tools="http://schemas.android.com/tools"
5      xmlns:app="http://schemas.android.com/apk/res-auto"
6      android:layout_width="match_parent"
7      android:layout_height="match_parent"
8      tools:context=".MyFragment">
9
10     <Button
11         android:id="@+id/btn_create"
12         android:layout_width="wrap_content"
13         android:layout_height="wrap_content"
14         android:text="@string/btn_create"
15         android:textSize="16dp"
16         app:layout_constraintBottom_toBottomOf="parent"
17         app:layout_constraintLeft_toLeftOf="parent"
18         app:layout_constraintRight_toRightOf="parent"
19         app:layout_constraintTop_toTopOf="parent"
20         app:layout_constraintVertical_bias="0.11" />
21
22     <LinearLayout
23         android:id="@+id/ll_content"
24         android:orientation="vertical"
25         android:layout_width="wrap_content"
26         android:layout_height="wrap_content"
27         app:layout_constraintBottom_toBottomOf="parent"
28         app:layout_constraintLeft_toLeftOf="parent"
29         app:layout_constraintRight_toRightOf="parent"
30         app:layout_constraintTop_toBottomOf="@+id/btn_create"
31         app:layout_constraintVertical_bias="0.11">
32
33     </LinearLayout>
34
35
36 </android.support.constraint.ConstraintLayout>
```

## DynamicLayout\_02

*values/strings.xml*

```
1 | <resources>
2 |     <string name="app_name">DynamicLayout_02</string>
3 |     <string name="btn_create">Add New View</string>
4 | </resources>
```

## DynamicLayout\_02

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.dynamiclayout_02"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     implementation 'com.android.support:support-v4:27.1.1'
26     testImplementation 'junit:junit:4.12'
27     androidTestImplementation 'com.android.support.test:runner:1.0.2'
28     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
29 }
```



# **DynamicLayout\_03**

## **Overview:**

From inside of a fragment, dynamically create LinearLayouts, add Views to these LinearLayouts, and finally add the entire entities to a HorizontalScrollView.

## **Github:**

[https://github.com/pckosek/Android\\_Examples/tree/master/DynamicLayout/DynamicLayout\\_03](https://github.com/pckosek/Android_Examples/tree/master/DynamicLayout/DynamicLayout_03)

## **YouTube:**

<https://www.youtube.com/watch?v=gFfts2ATWQg>

## **Topics:**

- Dynamic Layout Creation
- ConstraintLayout
- LinearLayout
- HorizontalScrollView
- String Resources
- Fragment
- OnClickListener
- strings Resource file

# DynamicLayout\_03

*AndroidManifest.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3   package="com.example.pckosek.dynamiclayout_03">
4
5   <application
6     android:allowBackup="true"
7     android:icon="@mipmap/ic_launcher"
8     android:label="@string/app_name"
9     android:roundIcon="@mipmap/ic_launcher_round"
10    android:supportsRtl="true"
11    android:theme="@style/AppTheme">
12      <activity android:name=".MainActivity">
13        <intent-filter>
14          <action android:name="android.intent.action.MAIN" />
15
16          <category android:name="android.intent.category.LAUNCHER" />
17        </intent-filter>
18      </activity>
19    </application>
20
21 </manifest>
```

# DynamicLayout\_03

MainActivity.java

```
1 package com.example.pckosek.dynamiclayout_03;
2
3 import android.support.v7.app.AppCompatActivity;
4 import android.os.Bundle;
5
6 public class MainActivity extends AppCompatActivity {
7
8     @Override
9     protected void onCreate(Bundle savedInstanceState) {
10         super.onCreate(savedInstanceState);
11         setContentView(R.layout.activity_main);
12     }
13 }
```

# DynamicLayout\_03

MyFragment.java

```
1 package com.example.pckosek.dynamiclayout_03;
2
3
4 import android.graphics.Color;
5 import android.os.Bundle;
6 import android.support.annotation.NonNull;
7 import android.support.annotation.Nullable;
8 import android.support.v4.app.Fragment;
9 import android.view.LayoutInflater;
10 import android.view.View;
11 import android.view.ViewGroup;
12 import android.widget.Button;
13 import android.widget.LinearLayout;
14 import android.widget.TextView;
15
16 import java.util.Random;
17
18
19 public class MyFragment extends Fragment implements View.OnClickListener {
20
21     LinearLayout mLLContent;
22     Button mButtonCreate;
23
24     public MyFragment() {}
25
26     @Override
27     public View onCreateView(LayoutInflater inflater, ViewGroup container,
28                             Bundle savedInstanceState) {
29         return inflater.inflate(R.layout.fragment_my, container, false);
30     }
31
32     @Override
33     public void onViewCreated(@NonNull View view, @Nullable Bundle savedInstanceState) {
34         super.onViewCreated(view, savedInstanceState);
35
36         mButtonCreate = view.findViewById(R.id.btn_create);
37         mLLContent = view.findViewById(R.id.ll_content);
38
39         mButtonCreate.setOnClickListener(this);
40     }
41
42     @Override
43     public void onClick(View v) {
44         addView();
45     }
46
47     protected void addView() {
48         Random rand = new Random();
49
50         int rand_R = rand.nextInt(256);
51         int rand_G = rand.nextInt(256);
52         int rand_B = rand.nextInt(256);
```

```

53     int rand_Color = Color.argb(255, rand_R, rand_G, rand_B);
54
55     View v = new View(getContext());
56     v.setBackgroundColor(rand_Color);
57     v.setLayoutParams(new ViewGroup.LayoutParams(
58         200,
59         200));
60
61     LinearLayout ll_text = new LinearLayout(getContext());
62     ll_text.setOrientation(LinearLayout.HORIZONTAL);
63     ll_text.setLayoutParams(new ViewGroup.LayoutParams(
64         ViewGroup.LayoutParams.WRAP_CONTENT,
65         ViewGroup.LayoutParams.WRAP_CONTENT));
66
67     TextView tv_r = new TextView(getContext());
68     tv_r.setText("R: " + String.valueOf(rand_R));
69     LinearLayout.LayoutParams params_r = new LinearLayout.LayoutParams(
70         ViewGroup.LayoutParams.WRAP_CONTENT,
71         ViewGroup.LayoutParams.WRAP_CONTENT);
72     params_r.setMarginEnd(40);
73     tv_r.setLayoutParams(params_r);
74
75     TextView tv_g = new TextView(getContext());
76     tv_g.setText("G: " + String.valueOf(rand_R));
77     LinearLayout.LayoutParams params_g = new LinearLayout.LayoutParams(
78         ViewGroup.LayoutParams.WRAP_CONTENT,
79         ViewGroup.LayoutParams.WRAP_CONTENT);
80     params_g.setMarginEnd(40);
81     tv_g.setLayoutParams(params_g);
82
83     TextView tv_b = new TextView(getContext());
84     tv_b.setText("B: " + String.valueOf(rand_R));
85     LinearLayout.LayoutParams params_b = new LinearLayout.LayoutParams(
86         ViewGroup.LayoutParams.WRAP_CONTENT,
87         ViewGroup.LayoutParams.WRAP_CONTENT);
88     params_b.setMarginEnd(40);
89     tv_b.setLayoutParams(params_b);
90
91     ll_text.addView(tv_r);
92     ll_text.addView(tv_g);
93     ll_text.addView(tv_b);
94
95     LinearLayout ll_item = new LinearLayout(getContext());
96     ll_item.setOrientation(LinearLayout.VERTICAL);
97     LinearLayout.LayoutParams params_ll = new LinearLayout.LayoutParams(
98         ViewGroup.LayoutParams.WRAP_CONTENT,
99         ViewGroup.LayoutParams.WRAP_CONTENT);
100    params_ll.setMarginEnd(50);
101    ll_item.setLayoutParams(params_ll);
102
103    ll_item.addView(v);
104    ll_item.addView(ll_text);
105
106    mLContent.addView(ll_item);
107 }
108 }
```

## DynamicLayout\_03

activity\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <fragment
11        android:id="@+id/fragment_my"
12        android:name="com.example.pckosek.dynamiclayout_03.MyFragment"
13        android:layout_width="match_parent"
14        android:layout_height="match_parent"
15        app:layout_constraintBottom_toBottomOf="parent"
16        app:layout_constraintLeft_toLeftOf="parent"
17        app:layout_constraintRight_toRightOf="parent"
18        app:layout_constraintTop_toTopOf="parent" />
19
20 </android.support.constraint.ConstraintLayout>
```

# DynamicLayout\_03

fragment\_my.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:tools="http://schemas.android.com/tools"
5     xmlns:app="http://schemas.android.com/apk/res-auto"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MyFragment">
9
10    <Button
11        android:id="@+id	btn_create"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        android:text="@string/btn_create"
15        android:textSize="16dp"
16        app:layout_constraintBottom_toBottomOf="parent"
17        app:layout_constraintLeft_toLeftOf="parent"
18        app:layout_constraintRight_toRightOf="parent"
19        app:layout_constraintTop_toTopOf="parent"
20        app:layout_constraintVertical_bias="0.11" />
21
22    <HorizontalScrollView
23        android:layout_width="wrap_content"
24        android:layout_height="wrap_content"
25        app:layout_constraintBottom_toBottomOf="parent"
26        app:layout_constraintLeft_toLeftOf="parent"
27        app:layout_constraintRight_toRightOf="parent"
28        app:layout_constraintTop_toBottomOf="@+id	btn_create"
29        app:layout_constraintVertical_bias="0.11">
30
31        <LinearLayout
32            android:id="@+id	ll_content"
33            android:orientation="horizontal"
34            android:layout_width="wrap_content"
35            android:layout_height="wrap_content">
36
37    </LinearLayout>
38
39    </HorizontalScrollView>
40
41
42 </android.support.constraint.ConstraintLayout>
```

## DynamicLayout\_03

*values/strings.xml*

```
1 | <resources>
2 |     <string name="app_name">DynamicLayout_03</string>
3 |     <string name="btn_create">Add New View</string>
4 | </resources>
```

## DynamicLayout\_03

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.dynamiclayout_03"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     implementation 'com.android.support:support-v4:27.1.1'
26     testImplementation 'junit:junit:4.12'
27     androidTestImplementation 'com.android.support.test:runner:1.0.2'
28     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
29 }
```



# **UI\_Example 01**

## **Overview:**

A TextWatcher is assigned to be the OnTextChangedListener for an EditText. Every time a new character is added to the EditText that character is inserted into the EditText (assuming the character is not null).

## **Github:**

[https://github.com/pckosek/Android\\_Examples/tree/master/UserInterface/UI\\_Example\\_01](https://github.com/pckosek/Android_Examples/tree/master/UserInterface/UI_Example_01)

## **YouTube:**

[https://www.youtube.com/watch?v=\\_b7o3Wf7ndU](https://www.youtube.com/watch?v=_b7o3Wf7ndU)

## **Topics:**

- ConstraintLayout
- EditText
- TextWatcher Interface

# UI\_Example\_01

AndroidManifest.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.ui_example_01">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity android:name=".MainActivity">
13             <intent-filter>
14                 <action android:name="android.intent.action.MAIN" />
15
16                 <category android:name="android.intent.category.LAUNCHER" />
17             </intent-filter>
18         </activity>
19     </application>
20
21 </manifest>
```

# UI\_Example\_01

MainActivity.java

```
1 package com.example.pckosek.ui_example_01;
2
3 import android.support.v7.app.AppCompatActivity;
4 import android.os.Bundle;
5 import android.text.Editable;
6 import android.text.TextWatcher;
7 import android.util.Log;
8 import android.widget.EditText;
9 import android.widget.TextView;
10
11 public class MainActivity extends AppCompatActivity {
12
13     private static final String TAG = "MAIN_ACTIVITY";
14
15     private EditText mEditText;
16     private TextView mTextView;
17
18     @Override
19     protected void onCreate(Bundle savedInstanceState) {
20         super.onCreate(savedInstanceState);
21         setContentView(R.layout.activity_main);
22
23         mEditText      = findViewById(R.idetxt_entry);
24         mTextView      = findViewById(R.id.tv_display);
25
26         MyTextWatcher myTextWatcher = new MyTextWatcher();
27
28         mEditText.addTextChangedListener(myTextWatcher);
29     }
30
31     public class MyTextWatcher implements TextWatcher {
32
33         @Override
34         public void beforeTextChanged(CharSequence s, int start, int count, int after) {}
35
36         @Override
37         public void onTextChanged(CharSequence s, int start, int before, int count) {
38             if (s.length() > 0) {
39
40                 mTextView.setText(String.valueOf(s.charAt(s.length() - 1)));
41             } else {
42                 mTextView.setText("");
43             }
44         }
45
46         @Override
47         public void afterTextChanged(Editable s) {}
48     }
49 }
```

# UI\_Example\_01

activity\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     android:focusable="true"
9     tools:context=".MainActivity">
10
11     <EditText
12         android:id="@+id/etxt_entry"
13         android:layout_width="100dp"
14         android:layout_height="wrap_content"
15         android:text=""
16         android:textSize="24dp"
17         app:layout_constraintBottom_toBottomOf="parent"
18         app:layout_constraintLeft_toLeftOf="parent"
19         app:layout_constraintRight_toRightOf="parent"
20         app:layout_constraintTop_toTopOf="parent" />
21
22     <TextView
23         android:id="@+id/tv_display"
24         android:layout_width="wrap_content"
25         android:layout_height="wrap_content"
26         android:layout_marginTop="8dp"
27         android:text="TextView"
28         android:textSize="24dp"
29         app:layout_constraintBottom_toBottomOf="parent"
30         app:layout_constraintLeft_toLeftOf="parent"
31         app:layout_constraintRight_toRightOf="parent"
32         app:layout_constraintTop_toBottomOf="@+id/etxt_entry"
33         app:layout_constraintVertical_bias="0.125" />
34
35 </android.support.constraint.ConstraintLayout>
```

# UI\_Example\_01

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.ui_example_01"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     testImplementation 'junit:junit:4.12'
26     androidTestImplementation 'com.android.support.test:runner:1.0.2'
27     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
28 }
```



# **UI\_Example 02**

## **Overview:**

Inside of a fragment, the app user can enter a name and an age. When the FloatingActionButton is pressed, the EditText fields are validated (checked to see if nonempty). If either field is empty, an error message is placed in the EditText. When the user is "added" with the FloatingActionButton, a new MyUser object is created by the fragment and passed up to the MainActivity via interface, where the object is appended to an ArrayList. Within the MainActivity, the user can select the Menu from the Toolbar (...) to see how many MyUsers are present in the ArrayList.

## **Github:**

[https://github.com/pckosek/Android\\_Examples/tree/master/UserInterface/UI\\_Example\\_02](https://github.com/pckosek/Android_Examples/tree/master/UserInterface/UI_Example_02)

## **YouTube:**

[https://www.youtube.com/watch?v=zGcvI\\_yjr68](https://www.youtube.com/watch?v=zGcvI_yjr68)

## **Topics:**

- ConstraintLayout
- CoordinatorLayout
- OnClickListener Assignment
- Custom Class
- Gradle Modifications
- Menu
- Toasts
- Gson
- EditText getting, setting and error
- Fragment
- Fragment Lifecycle (onAttach)
- Interface Definition
- String Resource Files
- ArrayList

# UI\_Example\_02

AndroidManifest.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.ui_example_02">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity
13             android:name=".MainActivity"
14             android:label="@string/app_name"
15             android:theme="@style/AppTheme.NoActionBar">
16             <intent-filter>
17                 <action android:name="android.intent.action.MAIN" />
18
19                 <category android:name="android.intent.category.LAUNCHER" />
20             </intent-filter>
21         </activity>
22     </application>
23
24 </manifest>
```

## UI\_Example\_02

MainActivity.java

```
1 package com.example.pckosek.ui_example_02;
2
3 import android.os.Bundle;
4 import android.support.design.widget.FloatingActionButton;
5 import android.support.design.widget.Snackbar;
6 import android.support.v7.app.AppCompatActivity;
7 import android.support.v7.widget.Toolbar;
8 import android.util.Log;
9 import android.view.View;
10 import android.view.Menu;
11 import android.view.MenuItem;
12 import android.widget.Toast;
13
14 import java.util.ArrayList;
15
16 public class MainActivity extends AppCompatActivity implements MainFragment.MainFragmentInterface{
17
18     private static final String TAG = "MAIN_ACTIVITY";
19     private ArrayList<MyUser> myUsers = new ArrayList<MyUser>();
20
21     @Override
22     protected void onCreate(Bundle savedInstanceState) {
23         super.onCreate(savedInstanceState);
24         setContentView(R.layout.activity_main);
25         Toolbar toolbar = (Toolbar) findViewById(R.id.toolbar);
26         setSupportActionBar(toolbar);
27     }
28
29     @Override
30     public boolean onCreateOptionsMenu(Menu menu) {
31         // Inflate the menu; this adds items to the action bar if it is present.
32         getMenuInflater().inflate(R.menu.menu_main, menu);
33         return true;
34     }
35
36     @Override
37     public boolean onOptionsItemSelected(MenuItem item) {
38         // Handle action bar item clicks here. The action bar will
39         // automatically handle clicks on the Home/Up button, so long
40         // as you specify a parent activity in AndroidManifest.xml.
41         int id = item.getItemId();
42
43         //noinspection SimplifiableIfStatement
44         if (id == R.id.action_settings) {
45
46             int numUsers = myUsers.size();
47             String msg = "You have " + String.valueOf(numUsers) + " users";
48             Toast.makeText(this, msg, Toast.LENGTH_SHORT ).show();
49             Log.i(TAG, msg);
50
51             return true;
52         }
53     }
54 }
```

```
--  
53     return super.onOptionsItemSelected(item);  
54 }  
55  
56 @Override  
57 public void assignNewUser(MyUser myUser) {  
58     myUsers.add(myUser);  
59 }  
60 }
```

## UI\_Example\_02

MainFragment.java

```
1 package com.example.pckosek.ui_example_02;
2
3
4 import android.content.Context;
5 import android.os.Bundle;
6 import android.support.annotation.NonNull;
7 import android.support.annotation.Nullable;
8 import android.support.design.widget.FloatingActionButton;
9 import android.support.design.widget.Snackbar;
10 import android.support.v4.app.Fragment;
11 import android.util.Log;
12 import android.view.LayoutInflater;
13 import android.view.View;
14 import android.view.ViewGroup;
15 import android.widget.EditText;
16 import android.widget.Toast;
17
18
19 public class MainFragment extends Fragment {
20
21     private static final String TAG = "MAIN_FRAGMENT";
22
23     private EditText mEditTextName;
24     private EditText mEditTextAge;
25
26     private MainFragmentInterface mCallback;
27
28     public MainFragment() {
29         // Required empty public constructor
30     }
31
32     @Override
33     public void onAttach(Context context) {
34         super.onAttach(context);
35         if (context instanceof MainFragment.MainFragmentInterface) {
36             mCallback = (MainFragment.MainFragmentInterface) context;
37         } else {
38             throw new RuntimeException(context.toString()
39                             + " does not implement MainFragmentInterface!!!");
40         }
41     }
42
43     @Override
44     public View onCreateView(LayoutInflater inflater, ViewGroup container,
45                             Bundle savedInstanceState) {
46
47         return inflater.inflate(R.layout.fragment_main, container, false);
48
49     }
50
51     @Override
52     public void onViewCreated(@NonNull View view, @Nullable Bundle savedInstanceState) {
```

```

53     super.onViewCreated(view, savedInstanceState);
54
55     mEditTextName = view.findViewById(R.id.et_name);
56     mEditTextAge = view.findViewById(R.id.et_age);
57
58     FloatingActionButton fab = view.findViewById(R.id.fab_01);
59     fab.setOnClickListener(new View.OnClickListener() {
60         @Override
61         public void onClick(View view) {
62             MyUser myUser = validateInput();
63             if ( myUser != null ) {
64                 mCallback.assignNewUser(myUser);
65             }
66         }
67     });
68
69 }
70
71 protected MyUser validateInput() {
72
73     boolean nameOkay = false;
74     boolean ageOkay = false;
75     MyUser myUser;
76
77     String name = mEditTextName.getText().toString();
78     if (name.length() == 0 ) {
79         mEditTextName.setError("Name must not be empty");
80     } else {
81         nameOkay = true;
82     }
83
84     String ageString = mEditTextAge.getText().toString();
85     if (ageString.length() == 0 ) {
86         mEditTextAge.setError("Age must not be empty");
87     } else {
88         ageOkay = true;
89     }
90
91     if (nameOkay && ageOkay) {
92         myUser = new MyUser( name, Integer.valueOf(ageString) );
93         mEditTextAge.setText("");
94         mEditTextName.setText("");
95
96         String successMsg = "Added User: " + myUser.toJson();
97         Toast.makeText(getApplicationContext(), successMsg, Toast.LENGTH_SHORT ).show();
98
99     } else {
100         myUser = null;
101     }
102
103     return myUser;
104
105 }
106
107 public interface MainFragmentInterface {
108     void assignNewUser(MyUser myUser);

```

109		}
110		
111		}

## UI\_Example\_02

*MyUser.java*

```
1 package com.example.pckosek.ui_example_02;
2
3 import com.google.gson.Gson;
4
5 public class MyUser {
6     public String name;
7     public int age;
8
9     public MyUser(String n, int a) {
10         name = n;
11         age = a;
12     }
13
14     public String toJson() {
15         Gson gson = new Gson();
16         return gson.toJson(this, this.getClass());
17     }
18 }
```

## UI\_Example\_02

*activity\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.design.widget.CoordinatorLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <android.support.design.widget.AppBarLayout
11        android:layout_width="match_parent"
12        android:layout_height="wrap_content"
13        android:theme="@style/AppTheme.AppBarOverlay">
14
15        <android.support.v7.widget.Toolbar
16            android:id="@+id/toolbar"
17            android:layout_width="match_parent"
18            android:layout_height="?attr/actionBarSize"
19            android:background="?attr/colorPrimary"
20            app:popupTheme="@style/AppTheme.PopupOverlay" />
21
22    </android.support.design.widget.AppBarLayout>
23
24    <include layout="@layout/content_main" />
25
26 </android.support.design.widget.CoordinatorLayout>
```

## UI\_Example\_02

*content\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     app:layout_behavior="@string/appbar_scrolling_view_behavior"
9     tools:context=".MainActivity"
10    tools:showIn="@layout/activity_main">
11
12    <fragment
13        android:name="com.example.pckosek.ui_example_02.MainFragment"
14        android:layout_width="match_parent"
15        android:layout_height="match_parent"
16        android:id="@+id/frag_main" />
17
18 </android.support.constraint.ConstraintLayout>
```

## UI\_Example\_02

fragment\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:id="@+id/coordinatorLayout"
7     android:layout_width="match_parent"
8     android:layout_height="match_parent"
9     tools:context=".MainFragment">
10
11     <EditText
12         android:id="@+id/et_name"
13         android:layout_width="157dp"
14         android:layout_height="51dp"
15         android:ems="10"
16         android:inputType="textPersonName"
17         android:hint="@string/name_hint"
18         app:layout_constraintTop_toTopOf="parent"
19         app:layout_constraintBottom_toBottomOf="parent"
20         app:layout_constraintVertical_bias="0.117"
21         app:layout_constraintStart_toStartOf="parent"
22         app:layout_constraintEnd_toEndOf="parent"
23         app:layout_constraintHorizontal_bias="0.233" />
24
25     <TextView
26         android:id="@+id/tv_name_label"
27         android:layout_width="156dp"
28         android:layout_height="24dp"
29         android:layout_marginTop="20dp"
30         android:text="@string/name_label"
31         app:layout_constraintTop_toBottomOf="@+id/et_name"
32         app:layout_constraintStart_toStartOf="@+id/et_name" />
33
34
35     <EditText
36         android:id="@+id/et_age"
37         android:layout_width="157dp"
38         android:layout_height="51dp"
39         android:ems="10"
40         android:inputType="number"
41         android:hint="@string/age_hint"
42         app:layout_constraintBottom_toBottomOf="parent"
43         app:layout_constraintStart_toStartOf="@+id/et_name"
44         app:layout_constraintTop_toBottomOf="@+id/tv_name_label"
45         app:layout_constraintVertical_bias="0.192" />
46
47     <TextView
48         android:id="@+id/tv_age"
49         android:layout_width="156dp"
50         android:layout_height="24dp"
51         android:layout_marginTop="20dp"
52         android:text="@string/age_label"
```

```
53     app:layout_constraintTop_toBottomOf="@+id/et_age"
54     app:layout_constraintStart_toStartOf="@+id/et_name" />
55
56 <android.support.design.widget.FloatingActionButton
57     android:id="@+id/fab_01"
58     android:layout_width="wrap_content"
59     android:layout_height="wrap_content"
60     android:layout_marginBottom="50dp"
61     android:layout_marginEnd="50dp"
62     android:layout_marginRight="50dp"
63     app:backgroundTint="@android:color/darker_gray"
64     app:layout_constraintBottom_toBottomOf="parent"
65     app:layout_constraintEnd_toEndOf="parent"
66     app:srcCompat="@android:drawable/ic_menu_add" />
67
68 </android.support.constraint.ConstraintLayout>
```

## UI\_Example\_02

menu/menu\_main.xml

```
1 <menu xmlns:android="http://schemas.android.com/apk/res/android"
2     xmlns:app="http://schemas.android.com/apk/res-auto"
3     xmlns:tools="http://schemas.android.com/tools"
4     tools:context="com.example.pckosek.ui_example_02.MainActivity">
5     <item
6         android:id="@+id/action_settings"
7         android:orderInCategory="100"
8         android:title="@string/action_view_users"
9         app:showAsAction="never" />
10    </menu>
```

## UI\_Example\_02

*values/strings.xml*

```
1 <resources>
2     <string name="app_name">UI_Example_02</string>
3     <string name="action_view_users">View Users</string>
4     <string name="name_label">Please Enter Your Name</string>
5     <string name="name_hint">Name</string>
6     <string name="age_label">Please Enter Your Age</string>
7     <string name="age_hint">Age</string>
8 </resources>
```

## UI\_Example\_02

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.ui_example_02"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     implementation 'com.android.support:design:27.1.1'
26     implementation 'com.android.support:support-v4:27.1.1'
27     implementation 'com.google.code.gson:gson:2.8.5'
28     testImplementation 'junit:junit:4.12'
29     androidTestImplementation 'com.android.support.test:runner:1.0.2'
30     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
31 }
```



# **JSON\_Example**

## **Overview:**

Using Gson, instantiate a custom class object from a string, then load the name field of the object into a TextView at run time.

