# ANDROID STUDIO- JAVA

In android studio

Help -> Keymap reference – download it and reference

# Log

1. Import Log

import android.util.Log;

1. Declare a variable for string

private static final String *TAG* = "MY STRING";

1. Display message

Log.*i*(*TAG*, "onCreate");

Complete code

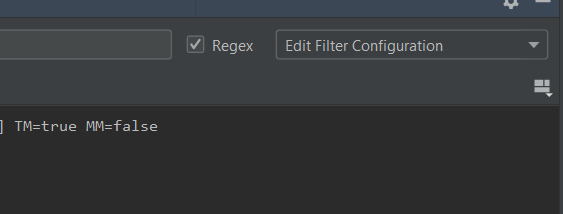
package com.example.a1helloworld;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.util.Log;  
  
import android.os.Bundle;  
  
public class MainActivity extends AppCompatActivity {  
  
 private static final String *TAG* = "MY STRING";  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 Log.*i*(*TAG*, "onCreate");  
 }  
}

# Life Cycle

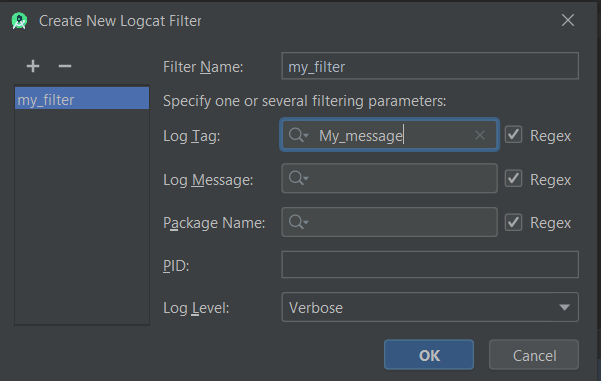
1. In AppCompatActivity -> Cntrl + O
2. Search onStart method

package com.example.a1helloworld;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.util.Log;  
  
import android.os.Bundle;  
  
public class MainActivity extends AppCompatActivity {  
  
 private static final String *TAG* = " My\_message";  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 Log.*i*(*TAG*, "onCreate");  
 }  
  
 @Override  
 protected void onStart() {  
 super.onStart();  
 Log.*i*(*TAG*, "onStart");  
 }  
  
 @Override  
 protected void onResume() {  
 super.onResume();  
  
 Log.*i*(*TAG*, "onResume");  
 }  
  
 @Override  
 protected void onPause() {  
 super.onPause();  
 Log.*i*(*TAG*, "onPause");  
 }  
  
 @Override  
 protected void onStop() {  
 super.onStop();  
 Log.*i*(*TAG*, "onStop");  
 }  
  
 @Override  
 protected void onRestart() {  
 super.onRestart();  
 Log.*i*(*TAG*, "onRestart");  
 }  
}

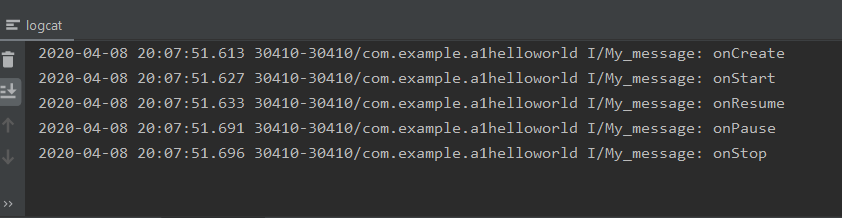
1. click logcat in bottom left corner of android studio
2. choose edit filter in options tag



1. create a filter



Output

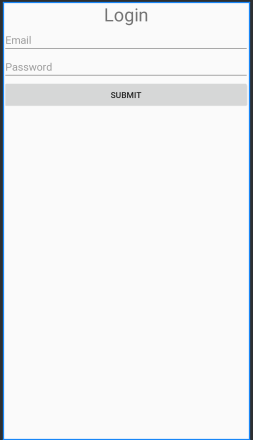


# Simple APP

<https://www.youtube.com/watch?v=Kpyf6s-vPxg&list=PLknSwrodgQ72X4sKpzf5vT8kY80HKcUSe&index=12>

## Create Login page UI

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:orientation="vertical"  
 tools:context=".MainActivity">  
  
 <TextView  
 android:id="@+id/textView"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Login"  
 android:textAlignment="center"  
 android:textSize="30sp" />  
  
 <EditText  
 android:id="@+id/editTextEmail"  
 android:layout\_below="@+id/textView"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:hint="Email"  
 android:inputType="textEmailAddress" />  
 <EditText  
 android:id="@+id/editTextPass"  
 android:layout\_below="@+id/editTextEmail"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:hint="Password"  
 android:inputType="numberPassword" />  
 <Button  
 android:id="@+id/submitBtn"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Submit"  
 android:layout\_below="@+id/editTextPass"  
 />  
</RelativeLayout>



# Create UI using java

<https://www.youtube.com/watch?v=Z8hiM9LEANU&list=PLknSwrodgQ72X4sKpzf5vT8kY80HKcUSe&index=13>

1. import

import android.app.Activity;  
  
import android.os.Bundle;  
import android.widget.RelativeLayout;  
import android.widget.Button;

1. initialize object

public class MainActivity extends Activity {  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
   
 RelativeLayout myRelLayout = new RelativeLayout(this);  
 Button myBtn = new Button(this);  
 }  
}

complete code

package com.example.a2ui;  
  
import android.app.Activity;  
  
import android.os.Bundle;  
import android.widget.RelativeLayout;  
import android.widget.Button;  
  
public class MainActivity extends Activity {  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
  
  
 RelativeLayout myRelLayout = new RelativeLayout(this);  
 Button myBtn = new Button(this);  
 myRelLayout.addView(myBtn);  
 setContentView(myRelLayout);  
 }  
}

## Add properties to widget

<https://www.youtube.com/watch?v=9YCXCMzEMpo&list=PLknSwrodgQ72X4sKpzf5vT8kY80HKcUSe&index=14>

1. import color

complete code

package com.example.a2ui;  
  
import android.app.Activity;  
  
import android.os.Bundle;  
import android.widget.RelativeLayout;  
import android.widget.Button;  
import android.graphics.Color;  
  
public class MainActivity extends Activity {  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
  
  
 RelativeLayout myRelLayout = new RelativeLayout(this);  
 myRelLayout.setBackgroundColor(Color.*BLUE*);  
 Button myBtn = new Button(this);  
 myBtn.setBackgroundColor(Color.*GREEN*);  
 myBtn.setText("Click me");  
 myRelLayout.addView(myBtn);  
 setContentView(myRelLayout);  
 }  
}

1. add params

RelativeLayout.LayoutParams btnDetails = new RelativeLayout.LayoutParams(  
 RelativeLayout.LayoutParams.*WRAP\_CONTENT*,  
 RelativeLayout.LayoutParams.*WRAP\_CONTENT*);  
btnDetails.addRule(RelativeLayout.*CENTER\_HORIZONTAL*);  
btnDetails.addRule(RelativeLayout.*CENTER\_VERTICAL*);  
  
myRelLayout.addView(myBtn, btnDetails);

Complete code

package com.example.a2ui;  
  
import android.app.Activity;  
  
import android.os.Bundle;  
import android.widget.RelativeLayout;  
import android.widget.Button;  
import android.graphics.Color;  
  
public class MainActivity extends Activity {  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
  
  
 RelativeLayout myRelLayout = new RelativeLayout(this);  
 myRelLayout.setBackgroundColor(Color.*BLUE*);  
 Button myBtn = new Button(this);  
 myBtn.setBackgroundColor(Color.*GREEN*);  
 myBtn.setText("Click me");  
  
 setContentView(myRelLayout);  
  
 RelativeLayout.LayoutParams btnDetails = new RelativeLayout.LayoutParams(  
 RelativeLayout.LayoutParams.*WRAP\_CONTENT*,  
 RelativeLayout.LayoutParams.*WRAP\_CONTENT* );  
 btnDetails.addRule(RelativeLayout.*CENTER\_HORIZONTAL*);  
 btnDetails.addRule(RelativeLayout.*CENTER\_VERTICAL*);  
  
 myRelLayout.addView(myBtn, btnDetails);  
 }  
}

1. create edit text

package com.example.a2ui;  
  
import android.app.Activity;  
  
import android.os.Bundle;  
import android.widget.EditText;  
import android.widget.RelativeLayout;  
import android.widget.Button;  
import android.graphics.Color;  
import android.widget.EditText;  
  
public class MainActivity extends Activity {  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
  
  
 RelativeLayout myRelLayout = new RelativeLayout(this);  
 myRelLayout.setBackgroundColor(Color.*BLUE*);  
 Button myBtn = new Button(this);  
 myBtn.setBackgroundColor(Color.*GREEN*);  
 myBtn.setText("Click me");  
  
 setContentView(myRelLayout);  
  
 RelativeLayout.LayoutParams btnDetails = new RelativeLayout.LayoutParams(  
 RelativeLayout.LayoutParams.*WRAP\_CONTENT*,  
 RelativeLayout.LayoutParams.*WRAP\_CONTENT* );  
 btnDetails.addRule(RelativeLayout.*CENTER\_HORIZONTAL*);  
 btnDetails.addRule(RelativeLayout.*CENTER\_VERTICAL*);  
  
 myRelLayout.addView(myBtn, btnDetails);  
  
 EditText username = new EditText(this);  
  
 myBtn.setId(1);  
 username.setId(2);  
 RelativeLayout.LayoutParams usernameDetails = new RelativeLayout.LayoutParams(  
 RelativeLayout.LayoutParams.*WRAP\_CONTENT*,  
 RelativeLayout.LayoutParams.*WRAP\_CONTENT* );  
  
 usernameDetails.addRule(RelativeLayout.*ABOVE*, myBtn.getId());  
 usernameDetails.addRule(RelativeLayout.*CENTER\_HORIZONTAL*);  
 usernameDetails.setMargins(0,0,0,50);  
 myRelLayout.addView(username, usernameDetails);  
 }  
}

## DIP to pixels

<https://www.youtube.com/watch?v=Fw6pnAyQECE&list=PLknSwrodgQ72X4sKpzf5vT8kY80HKcUSe&index=16>

1. import

import android.content.res.Resources;  
import android.util.TypedValue;

1. calculate pixel

Resources r = getResources();  
int px = (int) TypedValue.*applyDimension*(TypedValue.*COMPLEX\_UNIT\_DIP*, 200, r.getDisplayMetrics());  
username.setWidth(px);

Complete code

package com.example.a2ui;  
  
import android.app.Activity;  
  
import android.os.Bundle;  
import android.widget.EditText;  
import android.widget.RelativeLayout;  
import android.widget.Button;  
import android.graphics.Color;  
import android.content.res.Resources;  
import android.util.TypedValue;  
  
public class MainActivity extends Activity {  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
  
  
 RelativeLayout myRelLayout = new RelativeLayout(this);  
 myRelLayout.setBackgroundColor(Color.*BLUE*);  
 Button myBtn = new Button(this);  
 myBtn.setBackgroundColor(Color.*GREEN*);  
 myBtn.setText("Click me");  
  
 setContentView(myRelLayout);  
  
 RelativeLayout.LayoutParams btnDetails = new RelativeLayout.LayoutParams(  
 RelativeLayout.LayoutParams.*WRAP\_CONTENT*,  
 RelativeLayout.LayoutParams.*WRAP\_CONTENT* );  
 btnDetails.addRule(RelativeLayout.*CENTER\_HORIZONTAL*);  
 btnDetails.addRule(RelativeLayout.*CENTER\_VERTICAL*);  
  
 myRelLayout.addView(myBtn, btnDetails);  
  
 EditText username = new EditText(this);  
  
 myBtn.setId(1);  
 username.setId(2);  
 RelativeLayout.LayoutParams usernameDetails = new RelativeLayout.LayoutParams(  
 RelativeLayout.LayoutParams.*WRAP\_CONTENT*,  
 RelativeLayout.LayoutParams.*WRAP\_CONTENT* );  
  
 Resources r = getResources();  
 int px = (int) TypedValue.*applyDimension*(TypedValue.*COMPLEX\_UNIT\_DIP*, 200, r.getDisplayMetrics());  
 username.setWidth(px);  
  
 usernameDetails.addRule(RelativeLayout.*ABOVE*, myBtn.getId());  
 usernameDetails.addRule(RelativeLayout.*CENTER\_HORIZONTAL*);  
 usernameDetails.setMargins(0,0,0,50);  
 myRelLayout.addView(username, usernameDetails);  
  
  
 }  
}

## Grid layout

<https://www.youtube.com/watch?v=DAcqmiPcXds&list=PLknSwrodgQ72X4sKpzf5vT8kY80HKcUSe&index=17>

## Event Handler

<https://www.youtube.com/watch?v=DAcqmiPcXds&list=PLknSwrodgQ72X4sKpzf5vT8kY80HKcUSe&index=17>

### Event Listner and callback method

MainActivity.java

Button mybtn = (Button) findViewById(R.id.*button*);  
mybtn.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 Toast.*makeText*(MainActivity.this, "Btn clicked...", Toast.*LENGTH\_SHORT*).show();  
 }  
});

Activity\_main.xml

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:orientation="vertical"  
 tools:context=".MainActivity">  
  
 <Button  
 android:id="@+id/button"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_centerHorizontal="true"  
 android:layout\_centerVertical="true"  
 android:text="Button" />  
</RelativeLayout>

## Multiple Event Listners

### Onclick & Onlong click listner

MainActivity.java

package com.example.a2ui;  
  
import android.app.Activity;  
  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
import android.widget.Toast;  
  
public class MainActivity extends Activity {  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 Button mybtn = (Button) findViewById(R.id.*button*);  
 mybtn.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 Toast.*makeText*(MainActivity.this, "Btn clicked...", Toast.*LENGTH\_SHORT*).show();  
 }  
 });  
  
 mybtn.setOnLongClickListener(new View.OnLongClickListener() {  
 @Override  
 public boolean onLongClick(View v) {  
 Toast.*makeText*(MainActivity.this, "Btn long click.", Toast.*LENGTH\_SHORT*).show();  
 return true;  
 }  
 });  
 }  
}

# Gestures

<https://www.youtube.com/watch?v=mb7C9cBrjDU&list=PLknSwrodgQ72X4sKpzf5vT8kY80HKcUSe&index=21>

activity\_main.xml

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:orientation="vertical"  
 tools:context=".MainActivity">  
  
