**App working screenshot**

**activity\_main.xml code**

*<?***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:background="#FFFFFF"  
 tools:context=".MainActivity"**>  
  
 <**Spinner  
 android:id="@+id/spinner3"  
 android:layout\_width="147dp"  
 android:layout\_height="27dp"  
 android:layout\_marginStart="68dp"  
 android:layout\_marginTop="40dp"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/spinner2"** />  
  
 <**Spinner  
 android:id="@+id/spinner4"  
 android:layout\_width="147dp"  
 android:layout\_height="27dp"  
 android:layout\_marginStart="68dp"  
 android:layout\_marginTop="40dp"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/spinner3"** />  
  
 <**Spinner  
 android:id="@+id/spinner2"  
 android:layout\_width="147dp"  
 android:layout\_height="27dp"  
 android:layout\_marginStart="68dp"  
 android:layout\_marginTop="40dp"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/spinner1"** />  
  
 <**Spinner  
 android:id="@+id/spinner1"  
 android:layout\_width="147dp"  
 android:layout\_height="27dp"  
 android:layout\_marginStart="68dp"  
 android:layout\_marginTop="270dp"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"** />  
  
 <**TextView  
 android:id="@+id/textView1"  
 android:layout\_width="150dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="272dp"  
 android:layout\_marginEnd="40dp"  
 android:textAlignment="center"  
 android:textAppearance="@style/TextAppearance.AppCompat.Medium"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"** />  
  
 <**TextView  
 android:id="@+id/textView4"  
 android:layout\_width="150dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="42dp"  
 android:layout\_marginEnd="40dp"  
 android:layout\_marginBottom="40dp"  
 android:textAlignment="center"  
 android:textAppearance="@style/TextAppearance.AppCompat.Medium"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/textView3"  
 app:layout\_constraintVertical\_bias="0.0"** />  
  
 <**TextView  
 android:id="@+id/textView2"  
 android:layout\_width="150dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="43dp"  
 android:layout\_marginEnd="40dp"  
 android:textAlignment="center"  
 android:textAppearance="@style/TextAppearance.AppCompat.Medium"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/textView1"** />  
  
 <**TextView  
 android:id="@+id/textView3"  
 android:layout\_width="150dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="43dp"  
 android:layout\_marginEnd="40dp"  
 android:textAlignment="center"  
 android:textAppearance="@style/TextAppearance.AppCompat.Medium"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/textView2"** />  
  
 <**Button  
 android:id="@+id/buttonReset"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginStart="68dp"  
 android:layout\_marginBottom="60dp"  
 android:backgroundTint="#009688"  
 android:fontFamily="sans-serif-black"  
 android:onClick="doReset"  
 android:text="Reset"  
 android:textStyle="bold|italic"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"** />  
  
 <**Button  
 android:id="@+id/buttonCalc"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginEnd="68dp"  
 android:layout\_marginBottom="60dp"  
 android:backgroundTint="#009688"  
 android:fontFamily="sans-serif-black"  
 android:onClick="doCalc"  
 android:text="Calculate"  
 android:textStyle="bold|italic"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"** />  
  
 <**TextView  
 android:id="@+id/tvResistorEnd1"  
 android:layout\_width="98dp"  
 android:layout\_height="30dp"  
 android:layout\_marginStart="68dp"  
 android:layout\_marginTop="124dp"  
 android:background="@drawable/myline"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"** />  
  
 <**TextView  
 android:id="@+id/tvResistorEnd"  
 android:layout\_width="98dp"  
 android:layout\_height="30dp"  
 android:layout\_marginTop="124dp"  
 android:layout\_marginEnd="68dp"  
 android:background="@drawable/myline"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"** />  
  
 <**TextView  
 android:id="@+id/tvResistor"  
 android:layout\_width="212dp"  
 android:layout\_height="66dp"  
 android:layout\_marginStart="99dp"  
 android:layout\_marginTop="104dp"  
 android:layout\_marginEnd="100dp"  
 android:background="@drawable/myshape"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"** />  
  