## **Github:**

[https://github.com/pckosek/Android\\_Examples/tree/master/JSON\\_Examples/JSONExample](https://github.com/pckosek/Android_Examples/tree/master/JSON_Examples/JSONExample)

## **YouTube:**

<https://www.youtube.com/watch?v=wZmJub8Xluo>

## **Topics:**

- ConstraintLayout
- Gson
- Gradle Modification

# JSON Example

*AndroidManifest.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.gsonexample">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity android:name=".MainActivity">
13             <intent-filter>
14                 <action android:name="android.intent.action.MAIN" />
15
16                 <category android:name="android.intent.category.LAUNCHER" />
17             </intent-filter>
18         </activity>
19     </application>
20
21 </manifest>
```

# JSON Example

MainActivity.java

```
1 package com.example.pckosek.gsonexample;
2
3 import android.support.v7.app.AppCompatActivity;
4 import android.os.Bundle;
5 import android.widget.TextView;
6
7 import com.google.gson.Gson;
8 import com.google.gson.GsonBuilder;
9
10 public class MainActivity extends AppCompatActivity {
11
12     TextView mTextView;
13
14     @Override
15     protected void onCreate(Bundle savedInstanceState) {
16         super.onCreate(savedInstanceState);
17         setContentView(R.layout.activity_main);
18
19         mTextView = findViewById(R.id.tv_01);
20
21         Gson gson = new GsonBuilder().create();
22         DummyUser myDummyUser = gson.fromJson( "{ age:17, name: \"Bob\" }", DummyUser.class );
23
24         mTextView.setText( myDummyUser.name );
25
26     }
27
28     public class DummyUser {
29         public int age;
30         public String name;
31     }
32 }
```

# JSON Example

activity\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <TextView
11        android:id="@+id/tv_01"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        android:text="Hello World!"
15        app:layout_constraintBottom_toBottomOf="parent"
16        app:layout_constraintLeft_toLeftOf="parent"
17        app:layout_constraintRight_toRightOf="parent"
18        app:layout_constraintTop_toTopOf="parent" />
19
20 </android.support.constraint.ConstraintLayout>
```

# JSON Example

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.gsonexample"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     implementation 'com.google.code.gson:gson:2.8.5'
26     testImplementation 'junit:junit:4.12'
27     androidTestImplementation 'com.android.support.test:runner:1.0.2'
28     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
29 }
```



# **JSON\_In\_Fragment**

## **Overview:**

At run time and inside of a fragment, load a string resource and use Gson to instantiate an array of custom class objects from the string. Then, when a Button is pressed, cycle through the array of objects and assign a field from the nth object to the text of TextView within the fragment.

## **Github:**

[https://github.com/pckosek/Android\\_Examples/tree/master/JSON\\_Examples/JSONInFragment](https://github.com/pckosek/Android_Examples/tree/master/JSON_Examples/JSONInFragment)

## **YouTube:**

<https://www.youtube.com/watch?v=PeQRnkUMND4>

## **Topics:**

- ConstraintLayout
- Gson
- Gradle Modification
- Custom Class
- GSON
- String Resource Access
- Fragment
- OnClickListerner Assignment

# JSON In Fragment

*AndroidManifest.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.gsoninfragment">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity android:name=".MainActivity">
13             <intent-filter>
14                 <action android:name="android.intent.action.MAIN" />
15
16                 <category android:name="android.intent.category.LAUNCHER" />
17             </intent-filter>
18         </activity>
19     </application>
20
21 </manifest>
```

# JSON In Fragment

MainActivity.java

```
1 package com.example.pckosek.gsoninfragment;
2
3 import android.support.v7.app.AppCompatActivity;
4 import android.os.Bundle;
5
6 public class MainActivity extends AppCompatActivity {
7
8     @Override
9     protected void onCreate(Bundle savedInstanceState) {
10         super.onCreate(savedInstanceState);
11         setContentView(R.layout.activity_main);
12     }
13 }
```

# JSON In Fragment

MainFragment.java

```
1 package com.example.pckosek.gsoninfragment;
2
3
4 import android.os.Bundle;
5 import android.support.annotation.NonNull;
6 import android.support.annotation.Nullable;
7 import android.support.v4.app.Fragment;
8 import android.util.Log;
9 import android.view.LayoutInflater;
10 import android.view.View;
11 import android.view.ViewGroup;
12 import android.widget.Button;
13 import android.widget.TextView;
14
15 import com.google.gson.Gson;
16 import com.google.gson.GsonBuilder;
17
18
19 public class MainFragment extends Fragment implements View.OnClickListener {
20
21     private static final String TAG = "MAIN_FRAGMENT";
22     TextView mTextView;
23     Button mButton;
24     AllUsers mAllUsers;
25
26     public MainFragment() {}
27
28     @Override
29     public View onCreateView(LayoutInflater inflater, ViewGroup container,
30                             Bundle savedInstanceState) {
31         return inflater.inflate(R.layout.fragment_main, container, false);
32     }
33
34     @Override
35     public void onViewCreated(@NonNull View view, @Nullable Bundle savedInstanceState) {
36         super.onViewCreated(view, savedInstanceState);
37         mButton = view.findViewById(R.id.btn_next);
38         mTextView = view.findViewById(R.id.tv_display);
39
40         mButton.setOnClickListener(this);
41
42         Gson gson = new GsonBuilder().create();
43         mAllUsers = gson.fromJson( getString(R.string.all_users), AllUsers.class );
44
45         Log.i(TAG, getString(R.string.all_users));
46     }
47
48     @Override
49     public void onClick(View v) {
50         mTextView.setText( mAllUsers.getNextName() );
51     }
52 }
```

# JSON In Fragment

AllUsers.java

```
1 package com.example.pckosek.gsoninfragment;
2
3 public class AllUsers {
4
5     public DummyUser[] user_list;
6     private int indx = 0;
7
8
9     public String getNextName() {
10         indx++;
11         indx %= user_list.length;
12
13         return user_list[indx].name;
14     }
15
16     public class DummyUser {
17         public int age;
18         public String name;
19     }
20
21 }
```

# JSON In Fragment

*activity\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <fragment
11        android:name="com.example.pckosek.gsoninfragment.MainFragment"
12        android:layout_width="match_parent"
13        android:layout_height="match_parent"
14        android:id="@+id/frag_main"/>
15
16 </android.support.constraint.ConstraintLayout>
```

# JSON In Fragment

*fragment\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainFragment">
9
10    <Button
11        android:id="@+id	btn_next"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        android:text="@string/button_text"
15        app:layout_constraintBottom_toBottomOf="parent"
16        app:layout_constraintLeft_toLeftOf="parent"
17        app:layout_constraintRight_toRightOf="parent"
18        app:layout_constraintTop_toTopOf="parent" />
19
20    <TextView
21        android:id="@+id/tv_display"
22        android:layout_width="100dp"
23        android:layout_height="60dp"
24        android:layout_marginTop="8dp"
25        android:text="TextView"
26        android:textSize="24dp"
27        app:layout_constraintBottom_toBottomOf="parent"
28        app:layout_constraintLeft_toLeftOf="parent"
29        app:layout_constraintRight_toRightOf="parent"
30        app:layout_constraintTop_toBottomOf="@+id	btn_next"
31        app:layout_constraintVertical_bias="0.196" />
32
33 </android.support.constraint.ConstraintLayout>
```

# JSON In Fragment

values/strings.xml

```
1 <resources>
2     <string name="app_name">JSON In Fragment</string>
3     <string name="button_text">Next Entry</string>
4     <string name="all_users">
5         { user_list :
6             [
7                 { age : 13, name : \"Bob\" },
8                 { age : 17, name : \"Sue\" },
9                 { age : 99, name : \"Nana\" },
10                { age : 47, name : \"Frank\" }
11            ]
12        }
13    </string>
14
15 </resources>
```

# JSON In Fragment

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.gsoninfragment"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     implementation 'com.google.code.gson:gson:2.8.5'
26     implementation 'com.android.support:support-v4:27.1.1'
27     testImplementation 'junit:junit:4.12'
28     androidTestImplementation 'com.android.support.test:runner:1.0.2'
29     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
30 }
```



# SharedPreferences 01

## Overview:

Every time the Button is pressed, a local variable is incremented and stored in the SharedPreferences. When the app is opened, the SharedPreferences are read and the value inserted into a TextView.

## Github:

[https://github.com/pckosek/Android\\_Examples/tree/master/SharedPreferences/SharedPreferences\\_01](https://github.com/pckosek/Android_Examples/tree/master/SharedPreferences/SharedPreferences_01)

## YouTube:

<https://www.youtube.com/watch?v=0QqfRaDIquo>

## Topics:

- SharedPreferences
- ConstraintLayout
- View.OnClickListener
- Anonymous class

# SharedPreferences 01

*AndroidManifest.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.sharedpreferences_01">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity android:name=".MainActivity">
13             <intent-filter>
14                 <action android:name="android.intent.action.MAIN" />
15
16                 <category android:name="android.intent.category.LAUNCHER" />
17             </intent-filter>
18         </activity>
19     </application>
20
21 </manifest>
```

# SharedPreferences 01

MainActivity.java

```
1 package com.example.pckosek.sharedpreferences_01;
2
3 import android.content.Context;
4 import android.content.SharedPreferences;
5 import android.support.v7.app.AppCompatActivity;
6 import android.os.Bundle;
7 import android.view.View;
8 import android.widget.Button;
9 import android.widget.TextView;
10
11 public class MainActivity extends AppCompatActivity {
12
13     private static final String TAG = "MAIN_ACTIVITY";
14     private static final String STORAGE_KEY = "stored_count";
15
16     Button mButton;
17     TextView mTextView;
18     private int mCount;
19     private SharedPreferences.Editor mEditor;
20
21     @Override
22     protected void onCreate(Bundle savedInstanceState) {
23         super.onCreate(savedInstanceState);
24         setContentView(R.layout.activity_main);
25
26         mTextView = findViewById(R.id.tv_display);
27         mButton = findViewById(R.id.btn_count);
28
29         mButton.setOnClickListener(new View.OnClickListener() {
30             @Override
31             public void onClick(View v) {
32                 IncrementAndUpdateTextDisplay();
33             }
34         });
35
36         SharedPreferences mySharedPrefs = getSharedPreferences("Storage", Context.MODE_PRIVATE);
37         mEditor = mySharedPrefs.edit();
38
39         int storedCount = mySharedPrefs.getInt(STORAGE_KEY, 0);
40
41         mCount = storedCount;
42         mTextView.setText( Integer.toString(mCount) );
43
44     }
45
46     public void IncrementAndUpdateTextDisplay() {
47         mCount++;
48         mTextView.setText( Integer.toString(mCount) );
49         mEditor.putInt(STORAGE_KEY, mCount);
50         mEditor.apply();
51     }
52 }
```

# SharedPreferences 01

activity\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <Button
11        android:id="@+id	btn_count"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        android:text="Click Me"
15        app:layout_constraintBottom_toBottomOf="parent"
16        app:layout_constraintLeft_toLeftOf="parent"
17        app:layout_constraintRight_toRightOf="parent"
18        app:layout_constraintTop_toTopOf="parent" />
19
20    <TextView
21        android:id="@+id/tv_display"
22        android:layout_width="100dp"
23        android:layout_height="60dp"
24        android:layout_marginTop="8dp"
25        android:text="TextView"
26        android:textSize="24dp"
27        app:layout_constraintBottom_toBottomOf="parent"
28        app:layout_constraintLeft_toLeftOf="parent"
29        app:layout_constraintRight_toRightOf="parent"
30        app:layout_constraintTop_toBottomOf="@+id	btn_count"
31        app:layout_constraintVertical_bias="0.196" />
32
33 </android.support.constraint.ConstraintLayout>
```

# SharedPreferences 01

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.sharedpreferences_01"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     testImplementation 'junit:junit:4.12'
26     androidTestImplementation 'com.android.support.test:runner:1.0.2'
27     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
28 }
```



# SharedPreferences 02

## Overview:

Every time the Button is pressed, a local variable is incremented and stored in the SharedPreferences. When the app is opened, the SharedPreferences are read and the value inserted into a TextView. Differs from SharedPreferences\_01 in that primary UI is fragment based.

## Github:

[https://github.com/pckosek/Android\\_Examples/tree/master/SharedPreferences/SharedPreferences\\_02](https://github.com/pckosek/Android_Examples/tree/master/SharedPreferences/SharedPreferences_02)

## YouTube:

<https://www.youtube.com/watch?v=SgVGrL1Gbjl>

## Topics:

- SharedPreferences
- ConstraintLayout
- View.OnClickListener
- Anonymous class
- fragment

# SharedPreferences 02

*AndroidManifest.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.sharedpreferences_02">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity android:name=".MainActivity">
13             <intent-filter>
14                 <action android:name="android.intent.action.MAIN" />
15
16                 <category android:name="android.intent.category.LAUNCHER" />
17             </intent-filter>
18         </activity>
19     </application>
20
21 </manifest>
```

# SharedPreferences 02

*MainActivity.java*

```
1 package com.example.pckosek.sharedpreferences_02;
2
3 import android.support.v7.app.AppCompatActivity;
4 import android.os.Bundle;
5
6 public class MainActivity extends AppCompatActivity {
7
8     @Override
9     protected void onCreate(Bundle savedInstanceState) {
10         super.onCreate(savedInstanceState);
11         setContentView(R.layout.activity_main);
12     }
13 }
```

# SharedPreferences 02

MainFragment.java

```
1 package com.example.pckosek.sharedpreferences_02;
2
3
4 import android.content.Context;
5 import android.content.SharedPreferences;
6 import android.os.Bundle;
7 import android.support.annotation.NonNull;
8 import android.support.annotation.Nullable;
9 import android.support.v4.app.Fragment;
10 import android.view.LayoutInflater;
11 import android.view.View;
12 import android.view.ViewGroup;
13 import android.widget.Button;
14 import android.widget.TextView;
15
16
17 public class MainFragment extends Fragment {
18
19     private static final String TAG = "MAIN_FRAGMENT";
20     private static final String STORAGE_KEY = "stored_count";
21
22     Button mButton;
23     TextView mTextView;
24     private int mCount;
25     private SharedPreferences.Editor mEditor;
26
27     public MainFragment() {}
28
29
30     @Override
31     public View onCreateView(LayoutInflater inflater, ViewGroup container,
32                             Bundle savedInstanceState) {
33         return inflater.inflate(R.layout.fragment_main, container, false);
34     }
35
36     @Override
37     public void onViewCreated(@NonNull View view, @Nullable Bundle savedInstanceState) {
38         super.onViewCreated(view, savedInstanceState);
39
40         mTextView = view.findViewById(R.id.tv_display);
41         mButton = view.findViewById(R.id.btn_count);
42
43         mButton.setOnClickListener(new View.OnClickListener() {
44             @Override
45             public void onClick(View v) {
46                 IncrementAndUpdateTextDisplay();
47             }
48         });
49
50         SharedPreferences mySharedPrefs = getActivity().getSharedPreferences(
51             "Storage",
52             Context.MODE_PRIVATE);
```

```
53     mEditor = mySharedPrefs.edit();
54
55     int storedCount = mySharedPrefs.getInt(STORAGE_KEY, 0);
56
57     mCount = storedCount;
58     mTextView.setText( Integer.toString(mCount) );
59
60 }
61
62 public void IncrementAndUpdateTextDisplay() {
63     mCount++;
64     mTextView.setText( Integer.toString(mCount) );
65     mEditor.putInt(STORAGE_KEY, mCount);
66     mEditor.apply();
67 }
68
69 }
```

## SharedPreferences 02

*activity\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <fragment
11        android:name="com.example.pckosek.sharedpreferences_02.MainFragment"
12        android:layout_width="match_parent"
13        android:layout_height="match_parent"
14        android:id="@+id/frag_main" />
15
16
17 </android.support.constraint.ConstraintLayout>
```

## SharedPreferences 02

fragment\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:tools="http://schemas.android.com/tools"
5     xmlns:app="http://schemas.android.com/apk/res-auto"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainFragment">
9
10    <Button
11        android:id="@+id/btn_count"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        android:text="Click Me"
15        app:layout_constraintBottom_toBottomOf="parent"
16        app:layout_constraintLeft_toLeftOf="parent"
17        app:layout_constraintRight_toRightOf="parent"
18        app:layout_constraintTop_toTopOf="parent" />
19
20    <TextView
21        android:id="@+id/tv_display"
22        android:layout_width="100dp"
23        android:layout_height="60dp"
24        android:layout_marginTop="8dp"
25        android:text="TextView"
26        android:textSize="24dp"
27        app:layout_constraintBottom_toBottomOf="parent"
28        app:layout_constraintLeft_toLeftOf="parent"
29        app:layout_constraintRight_toRightOf="parent"
30        app:layout_constraintTop_toBottomOf="@+id/btn_count"
31        app:layout_constraintVertical_bias="0.196" />
32
33 </android.support.constraint.ConstraintLayout>
```

## SharedPreferences 02

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.sharedpreferences_02"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     implementation 'com.android.support:support-v4:27.1.1'
26     testImplementation 'junit:junit:4.12'
27     androidTestImplementation 'com.android.support.test:runner:1.0.2'
28     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
29 }
```

# SharedPreferences 03

## Overview:

Every time the Button is pressed, a local variable is incremented and stored in the SharedPreferences. When the app is opened, the SharedPreferences are read and the value inserted into a TextView. Differs from SharedPreferences\_02 that when the OnClick is called in the fragment, it passes the message to the MainActivity. In turn, the MainActivity handles SharedPreferences access.