 <TextView  
 android:id="@+id/my\_msg"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_centerHorizontal="true"  
 android:layout\_centerVertical="true"  
 android:textSize="30dp"  
 android:text="My text" />  
</RelativeLayout>

MainActivity.java

package com.example.a2ui;  
  
import android.os.Bundle;  
import android.view.GestureDetector;  
import android.view.MotionEvent;  
import android.widget.TextView;  
import androidx.appcompat.app.AppCompatActivity;  
  
public class MainActivity extends AppCompatActivity implements GestureDetector.OnGestureListener, GestureDetector.OnDoubleTapListener {  
  
 private TextView my\_msg;  
 private GestureDetector gestureDetector;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 my\_msg = (TextView) findViewById(R.id.*my\_msg*);  
 this.gestureDetector = new GestureDetector(this, this);  
 gestureDetector.setOnDoubleTapListener(this);  
 }  
  
 @Override  
 public boolean onTouchEvent(MotionEvent event) {  
 this.gestureDetector.onTouchEvent(event);  
 return super.onTouchEvent(event);  
 }  
  
 @Override  
 public boolean onSingleTapConfirmed(MotionEvent e) {  
 my\_msg.setText("onSingleTapConfirmed");  
 return true;  
 }  
  
 @Override  
 public boolean onDoubleTap(MotionEvent e) {  
 my\_msg.setText("onDoubleTap");  
 return true;  
 }  
  
 @Override  
 public boolean onDoubleTapEvent(MotionEvent e) {  
 my\_msg.setText("onDoubleTapEvent");  
 return true;  
 }  
  
 @Override  
 public boolean onDown(MotionEvent e) {  
 my\_msg.setText("onDown");  
 return true;  
 }  
  
 @Override  
 public void onShowPress(MotionEvent e) {  
 my\_msg.setText("onShowPress");  
  
 }  
  
 @Override  
 public boolean onSingleTapUp(MotionEvent e) {  
 my\_msg.setText("onSingleTapUp");  
 return true;  
 }  
  
 @Override  
 public boolean onScroll(MotionEvent e1, MotionEvent e2, float distanceX, float distanceY) {  
 my\_msg.setText("onScroll");  
 return true;  
 }  
  
 @Override  
 public void onLongPress(MotionEvent e) {  
 my\_msg.setText("onLongPress");  
 }  
  
 @Override  
 public boolean onFling(MotionEvent e1, MotionEvent e2, float velocityX, float velocityY) {  
 my\_msg.setText("onFling");  
 return true;  
 }  
}

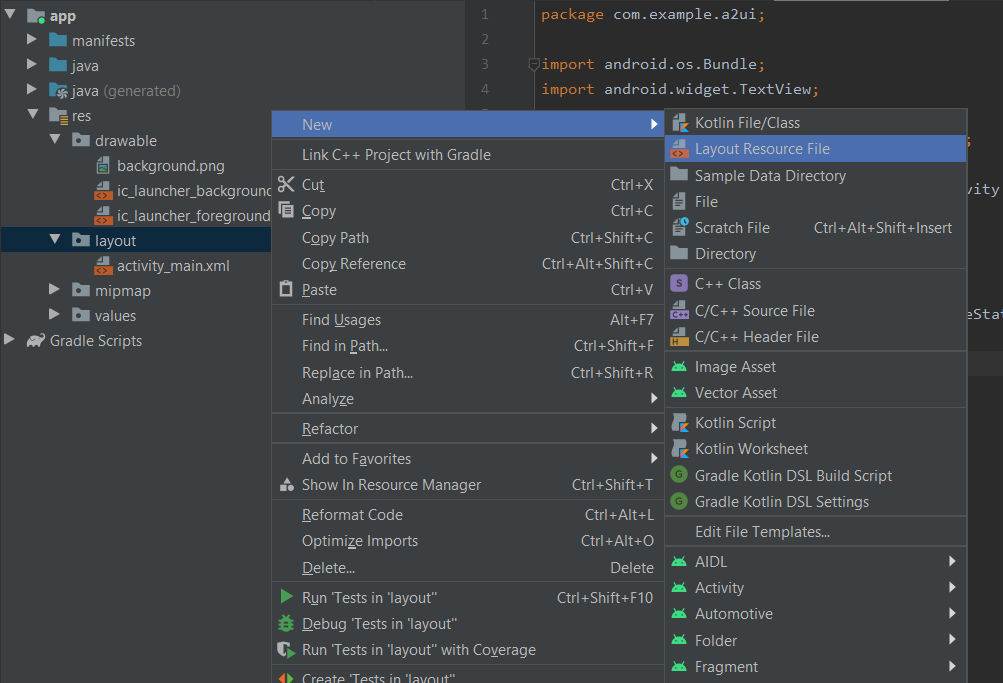
# Fragments

<https://www.youtube.com/watch?v=ztbp59WSk-A&list=PLknSwrodgQ72X4sKpzf5vT8kY80HKcUSe&index=23>

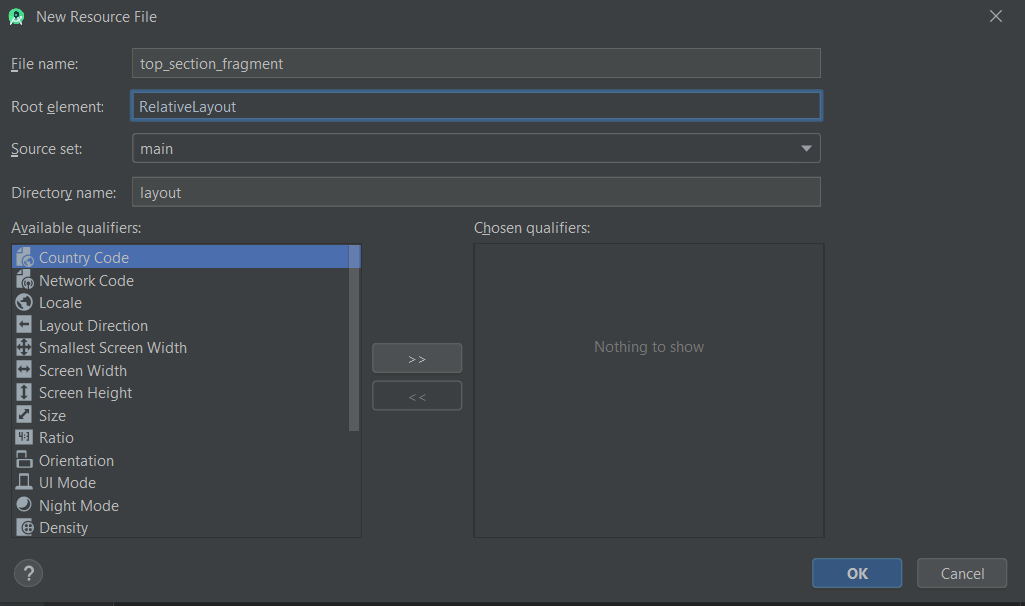
1. paste image in : res > drawable (image name should not include capital letters or numbers)



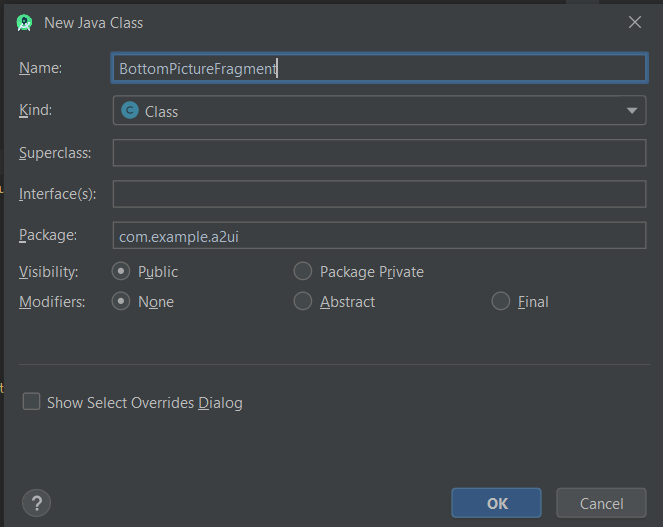
1. create new layout file : right click layout folder -> new -> layout resource file



1. create layout (top\_section\_fragment & bottom\_section\_fragment)

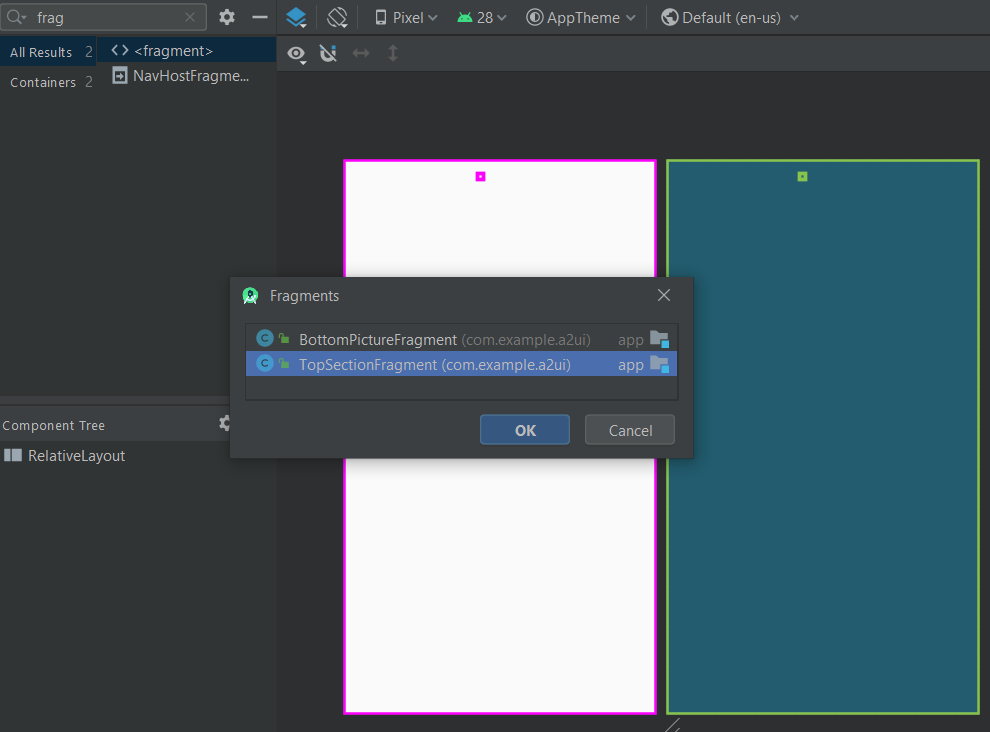


1. create jave class : java>com.example.appname (rightclick)>new > java class =(create two class – TopSectionFragment & BottomSectionFragment)

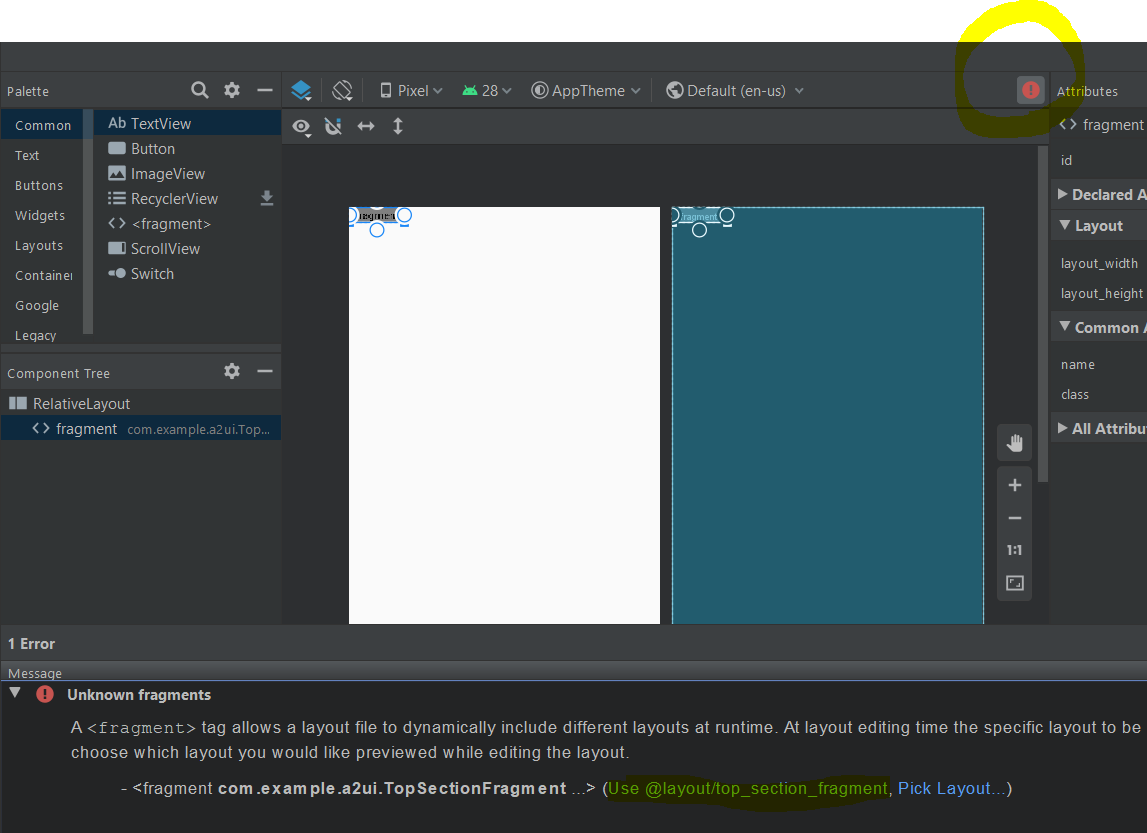


Activity\_main.xml

1. drag and drop fragment



1. solve fragment error – select top\_section\_fragment



Top\_section\_fragment.xml

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 android:layout\_width="match\_parent" android:layout\_height="match\_parent">  
 <EditText  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/topTextInput"  
 android:layout\_centerHorizontal="true"  
 android:layout\_marginTop="15dp"  
 android:width="300dp"  
 />  
 <Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/button"  
 android:layout\_marginTop="55dp"  
 android:layout\_centerHorizontal="true"  
 android:text="Click me"  
 />  
</RelativeLayout>