## Github:

[https://github.com/pckosek/Android\\_Examples/tree/master/SharedPreferences/SharedPreferences\\_03](https://github.com/pckosek/Android_Examples/tree/master/SharedPreferences/SharedPreferences_03)

## YouTube:

<https://www.youtube.com/watch?v=6WC8silcYLU>

## Topics:

- SharedPreferences
- ConstraintLayout
- View.OnClickListener
- Anonymous class
- fragment
- Fragment interface

# SharedPreferences 03

*AndroidManifest.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.sharedpreferences_03">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity android:name=".MainActivity">
13             <intent-filter>
14                 <action android:name="android.intent.action.MAIN" />
15
16                 <category android:name="android.intent.category.LAUNCHER" />
17             </intent-filter>
18         </activity>
19     </application>
20
21 </manifest>
```

# SharedPreferences 03

MainActivity.java

```
1 package com.example.pckosek.sharedpreferences_03;
2
3 import android.content.Context;
4 import android.content.SharedPreferences;
5 import android.support.v7.app.AppCompatActivity;
6 import android.os.Bundle;
7
8 public class MainActivity extends AppCompatActivity implements MainFragment.MainFragmentInterface{
9
10     private static final String TAG = "MAIN_ACTIVITY";
11     private static final String STORAGE_KEY = "stored_count";
12
13     private int mCount;
14     private SharedPreferences.Editor mEditor;
15
16     private MainFragment mMainFragment;
17
18     @Override
19     protected void onCreate(Bundle savedInstanceState) {
20         super.onCreate(savedInstanceState);
21         setContentView(R.layout.activity_main);
22
23         SharedPreferences mySharedPrefs = getSharedPreferences(
24             "Storage",
25             Context.MODE_PRIVATE);
26         mEditor = mySharedPrefs.edit();
27
28         mCount = mySharedPrefs.getInt(STORAGE_KEY, 0);
29
30         mMainFragment = (MainFragment) getSupportFragmentManager().findFragmentById(R.id.frag_main);
31         mMainFragment.UpdateDisplay(mCount);
32     }
33
34     @Override
35     public void ButtonPressEvent() {
36         mCount++;
37         mEditor.putInt(STORAGE_KEY,mCount);
38         mEditor.apply();
39
40         mMainFragment.UpdateDisplay(mCount);
41     }
42 }
43 }
```

# SharedPreferences 03

MainFragment.java

```
1 package com.example.pckosek.sharedpreferences_03;
2
3
4 import android.content.Context;
5 import android.os.Bundle;
6 import android.support.annotation.NonNull;
7 import android.support.annotation.Nullable;
8 import android.support.v4.app.Fragment;
9 import android.view.LayoutInflater;
10 import android.view.View;
11 import android.view.ViewGroup;
12 import android.widget.Button;
13 import android.widget.TextView;
14
15
16 public class MainFragment extends Fragment {
17
18     private static final String TAG = "MAIN_FRAGMENT";
19
20     private Button mButton;
21     private TextView mTextView;
22
23     private MainFragmentInterface mCallback;
24
25     public MainFragment() {}
26
27     @Override
28     public void onAttach(Context context) {
29         super.onAttach(context);
30         if (context instanceof MainFragment.MainFragmentInterface) {
31             mCallback = (MainFragment.MainFragmentInterface) context;
32         } else {
33             throw new RuntimeException(context.toString()
34                 + " [probably MainActivity] does not implement MainFragmentInterface!!!");
35         }
36     }
37
38     @Override
39     public View onCreateView(LayoutInflater inflater, ViewGroup container,
40                             Bundle savedInstanceState) {
41         return inflater.inflate(R.layout.fragment_main, container, false);
42     }
43
44     @Override
45     public void onViewCreated(@NonNull View view, @Nullable Bundle savedInstanceState) {
46         super.onViewCreated(view, savedInstanceState);
47
48         mTextView = view.findViewById(R.id.tv_display);
49         mButton = view.findViewById(R.id.btn_count);
50
51
52 }
```

```
53     mButton.setOnClickListener(new View.OnClickListener() {
54         @Override
55         public void onClick(View v) {
56             mCallback.ButtonPressEvent();
57         }
58     });
59 }
60
61     public void UpdateDisplay(int count) {
62         mTextView.setText( Integer.toString(count) );
63     }
64
65     public interface MainFragmentInterface {
66         void ButtonPressEvent();
67     }
68
69 }
```

# SharedPreferences 03

*activity\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:tools="http://schemas.android.com/tools"
5     android:layout_width="match_parent"
6     android:layout_height="match_parent"
7     tools:context=".MainActivity">
8
9     <fragment
10        android:name="com.example.pckosek.sharedpreferences_03.MainFragment"
11        android:layout_width="match_parent"
12        android:layout_height="match_parent"
13        android:id="@+id/frag_main" />
14
15
16 </android.support.constraint.ConstraintLayout>
```

# SharedPreferences 03

fragment\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:tools="http://schemas.android.com/tools"
5     xmlns:app="http://schemas.android.com/apk/res-auto"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainFragment">
9
10    <Button
11        android:id="@+id/btn_count"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        android:text="Click Me"
15        app:layout_constraintBottom_toBottomOf="parent"
16        app:layout_constraintLeft_toLeftOf="parent"
17        app:layout_constraintRight_toRightOf="parent"
18        app:layout_constraintTop_toTopOf="parent" />
19
20    <TextView
21        android:id="@+id/tv_display"
22        android:layout_width="100dp"
23        android:layout_height="60dp"
24        android:layout_marginTop="8dp"
25        android:text="TextView"
26        android:textSize="24dp"
27        app:layout_constraintBottom_toBottomOf="parent"
28        app:layout_constraintLeft_toLeftOf="parent"
29        app:layout_constraintRight_toRightOf="parent"
30        app:layout_constraintTop_toBottomOf="@+id/btn_count"
31        app:layout_constraintVertical_bias="0.196" />
32
33 </android.support.constraint.ConstraintLayout>
```

# SharedPreferences 03

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.sharedpreferences_03"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     implementation 'com.android.support:support-v4:27.1.1'
26     testImplementation 'junit:junit:4.12'
27     androidTestImplementation 'com.android.support.test:runner:1.0.2'
28     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
29 }
```

# Notification Dialog 01

## Overview:

When the user presses a Button, a counter is incremented within the MainActivity - and passed as an argument to a new NotificationDialog.

## Github:

[https://github.com/pckosek/Android\\_Examples/tree/master/NotificationDialog/NotificationDialog\\_01](https://github.com/pckosek/Android_Examples/tree/master/NotificationDialog/NotificationDialog_01)

## YouTube:

[https://www.youtube.com/watch?v=\\_HILHUIfUp4](https://www.youtube.com/watch?v=_HILHUIfUp4)

## Topics:

- OnClickListener Assignment
- DialogFragment
- ConstraintLayout
- Fragment
- Fragment Arguments

# Notification Dialog 01

*AndroidManifest.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.notificationdialog_01">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity android:name=".MainActivity">
13             <intent-filter>
14                 <action android:name="android.intent.action.MAIN" />
15
16                 <category android:name="android.intent.category.LAUNCHER" />
17             </intent-filter>
18         </activity>
19     </application>
20
21 </manifest>
```

# Notification Dialog 01

MainActivity.java

```
1 package com.example.pckosek.notificationdialog_01;
2
3 import android.support.v4.app.FragmentManager;
4 import android.support.v7.app.AppCompatActivity;
5 import android.os.Bundle;
6 import android.view.View;
7 import android.widget.Button;
8
9 public class MainActivity extends AppCompatActivity implements View.OnClickListener{
10
11     private Button mButton;
12     private int mCount = 0;
13
14     @Override
15     protected void onCreate(Bundle savedInstanceState) {
16         super.onCreate(savedInstanceState);
17         setContentView(R.layout.activity_main);
18
19         mButton = findViewById(R.id.btn_notification);
20         mButton.setOnClickListener(this);
21     }
22
23     @Override
24     public void onClick(View v) {
25         mCount++;
26
27         FragmentManager fm = getSupportFragmentManager();
28         MyDialogFragment myDialogFragment = MyDialogFragment.newInstance(mCount);
29         myDialogFragment.show(fm, "fragment_my_dialog");
30
31     }
32 }
33 }
```

# Notification Dialog 01

*MyDialogFragment.java*

```
1 package com.example.pckosek.notificationdialog_01;
2
3
4 import android.os.Bundle;
5 import android.support.annotation.NonNull;
6 import android.support.annotation.Nullable;
7 import android.support.v4.app.DialogFragment;
8 import android.view.LayoutInflater;
9 import android.view.View;
10 import android.view.ViewGroup;
11 import android.widget.TextView;
12
13
14 public class MyDialogFragment extends DialogFragment {
15
16     private final static String ARGS_COUNT = "args_count";
17
18     private TextView mTextView;
19
20     public MyDialogFragment() {
21         // Required empty public constructor
22     }
23
24     public static MyDialogFragment newInstance(int i) {
25         MyDialogFragment myDialogFragment = new MyDialogFragment();
26         Bundle args = new Bundle();
27
28         args.putInt(ARGS_COUNT, i);
29         myDialogFragment.setArguments(args);
30         return myDialogFragment;
31     }
32
33
34     @Override
35     public View onCreateView(LayoutInflater inflater, ViewGroup container,
36                             Bundle savedInstanceState) {
37         // Inflate the layout for this fragment
38         return inflater.inflate(R.layout.fragment_my_dialog, container, false);
39     }
40
41     @Override
42     public void onViewCreated(@NonNull View view, @Nullable Bundle savedInstanceState) {
43         super.onViewCreated(view, savedInstanceState);
44
45         int count = getArguments().getInt(ARGS_COUNT, 0);
46
47         mTextView = view.findViewById(R.id.tv_count);
48         mTextView.setText( String.valueOf(count) );
49     }
50 }
```

# Notification Dialog 01

*activity\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <Button
11        android:id="@+id	btn_notification"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        android:text="Press Me!"
15        app:layout_constraintBottom_toBottomOf="parent"
16        app:layout_constraintLeft_toLeftOf="parent"
17        app:layout_constraintRight_toRightOf="parent"
18        app:layout_constraintTop_toTopOf="parent" />
19
20 </android.support.constraint.ConstraintLayout>
```

# Notification Dialog 01

*fragment\_my\_dialog.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MyDialogFragment">
9
10    <View
11        android:id="@+id/view"
12        android:layout_width="200dp"
13        android:layout_height="100dp"
14        app:layout_constraintTop_toTopOf="parent"
15        app:layout_constraintBottom_toBottomOf="parent"
16        app:layout_constraintStart_toStartOf="parent"
17        app:layout_constraintEnd_toEndOf="parent"
18        app:layout_constraintVertical_bias="0.25" />
19
20    <TextView
21        android:id="@+id/tv_count"
22        android:layout_width="wrap_content"
23        android:layout_height="wrap_content"
24        android:textSize="24dp"
25        app:layout_constraintTop_toTopOf="@+id/view"
26        app:layout_constraintBottom_toBottomOf="@+id/view"
27        app:layout_constraintStart_toStartOf="@+id/view"
28        app:layout_constraintEnd_toEndOf="@+id/view" />
29
30
31 </android.support.constraint.ConstraintLayout>
```

# Notification Dialog 01

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.notificationdialog_01"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     implementation 'com.android.support:support-v4:27.1.1'
26     testImplementation 'junit:junit:4.12'
27     androidTestImplementation 'com.android.support.test:runner:1.0.2'
28     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
29 }
```



# NotificationDialog 02

## Overview:

The user enters text into an EditText within a fragment. This text is validated when the the user presses the Display Message Button. If the EditText is nonempty, the message String is passed as an argument to a new DialogFragment.

## Github:

[https://github.com/pckosek/Android\\_Examples/tree/master/NotificationDialog/NotificationDialog\\_02](https://github.com/pckosek/Android_Examples/tree/master/NotificationDialog/NotificationDialog_02)

## YouTube:

<https://www.youtube.com/watch?v=YJoYdgr0tRE>

## Topics:

- OnClickListener Assignment
- DialogFragment
- ConstraintLayout
- Fragment
- Fragment Arguments
- Custom Class Interface
- EditText getting, setting and error
- TextWatcher Assignment
- Fragment Lifecycle (onAttach, onDetach)
- Interface Definition

# Notification Dialog 02

*AndroidManifest.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.notificationdialog_02">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity android:name=".MainActivity">
13             <intent-filter>
14                 <action android:name="android.intent.action.MAIN" />
15
16                 <category android:name="android.intent.category.LAUNCHER" />
17             </intent-filter>
18         </activity>
19     </application>
20
21 </manifest>
```

# Notification Dialog 02

MainActivity.java

```
1 package com.example.pckosek.notificationdialog_02;
2
3 import android.support.v4.app.FragmentManager;
4 import android.support.v7.app.AppCompatActivity;
5 import android.os.Bundle;
6
7 public class MainActivity extends AppCompatActivity implements MainFragment.MainFragmentListener{
8
9     @Override
10    protected void onCreate(Bundle savedInstanceState) {
11        super.onCreate(savedInstanceState);
12        setContentView(R.layout.activity_main);
13    }
14
15    @Override
16    public void onSubmitMessage(String msg) {
17        FragmentManager fm = getSupportFragmentManager();
18        MyDialogFragment myDialogFragment = MyDialogFragment.newInstance(msg);
19        myDialogFragment.show(fm, "fragment_my_dialog");
20
21    }
22}
```

## Notification Dialog 02

MainFragment.java

```
1 package com.example.pckosek.notificationdialog_02;
2
3 import android.content.Context;
4 import android.net.Uri;
5 import android.os.Bundle;
6 import android.support.annotation.NonNull;
7 import android.support.annotation.Nullable;
8 import android.support.design.widget.TextInputLayout;
9 import android.support.v4.app.Fragment;
10 import android.text.Editable;
11 import android.text.TextWatcher;
12 import android.view.KeyEvent;
13 import android.view.LayoutInflater;
14 import android.view.View;
15 import android.view.ViewGroup;
16 import android.view.animation.AlphaAnimation;
17 import android.widget.Button;
18 import android.widget.EditText;
19 import android.widget.TextView;
20
21
22 public class MainFragment extends Fragment implements View.OnClickListener {
23
24     private MainFragmentListener mCallback;
25
26     private Button mButton;
27     private TextInputLayout mTextInputLayout;
28     private EditText mEditText;
29
30     public MainFragment() {
31         // Required empty public constructor
32     }
33
34     @Override
35     public void onAttach(Context context) {
36         super.onAttach(context);
37         if (context instanceof MainFragmentListener) {
38             mCallback = (MainFragmentListener) context;
39         } else {
40             throw new RuntimeException(context.toString()
41                     + "[probably your MainActivity] must implement MainFragmentListener");
42         }
43     }
44
45     @Override
46     public View onCreateView(LayoutInflater inflater, ViewGroup container,
47                             Bundle savedInstanceState) {
48         return inflater.inflate(R.layout.fragment_main, container, false);
49     }
50
51     @Override
```

```

53     public void onViewCreated(@NonNull View view, @Nullable Bundle savedInstanceState) {
54         super.onViewCreated(view, savedInstanceState);
55
56         mTextInputLayout = view.findViewById(R.id.text_input_layout);
57
58         mButton = view.findViewById(R.id.btn_notification);
59         mButton.setOnClickListener(this);
60
61         mEditText = view.findViewById(R.id.et_message);
62         mEditText.addTextChangedListener(new MyTextWatcher());
63     }
64
65
66     @Override
67     public void onDetach() {
68         super.onDetach();
69         mCallback = null;
70     }
71
72     @Override
73     public void onClick(View v) {
74         String msg = validateInput();
75         if (msg != null) {
76             mCallback.onSubmitMessage(msg);
77         }
78     }
79
80     protected String validateInput() {
81         String msg = mEditText.getText().toString();
82
83         if (msg.length()==0 ) {
84             mTextInputLayout.setError("Please Enter a Message");
85             msg = null;
86         }
87         return msg;
88     }
89
90     public interface MainFragmentListener {
91         void onSubmitMessage(String msg);
92     }
93
94     protected class MyTextWatcher implements TextWatcher {
95
96         @Override
97         public void beforeTextChanged(CharSequence s, int start, int count, int after) {}
98
99         @Override
100        public void onTextChanged(CharSequence s, int start, int before, int count) {
101            mTextInputLayout.setError(null);
102        }
103
104        @Override
105        public void afterTextChanged(Editable s) {}
106    }
107}

```

## Notification Dialog 02

*MyDialogFragment.java*

```
1 package com.example.pckosek.notificationdialog_02;
2
3
4
5 import android.os.Bundle;
6 import android.support.annotation.NonNull;
7 import android.support.annotation.Nullable;
8 import android.support.v4.app.DialogFragment;
9 import android.view.LayoutInflater;
10 import android.view.View;
11 import android.view.ViewGroup;
12 import android.widget.TextView;
13
14
15 public class MyDialogFragment extends DialogFragment {
16
17     private final static String ARGS_MESSAGE = "args_message";
18
19     private TextView mTextView;
20
21     public MyDialogFragment() {
22         // Required empty public constructor
23     }
24
25     public static MyDialogFragment newInstance(String msg) {
26         MyDialogFragment myDialogFragment = new MyDialogFragment();
27         Bundle args = new Bundle();
28
29         args.putString(ARGS_MESSAGE, msg);
30         myDialogFragment.setArguments(args);
31         return myDialogFragment;
32     }
33
34     @Override
35     public View onCreateView(LayoutInflater inflater, ViewGroup container,
36                             Bundle savedInstanceState) {
37         return inflater.inflate(R.layout.fragment_my_dialog, container, false);
38     }
39
40     @Override
41     public void onViewCreated(@NonNull View view, @Nullable Bundle savedInstanceState) {
42         super.onViewCreated(view, savedInstanceState);
43
44         String msg = getArguments().getString(ARGS_MESSAGE, "");
45
46         mTextView = view.findViewById(R.id.tv_count);
47         mTextView.setText( msg );
48     }
49 }
```

## Notification Dialog 02

*activity\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <fragment
11        android:name="com.example.pckosek.notificationdialog_02.MainFragment"
12        android:layout_width="match_parent"
13        android:layout_height="match_parent"
14        android:id="@+id/frag_main"/>
15
16 </android.support.constraint.ConstraintLayout>
```

## Notification Dialog 02

*fragment\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainFragment">
9
10    <android.support.design.widget.TextInputLayout
11        android:id="@+id/text_input_layout"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        app:errorEnabled="true"
15        android:textColorHint="#FF888888"
16        app:layout_constraintBottom_toTopOf="@+id/btn_notification"
17        app:layout_constraintLeft_toLeftOf="parent"
18        app:layout_constraintRight_toRightOf="parent" >
19
20        <android.support.design.widget.TextInputEditText
21            android:id="@+id/et_message"
22            android:layout_width="240dp"
23            android:layout_height="wrap_content"
24            android:hint="Enter Your Message" />
25
26    </android.support.design.widget.TextInputLayout>
27
28    <Button
29        android:id="@+id/btn_notification"
30        android:layout_width="wrap_content"
31        android:layout_height="wrap_content"
32        android:text="Display Message"
33        app:layout_constraintBottom_toBottomOf="parent"
34        app:layout_constraintLeft_toLeftOf="parent"
35        app:layout_constraintRight_toRightOf="parent"
36        app:layout_constraintTop_toTopOf="parent" />
37
38 </android.support.constraint.ConstraintLayout>
```

## Notification Dialog 02

*fragment\_my\_dialog.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MyDialogFragment">
9
10    <View
11        android:id="@+id/view"
12        android:layout_width="200dp"
13        android:layout_height="100dp"
14        app:layout_constraintBottom_toBottomOf="parent"
15        app:layout_constraintEnd_toEndOf="parent"
16        app:layout_constraintStart_toStartOf="parent"
17        app:layout_constraintTop_toTopOf="parent"
18        app:layout_constraintVertical_bias="0.25" />
19
20    <TextView
21        android:id="@+id/tv_count"
22        android:layout_width="wrap_content"
23        android:layout_height="wrap_content"
24        android:textSize="24dp"
25        app:layout_constraintTop_toTopOf="@+id/view"
26        app:layout_constraintBottom_toBottomOf="@+id/view"
27        app:layout_constraintStart_toStartOf="@+id/view"
28        app:layout_constraintEnd_toEndOf="@+id/view" />
29
30
31 </android.support.constraint.ConstraintLayout>
```

## Notification Dialog 02

*build.gradle (Module:app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.notificationdialog_02"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     implementation 'com.android.support:support-v4:27.1.1'
26     implementation 'com.android.support:design:27.1.1'
27     testImplementation 'junit:junit:4.12'
28     androidTestImplementation 'com.android.support.test:runner:1.0.2'
29     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
30 }
```

# **ViewPager\_01**

## **Overview:**

At run time, a string is loaded in from a string resource file, and converted to an array of custom objects. A ViewPager allows the app user to view each element of the array of custom objects in their own fragment. Fragment loading in the ViewPager is handled by a custom class that extends FragmentPagerAdapter.

## **Github:**

[https://github.com/pckosek/Android\\_Examples/tree/master/ViewPager/ViewPager\\_01](https://github.com/pckosek/Android_Examples/tree/master/ViewPager/ViewPager_01)

## **YouTube:**

<https://www.youtube.com/watch?v=ik5BRHXbyYA>

## **Topics:**

- CoordinatorLayout
- ConstraintLayout
- Fragment
- FragmentPagerAdapter
- Fragment Arguments
- Menu
- ViewPager
- Fragment
- Serializable
- Custom Class
- Gradle Modification
- Gson
- String Resource Files
- Layout Hierarchy

# ViewPager\_01

AndroidManifest.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.viewpager_01">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity
13             android:name=".MainActivity"
14             android:label="@string/app_name"
15             android:theme="@style/AppTheme.NoActionBar">
16             <intent-filter>
17                 <action android:name="android.intent.action.MAIN" />
18
19                 <category android:name="android.intent.category.LAUNCHER" />
20             </intent-filter>
21         </activity>
22     </application>
23
24 </manifest>
```

# ViewPager\_01

MainActivity.java

```
1 package com.example.pckosek.viewpager_01;
2
3 import android.support.design.widget.FloatingActionButton;
4 import android.support.design.widget.Snackbar;
5 import android.support.v7.app.AppCompatActivity;
6 import android.support.v7.widget.Toolbar;
7
8 import android.support.v4.app.Fragment;
9 import android.support.v4.app.FragmentManager;
10 import android.support.v4.app.FragmentPagerAdapter;
11 import android.support.v4.view.ViewPager;
12 import android.os.Bundle;
13 import android.view.LayoutInflater;
14 import android.view.Menu;
15 import android.view.MenuItem;
16 import android.view.View;
17 import android.view.ViewGroup;
18
19 import android.widget.TextView;
20
21 import com.google.gson.Gson;
22 import com.google.gson.GsonBuilder;
23
24 public class MainActivity extends AppCompatActivity {
25
26     private MyViewPagerAdapter mMyViewPagerAdapter;
27     private ViewPager mViewPager;
28
29     private MyUser[] myUsers;
30
31     @Override
32     protected void onCreate(Bundle savedInstanceState) {
33         super.onCreate(savedInstanceState);
34         setContentView(R.layout.activity_main);
35
36         Toolbar toolbar = (Toolbar) findViewById(R.id.toolbar);
37         setSupportActionBar(toolbar);
38
39         Gson gson= new GsonBuilder().create();
40         myUsers = gson.fromJson( getString(R.string.my_users), MyUser[].class );
41
42         mMyViewPagerAdapter = new MyViewPagerAdapter(getSupportFragmentManager());
43
44         mViewPager = findViewById(R.id.container);
45         mViewPager.setAdapter(mMyViewPagerAdapter);
46
47     }
48
49
50     @Override
51     public boolean onCreateOptionsMenu(Menu menu) {
52         // Inflate the menu; this adds items to the action bar if it is present.
```

```
53     getMenuInflater().inflate(R.menu.menu_main, menu);
54     return true;
55 }
56
57 @Override
58 public boolean onOptionsItemSelected(MenuItem item) {
59     // Handle action bar item clicks here. The action bar will
60     // automatically handle clicks on the Home/Up button, so long
61     // as you specify a parent activity in AndroidManifest.xml.
62     int id = item.getItemId();
63
64     //noinspection SimplifiableIfStatement
65     if (id == R.id.action_settings) {
66         return true;
67     }
68
69     return super.onOptionsItemSelected(item);
70 }
71
72
73 public class MyViewPagerAdapter extends FragmentPagerAdapter {
74
75     public MyViewPagerAdapter(FragmentManager fm) {
76         super(fm);
77     }
78
79     @Override
80     public Fragment getItem(int position) {
81
82         return MainFragment.newInstance( myUsers[position] );
83     }
84
85     @Override
86     public int getCount() {
87         return myUsers.length;
88     }
89 }
90 }
```

# ViewPager\_01

MainFragment.java

```
1 package com.example.pckosek.viewpager_01;
2
3
4 import android.os.Bundle;
5 import android.support.annotation.NonNull;
6 import android.support.annotation.Nullable;
7 import android.support.v4.app.Fragment;
8 import android.view.LayoutInflater;
9 import android.view.View;
10 import android.view.ViewGroup;
11 import android.widget.TextView;
12
13 public class MainFragment extends Fragment {
14
15     private static final String ARG_USER_N = "user_n";
16
17     public MainFragment() {}
18
19     public static MainFragment newInstance(MyUser myUser) {
20         MainFragment fragment = new MainFragment();
21
22         Bundle args = new Bundle();
23         args.putSerializable(ARG_USER_N, myUser);
24         fragment.setArguments(args);
25         return fragment;
26     }
27
28
29     @Override
30     public View onCreateView(LayoutInflater inflater, ViewGroup container,
31                             Bundle savedInstanceState) {
32         return inflater.inflate(R.layout.fragment_main, container, false);
33     }
34
35     @Override
36     public void onViewCreated(@NonNull View view, @Nullable Bundle savedInstanceState) {
37         super.onViewCreated(view, savedInstanceState);
38
39         MyUser myUser = (MyUser) getArguments().getSerializable(ARG_USER_N);
40
41         TextView textViewName = view.findViewById(R.id.tv_name);
42         TextView textViewAge = view.findViewById(R.id.tv_age);
43
44         textViewName.setText(myUser.name);
45         textViewAge.setText( String.valueOf(myUser.age) );
46     }
47 }
```

# ViewPager\_01

MyUser.java

```
1 package com.example.pckosek.viewpager_01;
2
3 import java.io.Serializable;
4
5 public class MyUser implements Serializable {
6     public String name;
7     public int age;
8
9     public MyUser(String n, int a) {
10         name = n;
11         age = a;
12     }
13 }
14 }
```

# ViewPager\_01

activity\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.design.widget.CoordinatorLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:id="@+id/main_content"
7     android:layout_width="match_parent"
8     android:layout_height="match_parent"
9     android:fitsSystemWindows="true"
10    tools:context=".MainActivity">
11
12    <android.support.design.widget.AppBarLayout
13        android:id="@+id/appbar"
14        android:layout_width="match_parent"
15        android:layout_height="wrap_content"
16        android:paddingTop="@dimen/appbar_padding_top"
17        android:theme="@style/AppTheme.AppBarOverlay">
18
19        <android.support.v7.widget.Toolbar
20            android:id="@+id/toolbar"
21            android:layout_width="match_parent"
22            android:layout_height="?attr/actionBarSize"
23            android:layout_weight="1"
24            android:background="?attr/colorPrimary"
25            app:layout_scrollFlags="scroll|enterAlways"
26            app:popupTheme="@style/AppTheme.PopupOverlay"
27            app:title="@string/app_name">
28
29        </android.support.v7.widget.Toolbar>
30
31    </android.support.design.widget.AppBarLayout>
32
33    <include layout="@layout/content_main" />
34
35 </android.support.design.widget.CoordinatorLayout>
```

# ViewPager\_01

*content\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     app:layout_behavior="@string/appbar_scrolling_view_behavior"
9     tools:context=".MainActivity"
10    tools:showIn="@layout/activity_main">
11
12    <android.support.v4.view.ViewPager
13        android:id="@+id/container"
14        android:layout_width="340dp"
15        android:layout_height="174dp"
16        app:layout_behavior="@string/appbar_scrolling_view_behavior"
17        app:layout_constraintBottom_toBottomOf="parent"
18        app:layout_constraintEnd_toEndOf="parent"
19        app:layout_constraintStart_toStartOf="parent"
20        app:layout_constraintTop_toTopOf="parent"
21        app:layout_constraintVertical_bias="0.136" >
22
23    </android.support.v4.view.ViewPager>
24
25
26 </android.support.constraint.ConstraintLayout>
```

# ViewPager\_01

fragment\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:id="@+id/constraintLayout"
7     android:layout_width="match_parent"
8     android:layout_height="match_parent"
9     android:background="@color/colorPrimaryDark"
10    tools:context=".MainFragment">
11
12    <TextView
13        android:id="@+id/tv_name"
14        android:layout_width="wrap_content"
15        android:layout_height="wrap_content"
16        android:textSize="24dp"
17        app:layout_constraintTop_toTopOf="parent"
18        app:layout_constraintBottom_toBottomOf="parent"
19        app:layout_constraintStart_toStartOf="parent"
20        app:layout_constraintEnd_toEndOf="parent"
21        app:layout_constraintVertical_bias="0.264" />
22
23    <TextView
24        android:id="@+id/tv_age"
25        android:layout_width="wrap_content"
26        android:layout_height="wrap_content"
27        android:textSize="24dp"
28        app:layout_constraintTop_toBottomOf="@+id/tv_name"
29        app:layout_constraintStart_toStartOf="parent"
30        app:layout_constraintEnd_toEndOf="parent"
31        android:layout_marginTop="16dp"/>
32
33 </android.support.constraint.ConstraintLayout>
```

# ViewPager\_01

menu/menu\_main.xml

```
1 <menu xmlns:android="http://schemas.android.com/apk/res/android"
2     xmlns:app="http://schemas.android.com/apk/res-auto"
3     xmlns:tools="http://schemas.android.com/tools"
4     tools:context="com.example.pckosek.viewpager_01.MainActivity">
5     <item
6         android:id="@+id/action_settings"
7         android:orderInCategory="100"
8         android:title="@string/action_settings"
9         app:showAsAction="never" />
10    </menu>
```

# ViewPager\_01

values/strings.xml

```
1 <resources>
2     <string name="app_name">ViewPager_01</string>
3     <string name="action_settings">Settings</string>
4     <string name="my_users">
5         [
6             { name : "Dad", age : 105 },
7             { name : "Mom", age : 99 },
8             { name : "Phil", age : 23 },
9             { name : "Sue", age : 67 }
10        ]
11    </string>
12
13 </resources>
```

# ViewPager\_01

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.viewpager_01"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support:design:27.1.1'
25     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
26     implementation 'com.android.support:support-v4:27.1.1'
27     implementation 'com.google.code.gson:gson:2.8.5'
28     testImplementation 'junit:junit:4.12'
29     androidTestImplementation 'com.android.support.test:runner:1.0.2'
30     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
31 }
```

# **ViewPager\_02**

## **Overview:**

At run time, a string is loaded in from a string resource file, and converted to an array of custom objects. A ViewPager allows the app user to view each element of the array of custom objects in the first tab of the ViewPager using a FragmentOne object. In the second and third tabs, the app user can see the first element of the array and the last element of the array, respectively - each using a FragmentTwo object. Fragment loading in the ViewPager is handled by a custom class that extends FragmentPagerAdapter.

## **Github:**

[https://github.com/pckosek/Android\\_Examples/tree/master/ViewPager/ViewPager\\_02](https://github.com/pckosek/Android_Examples/tree/master/ViewPager/ViewPager_02)

## **YouTube:**

<https://www.youtube.com/watch?v=Fq9ndYhBOE4>

## **Topics:**

- CoordinatorLayout
- ConstraintLayout
- Fragment
- FragmentPagerAdapter
- Fragment Arguments
- Menu
- ViewPager
- Fragment
- Serializable
- Custom Class
- Gradle Modification
- Gson
- String Resource Files
- Layout Hierarchy
- Dynamic Layout

## ViewPager\_02

AndroidManifest.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.viewpager_02">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity
13             android:name=".MainActivity"
14             android:label="@string/app_name"
15             android:theme="@style/AppTheme.NoActionBar">
16             <intent-filter>
17                 <action android:name="android.intent.action.MAIN" />
18
19                 <category android:name="android.intent.category.LAUNCHER" />
20             </intent-filter>
21         </activity>
22     </application>
23
24 </manifest>
```

## ViewPager\_02

MainActivity.java

```
1 package com.example.pckosek.viewpager_02;
2
3 import android.support.annotation.NonNull;
4 import android.support.design.widget.TabLayout;
5 import android.support.design.widget.FloatingActionButton;
6 import android.support.design.widget.Snackbar;
7 import android.support.v7.app.AppCompatActivity;
8 import android.support.v7.widget.Toolbar;
9
10 import android.support.v4.app.Fragment;
11 import android.support.v4.app.FragmentManager;
12 import android.support.v4.app.FragmentPagerAdapter;
13 import android.support.v4.view.ViewPager;
14 import android.os.Bundle;
15 import android.util.Log;
16 import android.view.LayoutInflater;
17 import android.view.Menu;
18 import android.view.MenuItem;
19 import android.view.View;
20 import android.view.ViewGroup;
21
22 import android.widget.TextView;
23
24 import com.google.gson.Gson;
25 import com.google.gson.GsonBuilder;
26
27 import java.lang.reflect.Array;
28 import java.util.ArrayList;
29 import java.util.Arrays;
30
31 import static com.example.pckosek.viewpager_02.FragmentOne.ARG_MY_USERS;
32
33 public class MainActivity extends AppCompatActivity {
34
35     private MyFragmentPagerAdapter myFragmentPagerAdapter;
36     private ViewPager mViewPager;
37
38     ArrayList<MyUser> mAllUsers;
39
40     @Override
41     protected void onCreate(Bundle savedInstanceState) {
42         super.onCreate(savedInstanceState);
43         setContentView(R.layout.activity_main);
44
45         Toolbar toolbar = (Toolbar) findViewById(R.id.toolbar);
46         setSupportActionBar(toolbar);
47
48         Gson gson = new GsonBuilder().create();
49         MyUser[] myUsers = gson.fromJson(getString(R.string.my_users), MyUser[].class );
50
51         mAllUsers = new ArrayList<MyUser>(Arrays.asList(myUsers));
52 }
```

```

--  

53     myFragmentPagerAdapter = new MyFragmentPagerAdapter(getSupportFragmentManager());  

54  

55     mViewPager = (ViewPager) findViewById(R.id.container);  

56     mViewPager.setAdapter(myFragmentPagerAdapter);  

57  

58     TabLayout tabLayout = (TabLayout) findViewById(R.id.tabs);  

59  

60     mViewPager.addOnPageChangeListener(new TabLayout.TabLayoutOnPageChangeListener(tabLayout));  

61     tabLayout.addOnTabSelectedListener(new TabLayout.ViewPagerOnTabSelectedListener(mViewPager));  

62  

63 }
64  

65  

66 @Override  

67 public boolean onCreateOptionsMenu(Menu menu) {  

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

69     getMenuInflater().inflate(R.menu.menu_main, menu);  

70     return true;  

71 }
72  

73 @Override  

74 public boolean onOptionsItemSelected(MenuItem item) {  

75     int id = item.getItemId();  

76  

77     //noinspection SimplifiableIfStatement
78     if (id == R.id.action_settings) {  

79         return true;  

80     }  

81  

82     return super.onOptionsItemSelected(item);  

83 }
84  

85  

86     public class MyFragmentPagerAdapter extends FragmentPagerAdapter {  

87  

88         public MyFragmentPagerAdapter(FragmentManager fm) {  

89             super(fm);  

90         }  

91  

92         @Override  

93         public Fragment getItem(int position) {  

94  

95             Fragment fragment;  

96             MyUser[] users;  

97  

98             switch (position) {  

99                 case 0 :  

100                     users = new MyUser[mAllUsers.size()];  

101                     users = mAllUsers.toArray(users);  

102                     fragment = FragmentOne.newInstance( users );  

103                     break;  

104                 case 1 :  

105                     fragment = FragmentTwo.newInstance(mAllUsers.get(0));  

106                     break;  

107             }  

108         }

```

```
~~~  
109     case 2 :  
110         fragment = FragmentTwo.newInstance(mAllUsers.get(mAllUsers.size()-1));  
111         break;  
112     default :  
113         users = new MyUser[mAllUsers.size()];  
114         users = mAllUsers.toArray(users);  
115         fragment = FragmentOne.newInstance( users );  
116         break;  
117     }  
118     return fragment;  
119 }  
120  
121 @Override  
122 public int getCount() {  
123     return 3;  
124 }  
125 }  
126 }
```

## ViewPager\_02

FragmentOne.java

```
1 package com.example.pckosek.viewpager_02;
2
3
4 import android.os.Bundle;
5 import android.support.annotation.NonNull;
6 import android.support.annotation.Nullable;
7 import android.support.v4.app.Fragment;
8 import android.util.Log;
9 import android.view.LayoutInflater;
10 import android.view.View;
11 import android.view.ViewGroup;
12 import android.widget.LinearLayout;
13 import android.widget.TextView;
14
15
16 public class FragmentOne extends Fragment {
17
18     private static final String TAG = "FRAGMENT_ONE";
19     public static final String ARG_MY_USERS = "my_users";
20     private LinearLayout mLayout;
21
22
23     public FragmentOne() {}
24
25     public static FragmentOne newInstance(MyUser[] myUsers) {
26         FragmentOne fragment = new FragmentOne();
27
28         Bundle args = new Bundle();
29         args.putSerializable(ARG_MY_USERS, myUsers);
30         fragment.setArguments(args);
31         return fragment;
32     }
33
34     @Override
35     public View onCreateView(LayoutInflater inflater, ViewGroup container,
36                             Bundle savedInstanceState) {
37         return inflater.inflate(R.layout.fragment_fragment_one, container, false);
38     }
39
40     @Override
41     public void onViewCreated(@NonNull View view, @Nullable Bundle savedInstanceState) {
42         super.onViewCreated(view, savedInstanceState);
43
44         Log.i(TAG, "onviewcreated");
45
46         mLayout = view.findViewById(R.id.ll_container);
47
48         MyUser[] myUsers = (MyUser[]) getArguments().getSerializable(ARG_MY_USERS);
49         updateDisplay(myUsers);
50
51     }
52 }
```

```

53
54     public void updateDisplay(MyUser[] myUsers){
55
56         Log.i(TAG, ""+ myUsers.length);
57
58         for (int i=0; i<myUsers.length; i++) {
59             LinearLayout ll_text = new LinearLayout(getContext());
60             ll_text.setOrientation(LinearLayout.VERTICAL);
61             ll_text.setBackgroundColor( getResources().getColor(R.color.ll_color));
62             LinearLayout.LayoutParams ll_params = new LinearLayout.LayoutParams(
63                 LinearLayout.LayoutParams.WRAP_CONTENT,
64                 LinearLayout.LayoutParams.WRAP_CONTENT);
65             ll_params.setMargins(40,40,40,40);
66             ll_text.setLayoutParams(ll_params);
67
68
69             TextView tvName = new TextView(getContext());
70             tvName.setText("Name: " + myUsers[i].name);
71             LinearLayout.LayoutParams params_name = new LinearLayout.LayoutParams(
72                 ViewGroup.LayoutParams.WRAP_CONTENT,
73                 ViewGroup.LayoutParams.WRAP_CONTENT);
74             tvName.setLayoutParams(params_name);
75
76             TextView tvAge = new TextView(getContext());
77             tvAge.setText("Age: " + String.valueOf(myUsers[i].age));
78             LinearLayout.LayoutParams params_age = new LinearLayout.LayoutParams(
79                 ViewGroup.LayoutParams.WRAP_CONTENT,
80                 ViewGroup.LayoutParams.WRAP_CONTENT);
81             tvAge.setLayoutParams(params_age);
82
83             ll_text.addView(tvName);
84             ll_text.addView(tvAge);
85
86             mLayout.addView(ll_text);
87         }
88     }
89 }
```

## ViewPager\_02

FragmentTwo.java

```
1 package com.example.pckosek.viewpager_02;
2
3 import android.content.Context;
4 import android.os.Bundle;
5 import android.support.annotation.NonNull;
6 import android.support.annotation.Nullable;
7 import android.support.v4.app.Fragment;
8 import android.view.LayoutInflater;
9 import android.view.View;
10 import android.view.ViewGroup;
11 import android.widget.Button;
12 import android.widget.EditText;
13 import android.widget.TextView;
14 import android.widget.Toast;
15
16 public class FragmentTwo extends Fragment {
17
18     public static final String ARG_MY_USER = "my_user";
19
20     private TextView mTextViewName;
21     private TextView mTextViewAge;
22
23     public FragmentTwo() {}
24
25     public static FragmentTwo newInstance(MyUser myUser) {
26         FragmentTwo fragment = new FragmentTwo();
27
28         Bundle args = new Bundle();
29         args.putSerializable(ARG_MY_USER, myUser);
30         fragment.setArguments(args);
31         return fragment;
32     }
33
34     @Override
35     public View onCreateView(LayoutInflater inflater, ViewGroup container,
36                             Bundle savedInstanceState) {
37         return inflater.inflate(R.layout.fragment_fragment_two, container, false);
38     }
39
40     @Override
41     public void onViewCreated(@NonNull View view, @Nullable Bundle savedInstanceState) {
42         super.onViewCreated(view, savedInstanceState);
43
44         MyUser myUser = (MyUser) getArguments().getSerializable(ARG_MY_USER);
45
46         mTextViewAge = view.findViewById(R.id.tv_age);
47         mTextViewName = view.findViewById(R.id.tv_name);
48
49         mTextViewName.setText( myUser.name );
50         mTextViewAge.setText( String.valueOf(myUser.age));
51     }
52 }
```

## ViewPager\_02

*MyUser.java*

```
1 package com.example.pckosek.viewpager_02;
2
3 import java.io.Serializable;
4
5 public class MyUser implements Serializable {
6     public String name;
7     public int age;
8
9     public MyUser(String n, int a) {
10         name = n;
11         age = a;
12     }
13 }
14 }
```

## ViewPager\_02

activity\_main.xml

```
1  <?xml version="1.0" encoding="utf-8"?>
2  <android.support.design.widget.CoordinatorLayout
3      xmlns:android="http://schemas.android.com/apk/res/android"
4      xmlns:app="http://schemas.android.com/apk/res-auto"
5      xmlns:tools="http://schemas.android.com/tools"
6      android:id="@+id/main_content"
7      android:layout_width="match_parent"
8      android:layout_height="match_parent"
9      android:fitsSystemWindows="true"
10     tools:context=".MainActivity">
11
12     <android.support.design.widget.AppBarLayout
13         android:id="@+id/appbar"
14         android:layout_width="match_parent"
15         android:layout_height="wrap_content"
16         android:paddingTop="@dimen/appbar_padding_top"
17         android:theme="@style/AppTheme.AppBarOverlay">
18
19         <android.support.v7.widget.Toolbar
20             android:id="@+id/toolbar"
21             android:layout_width="match_parent"
22             android:layout_height="?attr/actionBarSize"
23             android:layout_weight="1"
24             android:background="?attr/colorPrimary"
25             app:layout_scrollFlags="scroll|enterAlways"
26             app:popupTheme="@style/AppTheme.PopupOverlay"
27             app:title="@string/app_name">
28
29     </android.support.v7.widget.Toolbar>
30
31     <android.support.design.widget.TabLayout
32         android:id="@+id/tabs"
33         android:layout_width="match_parent"
34         android:layout_height="wrap_content">
35
36         <android.support.design.widget.TabItem
37             android:id="@+id/tabItem"
38             android:layout_width="wrap_content"
39             android:layout_height="wrap_content"
40             android:text="@string/tab_text_1" />
41
42         <android.support.design.widget.TabItem
43             android:id="@+id/tabItem2"
44             android:layout_width="wrap_content"
45             android:layout_height="wrap_content"
46             android:text="@string/tab_text_2" />
47
48         <android.support.design.widget.TabItem
49             android:id="@+id/tabItem3"
50             android:layout_width="wrap_content"
51             android:layout_height="wrap_content"
52             android:text="@string/tab_text_3" />
```

```
53      </android.support.design.widget.TabLayout>
54  </android.support.design.widget.AppBarLayout>
55
56
57  <android.support.v4.view.ViewPager
58      android:id="@+id/container"
59      android:layout_width="match_parent"
60      android:layout_height="match_parent"
61      app:layout_behavior="@string/appbar_scrolling_view_behavior" />
62
63 </android.support.design.widget.CoordinatorLayout>
```

## ViewPager\_02

*fragment\_fragment\_one.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     android:orientation="horizontal"
9     tools:context=".FragmentOne">
10
11
12     <android.support.constraint.Guideline
13         android:id="@+id/guideline"
14         android:layout_width="wrap_content"
15         android:layout_height="wrap_content"
16         android:orientation="horizontal"
17         app:layout_constraintGuide_percent="0.1" />
18
19     <ScrollView
20         android:layout_width="0dp"
21         android:layout_height="0dp"
22         android:background="#DDD"
23         app:layout_constraintWidth_default="percent"
24         app:layout_constraintWidth_percent=".6"
25         app:layout_constraintHeight_default="percent"
26         app:layout_constraintHeight_percent=".8"
27         app:layout_constraintTop_toTopOf="@+id/guideline"
28         app:layout_constraintStart_toStartOf="parent"
29         app:layout_constraintEnd_toEndOf="parent" >
30
31         <LinearLayout
32             android:layout_width="match_parent"
33             android:layout_height="match_parent"
34             android:orientation="vertical"
35             android:gravity="center"
36             android:id="@+id/ll_container" >
37
38             </LinearLayout>
39
40
41     </ScrollView>
42
43 </android.support.constraint.ConstraintLayout>
```

## ViewPager\_02

*fragment\_fragment\_two.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".FragmentTwo">
9
10
11    <android.support.constraint.Guideline
12        android:id="@+id/guideline2"
13        android:layout_width="wrap_content"
14        android:layout_height="wrap_content"
15        android:orientation="vertical"
16        app:layout_constraintGuide_percent=".191" />
17
18    <TextView
19        android:id="@+id/tv_name"
20        android:layout_width="wrap_content"
21        android:layout_height="wrap_content"
22        android:textSize="24sp"
23        android:background="#CCC"
24        app:layout_constraintTop_toTopOf="parent"
25        app:layout_constraintBottom_toBottomOf="parent"
26        app:layout_constraintVertical_bias="0.1"
27        app:layout_constraintStart_toStartOf="@+id/guideline2"
28        app:layout_constraintHorizontal_bias="0.233" />
29
30    <TextView
31        android:id="@+id/tv_age"
32        android:layout_width="wrap_content"
33        android:layout_height="wrap_content"
34        android:textSize="24sp"
35        android:background="#CCC"
36        app:layout_constraintTop_toBottomOf="@+id/tv_name"
37        android:layout_marginTop="30dp"
38        app:layout_constraintStart_toStartOf="@+id/guideline2" />
39
40
41
42
43
44 </android.support.constraint.ConstraintLayout>
```

## ViewPager\_02

menu/menu\_main.xml

```
1 <menu xmlns:android="http://schemas.android.com/apk/res/android"
2     xmlns:app="http://schemas.android.com/apk/res-auto"
3     xmlns:tools="http://schemas.android.com/tools"
4     tools:context="com.example.pckosek.viewpager_02.MainActivity">
5     <item
6         android:id="@+id/action_settings"
7         android:orderInCategory="100"
8         android:title="@string/action_settings"
9         app:showAsAction="never" />
10    </menu>
```

## ViewPager\_02

values/strings.xml

```
1 <resources>
2     <string name="app_name">ViewPager_02</string>
3     <string name="tab_text_1">All</string>
4     <string name="tab_text_2">First</string>
5     <string name="tab_text_3">Last</string>
6     <string name="action_settings">Settings</string>
7     <string name="my_users">
8         [
9             { name : "Dad", age : 105 },
10            { name : "Mom", age : 99 },
11            { name : "Phil", age : 23 },
12            { name : "Sue", age : 67 }
13        ]
14     </string>
15
16 </resources>
```