TopSectionFragment.java

package com.example.a2ui;  
  
import android.os.Bundle;  
import android.view.LayoutInflater;  
import android.view.View;  
import android.view.ViewGroup;  
  
import androidx.annotation.NonNull;  
import androidx.annotation.Nullable;  
import androidx.fragment.app.Fragment;  
  
public class TopSectionFragment extends Fragment {  
 @Nullable  
 @Override  
 public View onCreateView(@NonNull LayoutInflater inflater, @Nullable ViewGroup container, @Nullable Bundle savedInstanceState) {  
 View view = inflater.inflate(R.layout.*top\_section\_fragment*, container, false);  
 return view;  
 }  
}

BottonPictureFragment.java

package com.example.a2ui;  
  
import android.os.Bundle;  
import android.view.LayoutInflater;  
import android.view.View;  
import android.view.ViewGroup;  
  
import androidx.annotation.NonNull;  
import androidx.annotation.Nullable;  
import androidx.fragment.app.Fragment;  
  
public class TopSectionFragment extends Fragment {  
 @Nullable  
 @Override  
 public View onCreateView(@NonNull LayoutInflater inflater, @Nullable ViewGroup container, @Nullable Bundle savedInstanceState) {  
 View view = inflater.inflate(R.layout.*top\_section\_fragment*, container, false);  
 return view;  
 }  
}

bottom\_section\_fragment.xml

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 android:layout\_width="match\_parent" android:layout\_height="match\_parent"  
 android:background="@drawable/background"  
 >  
  
</RelativeLayout>

Activity\_main.xml

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:orientation="vertical"  
 tools:context=".MainActivity">  
  
  
 <fragment  
 android:id="@+id/fragment"  
 android:name="com.example.a2ui.TopSectionFragment"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 tools:layout="@layout/top\_section\_fragment" />  
 <fragment  
 android:id="@+id/fragment2"  
 android:name="com.example.a2ui.BottomPictureFragment"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/fragment"  
 android:layout\_marginTop="50dp"  
 tools:layout="@layout/bottom\_section\_fragment" />  
</RelativeLayout>

Output



# WorkoutAdvisor – APP

<https://www.youtube.com/watch?v=8Js_Q0AWRLU&list=PLknSwrodgQ72X4sKpzf5vT8kY80HKcUSe&index=27>

1. empty activity

## spinner

Strings.xml

<string-array name="workout\_types">  
 <item>Chest</item>  
 <item>Biceps</item>  
 <item>Triceps</item>  
 <item>Shoulders</item>  
</string-array>

Activity\_main.xml

<Spinner  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/woroutType"  
 android:layout\_marginTop="35dp"  
 android:layout\_alignParentTop="true"  
 android:entries="@array/workout\_types"  
 />

MainActivity.java

Spinner workouttype = (Spinner) findViewById(R.id.*woroutType*);  
String workout = String.*valueOf*(workouttype.getSelectedItem());

Complete code

MainActivity.java

package com.example.workoutadvisor2;  
  
import android.app.Activity;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Spinner;  
import android.widget.TextView;  
  
public class MainActivity extends Activity {  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 }  
  
 public void onClickFindWorkout(View view){  
 TextView textView = (TextView) findViewById(R.id.*workout*);  
 Spinner workouttype = (Spinner) findViewById(R.id.*woroutType*);  
 String workout = String.*valueOf*(workouttype.getSelectedItem());  
 textView.setText(workout);  
 }  
}

activity\_main.xml

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
 <Spinner  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/woroutType"  
 android:layout\_marginTop="35dp"  
 android:layout\_alignParentTop="true"  
 android:entries="@array/workout\_types"  
 />  
  
 <TextView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="@string/workouts\_here"  
 android:id="@+id/workout"  
 android:layout\_below="@+id/findWorkout"  
 android:layout\_centerHorizontal="true"  
 />  
 <Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/findWorkout"  
 android:layout\_below="@+id/woroutType"  
 android:layout\_centerHorizontal="true"  
 android:text="@string/click\_me"  
 android:onClick="onClickFindWorkout"  
 />  
  
  
</RelativeLayout>

String.xml

<resources>  
 <string name="app\_name">WorkoutAdvisor2</string>  
 <string name="workouts\_here">Workouts Here</string>  
 <string name="click\_me">Click me</string>  
 <string-array name="workout\_types">  
 <item>Chest</item>  
 <item>Biceps</item>  
 <item>Triceps</item>  
 <item>Shoulders</item>  
 </string-array>  
</resources>

1. create WorkoutExpert java class
2. package com.example.workoutadvisor2;  
     
   import java.util.ArrayList;  
   import java.util.List;  
     
   public class WorkoutExpert {  
    List<String> getWorkouts (String workouttypes){  
    List <String> workout = new ArrayList<String>();  
    if (workouttypes.equals("Chest")){  
    workout.add("Bench Press");  
    workout.add("Cable Flys");  
    }  
    else if(workouttypes.equals("Triceps")){  
    workout.add("Triceps Ext");  
    workout.add("Triceps Push down");  
    }  
    else if(workouttypes.equals("Biceps")){  
    workout.add("Biceps Curls");  
    }  
    else if(workouttypes.equals("Sholder")){  
    workout.add("Sholder press");  
    }  
    return workout;  
    }  
   }

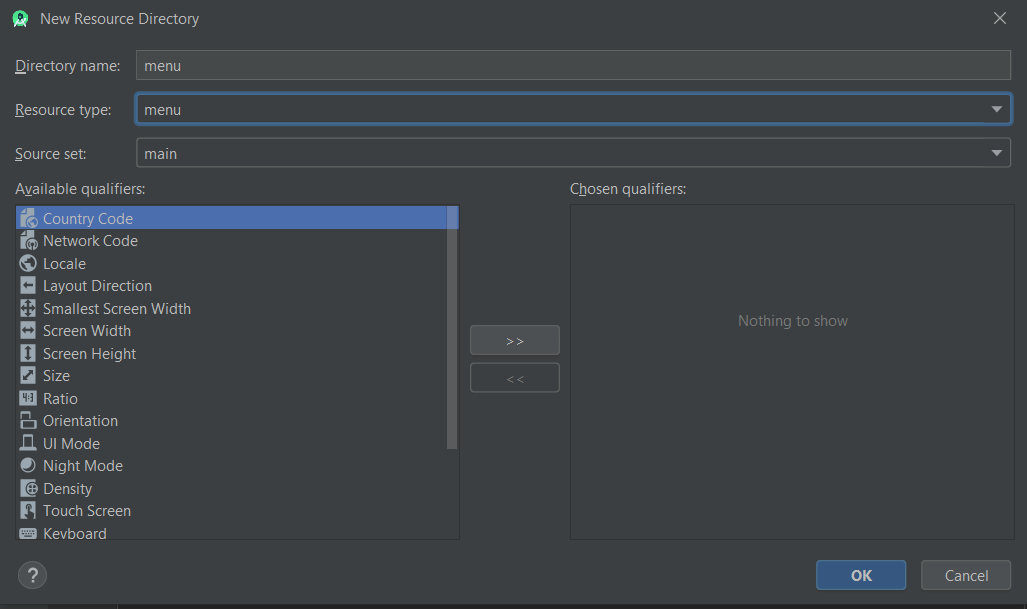
MainActivity.java

## Create an object – external java file

package com.example.workoutadvisor2;  
  
import android.app.Activity;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Spinner;  
import android.widget.TextView;  
  
import java.util.List;  
  
public class MainActivity extends Activity {  
  
 private WorkoutExpert workoutExpert = new WorkoutExpert();  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 }  
  
 public void onClickFindWorkout(View view){  
 TextView textView = (TextView) findViewById(R.id.*workout*);  
 Spinner workouttype = (Spinner) findViewById(R.id.*woroutType*);  
 String workout = String.*valueOf*(workouttype.getSelectedItem());  
// textView.setText(workout);  
 List<String> workoutList = workoutExpert.getWorkouts(workout);  
  
 StringBuilder workoutFormatter = new StringBuilder();  
 for(String work: workoutList){  
 workoutFormatter.append(work).append("\n");  
 }  
 textView.setText(workoutFormatter);  
 }  
  
}

# Overflow Menu

1. create new folder menu in res folder



1. right click menu folder -> new -> menu resource file -> name it “menu\_main”

<?xml version="1.0" encoding="utf-8"?>  
<menu xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 tools:context="com.example.overflowmenu.MainActivity">  
 <group android:checkableBehavior="single">  
 <item  
 android:id="@+id/menu\_red"  
 android:orderInCategory="1"  
 app:showAsAction="never"  
 android:title="@string/red\_string"  
 />  
 <item  
 android:id="@+id/menu\_blue"  
 android:orderInCategory="2"  
 app:showAsAction="never"  
 android:title="@string/blue\_string"  
 />  
 <item  
 android:id="@+id/menu\_green"  
 android:orderInCategory="3"  
 app:showAsAction="never"  
 android:title="@string/green\_string"  
 />  
 </group>  
  
</menu>

Strings.xml

<resources>  
 <string name="app\_name">OverflowMenu</string>  
 <string name="red\_string">Red</string>  
 <string name="blue\_string">Blue</string>  
 <string name="green\_string">Green</string>  
</resources>

MainActivity.java

package com.example.overflowmenu;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.graphics.Color;  
import android.os.Bundle;  
import android.view.Menu;  
import android.view.MenuItem;  
import android.widget.RelativeLayout;  
  
public class MainActivity extends AppCompatActivity {  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 }  
  
 @Override  
 public boolean onCreateOptionsMenu(Menu menu) {  
 getMenuInflater().inflate(R.menu.*menu\_main*, menu);  
 return true;  
 }  
  
 @Override  
 public boolean onOptionsItemSelected(MenuItem item) {  
 RelativeLayout main\_view = (RelativeLayout) findViewById(R.id.*main\_view*);  
 switch (item.getItemId()){  
 case R.id.*menu\_red*:  
 if(item.isChecked())  
 item.setChecked(false);  
 else item.setChecked(true);  
 main\_view.setBackgroundColor(Color.*RED*);  
 return true;  
 case R.id.*menu\_blue*:  
 if(item.isChecked())  
 item.setChecked(false);  
 else item.setChecked(true);  
 main\_view.setBackgroundColor(Color.*BLUE*);  
 return true;  
 case R.id.*menu\_green*:  
 if(item.isChecked())  
 item.setChecked(false);  
 else item.setChecked(true);  
 main\_view.setBackgroundColor(Color.*GREEN*);  
 return true;  
 default: return super.onOptionsItemSelected(item);  
 }  
 }  
}

# Animation and transition

<https://www.youtube.com/watch?v=ZAsknWvR09E&list=PLknSwrodgQ72X4sKpzf5vT8kY80HKcUSe&index=34>

MainActivity.java

package com.example.overflowmenu;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.graphics.Color;  
import android.os.Bundle;  
import android.transition.TransitionManager;  
import android.view.Menu;  
import android.view.MenuItem;  
import android.view.MotionEvent;  
import android.view.View;  
import android.view.ViewGroup;  
import android.widget.RelativeLayout;  
  
public class MainActivity extends AppCompatActivity {  
  
 ViewGroup myLayout;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 myLayout = (ViewGroup) findViewById(R.id.*main\_view*);  
 myLayout.setOnTouchListener(new View.OnTouchListener() {  
 @Override  
 public boolean onTouch(View v, MotionEvent event) {  
 moveButton();  
 return true;  
 }  
 });  
 }  
  
 private void moveButton() {  
 TransitionManager.*beginDelayedTransition*(myLayout);  
 View myButton = findViewById(R.id.*button*);  
 RelativeLayout.LayoutParams positionRules = new RelativeLayout.LayoutParams(  
 RelativeLayout.LayoutParams.*WRAP\_CONTENT*,  
 RelativeLayout.LayoutParams.*WRAP\_CONTENT* );  
 positionRules.addRule(RelativeLayout.*ALIGN\_PARENT\_BOTTOM*, RelativeLayout.*TRUE*);  
 myButton.setLayoutParams(positionRules);  
  
// code for expanding the button  
 ViewGroup.LayoutParams sizeRules = myButton.getLayoutParams();  
 sizeRules.width = 450;  
 sizeRules.height = 300;  
 myButton.setLayoutParams(sizeRules);  
 }  
  
  
}

activity\_main.xml

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:id="@+id/main\_view"  
 tools:context=".MainActivity">  
  
 <Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/button"  
 android:text="Animation"  
 />  
  
</RelativeLayout>

# Intent

<https://www.youtube.com/watch?v=pMMWo96j4JI&list=PLknSwrodgQ72X4sKpzf5vT8kY80HKcUSe&index=35>

1. create new activity: right click com.example.appname->new->Activity->empty activity
2. create intent

MainActivity.java

package com.example.overflowmenu;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.content.Intent;  
import android.os.Bundle;  
import android.view.View;  
  
public class MainActivity extends AppCompatActivity {  
  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 }  
  
 public void move2second(View view) {  
 Intent i = new Intent(this, Main2Activity.class);  
 startActivity(i);  
 }  
  
  
}

activity\_main.xml

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:id="@+id/main\_view"  
 tools:context=".MainActivity">  
  
 <Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/button"  
 android:text="Animation"  
 android:onClick="move2second"  
 />  
  
</RelativeLayout>

## Send data

<https://www.youtube.com/watch?v=-GxReMxnXkQ&list=PLknSwrodgQ72X4sKpzf5vT8kY80HKcUSe&index=36>

MainActivity.java

Intent i = new Intent(this, Main2Activity.class);  
i.putExtra("mymsg", "Hello");  
startActivity(i);

Main2Activity.java

package com.example.overflowmenu;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
import android.widget.Toast;  
  
public class Main2Activity extends AppCompatActivity {  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main2*);  
  
 Bundle firstData = getIntent().getExtras();  
 if (firstData == null){  
 return;  
 }  
 String firstMsg = firstData.getString("mymsg");  
 Toast.*makeText*(this, firstMsg, Toast.*LENGTH\_SHORT*).show();  
 }  
}

## Send Broadcast Intent – Not Working

<https://www.youtube.com/watch?v=uVpleldaTnU&list=PLknSwrodgQ72X4sKpzf5vT8kY80HKcUSe&index=37>