## ViewPager\_02

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.viewpager_02"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support:design:27.1.1'
25     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
26     implementation 'com.android.support:support-v4:27.1.1'
27     implementation 'com.google.code.gson:gson:2.8.5'
28     testImplementation 'junit:junit:4.12'
29     androidTestImplementation 'com.android.support.test:runner:1.0.2'
30     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
31 }
```

# **ViewPager\_03**

## **Overview:**

The intent of this app is to show when fragments are instantiated when using a Viewpager. One of three different fragments are loaded depending on position, and when a fragment is created using the call to newInstance from the custom FragmentPagerAdapter, a Toast is shown.

## **Github:**

[https://github.com/pckosek/Android\\_Examples/tree/master/ViewPager/ViewPager\\_03](https://github.com/pckosek/Android_Examples/tree/master/ViewPager/ViewPager_03)

## **YouTube:**

<https://www.youtube.com/watch?v=7EUvA41RyMM>

## **Topics:**

- CoordinatorLayout
- ConstraintLayout
- Fragment
- FragmentPagerAdapter
- Fragment Arguments
- Menu
- ViewPager
- Fragment
- Serializable
- Custom Class
- Gradle Modification
- Gson
- String Resource Files
- Layout Hierarchy
- Dynamic Layout

# ViewPager\_03

AndroidManifest.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.viewpager_03">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity android:name=".MainActivity">
13             <intent-filter>
14                 <action android:name="android.intent.action.MAIN" />
15
16                 <category android:name="android.intent.category.LAUNCHER" />
17             </intent-filter>
18         </activity>
19     </application>
20
21 </manifest>
```

# ViewPager\_03

MainActivity.java

```
1 package com.example.pckosek.viewpager_03;
2
3 import android.support.v4.app.Fragment;
4 import android.support.v4.app.FragmentManager;
5 import android.support.v4.app.FragmentPagerAdapter;
6 import android.support.v4.view.ViewPager;
7 import android.support.v7.app.AppCompatActivity;
8 import android.os.Bundle;
9 import android.widget.Toast;
10
11 public class MainActivity extends AppCompatActivity {
12
13     private MyViewPagerAdapter mMyViewPagerAdapter;
14     private ViewPager mViewPage;
15
16     @Override
17     protected void onCreate(Bundle savedInstanceState) {
18         super.onCreate(savedInstanceState);
19         setContentView(R.layout.activity_main);
20
21         mMyViewPagerAdapter = new MyViewPagerAdapter(getSupportFragmentManager());
22
23         mViewPage = findViewById(R.id.container);
24         mViewPage.setAdapter(mMyViewPagerAdapter);
25
26     }
27
28     public class MyViewPagerAdapter extends FragmentPagerAdapter {
29
30         public MyViewPagerAdapter(FragmentManager fm) { super(fm); }
31
32         @Override
33         public Fragment getItem(int position) {
34             Fragment fragment;
35
36             switch (position) {
37                 case 0 :
38                     fragment = RedFragment.newInstance();
39                     Toast.makeText(getApplicationContext(), "RED", Toast.LENGTH_SHORT).show();
40                     break;
41                 case 1 :
42                     fragment = GreenFragment.newInstance();
43                     Toast.makeText(getApplicationContext(), "GREEN", Toast.LENGTH_SHORT).show();
44                     break;
45                 case 2 :
46                     fragment = BlueFragment.newInstance();
47                     Toast.makeText(getApplicationContext(), "BLUE", Toast.LENGTH_SHORT).show();
48                     break;
49                 default :
50
51                     fragment = RedFragment.newInstance();
52                     Toast.makeText(getApplicationContext(), "DEFAULT", Toast.LENGTH_SHORT).show();
52             }
52         }
52     }
52 }
```

```
--          .  
53      }  
54      return fragment;  
55  
56  }  
57  
58  @Override  
59  public int getCount() {  
60      return 3;  
61  }  
62 }  
63 }
```

# ViewPager\_03

*RedFragment.java*

```
1 package com.example.pckosek.viewpager_03;
2
3
4 import android.os.Bundle;
5 import android.support.v4.app.Fragment;
6 import android.view.LayoutInflater;
7 import android.view.View;
8 import android.view.ViewGroup;
9
10
11 public class RedFragment extends Fragment {
12
13
14     public RedFragment() {}
15
16     public static RedFragment newInstance() {
17         RedFragment fragment = new RedFragment();
18         return fragment;
19     }
20
21
22     @Override
23     public View onCreateView(LayoutInflater inflater, ViewGroup container,
24                             Bundle savedInstanceState) {
25         // Inflate the layout for this fragment
26         return inflater.inflate(R.layout.fragment_red, container, false);
27     }
28
29 }
```

# ViewPager\_03

*GreenFragment.java*

```
1 package com.example.pckosek.viewpager_03;
2
3
4 import android.os.Bundle;
5 import android.support.v4.app.Fragment;
6 import android.view.LayoutInflater;
7 import android.view.View;
8 import android.view.ViewGroup;
9
10
11 public class GreenFragment extends Fragment {
12
13
14     public GreenFragment() {}
15
16     public static GreenFragment newInstance() {
17         GreenFragment fragment = new GreenFragment();
18         return fragment;
19     }
20
21
22     @Override
23     public View onCreateView(LayoutInflater inflater, ViewGroup container,
24                             Bundle savedInstanceState) {
25         // Inflate the layout for this fragment
26         return inflater.inflate(R.layout.fragment_green, container, false);
27     }
28
29 }
```

## ViewPager\_03

*BlueFragment.java*

```
1 package com.example.pckosek.viewpager_03;
2
3
4 import android.os.Bundle;
5 import android.support.v4.app.Fragment;
6 import android.view.LayoutInflater;
7 import android.view.View;
8 import android.view.ViewGroup;
9
10
11 public class BlueFragment extends Fragment {
12
13
14     public BlueFragment() {}
15
16     public static BlueFragment newInstance() {
17         BlueFragment fragment = new BlueFragment();
18         return fragment;
19     }
20
21     @Override
22     public View onCreateView(LayoutInflater inflater, ViewGroup container,
23                             Bundle savedInstanceState) {
24         return inflater.inflate(R.layout.fragment_blue, container, false);
25     }
26
27 }
```

# ViewPager\_03

activity\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <android.support.v4.view.ViewPager
11        android:id="@+id/container"
12        android:layout_width="match_parent"
13        android:layout_height="match_parent"
14        app:layout_behavior="@string/appbar_scrolling_view_behavior"
15        app:layout_constraintBottom_toBottomOf="parent"
16        app:layout_constraintEnd_toEndOf="parent"
17        app:layout_constraintStart_toStartOf="parent"
18        app:layout_constraintTop_toTopOf="parent"
19        app:layout_constraintVertical_bias="0.136" />
20
21
22 </android.support.constraint.ConstraintLayout>
```

## ViewPager\_03

*fragment\_red.xml*

```
1 | <?xml version="1.0" encoding="utf-8"?>
2 | <android.support.constraint.ConstraintLayout
3 |     xmlns:android="http://schemas.android.com/apk/res/android"
4 |     xmlns:tools="http://schemas.android.com/tools"
5 |     android:layout_width="match_parent"
6 |     android:layout_height="match_parent"
7 |     android:background="#F00"
8 |     tools:context=".RedFragment">
9 |
10 |     <TextView
11 |         android:layout_width="match_parent"
12 |         android:layout_height="match_parent"
13 |         android:text="@string/hello_blank_fragment" />
14 |
15 | </android.support.constraint.ConstraintLayout>
```

## ViewPager\_03

*fragment\_green.xml*

```
1 | <?xml version="1.0" encoding="utf-8"?>
2 | <android.support.constraint.ConstraintLayout
3 |     xmlns:android="http://schemas.android.com/apk/res/android"
4 |     xmlns:tools="http://schemas.android.com/tools"
5 |     android:layout_width="match_parent"
6 |     android:layout_height="match_parent"
7 |     android:background="#0F0"
8 |     tools:context=".GreenFragment">
9 |
10 |     <TextView
11 |         android:layout_width="match_parent"
12 |         android:layout_height="match_parent"
13 |         android:text="@string/hello_blank_fragment" />
14 |
15 | </android.support.constraint.ConstraintLayout>
```

## ViewPager\_03

*fragment\_blue.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:tools="http://schemas.android.com/tools"
5     android:layout_width="match_parent"
6     android:layout_height="match_parent"
7     android:background="#00F"
8     tools:context=".BlueFragment">
9
10    <TextView
11        android:layout_width="match_parent"
12        android:layout_height="match_parent"
13        android:text="@string/hello_blank_fragment" />
14
15 </android.support.constraint.ConstraintLayout>
```

## ViewPager\_03

*values/strings.xml*

```
1 | <resources>
2 |     <string name="app_name">ViewPager_03</string>
3 |     <string name="hello_blank_fragment">Hello blank fragment</string>
4 | </resources>
```

## ViewPager\_03

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.viewpager_03"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     implementation 'com.android.support:support-v4:27.1.1'
26     implementation 'com.android.support:design:27.1.1'
27     testImplementation 'junit:junit:4.12'
28     androidTestImplementation 'com.android.support.test:runner:1.0.2'
29     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
30 }
```



# RecyclerView 01

## Overview:

At run time, multiple Strings are added to an ArrayList for display in a RecyclerView.

## Github:

[https://github.com/pckosek/Android\\_Examples/tree/master/RecyclerView/RecyclerView\\_01](https://github.com/pckosek/Android_Examples/tree/master/RecyclerView/RecyclerView_01)

## YouTube:

<https://www.youtube.com/watch?v=nDQtldlrRrY>

## Topics:

- RecyclerView
- ConstraintLayout
- ArrayList
- Gradle Modification

# RecyclerView 01

AndroidManifest.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.recyclerview_01">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity android:name=".MainActivity">
13             <intent-filter>
14                 <action android:name="android.intent.action.MAIN" />
15
16                 <category android:name="android.intent.category.LAUNCHER" />
17             </intent-filter>
18         </activity>
19     </application>
20
21 </manifest>
```

# RecyclerView 01

MainActivity.java

```
1 package com.example.pckosek.recyclerview_01;
2
3 import android.support.constraint.ConstraintLayout;
4 import android.support.v7.app.AppCompatActivity;
5 import android.os.Bundle;
6 import android.support.v7.widget.DefaultItemAnimator;
7 import android.support.v7.widget.LinearLayoutManager;
8 import android.support.v7.widget.RecyclerView;
9
10 import java.util.ArrayList;
11 import java.util.List;
12
13 public class MainActivity extends AppCompatActivity {
14
15     private List<String> mUsersList = new ArrayList<>();
16     private RecyclerView mRecyclerView;
17     private UsersAdapter mUsersAdapter;
18
19     @Override
20     protected void onCreate(Bundle savedInstanceState) {
21         super.onCreate(savedInstanceState);
22         setContentView(R.layout.activity_main);
23
24         mRecyclerView = findViewById(R.id.recycler_view);
25         mUsersAdapter = new UsersAdapter(mUsersList);
26
27         RecyclerView.LayoutManager rvlManager = new LinearLayoutManager(this);
28         mRecyclerView.setLayoutManager(rvlManager);
29         mRecyclerView.setItemAnimator(new DefaultItemAnimator());
30
31         mRecyclerView.setAdapter(mUsersAdapter);
32
33         mUsersList.add( "User 1" );
34         mUsersList.add( "User 2" );
35         mUsersList.add( "User 3" );
36         mUsersList.add( "User 4" );
37         mUsersList.add( "User 5" );
38         mUsersList.add( "User 6" );
39         mUsersList.add( "User 7" );
40         mUsersList.add( "User 8" );
41         mUsersList.add( "User 9" );
42         mUsersList.add( "Paul" );
43         mUsersList.add( "Barb" );
44         mUsersList.add( "Fred" );
45         mUsersList.add( "Dad" );
46         mUsersList.add( "Mom" );
47         mUsersList.add( "Phil" );
48         mUsersList.add( "Nate" );
49         mUsersList.add( "Steve" );
50         mUsersList.add( "Erin" );
51         mUsersList.add( "Odin" );
52         mUsersAdapter.notifyDataSetChanged();
```

53    |     }  
54    |     }

# RecyclerView 01

UsersAdapter.java

```
1 package com.example.pckosek.recyclerview_01;
2
3
4 import android.support.v7.widget.RecyclerView;
5 import android.view.LayoutInflater;
6 import android.view.View;
7 import android.view.ViewGroup;
8 import android.widget.TextView;
9
10 import java.util.List;
11
12 public class UsersAdapter extends RecyclerView.Adapter<UsersAdapter.MyViewHolder> {
13
14     private List<String> usersList;
15
16     public UsersAdapter(List<String> ul) {
17         this.usersList = ul;
18     }
19
20     @Override
21     public MyViewHolder onCreateViewHolder(ViewGroup parent, int viewType) {
22         View itemView = LayoutInflater.from(parent.getContext())
23             .inflate(R.layout.single_row, parent, false);
24
25         return new MyViewHolder(itemView);
26     }
27
28     @Override
29     public void onBindViewHolder(MyViewHolder holder, int position) {
30         String user = usersList.get(position);
31         holder.textViewName.setText(user);
32     }
33
34     @Override
35     public int getItemCount() {
36         return usersList.size();
37     }
38
39     public class MyViewHolder extends RecyclerView.ViewHolder {
40         public TextView textViewName;
41
42         public MyViewHolder(View view) {
43             super(view);
44             textViewName = view.findViewById(R.id.tv_name);
45         }
46     }
47 }
48 }
```

# RecyclerView 01

activity\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <android.support.v7.widget.RecyclerView
11        android:id="@+id/recycler_view"
12        android:layout_width="match_parent"
13        android:layout_height="match_parent"
14        android:scrollbars="vertical"
15        app:layout_constraintTop_toTopOf="parent"
16        app:layout_constraintBottom_toBottomOf="parent"
17        app:layout_constraintStart_toStartOf="parent"
18        app:layout_constraintEnd_toEndOf="parent" />
19
20 </android.support.constraint.ConstraintLayout>
```

# RecyclerView 01

*single\_row.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     android:layout_width="match_parent"
6     android:layout_height="40dp">
7
8
9     <android.support.constraint.Guideline
10        android:id="@+id/guideline_left"
11        android:layout_width="wrap_content"
12        android:layout_height="wrap_content"
13        android:orientation="vertical"
14        app:layout_constraintGuide_percent=".125" />
15
16     <TextView
17         android:layout_width="wrap_content"
18         android:layout_height="match_parent"
19         android:id="@+id/tv_name"
20         app:layout_constraintTop_toTopOf="parent"
21         app:layout_constraintBottom_toBottomOf="parent"
22         app:layout_constraintStart_toEndOf="@+id/guideline_left" />
23
24
25 </android.support.constraint.ConstraintLayout>
```

# RecyclerView 01

*build.gradle (Module: app)*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     android:layout_width="match_parent"
6     android:layout_height="40dp">
7
8
9     <android.support.constraint.Guideline
10        android:id="@+id/guideline_left"
11        android:layout_width="wrap_content"
12        android:layout_height="wrap_content"
13        android:orientation="vertical"
14        app:layout_constraintGuide_percent=".125" />
15
16     <TextView
17         android:layout_width="wrap_content"
18         android:layout_height="match_parent"
19         android:id="@+id/tv_name"
20         app:layout_constraintTop_toTopOf="parent"
21         app:layout_constraintBottom_toBottomOf="parent"
22         app:layout_constraintStart_toEndOf="@+id/guideline_left" />
23
24
25 </android.support.constraint.ConstraintLayout>
```

# RecyclerView 02

## Overview:

At run time, load in a String of "users" from the string resource file and instantiate an array of custom objects using Gson. This dataset is then immediately loaded into a RecyclerView.

## Github:

[https://github.com/pckosek/Android\\_Examples/tree/master/RecyclerView/RecyclerView\\_02](https://github.com/pckosek/Android_Examples/tree/master/RecyclerView/RecyclerView_02)

## YouTube:

<https://www.youtube.com/watch?v=XXZuGJw3nd0>

## Topics:

- RecyclerView
- ConstraintLayout
- ArrayList
- Gradle Modification
- string resource file
- Gson
- ImageView

# RecyclerView 02

AndroidManifest.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.recyclerview_02">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity android:name=".MainActivity">
13             <intent-filter>
14                 <action android:name="android.intent.action.MAIN" />
15
16                 <category android:name="android.intent.category.LAUNCHER" />
17             </intent-filter>
18         </activity>
19     </application>
20
21 </manifest>
```

# RecyclerView 02

MainActivity.java

```
1 package com.example.pckosek.recyclerview_02;
2
3 import android.support.v7.app.AppCompatActivity;
4 import android.os.Bundle;
5 import android.support.v7.widget.DefaultItemAnimator;
6 import android.support.v7.widget.LinearLayoutManager;
7 import android.support.v7.widget.RecyclerView;
8
9 import com.google.gson.Gson;
10 import com.google.gson.GsonBuilder;
11
12 import java.util.ArrayList;
13 import java.util.Arrays;
14 import java.util.List;
15
16 public class MainActivity extends AppCompatActivity {
17
18     private List<MyUser> mUsersList;
19     private RecyclerView mRecyclerView;
20     private UsersAdapter mUsersAdapter;
21
22     @Override
23     protected void onCreate(Bundle savedInstanceState) {
24         super.onCreate(savedInstanceState);
25         setContentView(R.layout.activity_main);
26
27
28         Gson gson = new GsonBuilder().create();
29         MyUser[] myUsers = gson.fromJson( getString(R.string.my_users), MyUser[].class );
30         mUsersList = new ArrayList<>(Arrays.asList(myUsers));
31
32         mRecyclerView = findViewById(R.id.recycler_view);
33         mUsersAdapter = new UsersAdapter(mUsersList);
34         mUsersAdapter.notifyDataSetChanged();
35
36         RecyclerView.LayoutManager rvlManager = new LinearLayoutManager(this);
37         mRecyclerView.setLayoutManager(rvlManager);
38         mRecyclerView.setItemAnimator(new DefaultItemAnimator());
39
40         mRecyclerView.setAdapter(mUsersAdapter);
41
42     }
43 }
44 }
```

# RecyclerView 02

UsersAdapter.java

```
1 package com.example.pckosek.recyclerview_02;
2
3
4 import android.support.v7.widget.RecyclerView;
5 import android.util.Log;
6 import android.view.LayoutInflater;
7 import android.view.View;
8 import android.view.ViewGroup;
9 import android.widget.TextView;
10
11 import java.util.List;
12
13 public class UsersAdapter extends RecyclerView.Adapter<UsersAdapter.MyViewHolder> {
14
15     private List<MyUser> usersList;
16
17     public UsersAdapter(List<MyUser> ul) {
18         this.usersList = ul;
19     }
20
21     @Override
22     public MyViewHolder onCreateViewHolder(ViewGroup parent, int viewType) {
23         View itemView = LayoutInflater.from(parent.getContext())
24             .inflate(R.layout.single_row, parent, false);
25
26         return new MyViewHolder(itemView);
27     }
28
29     @Override
30     public void onBindViewHolder(MyViewHolder holder, int position) {
31
32         MyUser user = usersList.get(position);
33         holder.textViewName.setText( user.name );
34         holder.textViewAge.setText( String.valueOf(user.age) );
35     }
36
37     @Override
38     public int getItemCount() {
39         return usersList.size();
40     }
41
42     public class MyViewHolder extends RecyclerView.ViewHolder {
43         public TextView textViewName, textViewAge;
44
45         public MyViewHolder(View view) {
46             super(view);
47             textViewName = view.findViewById(R.id.tv_name);
48             textViewAge = view.findViewById(R.id.tv_age);
49         }
50     }
51 }
```

# RecyclerView 02

*MyUser.java*

```
1 package com.example.pckosek.recyclerview_02;
2
3 public class MyUser {
4
5     public int age;
6     public String name;
7
8     public MyUser(int a, String n) {
9         this.age = a;
10        this.name = n;
11    }
12 }
```

## RecyclerView 02

activity\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <android.support.v7.widget.RecyclerView
11        android:id="@+id/recycler_view"
12        android:layout_width="match_parent"
13        android:layout_height="match_parent"
14        android:scrollbars="vertical"
15        app:layout_constraintTop_toTopOf="parent"
16        app:layout_constraintBottom_toBottomOf="parent"
17        app:layout_constraintStart_toStartOf="parent"
18        app:layout_constraintEnd_toEndOf="parent" />
19
20 </android.support.constraint.ConstraintLayout>
```

## RecyclerView 02

*single\_row.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     android:layout_width="match_parent"
6     android:layout_height="75dp">
7
8
9     <android.support.constraint.Guideline
10        android:id="@+id/guideline_left"
11        android:layout_width="wrap_content"
12        android:layout_height="wrap_content"
13        android:orientation="vertical"
14        app:layout_constraintGuide_percent=".25" />
15
16     <android.support.constraint.Guideline
17        android:id="@+id/guideline_right"
18        android:layout_width="wrap_content"
19        android:layout_height="wrap_content"
20        android:orientation="vertical"
21        app:layout_constraintGuide_percent=".875" />
22
23     <ImageView
24         android:id="@+id/imageView"
25         android:layout_width="60dp"
26         android:layout_height="60dp"
27         android:src="@drawable/ic_user"
28         android:layout_marginEnd="16dp"
29         app:layout_constraintBottom_toBottomOf="parent"
30         app:layout_constraintEnd_toEndOf="@+id/guideline_left"
31         app:layout_constraintTop_toTopOf="parent" />
32
33     <TextView
34         android:id="@+id/tv_name"
35         android:layout_width="wrap_content"
36         android:layout_height="match_parent"
37         android:textSize="24sp"
38         android:gravity="center_vertical"
39         android:text="USER"
40         android:layout_marginStart="16dp"
41         app:layout_constraintBottom_toBottomOf="@+id/imageView"
42         app:layout_constraintStart_toEndOf="@+id/guideline_left"
43         app:layout_constraintTop_toTopOf="@+id/imageView" />
44
45     <TextView
46         android:id="@+id/tv_age"
47         android:layout_width="wrap_content"
48         android:layout_height="match_parent"
49         android:textSize="24sp"
50         android:gravity="center_vertical"
51         android:text="AGE"
52         app:layout_constraintBottom_toBottomOf="@+id/tv_name"
```

```
53     app:layout_constraintEnd_toStartOf="@+id/guideline_right"
54     app:layout_constraintTop_toTopOf="@+id/tv_name" />
55
56 </android.support.constraint.ConstraintLayout>
```

# RecyclerView 02

values/strings.xml

```
1 <resources>
2     <string name="app_name">RecyclerView_02</string>
3     <string name="my_users">
4         [
5             { age : 13, name : \"Bob\" },
6             { age : 17, name : \"Sue\" },
7             { age : 99, name : \"Nana\" },
8             { age : 47, name : \"Frank\" },
9             { age : 70, name : \"Mary\" },
10            { age : 52, name : \"Melanie\" },
11            { age : 19, name : \"Chuck\" },
12            { age : 19, name : \"Charles\" },
13            { age : 21, name : \"Ben\" },
14            { age : 33, name : \"John\" },
15            { age : 41, name : \"Carl\" }
16        ]
17     </string>
18 </resources>
```

## RecyclerView 02

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.recyclerview_02"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     implementation 'com.android.support:recyclerview-v7:27.1.1'
26     implementation 'com.google.code.gson:gson:2.8.5'
27     testImplementation 'junit:junit:4.12'
28     androidTestImplementation 'com.android.support.test:runner:1.0.2'
29     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
30 }
```

# RecyclerView 03

## Overview:

At run time, load in a String of "users" from the string resource file and instantiate an array of custom objects using Gson. This dataset is then immediately loaded into a RecyclerView. The RecyclerView.Adapter defines an interface that is implemented by the MainActivity - so that calls and data may be passed upwards from the Adapter. Within each "row" of the RecyclerView, there are Vertical "more" dots (...) which are assigned OnClickListeners using a custom class. The constructor of the custom class that implements the View.OnClickListener interface also takes an int argument so that the position. In the onClick method of the custom View.OnClickListener class, the RecyclerView.Adapter interface method is called so that data (the position) may be passed the MainActivity. When the RecyclerView.Adapter interface is triggered in the MainActivity, a custom PopupMenu is drawn on the "more" dots (...). When the "Edit User" option is selected from this menu, a AlertDialog is inflated via a custom class that implements PopupMenu.OnMenuItemClickListener - which also takes a positional argument so that the correct user may be selected from the underlying ArrayList dataset.

## Github:

[https://github.com/pckosek/Android\\_Examples/tree/master/RecyclerView/RecyclerView\\_03](https://github.com/pckosek/Android_Examples/tree/master/RecyclerView/RecyclerView_03)

## YouTube:

<https://www.youtube.com/watch?v=CK5pyTxpio0>

## Topics:

- RecyclerView
- ConstraintLayout
- ArrayList
- Gradle Modification
- string resource file
- View.OnClickListener
- Custom Class
- Dialog Fragment
- Custom Interface
- Fragment Arguments
- PopupMenu
- Gson
- ImageView

# RecyclerView 03

AndroidManifest.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.recyclerview_03">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="@string/app_name"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportsRtl="true"
11        android:theme="@style/AppTheme">
12         <activity android:name=".MainActivity">
13             <intent-filter>
14                 <action android:name="android.intent.action.MAIN" />
15
16                 <category android:name="android.intent.category.LAUNCHER" />
17             </intent-filter>
18         </activity>
19     </application>
20
21 </manifest>
```

# RecyclerView 03

MainActivity.java

```
1 package com.example.pckosek.recyclerview_03;
2
3 import android.support.v4.app.FragmentManager;
4 import android.support.v7.app.AppCompatActivity;
5 import android.os.Bundle;
6 import android.support.v7.widget.DefaultItemAnimator;
7 import android.support.v7.widget.LinearLayoutManager;
8 import android.support.v7.widget.PopupMenu;
9 import android.support.v7.widget.RecyclerView;
10 import android.view.MenuItem;
11 import android.view.View;
12
13 import com.google.gson.Gson;
14 import com.google.gson.GsonBuilder;
15
16 import java.util.ArrayList;
17 import java.util.Arrays;
18 import java.util.List;
19
20 public class MainActivity extends AppCompatActivity implements
21     UsersAdapter.UsersAdapterInterface {
22
23     private List<MyUser> mUsersList;
24     private RecyclerView mRecyclerView;
25     private UsersAdapter mUsersAdapter;
26
27     @Override
28     protected void onCreate(Bundle savedInstanceState) {
29         super.onCreate(savedInstanceState);
30         setContentView(R.layout.activity_main);
31
32
33         Gson gson = new GsonBuilder().create();
34         MyUser[] myUsers = gson.fromJson(getString(R.string.my_users), MyUser[].class);
35         mUsersList = new ArrayList<>(Arrays.asList(myUsers));
36
37         mRecyclerView = findViewById(R.id.recycler_view);
38         mUsersAdapter = new UsersAdapter(mUsersList, this);
39         mUsersAdapter.notifyDataSetChanged();
40
41         RecyclerView.LayoutManager rvlManager = new LinearLayoutManager(this);
42         mRecyclerView.setLayoutManager(rvlManager);
43         mRecyclerView.setItemAnimator(new DefaultItemAnimator());
44
45         mRecyclerView.setAdapter(mUsersAdapter);
46
47     }
48
49
50
51
52 }
```

```
53     @Override
54     public void onEditItemClicked(View v, int pos) {
55         PopupMenu popup = new PopupMenu(this, v);
56         popup.setOnMenuItemClickListener(new MyMenuItemClickListener(pos));
57         popup.inflate(R.menu.menu_edit);
58         popup.show();
59     }
60
61
62     public class MyMenuItemClickListener implements PopupMenu.OnMenuItemClickListener {
63
64         private int position;
65
66         public MyMenuItemClickListener(int pos) {
67             this.position = pos;
68         }
69
70         @Override
71         public boolean onMenuItemClick(MenuItem item) {
72             switch (item.getItemId()) {
73                 case R.id.menu_edit_item:
74                     FragmentManager fm = getSupportFragmentManager();
75                     MyDialogFragment myDialogFragment = MyDialogFragment.newInstance(
76                         mUsersList.get(position));
77                     myDialogFragment.show(fm, "fragment_my_dialog");
78                     return true;
79
80                 default:
81                     return false;
82             }
83         }
84     }
85 }
86 }
```

# RecyclerView 03

UsersAdapter.java

```
1 package com.example.pckosek.recyclerview_03;
2
3 import android.support.v7.widget.RecyclerView;
4 import android.view.LayoutInflater;
5 import android.view.View;
6 import android.view.ViewGroup;
7 import android.widget.ImageView;
8 import android.widget.TextView;
9
10 import java.util.List;
11
12 public class UsersAdapter extends RecyclerView.Adapter<UsersAdapter.MyViewHolder> {
13
14     private List<MyUser> usersList;
15     private UsersAdapterInterface mCallback;
16
17     public UsersAdapter(List<MyUser> ul, UsersAdapterInterface ucb) {
18         this.usersList = ul;
19         if (ucb instanceof UsersAdapterInterface) {
20             this.mCallback = ucb;
21         } else {
22             throw new RuntimeException(ucb.toString()
23                     + "[probably your MainActivity] must implement UsersAdapterInterface");
24         }
25     }
26
27     @Override
28     public MyViewHolder onCreateViewHolder(ViewGroup parent, int viewType) {
29         View itemView = LayoutInflater.from(parent.getContext())
30             .inflate(R.layout.single_row, parent, false);
31
32         return new MyViewHolder(itemView);
33     }
34
35     @Override
36     public void onBindViewHolder(MyViewHolder holder, int position) {
37
38         MyUser user = usersList.get(position);
39         holder.textViewName.setText( user.name );
40         holder.textViewAge.setText( String.valueOf(user.age) );
41         holder.imageViewEdit.setOnClickListener( new MyEditClickListener(position) );
42
43     }
44
45     @Override
46     public int getItemCount() {
47         return usersList.size();
48     }
49
50
51
52 }
```

```
53 |     public class MyEditClickListener implements View.OnClickListener {
54 |
55 |         private int position;
56 |
57 |         public MyEditClickListener(int pos) {
58 |             this.position = pos;
59 |         }
60 |
61 |         @Override
62 |         public void onClick(View v) {
63 |             mCallback.onEditItemClicked(v, position);
64 |         }
65 |     }
66 |
67 |     public class MyViewHolder extends RecyclerView.ViewHolder {
68 |         public TextView textViewName, textViewAge;
69 |         public ImageView imageViewEdit;
70 |
71 |         public MyViewHolder(View view) {
72 |             super(view);
73 |             textViewName = view.findViewById(R.id.tv_name);
74 |             textViewAge = view.findViewById(R.id.tv_age);
75 |             imageViewEdit = view.findViewById(R.id.iv_more);
76 |         }
77 |     }
78 |
79 |     public interface UsersAdapterInterface {
80 |         void onEditItemClicked(View v, int pos);
81 |     }
82 | }
```

# RecyclerView 03

MyUser.java

```
1 package com.example.pckosek.recyclerview_03;
2
3 import java.io.Serializable;
4
5 public class MyUser implements Serializable{
6
7     public int age;
8     public String name;
9
10    public MyUser(int a, String n) {
11        this.age = a;
12        this.name = n;
13    }
14 }
```

# RecyclerView 03

*MyDialogFragment.java*

```
1 package com.example.pckosek.recyclerview_03;
2
3 import android.os.Bundle;
4 import android.support.annotation.NonNull;
5 import android.support.annotation.Nullable;
6 import android.support.v4.app.DialogFragment;
7 import android.view.LayoutInflater;
8 import android.view.View;
9 import android.view.ViewGroup;
10 import android.widget.TextView;
11
12 public class MyDialogFragment extends DialogFragment {
13
14     private final static String ARGS_USER = "args_user";
15
16     private TextView mTextView;
17
18     public MyDialogFragment() {}
19
20     public static MyDialogFragment newInstance(MyUser usr) {
21         MyDialogFragment myDialogFragment = new MyDialogFragment();
22         Bundle args = new Bundle();
23
24         args.putSerializable(ARGS_USER, usr);
25         myDialogFragment.setArguments(args);
26         return myDialogFragment;
27     }
28
29     @Override
30     public View onCreateView(LayoutInflater inflater, ViewGroup container,
31                             Bundle savedInstanceState) {
32         return inflater.inflate(R.layout.fragment_my_dialog, container, false);
33     }
34
35     @Override
36     public void onViewCreated(@NonNull View view, @Nullable Bundle savedInstanceState) {
37         super.onViewCreated(view, savedInstanceState);
38
39         MyUser myUser = (MyUser) getArguments().getSerializable(ARGS_USER);
40
41         mTextView = view.findViewById(R.id.tv_count);
42         mTextView.setText( myUser.name );
43     }
44 }
```

# RecyclerView 03

activity\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <android.support.v7.widget.RecyclerView
11        android:id="@+id/recycler_view"
12        android:layout_width="match_parent"
13        android:layout_height="match_parent"
14        android:scrollbars="vertical"
15        app:layout_constraintTop_toTopOf="parent"
16        app:layout_constraintBottom_toBottomOf="parent"
17        app:layout_constraintStart_toStartOf="parent"
18        app:layout_constraintEnd_toEndOf="parent" />
19
20 </android.support.constraint.ConstraintLayout>
```

# RecyclerView 03

single\_row.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     android:layout_width="match_parent"
6     android:layout_height="75dp">
7
8     <android.support.constraint.Guideline
9         android:id="@+id/guideline_left"
10        android:layout_width="wrap_content"
11        android:layout_height="wrap_content"
12        android:orientation="vertical"
13        app:layout_constraintGuide_percent=".25" />
14
15     <android.support.constraint.Guideline
16         android:id="@+id/guideline_right"
17        android:layout_width="wrap_content"
18        android:layout_height="wrap_content"
19        android:orientation="vertical"
20        app:layout_constraintGuide_percent=".875" />
21
22     <ImageView
23         android:id="@+id/imageView"
24         android:layout_width="60dp"
25         android:layout_height="60dp"
26         android:src="@drawable/ic_user"
27         android:layout_marginEnd="16dp"
28         app:layout_constraintBottom_toBottomOf="parent"
29         app:layout_constraintEnd_toEndOf="@+id/guideline_left"
30         app:layout_constraintTop_toTopOf="parent" />
31
32     <TextView
33         android:id="@+id/tv_name"
34         android:layout_width="wrap_content"
35         android:layout_height="match_parent"
36         android:textSize="24sp"
37         android:gravity="center_vertical"
38         android:text="USER"
39         android:layout_marginStart="16dp"
40         app:layout_constraintBottom_toBottomOf="@+id/imageView"
41         app:layout_constraintStart_toEndOf="@+id/guideline_left"
42         app:layout_constraintTop_toTopOf="@+id/imageView" />
43
44     <TextView
45         android:id="@+id/tv_age"
46         android:layout_width="wrap_content"
47         android:layout_height="match_parent"
48         android:textSize="24sp"
49         android:gravity="center_vertical"
50         android:text="AGE"
51         app:layout_constraintBottom_toBottomOf="@+id/tv_name"
52         app:layout_constraintEnd_toStartOf="@+id/guideline_right"
```

```
53     app:layout_constraintTop_toTopOf="@+id/tv_name" />
54
55 <ImageView
56     android:id="@+id/iv_more"
57     android:layout_width="20dp"
58     android:layout_height="20dp"
59     android:src="@drawable/ic_dots"
60     android:layout_marginStart="16dp"
61     app:layout_constraintBottom_toBottomOf="parent"
62     app:layout_constraintStart_toEndOf="@+id/guideline_right"
63     app:layout_constraintTop_toTopOf="parent" />
64
65 </android.support.constraint.ConstraintLayout>
```

# RecyclerView 03

*fragment\_my\_dialog.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MyDialogFragment">
9
10    <View
11        android:id="@+id/view"
12        android:layout_width="200dp"
13        android:layout_height="100dp"
14        app:layout_constraintBottom_toBottomOf="parent"
15        app:layout_constraintEnd_toEndOf="parent"
16        app:layout_constraintStart_toStartOf="parent"
17        app:layout_constraintTop_toTopOf="parent"
18        app:layout_constraintVertical_bias="0.25" />
19
20    <TextView
21        android:id="@+id/tv_count"
22        android:layout_width="wrap_content"
23        android:layout_height="wrap_content"
24        android:textSize="24dp"
25        app:layout_constraintTop_toTopOf="@+id/view"
26        app:layout_constraintBottom_toBottomOf="@+id/view"
27        app:layout_constraintStart_toStartOf="@+id/view"
28        app:layout_constraintEnd_toEndOf="@+id/view" />
29
30
31 </android.support.constraint.ConstraintLayout>
```

## RecyclerView 03

menu/menu\_edit.xml

```
1 | <?xml version="1.0" encoding="utf-8"?>
2 | <menu xmlns:android="http://schemas.android.com/apk/res/android">
3 |     <item android:id="@+id/menu_edit_item"
4 |         android:title="@string/edit_user" />
5 | </menu>
```

# RecyclerView 03

values/strings.xml

```
1 <resources>
2     <string name="app_name">RecyclerView_03</string>
3     <string name="my_users">
4         [
5             { age : 13, name : \"Bob\" },
6             { age : 17, name : \"Sue\" },
7             { age : 99, name : \"Nana\" },
8             { age : 47, name : \"Frank\" },
9             { age : 70, name : \"Mary\" },
10            { age : 52, name : \"Melanie\" },
11            { age : 19, name : \"Chuck\" },
12            { age : 19, name : \"Charles\" },
13            { age : 21, name : \"Ben\" },
14            { age : 33, name : \"John\" },
15            { age : 41, name : \"Carl\" }
16        ]
17     </string>
18     <string name="edit_user">Edit User</string>
19 </resources>
```

# RecyclerView 03

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.recyclerview_03"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     implementation 'com.android.support:recyclerview-v7:27.1.1'
26     implementation 'com.google.code.gson:gson:2.8.5'
27     testImplementation 'junit:junit:4.12'
28     androidTestImplementation 'com.android.support.test:runner:1.0.2'
29     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
30 }
```



# **Volley\_01**

## **Overview:**

At run time, a string fetched from a remote Flask server (included) using a Volley request. When the string result is fetched, the result is displayed in a TextView. If there is no internet connection, the error message is displayed in a Toast.

## **Github:**

[https://github.com/pckosek/Android\\_Examples/tree/master/Volley/Volley\\_01](https://github.com/pckosek/Android_Examples/tree/master/Volley/Volley_01)

## **YouTube:**

<https://www.youtube.com/watch?v=Pk5G8BnEZVA>

## **Topics:**

- ConstraintLayout
- Flask Server
- Volley Response and Error Listeners
- Toast
- Anonymous Class

# Volley\_01

AndroidManifest.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.volley_01">
4
5     <uses-permission android:name="android.permission.INTERNET" />
6     <uses-permission android:name="android.permission.ACCESS_NETWORK_STATE" />
7
8     <application
9         android:allowBackup="true"
10        android:icon="@mipmap/ic_launcher"
11        android:label="@string/app_name"
12        android:roundIcon="@mipmap/ic_launcher_round"
13        android:supportsRtl="true"
14        android:theme="@style/AppTheme">
15         <activity android:name=".MainActivity">
16             <intent-filter>
17                 <action android:name="android.intent.action.MAIN" />
18
19                 <category android:name="android.intent.category.LAUNCHER" />
20             </intent-filter>
21         </activity>
22     </application>
23
24 </manifest>
```

# Volley\_01

MainActivity.java

```
1 package com.example.pckosek.volley_01;
2
3 import android.support.annotation.NonNull;
4 import android.support.v7.app.AppCompatActivity;
5 import android.os.Bundle;
6 import android.util.Log;
7 import android.widget.Toast;
8
9 import com.android.volley.NetworkResponse;
10 import com.android.volley.Request;
11 import com.android.volley.RequestQueue;
12 import com.android.volley.Response;
13 import com.android.volley.VolleyError;
14 import com.android.volley.toolbox.JsonRequest;
15 import com.android.volley.toolbox.StringRequest;
16 import com.android.volley.toolbox.Volley;
17
18 import java.lang.ref.ReferenceQueue;
19
20 public class MainActivity extends AppCompatActivity {
21
22     @Override
23     protected void onCreate(Bundle savedInstanceState) {
24         super.onCreate(savedInstanceState);
25         setContentView(R.layout.activity_main);
26
27         String url = "https://user.tjhsst.edu/pckosek/";
28         StringRequest stringRequest = new StringRequest(
29             Request.Method.GET,
30             url,
31             new Response.Listener<String>() {
32                 @Override
33                 public void onResponse(String response) {
34                     Toast.makeText(getApplicationContext(), response, Toast.LENGTH_LONG).show();
35                 }
36             },
37             new Response.ErrorListener() {
38                 @Override
39                 public void onErrorResponse(VolleyError error) {
40                     Toast.makeText(getApplicationContext(),
41                         error.toString(),
42                         Toast.LENGTH_LONG).show();
43                 }
44             }
45         );
46
47         RequestQueue requestQueue = Volley.newRequestQueue(this);
48         requestQueue.add(stringRequest);
49
50     }
}
```

# Volley\_01

*activity\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <TextView
11        android:layout_width="wrap_content"
12        android:layout_height="wrap_content"
13        android:text="Hello World!"
14        app:layout_constraintBottom_toBottomOf="parent"
15        app:layout_constraintLeft_toLeftOf="parent"
16        app:layout_constraintRight_toRightOf="parent"
17        app:layout_constraintTop_toTopOf="parent" />
18
19 </android.support.constraint.ConstraintLayout>
```

# Volley\_01

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.volley_01"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     implementation 'com.android.volley:volley:1.0.0'
26     testImplementation 'junit:junit:4.12'
27     androidTestImplementation 'com.android.support.test:runner:1.0.2'
28     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
29 }
```

## Volley\_01 [Flask Server]

*run.sh*

```
1 | #!/bin/bash
2 | ..../venv/bin/gunicorn server:app -b 127.0.0.1:$PORT -w=1 --capture-output
```

# Volley\_01 [Flask Server]

server.py

```
1 | from flask import Flask
2 |
3 | app = Flask(__name__)
4 |
5 | @app.route("/")
6 | def index():
7 |     return "Hello from the Internet!!!"
```



## **Volley\_02**

### **Overview:**

At run time, a string fetched from a remote Flask server (included) using a Volley request. When the string result is fetched, the result is displayed in a TextView. If there is no internet connection, the error message is displayed in a Toast.

### **Github:**

[https://github.com/pckosek/Android\\_Examples/tree/master/Volley/Volley\\_02](https://github.com/pckosek/Android_Examples/tree/master/Volley/Volley_02)

### **YouTube:**

<https://www.youtube.com/watch?v=BfN8tHHRzuo>

### **Topics:**

- ConstraintLayout
- Flask Server
- Volley
- Volley Response and Error Listeners
- Toast

# Volley\_02

AndroidManifest.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.volley_02">
4
5     <uses-permission android:name="android.permission.INTERNET" />
6     <uses-permission android:name="android.permission.ACCESS_NETWORK_STATE" />
7
8     <application
9         android:allowBackup="true"
10        android:icon="@mipmap/ic_launcher"
11        android:label="@string/app_name"
12        android:roundIcon="@mipmap/ic_launcher_round"
13        android:supportsRtl="true"
14        android:theme="@style/AppTheme">
15         <activity android:name=".MainActivity">
16             <intent-filter>
17                 <action android:name="android.intent.action.MAIN" />
18
19                 <category android:name="android.intent.category.LAUNCHER" />
20             </intent-filter>
21         </activity>
22     </application>
23
24 </manifest>
```

# Volley\_02

MainActivity.java

```
1 package com.example.pckosek.volley_02;
2
3 import android.support.v7.app.AppCompatActivity;
4 import android.os.Bundle;
5 import android.widget.Toast;
6
7 import com.android.volley.Request;
8 import com.android.volley.RequestQueue;
9 import com.android.volley.Response;
10 import com.android.volley.VolleyError;
11 import com.android.volley.toolbox.StringRequest;
12 import com.android.volley.toolbox.Volley;
13
14 public class MainActivity extends AppCompatActivity implements
15     Response.Listener<String>, Response.ErrorListener {
16
17     @Override
18     protected void onCreate(Bundle savedInstanceState) {
19         super.onCreate(savedInstanceState);
20         setContentView(R.layout.activity_main);
21
22         String url = "https://user.tjhsst.edu/pckosek/";
23         StringRequest stringRequest = new StringRequest(
24             Request.Method.GET, url,
25             this,
26             this);
27
28         RequestQueue requestQueue = Volley.newRequestQueue(this);
29         requestQueue.add(stringRequest);
30     }
31
32     @Override
33     public void onResponse(String response) {
34         Toast.makeText(getApplicationContext(), response, Toast.LENGTH_LONG).show();
35     }
36
37     @Override
38     public void onErrorResponse(VolleyError error) {
39         Toast.makeText(getApplicationContext(), error.toString(), Toast.LENGTH_LONG).show();
40     }
41 }
```

# Volley\_02

*activity\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <TextView
11        android:layout_width="wrap_content"
12        android:layout_height="wrap_content"
13        android:text="Hello World!"
14        app:layout_constraintBottom_toBottomOf="parent"
15        app:layout_constraintLeft_toLeftOf="parent"
16        app:layout_constraintRight_toRightOf="parent"
17        app:layout_constraintTop_toTopOf="parent" />
18
19 </android.support.constraint.ConstraintLayout>
```

## Volley\_02

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.volley_02"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     implementation 'com.android.volley:volley:1.0.0'
26     testImplementation 'junit:junit:4.12'
27     androidTestImplementation 'com.android.support.test:runner:1.0.2'
28     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
29 }
```

## Volley\_02 [Flask Server]

*run.sh*

```
1 | #!/bin/bash
2 | ..../venv/bin/gunicorn server:app -b 127.0.0.1:$PORT -w=1 --capture-output
```

## Volley\_02 [Flask Server]

server.py

```
1 | from flask import Flask
2 |
3 | app = Flask(__name__)
4 |
5 | @app.route("/")
6 | def index():
7 |     return "Hello from the Internet!!!"
```



## **Volley\_03**

### **Overview:**

At run time, a string fetched from a remote Flask server (included) using a Volley request. When the string result is fetched, the result is displayed in a TextView. If there is no internet connection, the error message is displayed in a Toast.