MainActivity.java

package com.example.overflowmenu;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.content.Intent;  
import android.os.Bundle;  
import android.view.View;  
  
public class MainActivity extends AppCompatActivity {  
  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 }  
  
 public void move2second(View view) {  
 Intent i = new Intent(this, Main2Activity.class);  
 i.setAction("com.example.overflowmenu");  
 i.addFlags(Intent.*FLAG\_INCLUDE\_STOPPED\_PACKAGES*);  
 sendBroadcast(i);  
 }  
}

## BroadCastReceiver – Not Working

<https://www.youtube.com/watch?v=ys-ot3_Nc44&list=PLknSwrodgQ72X4sKpzf5vT8kY80HKcUSe&index=38>

1. create new – No activity
2. right click com.example.appname -> new -> other -> Broad cast receiver

AndroidManifest.xml

<?xml version="1.0" encoding="utf-8"?>  
<manifest xmlns:android="http://schemas.android.com/apk/res/android"  
 package="com.example.broadcastreceiver">  
  
 <application  
 android:allowBackup="true"  
 android:icon="@mipmap/ic\_launcher"  
 android:label="@string/app\_name"  
 android:roundIcon="@mipmap/ic\_launcher\_round"  
 android:supportsRtl="true"  
 android:theme="@style/AppTheme">  
 <receiver  
 android:name=".MyReceiver"  
 android:enabled="true"  
 android:exported="true">  
 <intent-filter>  
 <action android:name="com.example.overflowmenu">  
  
 </action>  
 </intent-filter>  
 </receiver>  
 </application>  
  
</manifest>

MyReceiver.java

package com.example.broadcastreceiver;  
  
import android.content.BroadcastReceiver;  
import android.content.Context;  
import android.content.Intent;  
import android.widget.Toast;  
  
public class MyReceiver extends BroadcastReceiver {  
  
 @Override  
 public void onReceive(Context context, Intent intent) {  
 // *TODO: This method is called when the BroadcastReceiver is receiving* // an Intent broadcast.  
 Toast.*makeText*(context, "Broadcast received..", Toast.*LENGTH\_SHORT*).show();  
 }  
}

# Thread

<https://www.youtube.com/watch?v=FP71FR2T-Q4&list=PLknSwrodgQ72X4sKpzf5vT8kY80HKcUSe&index=39>

MainActivity.java

package com.example.thread;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
import android.os.Handler;  
import android.os.Message;  
import android.view.View;  
import android.widget.TextView;  
  
public class MainActivity extends AppCompatActivity {  
  
 Handler handler = new Handler(){  
 @Override  
 public void handleMessage(Message msg) {  
 TextView mytextView = (TextView) findViewById(R.id.*textView*);  
 mytextView.setText("Button Clicked");  
 }  
 };  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 }  
 public void ClickMyButton(View view){  
 Runnable r = new Runnable() {  
 @Override  
 public void run() {  
 long futuretime = System.*currentTimeMillis*()+10000;  
 while (System.*currentTimeMillis*()< futuretime){  
 synchronized (this){  
 try{  
 wait(futuretime - System.*currentTimeMillis*());  
 }catch (Exception e){  
  
 }  
 }  
 }  
 handler.sendEmptyMessage(0);  
 }  
 };  
 Thread mythred = new Thread(r);  
 mythred.start();  
  
  
 }  
}

activity\_main.xml

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
  
 <TextView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Hello World!"  
 android:layout\_centerHorizontal="true"  
 android:id="@+id/textView"/>  
 <Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/button"  
 android:text="@string/click\_me"  
 android:layout\_centerHorizontal="true"  
 android:layout\_below="@+id/textView"  
 android:onClick="ClickMyButton"  
 />  
  
</RelativeLayout>

# Intent Service

<https://www.youtube.com/watch?v=e04Mv9aju0w&list=PLknSwrodgQ72X4sKpzf5vT8kY80HKcUSe&index=41>

1. Create new class MyIntentServiece.java

package com.example.thread;  
  
import android.app.IntentService;  
import android.content.Intent;  
import android.widget.Toast;  
  
import androidx.annotation.Nullable;  
  
public class MyIntentServiece extends IntentService {  
 private static final String *TAG* = "com.example.thread";  
 public MyIntentServiece() {  
 super("MyIntentServiece");  
 }  
  
 @Override  
 protected void onHandleIntent(@Nullable Intent intent) {  
 Toast.*makeText*(this, "Serviece Started", Toast.*LENGTH\_SHORT*).show();  
 }  
}

MainActivity.java

package com.example.thread;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.content.Intent;  
import android.os.Bundle;  
import android.view.View;  
  
public class MainActivity extends AppCompatActivity {  
  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 Intent intent = new Intent(this, MyIntentServiece.class);  
 startService(intent);  
 }  
 public void ClickMyButton(View view){  
  
 }  
}

AndroidManifest.xml

<?xml version="1.0" encoding="utf-8"?>  
<manifest xmlns:android="http://schemas.android.com/apk/res/android"  
 package="com.example.thread">  
  
 <application  
 android:allowBackup="true"  
 android:icon="@mipmap/ic\_launcher"  
 android:label="@string/app\_name"  
 android:roundIcon="@mipmap/ic\_launcher\_round"  
 android:supportsRtl="true"  
 android:theme="@style/AppTheme">  
 <activity android:name=".MainActivity">  
 <intent-filter>  
 <action android:name="android.intent.action.MAIN" />  
  
 <category android:name="android.intent.category.LAUNCHER" />  
 </intent-filter>  
 </activity>  
 <service android:name=".MyIntentServiece" />  
 </application>  
  
</manifest>

## Create service using service class

1. Right click com.example.thread -> new -> service -> Service (Not Intent service)

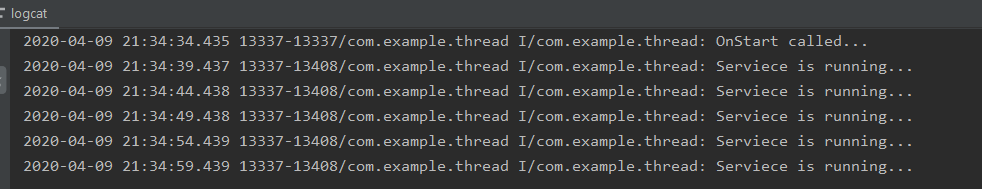
MyServiece.java

package com.example.thread;  
  
import android.app.Service;  
import android.content.Intent;  
import android.os.IBinder;  
import android.util.Log;  
import android.widget.Toast;  
  
public class MyService extends Service {  
 private static final String *TAG* = "com.example.thread";  
  
 public MyService() {  
 }  
  
 @Override  
 public int onStartCommand(Intent intent, int flags, int startId) {  
 Log.*i*(*TAG*, "OnStart called...");  
 Runnable r = new Runnable() {  
 @Override  
 public void run() {  
 for (int i=0; i<5; i++) {  
 long futuretime = System.*currentTimeMillis*() + 5000;  
 while (System.*currentTimeMillis*() < futuretime) {  
 synchronized (this) {  
 try {  
 wait(futuretime - System.*currentTimeMillis*());  
 Log.*i*(*TAG*, "Serviece is running...");  
 } catch (Exception e) {  
  
 }  
 }  
 }  
 }  
  
 }  
 };  
 Thread mythred = new Thread(r);  
 mythred.start();  
 return Service.*START\_STICKY*;  
 }  
  
 @Override  
 public void onDestroy() {  
 Log.*i*(*TAG*, "onDestroy called...");  
 }  
  
 @Override  
 public IBinder onBind(Intent intent) {  
 return null;  
 }  
}

MainActivity.java

package com.example.thread;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.content.Intent;  
import android.os.Bundle;  
import android.view.View;  
  
public class MainActivity extends AppCompatActivity {  
  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 Intent intent = new Intent(this, MyService.class);  
 startService(intent);  
 }  
 public void ClickMyButton(View view){  
  
 }  
}

output



## Bound Service

<https://www.youtube.com/watch?v=Wy1cN57aCfM&list=PLknSwrodgQ72X4sKpzf5vT8kY80HKcUSe&index=43>

1. Right click com.example.appname -> new -> Service -> Service(not Intent Service)

package com.example.thread;  
  
import android.app.Service;  
import android.content.Intent;  
import android.os.Binder;  
import android.os.IBinder;  
  
import java.text.SimpleDateFormat;  
import java.util.Date;  
import java.util.Locale;  
  
public class MyService extends Service {  
 private static final String *TAG* = "com.example.thread";  
 private final IBinder myBinder = new MyLocalBinder();  
  
 public MyService() {  
 }  
 public String getCurrentTime(){  
 SimpleDateFormat df = new SimpleDateFormat("HH:mm:ss", Locale.*US*);  
 return (df.format(new Date()));  
 }  
  
  
 @Override  
 public IBinder onBind(Intent intent) {  
 return myBinder;  
 }  
  
 public class MyLocalBinder extends Binder {  
 MyService getService(){  
 return MyService.this;  
 }  
 }  
}

activity\_main.xml

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
  
 <TextView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Hello World!"  
 android:layout\_centerHorizontal="true"  
 android:id="@+id/textView"/>  
 <Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/button"  
 android:text="@string/click\_me"  
 android:layout\_centerHorizontal="true"  
 android:layout\_below="@+id/textView"  
 android:onClick="showTime"  
 />  
  
</RelativeLayout>

MainActivity.java

package com.example.thread;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.content.ComponentName;  
import android.content.Context;  
import android.content.Intent;  
import android.content.ServiceConnection;  
import android.os.Bundle;  
import android.os.IBinder;  
import android.view.View;  
import android.widget.TextView;  
  
import com.example.thread.MyService.MyLocalBinder;  
  
public class MainActivity extends AppCompatActivity {  
  
 MyService myService;  
 boolean isbound = false;  
  
 public void showTime(View view){  
 String currenttime = myService.getCurrentTime();  
 TextView myText = (TextView) findViewById(R.id.*textView*);  
 myText.setText(currenttime);  
 }  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 Intent intent = new Intent(this, MyService.class);  
 bindService(intent, myConnection, Context.*BIND\_AUTO\_CREATE*);  
 }  
 private ServiceConnection myConnection = new ServiceConnection() {  
 @Override  
 public void onServiceConnected(ComponentName name, IBinder service) {  
 MyLocalBinder myLocalBinder = (MyLocalBinder) service;  
 myService = myLocalBinder.getService();  
 isbound = true;  
 }  
  
 @Override  
 public void onServiceDisconnected(ComponentName name) {  
 isbound = false;  
 }  
 };  
}

# ListView

## Simple listview

<https://www.youtube.com/watch?v=-PqetZ2yV3s&list=PLknSwrodgQ72X4sKpzf5vT8kY80HKcUSe&index=46>

Activity\_main.xml

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
  
 <ListView  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:id="@+id/mylistview"  
 />  
  
</RelativeLayout>

MainActivity.java

package com.example.listview;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.app.Activity;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.AdapterView;  
import android.widget.ArrayAdapter;  
import android.widget.ListAdapter;  
import android.widget.ListView;  
import android.widget.Toast;  
  
public class MainActivity extends Activity {  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 String [] fruits = {"Apple", "Orange", "Peach", "Mango"};  
 ListAdapter myAdapter = new ArrayAdapter<String>(this, android.R.layout.*simple\_list\_item\_1*, fruits);  
 ListView listView = (ListView) findViewById(R.id.*mylistview*);  
 listView.setAdapter(myAdapter);  
  
 listView.setOnItemClickListener(new AdapterView.OnItemClickListener() {  
 @Override  
 public void onItemClick(AdapterView<?> parent, View view, int position, long id) {  
 String fruit = String.*valueOf*(parent.getItemAtPosition(position));  
 Toast.*makeText*(MainActivity.this, fruit, Toast.*LENGTH\_SHORT*).show();  
 }  
 });  
 }  
}

## Custom ListView

<https://www.youtube.com/watch?v=frBzVEl3efk&list=PLknSwrodgQ72X4sKpzf5vT8kY80HKcUSe&index=48&frags=wn>

1. Paste this image in drawable folder



1. Create custom\_list\_row.xml in Layout folder

<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 android:orientation="horizontal" android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent">  
 <ImageView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:src="@drawable/apple"  
 android:maxWidth="80dp"  
 android:maxHeight="80dp"  
 android:layout\_margin="5dp"  
 android:id="@+id/myImage"  
 />  
 <TextView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="My message"  
 android:id="@+id/myText"  
 />  
  
</LinearLayout>

1. Create CustomAdapter.java

package com.example.listview;  
  
import android.content.Context;  
import android.view.LayoutInflater;  
import android.view.View;  
import android.view.ViewGroup;  
import android.widget.ArrayAdapter;  
import android.widget.ImageView;  
import android.widget.TextView;  
  
import androidx.annotation.NonNull;  
import androidx.annotation.Nullable;  
  
class CustomAdapter extends ArrayAdapter<String> {  
 public CustomAdapter(@NonNull Context context, String[] fruits) {  
 super(context, R.layout.*custom\_list\_row* ,fruits);  
 }  
  
 @NonNull  
 @Override  
 public View getView(int position, @Nullable View convertView, @NonNull ViewGroup parent) {  
 LayoutInflater myInflater = LayoutInflater.*from*(getContext());  
 View CustomView = myInflater.inflate(R.layout.*custom\_list\_row*, parent, false);  
 String singlefruititem = getItem(position);  
 TextView myText = (TextView) CustomView.findViewById(R.id.*myText*);  
  
 ImageView myImage = (ImageView) CustomView.findViewById(R.id.*myImage*);  
 myText.setText(singlefruititem);  
 myImage.setImageResource(R.drawable.*apple*);  
 return CustomView;  
 }  
}

activity\_main.xml

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
  
 <ListView  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:id="@+id/mylistview"  
 />  
  
</RelativeLayout>

MainActivity.java

package com.example.listview;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.app.Activity;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.AdapterView;  
import android.widget.ArrayAdapter;  
import android.widget.ListAdapter;  
import android.widget.ListView;  
import android.widget.Toast;  
  
public class MainActivity extends Activity {  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 String [] fruits = {"Apple", "Orange", "Peach", "Mango"};  
 ListAdapter myAdapter = new CustomAdapter(this, fruits);  
 ListView listView = (ListView) findViewById(R.id.*mylistview*);  
 listView.setAdapter(myAdapter);  
  
 listView.setOnItemClickListener(new AdapterView.OnItemClickListener() {  
 @Override  
 public void onItemClick(AdapterView<?> parent, View view, int position, long id) {  
 String fruit = String.*valueOf*(parent.getItemAtPosition(position));  
 Toast.*makeText*(MainActivity.this, fruit, Toast.*LENGTH\_SHORT*).show();  
 }  
 });  
 }  
}