### **Github:**

[https://github.com/pckosek/Android\\_Examples/tree/master/Volley/Volley\\_03](https://github.com/pckosek/Android_Examples/tree/master/Volley/Volley_03)

### **YouTube:**

<https://www.youtube.com/watch?v=n2VlwJTzTD4>

### **Topics:**

- ConstraintLayout
- Flask Server
- Volley
- Volley Response and Error Listeners
- Toast

# Volley\_03

AndroidManifest.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.volley_03">
4
5     <uses-permission android:name="android.permission.INTERNET" />
6     <uses-permission android:name="android.permission.ACCESS_NETWORK_STATE" />
7
8     <application
9         android:allowBackup="true"
10        android:icon="@mipmap/ic_launcher"
11        android:label="@string/app_name"
12        android:roundIcon="@mipmap/ic_launcher_round"
13        android:supportsRtl="true"
14        android:theme="@style/AppTheme">
15         <activity android:name=".MainActivity">
16             <intent-filter>
17                 <action android:name="android.intent.action.MAIN" />
18
19                 <category android:name="android.intent.category.LAUNCHER" />
20             </intent-filter>
21         </activity>
22     </application>
23
24 </manifest>
```

# Volley\_03

MainActivity.java

```
1 package com.example.pckosek.volley_03;
2
3 import android.support.v7.app.AppCompatActivity;
4 import android.os.Bundle;
5 import android.widget.Toast;
6
7 import com.android.volley.Request;
8 import com.android.volley.RequestQueue;
9 import com.android.volley.Response;
10 import com.android.volley.VolleyError;
11 import com.android.volley.toolbox.StringRequest;
12 import com.android.volley.toolbox.Volley;
13
14 public class MainActivity extends AppCompatActivity {
15
16     @Override
17     protected void onCreate(Bundle savedInstanceState) {
18         super.onCreate(savedInstanceState);
19         setContentView(R.layout.activity_main);
20
21         String url = "https://user.tjhsst.edu/pckosek/";
22         MyResponseHelper myResponseHelper = new MyResponseHelper();
23         StringRequest stringRequest = new StringRequest(
24             Request.Method.GET,
25             url,
26             myResponseHelper,
27             myResponseHelper);
28
29         RequestQueue requestQueue = Volley.newRequestQueue(this);
30         requestQueue.add(stringRequest);
31
32     }
33
34     protected class MyResponseHelper implements
35         Response.Listener<String>, Response.ErrorListener {
36
37         @Override
38         public void onResponse(String response) {
39             Toast.makeText(getApplicationContext(), response, Toast.LENGTH_LONG).show();
40         }
41
42         @Override
43         public void onErrorResponse(VolleyError error) {
44             Toast.makeText(getApplicationContext(), error.toString(), Toast.LENGTH_LONG).show();
45         }
46     }
47 }
```

# Volley\_03

*activity\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <TextView
11        android:layout_width="wrap_content"
12        android:layout_height="wrap_content"
13        android:text="Hello World!"
14        app:layout_constraintBottom_toBottomOf="parent"
15        app:layout_constraintLeft_toLeftOf="parent"
16        app:layout_constraintRight_toRightOf="parent"
17        app:layout_constraintTop_toTopOf="parent" />
18
19 </android.support.constraint.ConstraintLayout>
```

## Volley\_03

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.volley_03"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     implementation 'com.android.volley:volley:1.0.0'
26     testImplementation 'junit:junit:4.12'
27     androidTestImplementation 'com.android.support.test:runner:1.0.2'
28     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
29 }
```

## Volley\_03 [Flask Server]

*run.sh*

```
1 | #!/bin/bash
2 | ..../venv/bin/gunicorn server:app -b 127.0.0.1:$PORT -w=1 --capture-output
```

## Volley\_03 [Flask Server]

server.py

```
1 | from flask import Flask
2 |
3 | app = Flask(__name__)
4 |
5 | @app.route("/")
6 | def index():
7 |     return "Hello from the Internet!!!"
```



# Volley\_04

## Overview:

When the Button is pressed, a string is fetched from a remote Flask server (included) using a Volley request. The string served by the remote server is in json format, and in the Android app is parsed into a custom object using Gson. The fields of the newly created object are then populated into TextViews within the fragment. If there is no internet connection, the error message is displayed in a Toast.

## Github:

[https://github.com/pckosek/Android\\_Examples/tree/master/Volley/Volley\\_04](https://github.com/pckosek/Android_Examples/tree/master/Volley/Volley_04)

## YouTube:

<https://www.youtube.com/watch?v=6TPJL-Sx27g>

## Topics:

- ConstraintLayout
- Flask Server
- Volley
- Volley Response and Error Listeners
- Toast
- Fragment
- View.OnClickListener
- Interface implementations

# Volley\_04

AndroidManifest.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.volley_04">
4
5     <uses-permission android:name="android.permission.INTERNET" />
6     <uses-permission android:name="android.permission.ACCESS_NETWORK_STATE" />
7
8     <application
9         android:allowBackup="true"
10        android:icon="@mipmap/ic_launcher"
11        android:label="@string/app_name"
12        android:roundIcon="@mipmap/ic_launcher_round"
13        android:supportsRtl="true"
14        android:theme="@style/AppTheme">
15         <activity android:name=".MainActivity">
16             <intent-filter>
17                 <action android:name="android.intent.action.MAIN" />
18
19                 <category android:name="android.intent.category.LAUNCHER" />
20             </intent-filter>
21         </activity>
22     </application>
23
24 </manifest>
```

# Volley\_04

*MainActivity.java*

```
1 package com.example.pckosek.volley_04;
2
3 import android.support.v7.app.AppCompatActivity;
4 import android.os.Bundle;
5
6 public class MainActivity extends AppCompatActivity {
7
8     @Override
9     protected void onCreate(Bundle savedInstanceState) {
10         super.onCreate(savedInstanceState);
11         setContentView(R.layout.activity_main);
12     }
13 }
```

# Volley\_04

MainFragment.java

```
1 package com.example.pckosek.volley_04;
2
3
4 import android.os.Bundle;
5 import android.support.annotation.NonNull;
6 import android.support.annotation.Nullable;
7 import android.support.v4.app.Fragment;
8 import android.view.LayoutInflater;
9 import android.view.View;
10 import android.view.ViewGroup;
11 import android.widget.Button;
12 import android.widget.TextView;
13 import android.widget.Toast;
14
15 import com.android.volley.Request;
16 import com.android.volley.RequestQueue;
17 import com.android.volley.Response;
18 import com.android.volley.VolleyError;
19 import com.android.volley.toolbox.StringRequest;
20 import com.android.volley.toolbox.Volley;
21 import com.google.gson.Gson;
22 import com.google.gson.GsonBuilder;
23
24
25 public class MainFragment extends Fragment implements View.OnClickListener {
26
27     private TextView mTextViewName;
28     private TextView getmTextViewAge;
29     private Button mButtonGet;
30
31     public MainFragment() {}
32
33     @Override
34     public View onCreateView(LayoutInflater inflater, ViewGroup container,
35                             Bundle savedInstanceState) {
36         return inflater.inflate(R.layout.fragment_main, container, false);
37     }
38
39     @Override
40     public void onViewCreated(@NonNull View view, @Nullable Bundle savedInstanceState) {
41         super.onViewCreated(view, savedInstanceState);
42
43         mTextViewName = view.findViewById(R.id.tv_user_name);
44         getmTextViewAge = view.findViewById(R.id.tv_user_age);
45         mButtonGet = view.findViewById(R.id.btn_get);
46         mButtonGet.setOnClickListener(this);
47     }
48
49
50
51
52
```

```

53     @Override
54     public void onClick(View v) {
55         String url = "https://user.tjhsst.edu/pckosek/";
56         MyResponseHelper myResponseHelper = new MyResponseHelper();
57         StringRequest stringRequest = new StringRequest(
58             Request.Method.GET,
59             url,
60             myResponseHelper,
61             myResponseHelper);
62
63         RequestQueue requestQueue = Volley.newRequestQueue(getContext());
64         requestQueue.add(stringRequest);
65     }
66
67     protected class MyResponseHelper implements
68         Response.Listener<String>, Response.ErrorListener {
69
70         @Override
71         public void onResponse(String response) {
72             Gson gson = new GsonBuilder().create();
73             MyUser myUser = gson.fromJson(response, MyUser.class);
74
75             mTextViewName.setText( myUser.name );
76             getmTextViewAge.setText( String.valueOf(myUser.age) );
77         }
78
79         @Override
80         public void onErrorResponse(VolleyError error) {
81             Toast.makeText(getApplicationContext(), error.toString(), Toast.LENGTH_LONG).show();
82         }
83     }
84 }
```

# Volley\_04

*MyUser.java*

```
1 package com.example.pckosek.volley_04;
2
3 import java.io.Serializable;
4
5 public class MyUser implements Serializable {
6     public String name;
7     public int age;
8
9     public MyUser(String n, int a) {
10         name = n;
11         age = a;
12     }
13 }
```

# Volley\_04

*activity\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <fragment
11        android:id="@+id/fragment_main"
12        android:name="com.example.pckosek.volley_04.MainFragment"
13        android:layout_width="match_parent"
14        android:layout_height="match_parent"
15        app:layout_constraintBottom_toBottomOf="parent"
16        app:layout_constraintLeft_toLeftOf="parent"
17        app:layout_constraintRight_toRightOf="parent"
18        app:layout_constraintTop_toTopOf="parent" />
19
20 </android.support.constraint.ConstraintLayout>
```

# Volley\_04

fragment\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainFragment">
9
10    <android.support.constraint.Guideline
11        android:id="@+id/guideline"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        android:orientation="vertical"
15        app:layout_constraintGuide_percent=".172" />
16
17    <TextView
18        android:layout_width="wrap_content"
19        android:layout_height="wrap_content"
20        android:text="User Goes Here"
21        android:id="@+id/tv_user_name"
22        android:textSize="16sp"
23        app:layout_constraintBottom_toBottomOf="parent"
24        app:layout_constraintStart_toEndOf="@+id/guideline"
25        app:layout_constraintTop_toTopOf="parent"
26        app:layout_constraintVertical_bias="0.125" />
27
28    <TextView
29        android:layout_width="wrap_content"
30        android:layout_height="wrap_content"
31        android:text="Age Goes Here"
32        android:id="@+id/tv_user_age"
33        android:textSize="16sp"
34        android:layout_marginTop="20dp"
35        app:layout_constraintTop_toBottomOf="@+id/tv_user_name"
36        app:layout_constraintStart_toEndOf="@+id/guideline" />
37
38    <Button
39        android:layout_width="wrap_content"
40        android:layout_height="wrap_content"
41        android:text="Get Web User"
42        android:id="@+id/btn_get"
43        android:textSize="16sp"
44        android:layout_marginTop="20dp"
45        app:layout_constraintTop_toBottomOf="@+id/tv_user_age"
46        app:layout_constraintStart_toEndOf="@+id/guideline"/>
47
48
49
50 </android.support.constraint.ConstraintLayout>
```

## Volley\_04

*build.gradle (Module: app)*

```
1 apply plugin: 'com.android.application'
2
3 android {
4     compileSdkVersion 27
5     defaultConfig {
6         applicationId "com.example.pckosek.volley_04"
7         minSdkVersion 22
8         targetSdkVersion 27
9         versionCode 1
10        versionName "1.0"
11        testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
12    }
13    buildTypes {
14        release {
15            minifyEnabled false
16            proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
17        }
18    }
19 }
20
21 dependencies {
22     implementation fileTree(dir: 'libs', include: ['*.jar'])
23     implementation 'com.android.support:appcompat-v7:27.1.1'
24     implementation 'com.android.support.constraint:constraint-layout:1.1.3'
25     implementation 'com.android.volley:volley:1.0.0'
26     implementation 'com.google.code.gson:gson:2.8.5'
27     implementation 'com.android.support:support-v4:27.1.1'
28     testImplementation 'junit:junit:4.12'
29     androidTestImplementation 'com.android.support.test:runner:1.0.2'
30     androidTestImplementation 'com.android.support.test.espresso:espresso-core:3.0.2'
31 }
```

## Volley\_04 [Flask Server]

*run.sh*

```
1 | #!/bin/bash
2 | ..../venv/bin/gunicorn server:app -b 127.0.0.1:$PORT -w=1 --capture-output
```

## Volley\_04 [Flask Server]

server.py

```
1 | from flask import Flask
2 | from flask import jsonify
3 |
4 | app = Flask(__name__)
5 |
6 | users = {
7 |     'name' : 'Bob',
8 |     'age' : 50
9 | }
10|
11| @app.route("/")
12| def index():
13|     return jsonify( users )
```



# Volley\_05

## Overview:

When the Button is pressed, a string is fetched from a remote Flask server (included) using a Volley request. The string served by the remote server is in json format, and in the Android app is parsed into an array of custom objects using Gson. For each item in the array, a common template View (single\_item) is loaded from XML resources, and the subviews are populated with the contents of the item for that index. The newly populated template view is then added to the visible fragment. If there is no internet connection, the error message is displayed in a Toast.

## Github:

[https://github.com/pckosek/Android\\_Examples/tree/master/Volley/Volley\\_05](https://github.com/pckosek/Android_Examples/tree/master/Volley/Volley_05)

## YouTube:

[https://www.youtube.com/watch?v=krOWvzClo\\_w](https://www.youtube.com/watch?v=krOWvzClo_w)

## Topics:

- ConstraintLayout
- Flask Server
- Volley
- Volley Response and Error Listeners
- Toast
- Fragment
- View.OnClickListener
- Interface implementations

# Volley\_05

AndroidManifest.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.volley_05">
4
5     <uses-permission android:name="android.permission.INTERNET" />
6     <uses-permission android:name="android.permission.ACCESS_NETWORK_STATE" />
7
8     <application
9         android:allowBackup="true"
10        android:icon="@mipmap/ic_launcher"
11        android:label="@string/app_name"
12        android:roundIcon="@mipmap/ic_launcher_round"
13        android:supportsRtl="true"
14        android:theme="@style/AppTheme">
15         <activity android:name=".MainActivity">
16             <intent-filter>
17                 <action android:name="android.intent.action.MAIN" />
18
19                 <category android:name="android.intent.category.LAUNCHER" />
20             </intent-filter>
21         </activity>
22     </application>
23
24 </manifest>
```

# Volley\_05

MainActivity.java

```
1 package com.example.pckosek.volley_05;
2
3 import android.support.v7.app.AppCompatActivity;
4 import android.os.Bundle;
5
6 public class MainActivity extends AppCompatActivity {
7
8     @Override
9     protected void onCreate(Bundle savedInstanceState) {
10         super.onCreate(savedInstanceState);
11         setContentView(R.layout.activity_main);
12     }
13 }
```

# Volley\_05

MainFragment.java

```
1 package com.example.pckosek.volley_05;
2
3
4 import android.os.Bundle;
5 import android.support.annotation.NonNull;
6 import android.support.annotation.Nullable;
7 import android.support.constraint.ConstraintLayout;
8 import android.support.v4.app.Fragment;
9 import android.view.LayoutInflater;
10 import android.view.View;
11 import android.view.ViewGroup;
12 import android.widget.Button;
13 import android.widget.LinearLayout;
14 import android.widget.TextView;
15 import android.widget.Toast;
16
17 import com.android.volley.Request;
18 import com.android.volley.RequestQueue;
19 import com.android.volley.Response;
20 import com.android.volley.VolleyError;
21 import com.android.volley.toolbox.StringRequest;
22 import com.android.volley.toolbox.Volley;
23 import com.google.gson.Gson;
24 import com.google.gson.GsonBuilder;
25
26
27 public class MainFragment extends Fragment implements View.OnClickListener{
28
29     private Button mButton;
30     private LinearLayout mLinearLayout;
31
32     public MainFragment() {}
33
34     @Override
35     public View onCreateView(LayoutInflater inflater, ViewGroup container,
36                             Bundle savedInstanceState) {
37         return inflater.inflate(R.layout.fragment_main, container, false);
38     }
39
40     @Override
41     public void onViewCreated(@NonNull View view, @Nullable Bundle savedInstanceState) {
42         super.onViewCreated(view, savedInstanceState);
43
44         mLinearLayout = view.findViewById(R.id.layout_linear);
45
46         mButton = view.findViewById(R.id.btn_get);
47         mButton.setOnClickListener(this);
48     }
49
50     @Override
51     public void onClick(View v) {
52         String url = "https://user.tjhsst.edu/pckosek/";
```

```

53     MyResponseHelper myResponseHelper = new MyResponseHelper();
54     StringRequest stringRequest = new StringRequest(
55         Request.Method.GET,
56         url,
57         myResponseHelper,
58         myResponseHelper);
59
60     RequestQueue requestQueue = Volley.newRequestQueue(getContext());
61     requestQueue.add(stringRequest);
62 }
63
64 protected void updateViews(String s) {
65
66     Gson gson = new GsonBuilder().create();
67     MyUser[] myUsers = gson.fromJson(s, MyUser[].class);
68
69     LayoutInflater inflater = LayoutInflater.from(getContext());
70
71     int dp_width = 250;
72     int px_width = Math.round( dp_width * getResources().getDisplayMetrics().density );
73
74     int dp_height = 75;
75     int px_height = Math.round( dp_height * getResources().getDisplayMetrics().density );
76
77     ConstraintLayout.LayoutParams params = new ConstraintLayout.LayoutParams(
78         px_width,
79         px_height);
80     params.setMargins(16,16,16,16);
81
82
83     for (int i=0; i<myUsers.length; i++) {
84         ConstraintLayout layout_this = (ConstraintLayout) inflater.inflate(
85             R.layout.single_item, null, false);
86
87         TextView tv_name = layout_this.findViewById(R.id.tv_name);
88         TextView tv_age = layout_this.findViewById(R.id.tv_age);
89
90         tv_name.setText( myUsers[i].name );
91         tv_age.setText( String.valueOf( myUsers[i].age ) );
92
93         layout_this.setLayoutParams(params);
94
95         mLinearLayout.addView(layout_this);
96     }
97
98 }
99
100 protected class MyResponseHelper implements
101     Response.Listener<String>, Response.ErrorListener {
102
103     @Override
104     public void onResponse(String response) {
105         updateViews(response);
106     }
107
108     @Override

```

```
109     public void onErrorResponse(VolleyError error) {
110         Toast.makeText(getApplicationContext(), error.toString(), Toast.LENGTH_LONG).show();
111     }
112 }
113 }
```

# Volley\_05

*MyUser.java*

```
1 package com.example.pckosek.volley_05;
2
3 import java.io.Serializable;
4
5 public class MyUser implements Serializable {
6     public String name;
7     public int age;
8
9     public MyUser(String n, int a) {
10         name = n;
11         age = a;
12     }
13 }
```

# Volley\_05

*activity\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <fragment
11        android:id="@+id/fragment_main"
12        android:name="com.example.pckosek.volley_05.MainFragment"
13        android:layout_width="match_parent"
14        android:layout_height="match_parent"
15        app:layout_constraintBottom_toBottomOf="parent"
16        app:layout_constraintLeft_toLeftOf="parent"
17        app:layout_constraintRight_toRightOf="parent"
18        app:layout_constraintTop_toTopOf="parent" />
19
20 </android.support.constraint.ConstraintLayout>
```

# Volley\_05

*fragment\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:tools="http://schemas.android.com/tools"
5     android:layout_width="match_parent"
6     android:layout_height="match_parent"
7     xmlns:app="http://schemas.android.com/apk/res-auto"
8     tools:context=".MainFragment">
9
10    <Button
11        android:id="@+id/btn_get"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        android:text="@string/btn_string"
15        app:layout_constraintTop_toTopOf="parent"
16        app:layout_constraintStart_toStartOf="parent"
17        app:layout_constraintEnd_toEndOf="parent"/>
18
19    <LinearLayout
20        android:layout_width="wrap_content"
21        android:layout_height="wrap_content"
22        android:orientation="vertical"
23        android:id="@+id/layout_linear"
24        android:layout_margin="16dp"
25        app:layout_constraintTop_toBottomOf="@+id/btn_get"
26        app:layout_constraintBottom_toBottomOf="parent"
27        app:layout_constraintStart_toStartOf="parent"
28        app:layout_constraintEnd_toEndOf="parent" >
29
30    </LinearLayout>
31
32
33
34 </android.support.constraint.ConstraintLayout>
```

# Volley\_05

*single\_item.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     android:layout_width="wrap_content"
6     android:layout_height="wrap_content"
7     android:background="#DDD">
8
9     <android.support.constraint.Guideline
10        android:id="@+id/guideline_left"
11        android:layout_width="wrap_content"
12        android:layout_height="200dp"
13        android:orientation="vertical"
14        app:layout_constraintGuide_percent=".125" />
15
16     <android.support.constraint.Guideline
17        android:id="@+id/guideline_top"
18        android:layout_width="wrap_content"
19        android:layout_height="wrap_content"
20        android:orientation="horizontal"
21        app:layout_constraintGuide_percent=".125" />
22
23     <android.support.constraint.Guideline
24        android:id="@+id/guideline_right"
25        android:layout_width="wrap_content"
26        android:layout_height="wrap_content"
27        android:orientation="vertical"
28        app:layout_constraintGuide_percent=".875" />
29
30     <TextView
31         android:layout_width="wrap_content"
32         android:layout_height="wrap_content"
33         android:id="@+id/tv_name"
34         app:layout_constraintTop_toBottomOf="@id/guideline_top"
35         app:layout_constraintStart_toStartOf="@id/guideline_left" />
36
37     <TextView
38         android:layout_width="wrap_content"
39         android:layout_height="wrap_content"
40         android:id="@+id/tv_age"
41         app:layout_constraintTop_toBottomOf="@id/guideline_top"
42         app:layout_constraintEnd_toEndOf="@id/guideline_right" />
43
44
45 </android.support.constraint.ConstraintLayout>
```

# Volley\_05

*values/strings.xml*

```
1 | <resources>
2 |     <string name="app_name">Volley_05</string>
3 |     <string name="btn_string">Get Users</string>
4 | </resources>
```

## Volley\_05 [Flask Server]

*run.sh*

```
1 | #!/bin/bash
2 | ..../venv/bin/gunicorn server:app -b 127.0.0.1:$PORT -w=1 --capture-output
```

## Volley\_05 [Flask Server]

server.py

```
1 | from flask import Flask
2 | from flask import jsonify
3 |
4 | app = Flask(__name__)
5 |
6 | users = [
7 |     {
8 |         'name' : 'Bob',
9 |         'age' : 50
10|     },
11|     {
12|         'name' : 'Sue',
13|         'age' : 20
14|     },
15|     {
16|         'name' : 'Phil',
17|         'age' : 41
18|     },
19|     {
20|         'name' : 'Erin',
21|         'age' : 42
22|     },
23|     {
24|         'name' : 'Odin',
25|         'age' : 4
26|     }
27|
28| ]
29|
30| @app.route("/")
31| def index():
32|     return jsonify( users )
```



# Volley\_06

## Overview:

When the user slides the slider, a string is fetched from a remote Flask server (included) using a Volley request. The request contains a GET parameter specifying the number of records to fetch. The string served by the remote server contains the user's name and an additional url for their photo in json format. These records are parsed by the Android app into an array of custom objects using Gson.

For each item in the array, a common template View (single\_item) is loaded from XML resources, and the subviews (TetView) is populated with the name for the user for that index. Additionally, an ImageView is populated with a spinning "wait" ProgressBar. A profile image download request is initiated, and the newly populated template view is added to the visible fragment. If there is no internet connection, the error message is displayed in a Toast.

The ProgressBar spins until the profile image is fully downloaded, at which point it replaces the ProgressBar.

The user can select the menu in the upper right hand corner which displays a DialogFragment containing a WebView that shows the open licensed images used in the App.

## Github:

[https://github.com/pckosek/Android\\_Examples/tree/master/Volley/Volley\\_06](https://github.com/pckosek/Android_Examples/tree/master/Volley/Volley_06)

## YouTube:

<https://www.youtube.com/watch?v=OZt9RWrlKrc>

## Topics:

- ConstraintLayout
- Flask Server
- Volley
- Volley Response and Error Listeners
- Toast
- Fragment
- View.OnClickListener
- Interface implementations
- ProgressBar
- WebView
- DialogFragment
- Menu

# Volley\_06

AndroidManifest.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="com.example.pckosek.volley_06">
4
5     <uses-permission android:name="android.permission.INTERNET" />
6     <uses-permission android:name="android.permission.ACCESS_NETWORK_STATE" />
7
8     <application
9         android:allowBackup="true"
10        android:icon="@mipmap/ic_launcher"
11        android:label="@string/app_name"
12        android:roundIcon="@mipmap/ic_launcher_round"
13        android:supportsRtl="true"
14        android:theme="@style/AppTheme">
15         <activity
16             android:name=".MainActivity"
17             android:label="@string/app_name"
18             android:theme="@style/AppTheme.NoActionBar">
19             <intent-filter>
20                 <action android:name="android.intent.action.MAIN" />
21
22                 <category android:name="android.intent.category.LAUNCHER" />
23             </intent-filter>
24         </activity>
25     </application>
26
27 </manifest>
```

# Volley\_06

MainActivity.java

```
1 package com.example.pckosek.volley_06;
2
3 import android.os.Bundle;
4 import android.support.design.widget.FloatingActionButton;
5 import android.support.design.widget.Snackbar;
6 import android.support.v4.app.FragmentManager;
7 import android.support.v7.app.AppCompatActivity;
8 import android.support.v7.widget.Toolbar;
9 import android.view.View;
10 import android.view.Menu;
11 import android.view.MenuItem;
12
13 public class MainActivity extends AppCompatActivity {
14
15     @Override
16     protected void onCreate(Bundle savedInstanceState) {
17         super.onCreate(savedInstanceState);
18         setContentView(R.layout.activity_main);
19         Toolbar toolbar = (Toolbar) findViewById(R.id.toolbar);
20         setSupportActionBar(toolbar);
21
22     }
23
24     @Override
25     public boolean onCreateOptionsMenu(Menu menu) {
26         // Inflate the menu; this adds items to the action bar if it is present.
27         getMenuInflater().inflate(R.menu.menu_main, menu);
28         return true;
29     }
30
31     @Override
32     public boolean onOptionsItemSelected(MenuItem item) {
33         int id = item.getItemId();
34
35         //noinspection SimplifiableIfStatement
36         if (id == R.id.action_credits) {
37             FragmentManager fm = getSupportFragmentManager();
38             MyDialogFragment myDialogFragment = MyDialogFragment.newInstance();
39             myDialogFragment.show(fm, "fragment_credits");
40             return true;
41         }
42
43         return super.onOptionsItemSelected(item);
44     }
45 }
```

# Volley\_06

MainFragment.java

```
1 package com.example.pckosek.volley_06;
2
3
4 import android.graphics.Bitmap;
5 import android.net.Uri;
6 import android.os.Bundle;
7 import android.support.annotation.NonNull;
8 import android.support.annotation.Nullable;
9 import android.support.constraint.ConstraintLayout;
10 import android.support.v4.app.Fragment;
11 import android.util.Log;
12 import android.view.LayoutInflater;
13 import android.view.View;
14 import android.view.ViewGroup;
15 import android.widget.ImageView;
16 import android.widget.LinearLayout;
17 import android.widget.ProgressBar;
18 import android.widget.SeekBar;
19 import android.widget.TextView;
20 import android.widget.Toast;
21
22 import com.android.volley.AuthFailureError;
23 import com.android.volley.NetworkResponse;
24 import com.android.volley.Request;
25 import com.android.volley.RequestQueue;
26 import com.android.volley.Response;
27 import com.android.volley.VolleyError;
28 import com.android.volley.toolbox.ImageRequest;
29 import com.android.volley.toolbox.StringRequest;
30 import com.android.volley.toolbox.Volley;
31 import com.google.gson.Gson;
32 import com.google.gson.GsonBuilder;
33
34 import java.util.HashMap;
35 import java.util.Map;
36
37 public class MainFragment extends Fragment {
38
39     private LinearLayout mLinearLayout;
40     private MyErrorHelper myErrorHelper;
41     private SeekBar mSeekBar;
42
43     public MainFragment() {}
44
45
46     @Override
47     public View onCreateView(LayoutInflater inflater, ViewGroup container,
48                             Bundle savedInstanceState) {
49         return inflater.inflate(R.layout.fragment_main, container, false);
50     }
51
52     @Override
```

```

53  public void onViewCreated(@NonNull View view, @Nullable Bundle savedInstanceState) {
54      super.onViewCreated(view, savedInstanceState);
55
56      mLinearLayout = view.findViewById(R.id.layout_linear);
57      mSeekBar = view.findViewById(R.id.seekBar);
58      myErrorHelper = new MyErrorHelper();
59
60      mSeekBar.setOnSeekBarChangeListener(new SeekBar.OnSeekBarChangeListener() {
61          @Override
62          public void onProgressChanged(SeekBar seekBar, int progress, boolean fromUser) {
63
64              if (mLinearLayout.getChildCount() > 0) {
65                  mLinearLayout.removeAllViews();
66              }
67
68              Uri.Builder builder = new Uri.Builder();
69              builder.scheme("https")
70                  .authority("user.tjhsst.edu")
71                  .appendPath("pckosek")
72                  .appendQueryParameter("count", String.valueOf(progress));
73
74              String url = builder.build().toString();
75              MyResponseHelper myResponseHelper = new MyResponseHelper();
76              StringRequest myStringRequest= new StringRequest(
77                  url,
78                  myResponseHelper,
79                  myErrorHelper);
80
81              RequestQueue requestQueue = Volley.newRequestQueue(getApplicationContext());
82              requestQueue.getCache().clear();
83              requestQueue.add(myStringRequest);
84
85          }
86
87          @Override
88          public void onStartTrackingTouch(SeekBar seekBar) {
89
90          }
91
92          @Override
93          public void onStopTrackingTouch(SeekBar seekBar) {
94
95          }
96      });
97
98  }
99
100 protected void processUsers(String s) {
101     Gson gson = new GsonBuilder().create();
102     MyPhotoUser[] myPhotoUsers = gson.fromJson(s, MyPhotoUser[].class);
103
104     LayoutInflater inflater = LayoutInflater.from(getApplicationContext());
105
106     int dp_width = 250;
107     int px_width = Math.round( dp_width * getResources().getDisplayMetrics().density );
108

```

```

109     int dp_height = 125;
110     int px_height = Math.round( dp_height * getResources().getDisplayMetrics().density );
111
112     ConstraintLayout.LayoutParams params = new ConstraintLayout.LayoutParams(
113         px_width,
114         px_height);
115     params.setMargins(16,16,16,16);
116
117     for (int i=0; i< myPhotoUsers.length; i++) {
118         ConstraintLayout layout_this = (ConstraintLayout) inflater.inflate(
119             R.layout.single_item, null, false);
120         layout_this.setLayoutParams(params);
121
122         TextView textViewName = layout_this.findViewById(R.id.tv_name);
123         textViewName.setText(myPhotoUsers[i].name);
124
125         MySingleItemListener mySingleItemListener = new MySingleItemListener(layout_this);
126
127         ImageRequest imageRequest = new ImageRequest(
128             myPhotoUsers[i].photoUrl,
129             mySingleItemListener,
130             250,
131             250, ImageView.ScaleType.FIT_CENTER, Bitmap.Config.RGB_565,
132             myErrorHelper);
133
134         imageRequest.setShouldCache(false);
135         RequestQueue requestQueue = Volley.newRequestQueue(getContext());
136         requestQueue.add(imageRequest);
137
138         mLinearLayout.addView(layout_this);
139     }
140
141 }
142
143
144 protected class MySingleItemListener implements Response.Listener<Bitmap> {
145
146     private ConstraintLayout constraintLayout;
147
148     public MySingleItemListener(ConstraintLayout c) {
149         constraintLayout = c;
150     }
151
152     @Override
153     public void onResponse(Bitmap response) {
154         ImageView imageView = constraintLayout.findViewById(R.id.image_profile);
155         imageView.setImageBitmap(response);
156
157         ProgressBar progressBar = constraintLayout.findViewById(R.id.progress_bar);
158         progressBar.setVisibility(View.GONE);
159     }
160 }
161
162 protected class MyResponseHelper implements Response.Listener<String> {
163
164     @Override

```

```
165     public void onResponse(String response) {
166         processUsers(response);
167     }
168 }
169
170 protected class MyErrorHelper implements Response.ErrorListener {
171
172     @Override
173     public void onErrorResponse(VolleyError error) {
174         Toast.makeText(getApplicationContext(), error.toString(), Toast.LENGTH_LONG).show();
175     }
176 }
177
178
179 }
```

# Volley\_06

*MyDialogFragment.java*

```
1 package com.example.pckosek.volley_06;
2
3 import android.os.Bundle;
4 import android.support.annotation.Nullable;
5 import android.support.v4.app.DialogFragment;
6 import android.view.LayoutInflater;
7 import android.view.View;
8 import android.view.ViewGroup;
9 import android.webkit.WebView;
10
11 public class MyDialogFragment extends DialogFragment {
12
13
14     public MyDialogFragment() {}
15
16     public static MyDialogFragment newInstance() {
17         MyDialogFragment frag = new MyDialogFragment();
18         return frag;
19     }
20
21     @Override
22     public View onCreateView(LayoutInflater inflater, ViewGroup container,
23                             Bundle savedInstanceState) {
24         return inflater.inflate(R.layout.fragment_my_dialog, container);
25     }
26
27     @Override
28     public void onViewCreated(View view, @Nullable Bundle savedInstanceState) {
29         super.onViewCreated(view, savedInstanceState);
30
31         WebView webView = view.findViewById(R.id.webview_dialog);
32         webView.loadUrl("file:///android_asset/webview.html");
33     }
34 }
```

# Volley\_06

*MyPhotoUser.java*

```
1 package com.example.pckosek.volley_06;
2
3 import java.io.Serializable;
4
5 public class MyPhotoUser implements Serializable{
6
7     public String name;
8     public String photoUrl;
9
10    public MyPhotoUser(String n, String p) {
11        name = n;
12        photoUrl = p;
13    }
14 }
```

# Volley\_06

assets/webview.html

```
1 <html>
2 <head>
3     <style>
4         .drop_shadow {
5             margin: 20px;
6             border: 1px solid #DDD;
7             padding: 22px;
8             width: 80%;
9             border-radius: 15px;
10            box-shadow: 5px 5px #DDD;
11            display: table;
12        }
13    </style>
14 </head>
15 <body>
16     <div class="drop_shadow">
17         <div>
18             <div style="content:url(./user_1.jpg); height: 50px; float: left; padding: 8px;"></div>
19             <div style="padding: 8px;">
20
21                 Image by <a href="https://pixabay.com/users/stevepb-282134/...682767">Pixabay</a>
22
23             </div>
24         </div>
25     </div>
26
27     <div class="drop_shadow">
28         <div>
29             <div style="content:url(./user_3.jpg); height: 50px; float: left; padding: 8px;"></div>
30             <div style="padding: 8px;">
31                 Image by <a href="https://pixabay.com/users/derwiki-562673/...530055">Pixabay</a>
32
33             </div>
34         </div>
35     </div>
36
37     <div class="drop_shadow">
38         <div>
39             <div style="content:url(./user_6.jpg); height: 50px; float: left; padding: 8px;"></div>
40             <div style="padding: 8px;">
41                 Image by <a href="https://pixabay.com/users/Pettycon-3307648/...1674878">Pixabay</a>
42             </div>
43         </div>
44     </div>
45
46     <div class="drop_shadow">
47         <div>
48             <div style="content:url(./user_5.jpg); height: 50px; float: left; padding: 8px;"></div>
49             <div style="padding: 8px;">
50
51                 Image by <a href="https://pixabay.com/users/sasint-3639875/...1807541">Pixabay</a>
52             </div>
53         </div>
```

```
--      ..--..  
53     </div>  
54  
55     <div class="drop_shadow">  
56         <div>  
57             <div style="content:url(./user_4.jpg); height: 50px; float: left;padding: 8px"></div>  
58             <div style="padding: 8px;">  
59                 Image by <a href="https://pixabay.com/users/Clker-Free-Vector-Im...33303">Pixabay</a>  
60             </div>  
61         </div>  
62     </div>  
63  
64     <div class="drop_shadow">  
65         <div>  
66             <div style="content:url(./user_2.jpg); height: 50px; float: left;padding: 8px"></div>  
67             <div style="padding: 8px;">  
68                 Image by <a href="https://pixabay.com/users/12019-12019/...761292">Pixabay</a>  
69  
70  
71         </div>  
72     </div>  
73 </div>  
74  
75  
76 </body>  
77 </html>
```

# Volley\_06

*activity\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.design.widget.CoordinatorLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainActivity">
9
10    <android.support.design.widget.AppBarLayout
11        android:layout_width="match_parent"
12        android:layout_height="wrap_content"
13        android:theme="@style/AppTheme.AppBarOverlay">
14
15        <android.support.v7.widget.Toolbar
16            android:id="@+id/toolbar"
17            android:layout_width="match_parent"
18            android:layout_height="?attr/actionBarSize"
19            android:background="?attr/colorPrimary"
20            app:popupTheme="@style/AppTheme.PopupOverlay" />
21
22    </android.support.design.widget.AppBarLayout>
23
24    <include layout="@layout/content_main" />
25
26
27 </android.support.design.widget.CoordinatorLayout>
```

# Volley\_06

*content\_main.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     app:layout_behavior="@string/appbar_scrolling_view_behavior"
9     tools:context=".MainActivity"
10    tools:showIn="@layout/activity_main">
11
12    <fragment
13        android:name="com.example.pckosek.volley_06.MainFragment"
14        android:id="@+id/fragment_main"
15        android:layout_width="match_parent"
16        android:layout_height="match_parent"/>
17
18 </android.support.constraint.ConstraintLayout>
```

# Volley\_06

fragment\_main.xml

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     xmlns:app="http://schemas.android.com/apk/res-auto"
5     xmlns:tools="http://schemas.android.com/tools"
6     android:layout_width="match_parent"
7     android:layout_height="match_parent"
8     tools:context=".MainFragment">
9
10
11     <android.support.constraint.Guideline
12         android:id="@+id/guideline"
13         android:layout_width="wrap_content"
14         android:layout_height="wrap_content"
15         android:orientation="vertical"
16         app:layout_constraintGuide_percent=".125" />
17
18     <android.support.constraint.Guideline
19         android:id="@+id/guideline2"
20         android:layout_width="wrap_content"
21         android:layout_height="wrap_content"
22         android:orientation="vertical"
23         app:layout_constraintGuide_percent=".875" />
24
25     <android.support.constraint.Guideline
26         android:id="@+id/guideline3"
27         android:layout_width="wrap_content"
28         android:layout_height="wrap_content"
29         android:orientation="horizontal"
30         app:layout_constraintGuide_percent=".1" />
31
32     <SeekBar
33         android:id="@+id/seekBar"
34         android:layout_width="0dp"
35         android:layout_height="20dp"
36         android:max="7"
37         android:min="0"
38         app:layout_constraintBottom_toTopOf="@+id/guideline3"
39         app:layout_constraintEnd_toStartOf="@+id/guideline2"
40         app:layout_constraintStart_toStartOf="@+id/guideline" />
41
42
43     <ScrollView
44         android:id="@+id/scrollView2"
45         android:layout_width="0dp"
46         android:layout_height="0dp"
47         app:layout_constraintBottom_toBottomOf="@+id/guideline6"
48         app:layout_constraintEnd_toEndOf="@+id/guideline2"
49         app:layout_constraintStart_toStartOf="@+id/guideline"
50         app:layout_constraintTop_toBottomOf="@+id/guideline3">
51
52     <LinearLayout
```

```
53     android:id="@+id/layout_linear"
54     android:layout_width="match_parent"
55     android:layout_height="wrap_content"
56     android:layout_margin="16dp"
57     android:orientation="vertical">
58
59     </LinearLayout>
60
61 </ScrollView>
62
63 <android.support.constraint.Guideline
64     android:id="@+id/guideline6"
65     android:layout_width="wrap_content"
66     android:layout_height="wrap_content"
67     android:orientation="horizontal"
68     app:layout_constraintGuide_percent=".875" />
69
70
71 </android.support.constraint.ConstraintLayout>
```

# Volley\_06

*fragment\_my\_dialog.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     android:layout_width="match_parent"
5     android:layout_height="match_parent"
6     xmlns:app="http://schemas.android.com/apk/res-auto">
7
8
9
10    <android.support.constraint.Guideline
11        android:id="@+id/gl_df_left"
12        android:layout_width="wrap_content"
13        android:layout_height="wrap_content"
14        android:orientation="vertical"
15        app:layout_constraintGuide_percent=".1" />
16
17    <android.support.constraint.Guideline
18        android:id="@+id/gl_df_right"
19        android:layout_width="wrap_content"
20        android:layout_height="wrap_content"
21        android:orientation="vertical"
22        app:layout_constraintGuide_percent=".9" />
23
24    <android.support.constraint.Guideline
25        android:id="@+id/gl_df_top"
26        android:layout_width="wrap_content"
27        android:layout_height="wrap_content"
28        android:orientation="horizontal"
29        app:layout_constraintGuide_percent=".1" />
30
31    <android.support.constraint.Guideline
32        android:id="@+id/gl_df_bottom"
33        android:layout_width="wrap_content"
34        android:layout_height="wrap_content"
35        android:orientation="horizontal"
36        app:layout_constraintGuide_percent=".9" />
37
38    <WebView
39        android:id="@+id/webview_dialog"
40        android:layout_width="wrap_content"
41        android:layout_height="wrap_content"
42        app:layout_constraintTop_toBottomOf="@id/gl_df_top"
43        app:layout_constraintBottom_toTopOf="@id/gl_df_bottom"
44        app:layout_constraintStart_toEndOf="@id/gl_df_left"
45        app:layout_constraintEnd_toStartOf="@id/gl_df_right">
46
47    </WebView>
48 </android.support.constraint.ConstraintLayout>
```

# Volley\_06

*single\_item.xml*

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout
3     xmlns:android="http://schemas.android.com/apk/res/android"
4     android:layout_width="match_parent"
5     android:layout_height="match_parent"
6     android:background="#DDD"
7     xmlns:app="http://schemas.android.com/apk/res-auto">
8
9     <android.support.constraint.Guideline
10        android:id="@+id/guideline4"
11        android:layout_width="wrap_content"
12        android:layout_height="wrap_content"
13        android:orientation="vertical"
14        app:layout_constraintGuide_percent=".1" />
15
16     <ImageView
17         android:layout_width="100dp"
18         android:layout_height="100dp"
19         android:id="@+id/image_profile"
20         app:layout_constraintTop_toTopOf="parent"
21         app:layout_constraintBottom_toBottomOf="parent"
22         app:layout_constraintStart_toStartOf="@id/guideline4" />
23
24     <ProgressBar
25         android:id="@+id/progress_bar"
26         android:layout_width="100dp"
27         android:layout_height="100dp"
28         app:layout_constraintTop_toTopOf="parent"
29         app:layout_constraintBottom_toBottomOf="parent"
30         app:layout_constraintStart_toStartOf="@id/guideline4" />
31
32     <TextView
33         android:id="@+id/tv_name"
34         android:layout_width="wrap_content"
35         android:layout_height="wrap_content"
36         android:text="NAME"
37         android:textSize="24dp"
38         android:layout_marginStart="16dp"
39         app:layout_constraintTop_toTopOf="parent"
40         app:layout_constraintBottom_toBottomOf="parent"
41         app:layout_constraintStart_toEndOf="@+id/image_profile"/>
42
43     <android.support.constraint.Guideline
44        android:id="@+id/guideline5"
45        android:layout_width="wrap_content"
46        android:layout_height="wrap_content"
47        android:orientation="vertical"
48        app:layout_constraintGuide_percent=".875" />
49
50
51 </android.support.constraint.ConstraintLayout>
```

# Volley\_06

menu/menu\_main.xml

```
1 <menu xmlns:android="http://schemas.android.com/apk/res/android"
2     xmlns:app="http://schemas.android.com/apk/res-auto"
3     xmlns:tools="http://schemas.android.com/tools"
4     tools:context="com.example.pckosek.volley_06.MainActivity">
5     <item
6         android:id="@+id/action_credits"
7         android:orderInCategory="100"
8         android:title="@string/action_settings"
9         app:showAsAction="never" />
10    </menu>
```

# Volley\_06

*values/strings.xml*

```
1 | <resources>
2 |     <string name="app_name">Volley_06</string>
3 |     <string name="action_settings">Open Source Images</string>
4 | </resources>
```

## Volley\_06 [Flask Server]

*run.sh*

```
1 | #!/bin/bash
2 | ..../venv/bin/gunicorn server:app -b 127.0.0.1:$PORT -w=1 --capture-output
```

# Volley\_06 [Flask Server]

server.py

```
1  from flask import Flask
2  from flask import jsonify
3  from flask import request
4  import sys
5
6  app = Flask(__name__)
7
8  users = [
9      {
10         'name' : 'Bob',
11         'photoUrl' : "https://user.tjhsst.edu/pckosek/static/images/user_1.jpg"
12     },
13     {
14         'name' : 'Mary',
15         'photoUrl' : "https://user.tjhsst.edu/pckosek/static/images/user_2.jpg"
16     },
17     {
18         'name' : 'Gene',
19         'photoUrl' : "https://user.tjhsst.edu/pckosek/static/images/user_3.jpg"
20     },
21     {
22         'name' : 'Reggie',
23         'photoUrl' : "https://user.tjhsst.edu/pckosek/static/images/user_4.jpg"
24     },
25     {
26         'name' : 'Erin',
27         'photoUrl' : "https://user.tjhsst.edu/pckosek/static/images/user_5.jpg"
28     },
29     {
30         'name' : 'Odin',
31         'photoUrl' : "https://user.tjhsst.edu/pckosek/static/images/user_6.jpg"
32     },
33 ]
34
35 @app.route("/")
36 def index():
37     num_users = request.args.get('count', default = 1, type = int)
38     return jsonify( users[:num_users] )
```