# SQLite

1. Create layout resource file

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
  
 <EditText  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/editText"  
 />  
 <Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/btn\_add"  
 android:text="Add"  
 android:onClick="addButtonClick"  
 android:layout\_below="@+id/editText"  
 />  
 <Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/btn\_delete"  
 android:text="Delete"  
 android:layout\_marginLeft="100dp"  
 android:onClick="deleteButtonClick"  
 android:layout\_below="@+id/editText"  
 />  
 <TextView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/myText"  
 android:text="My Text"  
 android:layout\_below="@+id/btn\_delete"  
 />  
  
</RelativeLayout>

1. Create new Product.java file in com.example.appname

package com.example.sqlite;  
  
public class Product {  
 private int id;  
 private String product;  
  
 public Product(){  
  
 }  
  
 public Product(String product) {  
 this.product = product;  
 }  
  
 public int getId() {  
 return id;  
 }  
  
 public String getProduct() {  
 return product;  
 }  
  
 public void setId(int id) {  
 this.id = id;  
 }  
  
 public void setProduct(String product) {  
 this.product = product;  
 }  
}

1. Create new java class for “MyDBHandler.java”

package com.example.sqlite;  
  
import android.content.ContentValues;  
import android.content.Context;  
import android.database.Cursor;  
import android.database.sqlite.SQLiteDatabase;  
import android.database.sqlite.SQLiteOpenHelper;  
  
import androidx.annotation.Nullable;  
  
public class MyDBHandler extends SQLiteOpenHelper {  
 private static final int *DATABASE\_VERSION* = 1;  
 private static final String *DATABASE\_NAME* = "products.db";  
 public static final String *TABLE\_PRODUCTS* = "products";  
 public static final String *COLUMN\_ID* = "id";  
 public static final String *COLUMN\_PRODUCTNAME* = "productname";  
  
 public MyDBHandler(@Nullable Context context, @Nullable String name, @Nullable SQLiteDatabase.CursorFactory factory, int version) {  
 super(context, *DATABASE\_NAME*, factory, *DATABASE\_VERSION*);  
 }  
  
 @Override  
 public void onCreate(SQLiteDatabase db) {  
 String query = "CREATE TABLE "+ *TABLE\_PRODUCTS* + " ( " + *COLUMN\_ID* + " INTEGER PRIMARY KEY AUTOINCREMENT, " + *COLUMN\_PRODUCTNAME* + " TEXT " + ");";  
 db.execSQL(query);  
 }  
  
 @Override  
 public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {  
 String query = "DROP TABLE IF EXISTS "+*TABLE\_PRODUCTS*;  
 db.execSQL(query);  
 onCreate(db);  
 }  
 public void addProduct(Product product){  
 ContentValues contentValues = new ContentValues();  
 contentValues.put(*COLUMN\_PRODUCTNAME*, product.getProduct());  
 SQLiteDatabase db = getWritableDatabase();  
 db.insert(*TABLE\_PRODUCTS*, null, contentValues);  
 db.close();  
 }  
  
 public void deleteProduct(String productname){  
 SQLiteDatabase db = getWritableDatabase();  
 String query = "DELETE FROM "+ *TABLE\_PRODUCTS* + " WHERE " + *COLUMN\_PRODUCTNAME* + " = \""+ productname + "\";";  
 db.execSQL(query);  
 }  
 public String database2String(){  
 String dbString = "";  
 SQLiteDatabase db = getWritableDatabase();  
 String query = "SELECT \* FROM "+ *TABLE\_PRODUCTS* + " WHERE 1";  
 Cursor c = db.rawQuery(query, null);  
 c.moveToFirst();  
 while (!c.isAfterLast()){  
 if(c.getString(c.getColumnIndex(*COLUMN\_PRODUCTNAME*)) != null){  
 dbString += c.getString(c.getColumnIndex(*COLUMN\_PRODUCTNAME*));  
 dbString += "\n";  
 }  
 c.moveToNext();  
 }  
 db.close();  
 return dbString;  
 }  
}

1. MainActivity.java

package com.example.sqlite;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.app.Activity;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.EditText;  
import android.widget.TextView;  
  
public class MainActivity extends Activity {  
  
 EditText editText;  
 TextView textView;  
 MyDBHandler myDBHandler;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 editText = (EditText) findViewById(R.id.*editText*);  
 textView = (TextView) findViewById(R.id.*myText*);  
  
 myDBHandler = new MyDBHandler(this, null, null, 1);  
 printDatabase();  
 }  
  
 public void printDatabase() {  
 String dbstring = myDBHandler.database2String();  
 textView.setText(dbstring);  
 editText.setText("");  
 }  
 public void addButtonClick(View view){  
 Product product = new Product(editText.getText().toString());  
 myDBHandler.addProduct(product);  
 printDatabase();  
 }  
 public void deleteButtonClick(View view){  
 String inputText = editText.getText().toString();  
 myDBHandler.deleteProduct(inputText);  
 printDatabase();  
 }  
}

# Video View

<https://www.youtube.com/watch?v=nk0BIwZP8RM&list=PLknSwrodgQ72X4sKpzf5vT8kY80HKcUSe&index=55>

activity\_main.xml

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
  
 <VideoView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/myVideoView"  
 />  
  
</RelativeLayout>

MainActivity.java

package com.example.videoplay;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
import android.widget.VideoView;  
  
public class MainActivity extends AppCompatActivity {  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 final VideoView videoView = (VideoView) findViewById(R.id.*myVideoView*);  
 videoView.setVideoPath("http://techslides.com/demos/sample-videos/small.mp4");  
 videoView.start();  
 }  
}

ANdroidManifest.xml

<?xml version="1.0" encoding="utf-8"?>  
<manifest xmlns:android="http://schemas.android.com/apk/res/android"  
 package="com.example.videoplay">  
 <uses-permission android:name="android.permission.INTERNET" />  
  
 <application  
 android:allowBackup="true"  
 android:icon="@mipmap/ic\_launcher"  
 android:label="@string/app\_name"  
 android:roundIcon="@mipmap/ic\_launcher\_round"  
 android:supportsRtl="true"  
 android:theme="@style/AppTheme">  
 <activity android:name=".MainActivity">  
 <intent-filter>  
 <action android:name="android.intent.action.MAIN" />  
  
 <category android:name="android.intent.category.LAUNCHER" />  
 </intent-filter>  
 </activity>  
 </application>  
  
</manifest>

# Capture Image

## Bitmap Image

Activity\_main.xml

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
  
 <ImageView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/myImage"  
 android:minHeight="300dp"  
 android:minWidth="300dp"  
 android:layout\_centerHorizontal="true"  
 />  
 <Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Capute"  
 android:id="@+id/btn\_capture"  
 android:layout\_below="@+id/myImage"  
 android:layout\_centerHorizontal="true"  
 android:onClick="launchCamera"  
 />  
  
</RelativeLayout>

MainActivity.java

package com.example.captureimage;  
  
import androidx.annotation.Nullable;  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.content.Intent;  
import android.content.pm.PackageManager;  
import android.graphics.Bitmap;  
import android.os.Bundle;  
import android.provider.MediaStore;  
import android.view.View;  
import android.widget.Button;  
import android.widget.ImageView;  
import android.widget.Toast;  
  
public class MainActivity extends AppCompatActivity {  
  
 static final int *REQUEST\_IMAGE\_CAPTURE* = 1;  
 ImageView imageView;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 Button button = (Button) findViewById(R.id.*btn\_capture*);  
 imageView = (ImageView) findViewById(R.id.*myImage*);  
  
 if (! hasCamera()){  
 button.setEnabled(false);  
 }  
 }  
  
 public boolean hasCamera() {  
 return getPackageManager().hasSystemFeature(PackageManager.*FEATURE\_CAMERA\_ANY*);  
 }  
 public void launchCamera(View view){  
 Intent intent = new Intent(MediaStore.*ACTION\_IMAGE\_CAPTURE*);  
 startActivityForResult(intent, *REQUEST\_IMAGE\_CAPTURE*);  
 }  
  
 @Override  
 protected void onActivityResult(int requestCode, int resultCode, @Nullable Intent data) {  
  
 if (requestCode == *REQUEST\_IMAGE\_CAPTURE* && resultCode == *RESULT\_OK*) {  
 Toast.*makeText*(this, "Capture Image", Toast.*LENGTH\_SHORT*).show();  
 Bundle extras = data.getExtras();  
 Bitmap photo = (Bitmap) extras.get("data");  
 imageView.setImageBitmap(photo);  
  
 }  
 }  
}

AndroidManifest.xml

<?xml version="1.0" encoding="utf-8"?>  
<manifest xmlns:android="http://schemas.android.com/apk/res/android"  
 package="com.example.captureimage">  
 <uses-feature android:name="android.hardware.camera2" android:required="true" />  
  
 <application  
 android:allowBackup="true"  
 android:icon="@mipmap/ic\_launcher"  
 android:label="@string/app\_name"  
 android:roundIcon="@mipmap/ic\_launcher\_round"  
 android:supportsRtl="true"  
 android:theme="@style/AppTheme">  
 <activity android:name=".MainActivity">  
 <intent-filter>  
 <action android:name="android.intent.action.MAIN" />  
  
 <category android:name="android.intent.category.LAUNCHER" />  
 </intent-filter>  
 </activity>  
 </application>  
  
</manifest>

## Image Effect

<https://www.youtube.com/watch?v=gaQ1izK7v6Y&list=PLknSwrodgQ72X4sKpzf5vT8kY80HKcUSe&index=59>



1. Paste image in drawable folder

Activity\_main.xml

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
  
 <ImageView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/myImage"  
 android:minHeight="300dp"  
 android:minWidth="300dp"  
 android:layout\_centerHorizontal="true"  
 />  
 <Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Capute"  
 android:id="@+id/btn\_capture"  
 android:layout\_below="@+id/myImage"  
 android:layout\_centerHorizontal="true"  
 android:onClick="launchCamera"  
 />  
  
</RelativeLayout>

MainActivity.java

package com.example.captureimage;  
  
import androidx.annotation.Nullable;  
import androidx.appcompat.app.AppCompatActivity;  
import androidx.core.content.res.ResourcesCompat;  
  
import android.content.Intent;  
import android.content.pm.PackageManager;  
import android.graphics.Bitmap;  
import android.graphics.Color;  
import android.graphics.drawable.BitmapDrawable;  
import android.graphics.drawable.Drawable;  
import android.os.Bundle;  
import android.provider.MediaStore;  
import android.view.View;  
import android.widget.Button;  
import android.widget.ImageView;  
import android.widget.Toast;  
  
public class MainActivity extends AppCompatActivity {  
  
 Bitmap myBitmapImg;  
 ImageView imageView;  
 Drawable myFlower;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 imageView = (ImageView)findViewById(R.id.*myImage*);  
 myFlower = ResourcesCompat.*getDrawable*(getResources(), R.drawable.*sunflower*, null);  
 myBitmapImg = ((BitmapDrawable)myFlower).getBitmap();  
  
 Bitmap newphoto = invertImage(myBitmapImg);  
 imageView.setImageBitmap(newphoto);  
 }  
  
 private Bitmap invertImage(Bitmap myBitmapImg) {  
 Bitmap finalImage = Bitmap.*createBitmap*(myBitmapImg.getWidth(),myBitmapImg.getHeight(),myBitmapImg.getConfig());  
  
 int A, R, G, B;  
 int pixelcolor;  
 int height = myBitmapImg.getHeight();  
 int width = myBitmapImg.getWidth();  
 for(int y=0; y<height; y++){  
 for (int x=0; x<width; x++){  
 pixelcolor = myBitmapImg.getPixel(x,y);  
 A = Color.*alpha*(pixelcolor);  
 R = 255 - Color.*red*(pixelcolor);  
 G = 255 - Color.*green*(pixelcolor);  
 B = 255 - Color.*blue*(pixelcolor);  
 finalImage.setPixel(x,y,Color.*argb*(A, R, G, B));  
 }  
 }  
 return finalImage;  
 }  
  
}

# Notification – NOt Working

<https://www.youtube.com/watch?v=ikZemSzCip8&list=PLknSwrodgQ72X4sKpzf5vT8kY80HKcUSe&index=61>

activity\_main.xml

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
  
 <Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Notify"  
 android:id="@+id/btn\_notify"  
 android:onClick="myButtonClicked"  
 />  
  
</RelativeLayout>

MainActivity.java

package com.example.notification;  
  
import androidx.appcompat.app.AppCompatActivity;  
import androidx.core.app.NotificationCompat;  
  
import android.app.NotificationManager;  
import android.app.PendingIntent;  
import android.content.Intent;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Toast;  
  
public class MainActivity extends AppCompatActivity {  
  
 NotificationCompat.Builder notification;  
 private static final int *uniqueID* = 40111;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 notification = new NotificationCompat.Builder(this);  
 notification.setAutoCancel(true);  
  
 }  
 public void myButtonClicked(View view){  
 notification.setSmallIcon(R.mipmap.*ic\_launcher*);  
 notification.setTicker("This is a ticker");  
 notification.setWhen(System.*currentTimeMillis*());  
 notification.setContentTitle("This is my title");  
 notification.setContentText("Here is the text");  
  
 Intent intent = new Intent(this, MainActivity.class);  
 PendingIntent pendingIntent = PendingIntent.*getActivity*(this, 0, intent, PendingIntent.*FLAG\_UPDATE\_CURRENT*);  
 notification.setContentIntent(pendingIntent);  
 NotificationManager nm = (NotificationManager) getSystemService(*NOTIFICATION\_SERVICE*);  
 nm.notify(*uniqueID*, notification.build());  
 Toast.*makeText*(this, "Notification", Toast.*LENGTH\_SHORT*).show();  
 }  
}

# HTTP Connection

## OkHttp - GET

<https://www.youtube.com/watch?v=oGWJ8xD2W6k>

<https://www.studytutorial.in/android-okhttp-post-and-get-request-tutorial>

1. Add userpermission in manifest file

<?xml version="1.0" encoding="utf-8"?>  
<manifest xmlns:android="http://schemas.android.com/apk/res/android"  
 package="com.example.httpconnection">  
 <uses-permission android:name="android.permission.INTERNET" />  
  
 <application  
 android:allowBackup="true"  
 android:icon="@mipmap/ic\_launcher"  
 android:label="@string/app\_name"  
 android:roundIcon="@mipmap/ic\_launcher\_round"  
 android:supportsRtl="true"  
 android:theme="@style/AppTheme">  
 <activity android:name=".MainActivity">  
 <intent-filter>  
 <action android:name="android.intent.action.MAIN" />  
  
 <category android:name="android.intent.category.LAUNCHER" />  
 </intent-filter>  
 </activity>  
 </application>  
  
</manifest>

1. Add dependency in gradle file

implementation 'com.squareup.okhttp:okhttp:2.5.0'

MainActivity.java

package com.example.httpconnection;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
import android.widget.TextView;  
  
import com.squareup.okhttp.Callback;  
import com.squareup.okhttp.OkHttpClient;  
import com.squareup.okhttp.Request;  
import com.squareup.okhttp.Response;  
  
import java.io.IOException;  
  
public class MainActivity extends AppCompatActivity {  
  
 private TextView textViewResult;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 textViewResult = (TextView) findViewById(R.id.*textViewResult*);  
 OkHttpClient client = new OkHttpClient();  
 String url = "https://reqres.in/api/users?page=2";  
  
 Request request = new Request.Builder()  
 .url(url)  
 .build();  
 client.newCall(request).enqueue(new Callback() {  
 @Override  
 public void onFailure(Request request, IOException e) {  
 e.printStackTrace();  
 }  
  
 @Override  
 public void onResponse(Response response) throws IOException {  
 if (response.isSuccessful()){  
 final String myResponce = response.body().string();  
 MainActivity.this.runOnUiThread(new Runnable() {  
 @Override  
 public void run() {  
 textViewResult.setText(myResponce);  
 }  
 });  
 }  
 }  
 });  
 }  
}

## OKHTTP – POST

MainActivity.java

package com.example.httpconnection;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
import android.widget.TextView;  
  
import com.squareup.okhttp.Callback;  
import com.squareup.okhttp.MediaType;  
import com.squareup.okhttp.OkHttpClient;  
import com.squareup.okhttp.Request;  
import com.squareup.okhttp.RequestBody;  
import com.squareup.okhttp.Response;  
  
import org.json.JSONException;  
import org.json.JSONObject;  
  
import java.io.IOException;  
  
public class MainActivity extends AppCompatActivity {  
  
 private TextView textViewResult;  
 public static final MediaType *MEDIA\_TYPE* = MediaType.*parse*("application/json");  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 textViewResult = (TextView) findViewById(R.id.*textViewResult*);  
  
 final OkHttpClient client = new OkHttpClient();  
  
 JSONObject postdata = new JSONObject();  
 try {  
 postdata.put("name", "Abhay Anand");  
 postdata.put("job", "leader");  
 } catch(JSONException e){  
 // *TODO Auto-generated catch block* e.printStackTrace();  
 }  
  
 String url = "https://reqres.in/api/users";  
  
 RequestBody body = RequestBody.*create*(*MEDIA\_TYPE*, postdata.toString());  
  
 final Request request = new Request.Builder()  
 .url(url)  
 .post(body)  
 .addHeader("Content-Type", "application/json")  
 .addHeader("Authorization", "Your Token")  
 .addHeader("cache-control", "no-cache")  
 .build();  
  
 client.newCall(request).enqueue(new Callback() {  
 @Override  
 public void onFailure(Request request, IOException e) {  
 e.printStackTrace();  
 }  
  
 @Override  
 public void onResponse(Response response) throws IOException {  
 if (response.isSuccessful()){  
 final String myResponce = response.body().string();  
 MainActivity.this.runOnUiThread(new Runnable() {  
 @Override  
 public void run() {  
 textViewResult.setText(myResponce);  
 }  
 });  
 }  
 }  
 });  
 }  
}

## Retrofit

<https://square.github.io/retrofit/>

### GET

Video tutorial: <https://www.youtube.com/watch?v=4JGvDUlfk7Y&list=PLrnPJCHvNZuCbuD3xpfKzQWOj3AXybSaM>

Json placeholder: <https://jsonplaceholder.typicode.com/>

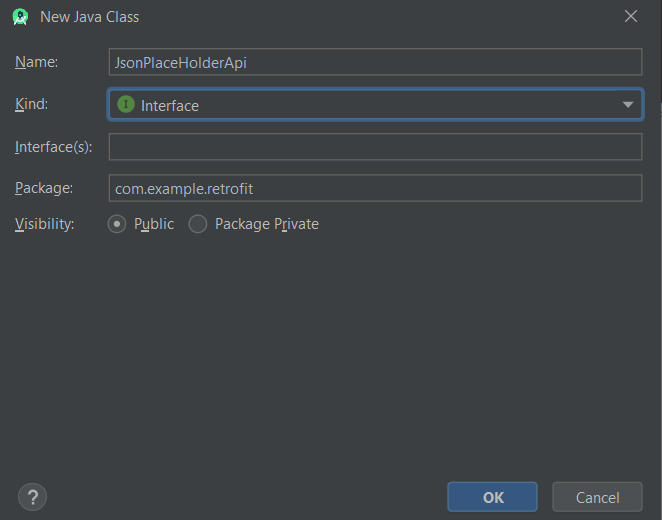
1. Implement retrofit package – Gradle mobile app

implementation 'com.squareup.retrofit2:retrofit:2.4.0'  
implementation 'com.squareup.retrofit2:converter-gson:2.4.0'

1. Create new java class Post.java

package com.example.retrofit;  
  
import com.google.gson.annotations.SerializedName;  
  
public class Post {  
 private int userId;  
 private int id;  
 private String title;  
 @SerializedName("body")  
 private String text;  
  
 public int getUserId() {  
 return userId;  
 }  
  
 public int getId() {  
 return id;  
 }  
  
 public String getTitle() {  
 return title;  
 }  
  
 public String getText() {  
 return text;  
 }  
}

1. Create new Java class – type interface



package com.example.retrofit;  
  
import java.util.List;  
  
import retrofit2.Call;  
import retrofit2.http.GET;  
  
public interface JsonPlaceHolderApi {  
 @GET("posts")  
 Call<List<Post>> getPosts();  
}

activity\_main.xml

<?xml version="1.0" encoding="utf-8"?>  
<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:padding="8dp"  
 tools:context=".MainActivity">  
  
 <androidx.core.widget.NestedScrollView  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 >  
  
 <TextView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/tv\_result"  
 android:textColor="#000"  
 android:text="Hello World!"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintLeft\_toLeftOf="parent"  
 app:layout\_constraintRight\_toRightOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent" />  
 </androidx.core.widget.NestedScrollView>  
  
</androidx.constraintlayout.widget.ConstraintLayout>

MainActivity.java

package com.example.retrofit;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
import android.widget.TextView;  
  
import java.util.List;  
  
import retrofit2.Call;  
import retrofit2.Callback;  
import retrofit2.Response;  
import retrofit2.Retrofit;  
import retrofit2.converter.gson.GsonConverterFactory;  
  
public class MainActivity extends AppCompatActivity {  
  
 private TextView tv\_result;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 tv\_result = (TextView) findViewById(R.id.*tv\_result*);  
  
 Retrofit retrofit = new Retrofit.Builder()  
 .baseUrl("https://jsonplaceholder.typicode.com/")  
 .addConverterFactory(GsonConverterFactory.*create*())  
 .build();  
  
 JsonPlaceHolderApi jsonPlaceHolderApi = retrofit.create(JsonPlaceHolderApi.class);  
 Call<List<Post>> call = jsonPlaceHolderApi.getPosts();  
 call.enqueue(new Callback<List<Post>>() {  
 @Override  
 public void onResponse(Call<List<Post>> call, Response<List<Post>> response) {  
 if(!response.isSuccessful()){  
 tv\_result.setText("Code: "+ response.code());  
 return;  
 }  
  
 List<Post> posts = response.body();  
 for(Post post: posts){  
 String content = "";  
 content += "ID: " + post.getId() + "\n";  
 content += "User ID: " + post.getUserId() + "\n";  
 content += "Title: " + post.getTitle() + "\n";  
 content += "Text: " + post.getText() + "\n\n";  
 tv\_result.append(content);  
 }  
 }  
  
 @Override  
 public void onFailure(Call<List<Post>> call, Throwable t) {  
 tv\_result.setText(t.getMessage());  
 }  
 });  
 }  
}

AndroidManifest.xml

<uses-permission android:name="android.permission.INTERNET"/>

### GET URL MANIPULATION

<https://www.youtube.com/watch?v=TyJEDhauUeQ&list=PLrnPJCHvNZuCbuD3xpfKzQWOj3AXybSaM&index=2>

1. JsonPlaceholderApi.java

package com.example.retrofit;  
  
import java.util.List;  
import java.util.Map;  
  
import retrofit2.Call;  
import retrofit2.http.GET;  
import retrofit2.http.Path;  
import retrofit2.http.Query;  
import retrofit2.http.QueryMap;  
import retrofit2.http.Url;  
  
public interface JsonPlaceHolderApi {  
 @GET("posts")  
 Call<List<Post>> getPosts(  
 @Query("userId") Integer[] userId,  
 @Query("\_sort") String sort,  
 @Query("\_order") String order  
 );  
  
 @GET("posts")  
 Call<List<Post>> getPosts(@QueryMap Map<String, String> parameters);  
  
 @GET("posts/{id}/comments")  
 Call<List<Comments>> getComments(@Path("id") int postId);  
  
 @GET  
 Call<List<Comments>> getComments(@Url String url);  
}

1. Create java class Comments.java

package com.example.retrofit;  
  
import com.google.gson.annotations.SerializedName;  
  
public class Comments {  
 private int postId;  
 private int id;  
 private String name;  
 private String email;  
 @SerializedName("body")  
 private String text;  
  
 public int getPostId() {  
 return postId;  
 }  
  
 public int getId() {  
 return id;  
 }  
  
 public String getName() {  
 return name;  
 }  
  
 public String getEmail() {  
 return email;  
 }  
  
 public String getText() {  
 return text;  
 }  
}

1. MainActivity.java

package com.example.retrofit;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
import android.widget.TextView;  
  
import java.util.HashMap;  
import java.util.List;  
import java.util.Map;  
  
import retrofit2.Call;  
import retrofit2.Callback;  
import retrofit2.Response;  
import retrofit2.Retrofit;  
import retrofit2.converter.gson.GsonConverterFactory;  
  
public class MainActivity extends AppCompatActivity {  
  
 private TextView tv\_result;  
 private JsonPlaceHolderApi jsonPlaceHolderApi;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 tv\_result = (TextView) findViewById(R.id.*tv\_result*);  
  
 Retrofit retrofit = new Retrofit.Builder()  
 .baseUrl("https://jsonplaceholder.typicode.com/")  
 .addConverterFactory(GsonConverterFactory.*create*())  
 .build();  
  
 jsonPlaceHolderApi = retrofit.create(JsonPlaceHolderApi.class);  
// getPosts();  
 getComments();  
 }  
  
 private void getComments() {  
// Call<List<Comments>> call = jsonPlaceHolderApi.getComments(3);  
 Call<List<Comments>> call = jsonPlaceHolderApi.getComments("posts/3/comments");  
 call.enqueue(new Callback<List<Comments>>() {  
 @Override  
 public void onResponse(Call<List<Comments>> call, Response<List<Comments>> response) {  
 if(!response.isSuccessful()){  
 tv\_result.setText("Code: "+ response.code());  
 return;  
 }  
  
 List<Comments> posts = response.body();  
 for(Comments post: posts){  
 String content = "";  
 content += "ID: " + post.getId() + "\n";  
 content += "Post ID: " + post.getPostId() + "\n";  
 content += "Name: " + post.getName() + "\n";  
 content += "Email: " + post.getEmail() + "\n";  
 content += "Text: " + post.getText() + "\n\n";  
 tv\_result.append(content);  
 }  
 }  
  
 @Override  
 public void onFailure(Call<List<Comments>> call, Throwable t) {  
 tv\_result.setText(t.getMessage());  
 }  
 });  
 }  
  
  
 private void getPosts() {  
// Call<List<Post>> call = jsonPlaceHolderApi.getPosts(1,4, "id", "desc");  
// Call<List<Post>> call = jsonPlaceHolderApi.getPosts(new Integer[]{2,3,4}, null, null);  
 Map<String,String> parameters = new HashMap<>();  
 parameters.put("userId", "1");  
 parameters.put("\_sort", "id");  
 parameters.put("\_order", "desc");  
  
 Call<List<Post>> call = jsonPlaceHolderApi.getPosts(parameters);  
 call.enqueue(new Callback<List<Post>>() {  
 @Override  
 public void onResponse(Call<List<Post>> call, Response<List<Post>> response) {  
 if(!response.isSuccessful()){  
 tv\_result.setText("Code: "+ response.code());  
 return;  
 }  
  
 List<Post> posts = response.body();  
 for(Post post: posts){  
 String content = "";  
 content += "ID: " + post.getId() + "\n";  
 content += "User ID: " + post.getUserId() + "\n";  
 content += "Title: " + post.getTitle() + "\n";  
 content += "Text: " + post.getText() + "\n\n";  
 tv\_result.append(content);  
 }  
 }  
  
 @Override  
 public void onFailure(Call<List<Post>> call, Throwable t) {  
 tv\_result.setText(t.getMessage());  
 }  
 });  
 }  
}

### POST

<https://www.youtube.com/watch?v=GP5OyYDu_mU&list=PLrnPJCHvNZuCbuD3xpfKzQWOj3AXybSaM&index=3>

#### Json

1. Post.java

package com.example.retrofit;  
  
import com.google.gson.annotations.SerializedName;  
  
public class Post {  
 private int userId;  
 private int id;  
 private String title;  
 @SerializedName("body")  
 private String text;  
  
 public Post(int userId, String title, String text) {  
 this.userId = userId;  
 this.title = title;  
 this.text = text;  
 }  
  
 public int getUserId() {  
 return userId;  
 }  
  
 public int getId() {  
 return id;  
 }  
  
 public String getTitle() {  
 return title;  
 }  
  
 public String getText() {  
 return text;  
 }  
}

1. JsonPlaceholderApi.java

package com.example.retrofit;  
  
import java.util.List;  
import java.util.Map;  
  
import retrofit2.Call;  
import retrofit2.http.Body;  
import retrofit2.http.Field;  
import retrofit2.http.FormUrlEncoded;  
import retrofit2.http.GET;  
import retrofit2.http.POST;  
import retrofit2.http.Path;  
import retrofit2.http.Query;  
import retrofit2.http.QueryMap;  
import retrofit2.http.Url;  
  
public interface JsonPlaceHolderApi {  
 @GET("posts")  
 Call<List<Post>> getPosts(  
 @Query("userId") Integer[] userId,  
 @Query("\_sort") String sort,  
 @Query("\_order") String order  
 );  
  
 @GET("posts")  
 Call<List<Post>> getPosts(@QueryMap Map<String, String> parameters);  
  
 @GET("posts/{id}/comments")  
 Call<List<Comments>> getComments(@Path("id") int postId);  
  
 @GET  
 Call<List<Comments>> getComments(@Url String url);  
  
 @POST("posts")  
 Call<Post> createPost(@Body Post post);  
  
 @FormUrlEncoded  
 @POST("posts")  
 Call<Post> createPost(  
 @Field("userId") int userId,  
 @Field("title") String title,  
 @Field("body") String text  
 );  
}

1. MainActivity.java

package com.example.retrofit;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
import android.widget.TextView;  
  
import java.util.HashMap;  
import java.util.List;  
import java.util.Map;  
  
import retrofit2.Call;  
import retrofit2.Callback;  
import retrofit2.Response;  
import retrofit2.Retrofit;  
import retrofit2.converter.gson.GsonConverterFactory;  
  
public class MainActivity extends AppCompatActivity {  
  
 private TextView tv\_result;  
 private JsonPlaceHolderApi jsonPlaceHolderApi;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 tv\_result = (TextView) findViewById(R.id.*tv\_result*);  
  
 Retrofit retrofit = new Retrofit.Builder()  
 .baseUrl("https://jsonplaceholder.typicode.com/")  
 .addConverterFactory(GsonConverterFactory.*create*())  
 .build();  
  
 jsonPlaceHolderApi = retrofit.create(JsonPlaceHolderApi.class);  
// getPosts();  
// getComments();  
 createPost();  
 }  
  
 private void createPost() {  
 Post post = new Post(23,"New Title", "New Text");  
 Call<Post> call = jsonPlaceHolderApi.createPost(post);  
 call.enqueue(new Callback<Post>() {  
 @Override  
 public void onResponse(Call<Post> call, Response<Post> response) {  
 if(!response.isSuccessful()){  
 tv\_result.setText("Code: "+ response.code());  
 return;  
 }  
  
 Post postResponse = response.body();  
 String content = "";  
 content += "Code: " + response.code() + "\n";  
 content += "ID: " + postResponse.getId() + "\n";  
 content += "User ID: " + postResponse.getUserId() + "\n";  
 content += "Title: " + postResponse.getTitle() + "\n";  
 content += "Text: " + postResponse.getText() + "\n\n";  
 tv\_result.setText(content);  
 }  
  
 @Override  
 public void onFailure(Call<Post> call, Throwable t) {  
 tv\_result.setText(t.getMessage());  
 }  
 });  
 }  
  
 private void getComments() {  
// Call<List<Comments>> call = jsonPlaceHolderApi.getComments(3);  
 Call<List<Comments>> call = jsonPlaceHolderApi.getComments("posts/3/comments");  
 call.enqueue(new Callback<List<Comments>>() {  
 @Override  
 public void onResponse(Call<List<Comments>> call, Response<List<Comments>> response) {  
 if(!response.isSuccessful()){  
 tv\_result.setText("Code: "+ response.code());  
 return;  
 }  
  
 List<Comments> posts = response.body();  
 for(Comments post: posts){  
 String content = "";  
 content += "ID: " + post.getId() + "\n";  
 content += "Post ID: " + post.getPostId() + "\n";  
 content += "Name: " + post.getName() + "\n";  
 content += "Email: " + post.getEmail() + "\n";  
 content += "Text: " + post.getText() + "\n\n";  
 tv\_result.append(content);  
 }  
 }  
  
 @Override  
 public void onFailure(Call<List<Comments>> call, Throwable t) {  
 tv\_result.setText(t.getMessage());  
 }  
 });  
 }  
  
  
 private void getPosts() {  
// Call<List<Post>> call = jsonPlaceHolderApi.getPosts(1,4, "id", "desc");  
// Call<List<Post>> call = jsonPlaceHolderApi.getPosts(new Integer[]{2,3,4}, null, null);  
 Map<String,String> parameters = new HashMap<>();  
 parameters.put("userId", "1");  
 parameters.put("\_sort", "id");  
 parameters.put("\_order", "desc");  
  
 Call<List<Post>> call = jsonPlaceHolderApi.getPosts(parameters);  
 call.enqueue(new Callback<List<Post>>() {  
 @Override  
 public void onResponse(Call<List<Post>> call, Response<List<Post>> response) {  
 if(!response.isSuccessful()){  
 tv\_result.setText("Code: "+ response.code());  
 return;  
 }  
  
 List<Post> posts = response.body();  
 for(Post post: posts){  
 String content = "";  
 content += "ID: " + post.getId() + "\n";  
 content += "User ID: " + post.getUserId() + "\n";  
 content += "Title: " + post.getTitle() + "\n";  
 content += "Text: " + post.getText() + "\n\n";  
 tv\_result.append(content);  
 }  
 }  
  
 @Override  
 public void onFailure(Call<List<Post>> call, Throwable t) {  
 tv\_result.setText(t.getMessage());  
 }  
 });  
 }  
}

#### FormEncoded



1. JsonPlaceholderApi.java

package com.example.retrofit;  
  
import java.util.List;  
import java.util.Map;  
  
import retrofit2.Call;  
import retrofit2.http.Body;  
import retrofit2.http.Field;  
import retrofit2.http.FieldMap;  
import retrofit2.http.FormUrlEncoded;  
import retrofit2.http.GET;  
import retrofit2.http.POST;  
import retrofit2.http.Path;  
import retrofit2.http.Query;  
import retrofit2.http.QueryMap;  
import retrofit2.http.Url;  
  
public interface JsonPlaceHolderApi {  
 @GET("posts")  
 Call<List<Post>> getPosts(  
 @Query("userId") Integer[] userId,  
 @Query("\_sort") String sort,  
 @Query("\_order") String order  
 );  
  
 @GET("posts")  
 Call<List<Post>> getPosts(@QueryMap Map<String, String> parameters);  
  
 @GET("posts/{id}/comments")  
 Call<List<Comments>> getComments(@Path("id") int postId);  
  
 @GET  
 Call<List<Comments>> getComments(@Url String url);  
  
 @POST("posts")  
 Call<Post> createPost(@Body Post post);  
  
 @FormUrlEncoded  
 @POST("posts")  
 Call<Post> createPost(  
 @Field("userId") int userId,  
 @Field("title") String title,  
 @Field("body") String text  
 );  
  
 @FormUrlEncoded  
 @POST("posts")  
 Call<Post> createPost(@FieldMap Map<String, String> fields);  
}

1. MainActivity.java

package com.example.retrofit;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
import android.widget.TextView;  
  
import java.util.HashMap;  
import java.util.List;  
import java.util.Map;  
  
import retrofit2.Call;  
import retrofit2.Callback;  
import retrofit2.Response;  
import retrofit2.Retrofit;  
import retrofit2.converter.gson.GsonConverterFactory;  
  
public class MainActivity extends AppCompatActivity {  
  
 private TextView tv\_result;  
 private JsonPlaceHolderApi jsonPlaceHolderApi;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 tv\_result = (TextView) findViewById(R.id.*tv\_result*);  
  
 Retrofit retrofit = new Retrofit.Builder()  
 .baseUrl("https://jsonplaceholder.typicode.com/")  
 .addConverterFactory(GsonConverterFactory.*create*())  
 .build();  
  
 jsonPlaceHolderApi = retrofit.create(JsonPlaceHolderApi.class);  
// getPosts();  
// getComments();  
 createPost();  
 }  
  
 private void createPost() {  
// Post post = new Post(23,"New Title", "New Text");  
// Call<Post> call = jsonPlaceHolderApi.createPost(23, "New Title", "New Text");  
 Map<String, String> fields = new HashMap<>();  
 fields.put("userId", "25");  
 fields.put("title", "New Title");  
 fields.put("body", "New Body");  
 Call<Post> call = jsonPlaceHolderApi.createPost(fields);  
 call.enqueue(new Callback<Post>() {  
 @Override  
 public void onResponse(Call<Post> call, Response<Post> response) {  
 if(!response.isSuccessful()){  
 tv\_result.setText("Code: "+ response.code());  
 return;  
 }  
  
 Post postResponse = response.body();  
 String content = "";  
 content += "Code: " + response.code() + "\n";  
 content += "ID: " + postResponse.getId() + "\n";  
 content += "User ID: " + postResponse.getUserId() + "\n";  
 content += "Title: " + postResponse.getTitle() + "\n";  
 content += "Text: " + postResponse.getText() + "\n\n";  
 tv\_result.setText(content);  
 }  
  
 @Override  
 public void onFailure(Call<Post> call, Throwable t) {  
 tv\_result.setText(t.getMessage());  
 }  
 });  
 }  
  
 private void getComments() {  
// Call<List<Comments>> call = jsonPlaceHolderApi.getComments(3);  
 Call<List<Comments>> call = jsonPlaceHolderApi.getComments("posts/3/comments");  
 call.enqueue(new Callback<List<Comments>>() {  
 @Override  
 public void onResponse(Call<List<Comments>> call, Response<List<Comments>> response) {  
 if(!response.isSuccessful()){  
 tv\_result.setText("Code: "+ response.code());  
 return;  
 }  
  
 List<Comments> posts = response.body();  
 for(Comments post: posts){  
 String content = "";  
 content += "ID: " + post.getId() + "\n";  
 content += "Post ID: " + post.getPostId() + "\n";  
 content += "Name: " + post.getName() + "\n";  
 content += "Email: " + post.getEmail() + "\n";  
 content += "Text: " + post.getText() + "\n\n";  
 tv\_result.append(content);  
 }  
 }  
  
 @Override  
 public void onFailure(Call<List<Comments>> call, Throwable t) {  
 tv\_result.setText(t.getMessage());  
 }  
 });  
 }  
  
  
 private void getPosts() {  
// Call<List<Post>> call = jsonPlaceHolderApi.getPosts(1,4, "id", "desc");  
// Call<List<Post>> call = jsonPlaceHolderApi.getPosts(new Integer[]{2,3,4}, null, null);  
 Map<String,String> parameters = new HashMap<>();  
 parameters.put("userId", "1");  
 parameters.put("\_sort", "id");  
 parameters.put("\_order", "desc");  
  
 Call<List<Post>> call = jsonPlaceHolderApi.getPosts(parameters);  
 call.enqueue(new Callback<List<Post>>() {  
 @Override  
 public void onResponse(Call<List<Post>> call, Response<List<Post>> response) {  
 if(!response.isSuccessful()){  
 tv\_result.setText("Code: "+ response.code());  
 return;  
 }  
  
 List<Post> posts = response.body();  
 for(Post post: posts){  
 String content = "";  
 content += "ID: " + post.getId() + "\n";  
 content += "User ID: " + post.getUserId() + "\n";  
 content += "Title: " + post.getTitle() + "\n";  
 content += "Text: " + post.getText() + "\n\n";  
 tv\_result.append(content);  
 }  
 }  
  
 @Override  
 public void onFailure(Call<List<Post>> call, Throwable t) {  
 tv\_result.setText(t.getMessage());  
 }  
 });  
 }  
}

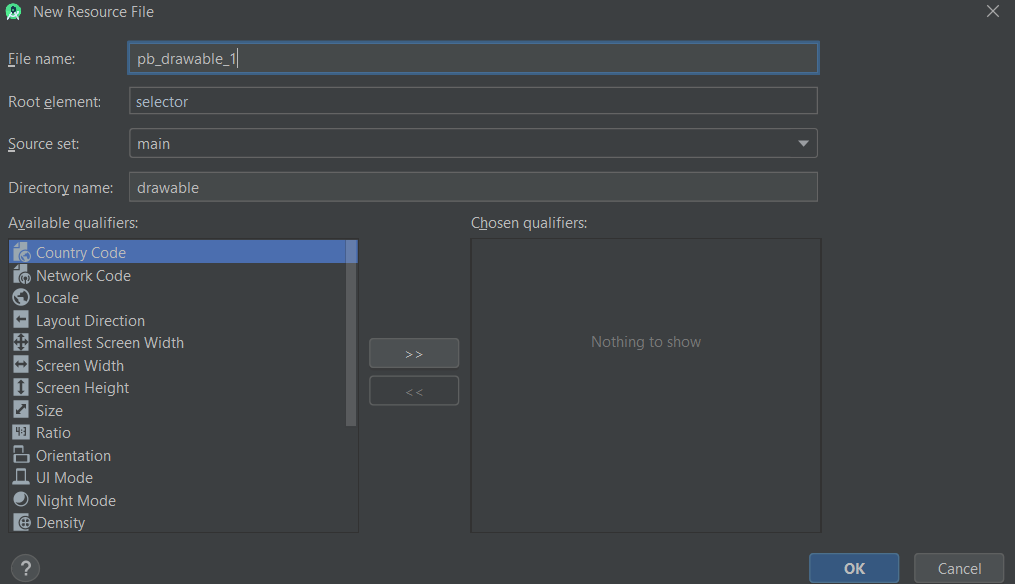
## Connect Non secured site – http

<https://better-coding.com/solved-android-cannot-send-data-to-the-server-cleartext-communication-to-not-permitted-by-network-security-policy/>

# Progress Bar

<https://www.youtube.com/watch?v=2qkgqgeC5r4>

1. Create new resource file in drawable folder – pb\_drawable\_1.xml



<?xml version="1.0" encoding="utf-8"?>  
<layer-list xmlns:android="http://schemas.android.com/apk/res/android">  
 <item>  
 <shape>  
 <solid android:color="@android:color/white"/>  
 </shape>  
  
 </item>  
 <item>  
 <clip>  
 <shape>  
 <gradient android:angle="45"  
 android:endColor="#3eff1c"  
 android:startColor="#04678e"  
 />  
 </shape>  
 </clip>  
 </item>  
</layer-list>

1. Create another drawable file- pb\_drawable\_2.xml

<?xml version="1.0" encoding="utf-8"?>  
<layer-list xmlns:android="http://schemas.android.com/apk/res/android">  
 <item android:id="@android:id/background">  
 <shape>  
 <gradient android:startColor="#424242"  
 android:endColor="#757575"  
 android:centerColor="#616161"  
 android:angle="-90" />  
 <size android:width="15dp"  
 android:height="15dp" />  
 <corners android:radius="6dp" />  
 </shape>  
 </item>  
 <item android:id="@android:id/progress">  
 <clip>  
 <layer-list>  
 <item android:bottom="2dp"  
 android:left="2dp"  
 android:top="2dp"  
 android:right="2dp"  
 >  
 <shape>  
 <gradient android:angle="-90"  
 android:centerColor="#43a047"  
 android:endColor="#388e3c"  
 android:startColor="#4caf50"/>  
 <corners android:radius="4dp" />  
 </shape>  
 </item>  
 </layer-list>  
 </clip>  
 </item>  
</layer-list>

1. Activity\_main.xml

<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:orientation="vertical"  
 android:gravity="center"  
 android:padding="16dp"  
 tools:context=".MainActivity">  
  
  
 <Button  
 android:id="@+id/btnStart"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginBottom="12dp"  
 android:text="Submit"  
 />  
 <ProgressBar  
 android:id="@+id/progressBarAnim"  
 style="?android:attr/progressBarStyleHorizontal"  
 android:layout\_width="match\_parent"  
 android:layout\_marginBottom="12dp"  
  
 android:secondaryProgressTint="@color/colorPrimaryDark"  
  
 android:progressTint="@color/colorAccent"  
 android:layout\_height="wrap\_content" />  
 <ProgressBar  
 android:id="@+id/progressBar2"  
 style="?android:attr/progressBarStyleHorizontal"  
 android:layout\_width="match\_parent"  
 android:indeterminate="true"  
 android:visibility="invisible"  
 android:progressTint="@color/colorPrimary"  
 android:secondaryProgressTint="@color/colorPrimaryDark"  
 android:layout\_marginBottom="12dp"  
 android:layout\_height="wrap\_content" />  
 <ProgressBar  
 android:id="@+id/progressBar3"  
 style="?android:attr/progressBarStyleHorizontal"  
 android:layout\_width="match\_parent"  
 android:layout\_marginBottom="12dp"  
 android:indeterminate="true"  
 android:indeterminateDuration="5000"  
 android:indeterminateDrawable="@drawable/pb\_drawable\_1"  
 android:layout\_height="wrap\_content" />  
 <ProgressBar  
 android:id="@+id/progressBar4"  
 style="?android:attr/progressBarStyleHorizontal"  
 android:layout\_width="match\_parent"  
 android:layout\_marginBottom="12dp"  
 android:indeterminate="true"  
 android:indeterminateDrawable="@drawable/pb\_drawable\_2"  
 android:layout\_height="wrap\_content" />  
</LinearLayout>

1. MainActivity.java

package com.example.progressbar;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.animation.Animator;  
import android.animation.AnimatorListenerAdapter;  
import android.animation.ObjectAnimator;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.ProgressBar;  
import android.widget.Toast;  
  
public class MainActivity extends AppCompatActivity {  
  
 private ProgressBar progressBarAnimator;  
 private ObjectAnimator prograssAnimator;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
   
 init();  
 prograssAnimator.setDuration(7000);  
 findViewById(R.id.*btnStart*).setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 prograssAnimator.start();  
 findViewById(R.id.*progressBar2*).setVisibility(View.*VISIBLE*);  
 }  
 });  
 prograssAnimator.addListener(new AnimatorListenerAdapter() {  
 @Override  
 public void onAnimationEnd(Animator animation) {  
 super.onAnimationEnd(animation);  
 Toast.*makeText*(MainActivity.this, "OP Completed", Toast.*LENGTH\_SHORT*).show();  
 progressBarAnimator.setVisibility(View.*GONE*);  
 }  
 });  
 }  
  
 private void init() {  
 progressBarAnimator = findViewById(R.id.*progressBarAnim*);  
 prograssAnimator = ObjectAnimator.*ofInt*(progressBarAnimator, "progress", 0, 100);  
  
 }  
}

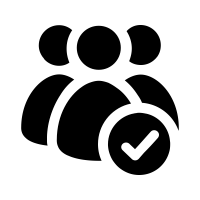
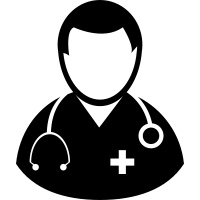
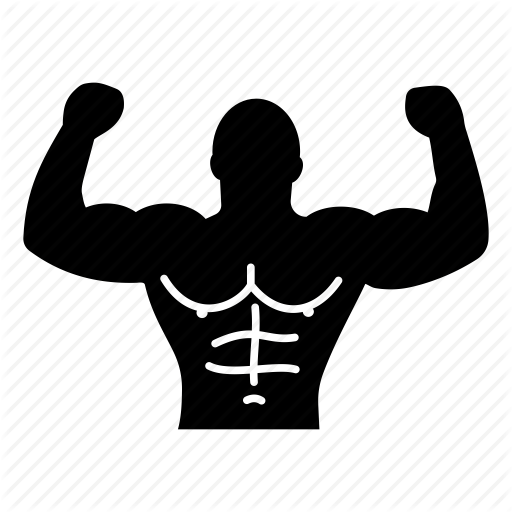
# Grid Layout and CardView

<https://www.youtube.com/watch?v=VUPM387qyrw>

1. Implement cardView

implementation "androidx.cardview:cardview:1.0.0"

1. Images



1. Activity\_main.xml

<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:orientation="vertical"  
 android:background="@drawable/admin\_home\_bg"  
 android:weightSum="10"  
 tools:context=".MainActivity">  
  
 <RelativeLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="2">  
 <TextView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/textGrid"  
 android:textSize="34dp"  
 android:text="GRID LAYOUT"  
 android:layout\_centerHorizontal="true"  
 android:layout\_centerVertical="true"  
 android:textColor="@android:color/white"  
 />  
 </RelativeLayout>  
  
 <GridLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="6"  
 android:columnCount="2"  
 android:rowCount="2"  
 android:alignmentMode="alignMargins"  
 android:columnOrderPreserved="false"  
 android:padding="14dp"  
 >  
 <!-- Row 1-->  
 <!-- Column 1-->  
 <androidx.cardview.widget.CardView  
 android:layout\_width="0dp"  
 android:layout\_height="0dp"  
 android:layout\_columnWeight="1"  
 android:layout\_rowWeight="1"  
 android:layout\_marginBottom="16dp"  
 android:layout\_marginLeft="16dp"  
 android:layout\_marginRight="16dp"  
 app:cardElevation="8dp"  
 app:cardCornerRadius="8dp"  
 >  
 <LinearLayout  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_margin="16dp"  
 android:orientation="vertical"  
 android:layout\_gravity="center\_horizontal|center\_vertical"  
 >  
 <ImageView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:src="@drawable/gym\_members"  
 android:layout\_gravity="center\_horizontal"  
 />  
 <TextView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Gym Members"  
 android:textColor="@android:color/black"  
 android:textSize="18sp"  
 android:textStyle="bold"  
 android:textAlignment="center" />  
 </LinearLayout>  
 </androidx.cardview.widget.CardView>  
 <!-- Column 2-->  
 <androidx.cardview.widget.CardView  
 android:layout\_width="0dp"  
 android:layout\_height="0dp"  
 android:layout\_columnWeight="1"  
 android:layout\_rowWeight="1"  
 android:layout\_marginBottom="16dp"  
 android:layout\_marginLeft="16dp"  
 android:layout\_marginRight="16dp"  
 app:cardElevation="8dp"  
 app:cardCornerRadius="8dp"  
 >  
 <LinearLayout  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_margin="16dp"  
 android:orientation="vertical"  
 android:layout\_gravity="center\_horizontal|center\_vertical"  
 >  
 <ImageView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:src="@drawable/gym\_expert"  
 android:layout\_gravity="center\_horizontal"  
 />  
 <TextView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Gym Experts"  
 android:textColor="@android:color/black"  
 android:textSize="18sp"  
 android:textStyle="bold"  
 android:textAlignment="center" />  
 </LinearLayout>  
 </androidx.cardview.widget.CardView>  
 <!-- Row 2-->  
 <!-- Column 1-->  
 <androidx.cardview.widget.CardView  
 android:layout\_width="0dp"  
 android:layout\_height="0dp"  
 android:layout\_columnWeight="1"  
 android:layout\_rowWeight="1"  
 android:layout\_marginBottom="16dp"  
 android:layout\_marginLeft="16dp"  
 android:layout\_marginRight="16dp"  
 app:cardElevation="8dp"  
 app:cardCornerRadius="8dp"  
 >  
 <LinearLayout  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_margin="16dp"  
 android:orientation="vertical"  
 android:layout\_gravity="center\_horizontal|center\_vertical"  
 >  
 <ImageView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:src="@drawable/doctors"  
 android:layout\_gravity="center\_horizontal"  
 />  
 <TextView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Doctors"  
 android:textColor="@android:color/black"  
 android:textSize="18sp"  
 android:textStyle="bold"  
 android:textAlignment="center" />  
 </LinearLayout>  
 </androidx.cardview.widget.CardView>  
 <!-- Column 2-->  
 <androidx.cardview.widget.CardView  
 android:layout\_width="0dp"  
 android:layout\_height="0dp"  
 android:layout\_columnWeight="1"  
 android:layout\_rowWeight="1"  
 android:layout\_marginBottom="16dp"  
 android:layout\_marginLeft="16dp"  
 android:layout\_marginRight="16dp"  
 app:cardElevation="8dp"  
 app:cardCornerRadius="8dp"  
 >  
 <LinearLayout  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_margin="16dp"  
 android:orientation="vertical"  
 android:layout\_gravity="center\_horizontal|center\_vertical"  
 >  
 <ImageView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:src="@drawable/attendance"  
 android:layout\_gravity="center\_horizontal"  
 />  
 <TextView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Attendance"  
 android:textColor="@android:color/black"  
 android:textSize="18sp"  
 android:textStyle="bold"  
 android:textAlignment="center" />  
 </LinearLayout>  
 </androidx.cardview.widget.CardView>  
 </GridLayout>  
  
</LinearLayout>

# Date picker Dialogue box

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"

xmlns:tools="http://schemas.android.com/tools"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:paddingBottom="@dimen/activity\_vertical\_margin"

android:paddingLeft="@dimen/activity\_horizontal\_margin"

android:paddingRight="@dimen/activity\_horizontal\_margin"

android:paddingTop="@dimen/activity\_vertical\_margin"

tools:context=".MainActivity">

<EditText

android:id="@+id/date"

android:layout\_width="200dp"

android:layout\_height="wrap\_content"

android:layout\_centerHorizontal="true"

android:background="#d4d4d4"

android:hint="Select Date..."

android:padding="15dp"

android:textColor="#897"

android:textColorHint="#090"

android:textSize="20sp"

android:textStyle="bold" />

</RelativeLayout>

MainActivity.java

package example.abhiandroid.datepickerexample;

import android.app.DatePickerDialog;

import android.support.v7.app.AppCompatActivity;

import android.os.Bundle;

import android.view.Menu;

import android.view.MenuItem;

import android.view.View;

import android.widget.DatePicker;

import android.widget.EditText;

import java.util.Calendar;

public class MainActivity extends AppCompatActivity {

EditText date;

DatePickerDialog datePickerDialog;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

// initiate the date picker and a button

date = (EditText) findViewById(R.id.date);

// perform click event on edit text

date.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

// calender class's instance and get current date , month and year from calender

final Calendar c = Calendar.getInstance();

int mYear = c.get(Calendar.YEAR); // current year

int mMonth = c.get(Calendar.MONTH); // current month

int mDay = c.get(Calendar.DAY\_OF\_MONTH); // current day

// date picker dialog

datePickerDialog = new DatePickerDialog(MainActivity.this,

new DatePickerDialog.OnDateSetListener() {

@Override

public void onDateSet(DatePicker view, int year,

int monthOfYear, int dayOfMonth) {

// set day of month , month and year value in the edit text

date.setText(dayOfMonth + "/"

+ (monthOfYear + 1) + "/" + year);

}

}, mYear, mMonth, mDay);

datePickerDialog.show();

}

});

}

}

# Open Gallery

Intent intent = new Intent();

intent.setType("image/\*");

intent.setAction(Intent.ACTION\_GET\_CONTENT);

startActivityForResult(Intent.createChooser(intent, "Select Picture"),SELECT\_IMAGE);

OnActivityResult for get image.

public void onActivityResult(int requestCode, int resultCode, Intent data) {

super.onActivityResult(requestCode, resultCode, data);

if (requestCode == SELECT\_IMAGE) {

if (resultCode == Activity.RESULT\_OK) {

if (data != null) {

try {

Bitmap bitmap = MediaStore.Images.Media.getBitmap(getActivity().getContentResolver(), data.getData());

} catch (IOException e) {

e.printStackTrace();

}

}

} else if (resultCode == Activity.RESULT\_CANCELED) {

Toast.makeText(getActivity(), "Canceled", Toast.LENGTH\_SHORT).show();

}

}

}

AndroidManiferst.xml

<uses-permission android:name="android.permission.READ\_EXTERNAL\_STORAGE" />

<uses-permission android:name="android.permission.WRITE\_EXTERNAL\_STORAGE" android:maxSdkVersion="18" />

# SQL

## Retreive data using foreign key

This is the result of separating a single table in two:

Table users:

user\_id (pk, ai)

email

password

last\_login

Table data:

user\_id (fk to users.user\_id)

data\_1

data\_2

To select a single record when there was only one table:

SELECT users.email, users.password, data.data\_1, data.data\_2

FROM users,data

WHERE users.email='$user\_email' AND users.user\_id=data.user\_id";

How do I get all records from both tables having the rows connected by users.user\_id=data.user\_id?

Row1: email, password, data\_1, data2

Row2: email, password, data\_1, data2

Row3: email, password, data\_1, data2

Row4: email, password, data\_1, data2