 <**TextView  
 android:id="@+id/tvBand1"  
 android:layout\_width="10dp"  
 android:layout\_height="56dp"  
 android:layout\_marginStart="155dp"  
 android:layout\_marginTop="109dp"  
 android:background="@android:color/black"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"** />  
  
 <**TextView  
 android:id="@+id/tvBand2"  
 android:layout\_width="10dp"  
 android:layout\_height="56dp"  
 android:layout\_marginStart="15dp"  
 android:layout\_marginTop="109dp"  
 android:background="@android:color/black"  
 app:layout\_constraintStart\_toEndOf="@+id/tvBand1"  
 app:layout\_constraintTop\_toTopOf="parent"** />  
  
 <**TextView  
 android:id="@+id/tvMultiBand"  
 android:layout\_width="10dp"  
 android:layout\_height="56dp"  
 android:layout\_marginStart="15dp"  
 android:layout\_marginTop="109dp"  
 android:background="@android:color/black"  
 app:layout\_constraintStart\_toEndOf="@+id/tvBand2"  
 app:layout\_constraintTop\_toTopOf="parent"** />  
  
 <**TextView  
 android:id="@+id/tvtolerBand"  
 android:layout\_width="10dp"  
 android:layout\_height="56dp"  
 android:layout\_marginStart="40dp"  
 android:layout\_marginTop="109dp"  
 android:background="@android:color/black"  
 app:layout\_constraintStart\_toEndOf="@+id/tvMultiBand"  
 app:layout\_constraintTop\_toTopOf="parent"** />  
  
 <**TextView  
 android:id="@+id/tvFinalResult"  
 android:layout\_width="261dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginStart="68dp"  
 android:layout\_marginTop="32dp"  
 android:layout\_marginEnd="68dp"  
 android:elegantTextHeight="false"  
 android:fontFamily="sans-serif-black"  
 android:text="Please Enter Values"  
 android:textAlignment="center"  
 android:textAppearance="@style/TextAppearance.AppCompat.Medium"  
 android:textColor="#000000"  
 android:textIsSelectable="false"  
 android:textSize="29sp"  
 android:textStyle="bold|italic"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/tvResistor"** />  
  
 <**Button  
 android:id="@+id/button"  
 android:layout\_width="411dp"  
 android:layout\_height="90dp"  
 android:background="#009688"  
 android:fontFamily="sans-serif-black"  
 android:text="Resistor Calculator"  
 android:textColor="#000000"  
 android:textIsSelectable="false"  
 android:textSize="24sp"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.0"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"** />  
  
</**androidx.constraintlayout.widget.ConstraintLayout**>

**MainActivity.java code**

**package** jamie.itsligo.newresistor;  
  
*//my imports***import** android.app.Activity;  
**import** android.graphics.Color;  
**import** android.graphics.drawable.ColorDrawable;  
**import** android.os.Bundle;  
**import** android.view.View;  
**import** android.widget.AdapterView;  
**import** android.widget.ArrayAdapter;  
**import** android.widget.Spinner;  
**import** android.widget.TextView;  
  
**public class** MainActivity **extends** Activity {  
  
 *//declaring and initializing for later* **public** Spinner **spinner1**,**spinner2**,**spinner3**,**spinner4**;  
 **public** TextView **tvRate1**, **tvRate2**, **tvMultiplier**, **tvTolerance**,**tvBand1**,**tvBand2**,**tvMultiband**,**tvTolerBand**,**tvResult1**,**tvResult2**,**tvResult3**,**tvResult4**,**tvFinalResult**;  
  
 *// my arrays used throughout project* String[] **bandsArray** = {**"Black"**,**"Brown"**,**"Red"**,**"Orange"**,**"Yellow"**,**"Green"**,**"Blue"**,**"Violet"**,**"Grey"**,**"White"**};  
 String[] **multiplierColourArray** = {**"Black"**,**"Brown"**,**"Red"**,**"Orange"**,**"Yellow"**,**"Green"**,**"Blue"**,**"Violet"**,**"Grey"**,**"White"**,**"Gold"**,**"Silver"**};  
 String[] **toleranceColourArray** = {**"Brown"**,**"Red"**,**"Green"**,**"Blue"**,**"Violet"**,**"Grey"**,**"Gold"**,**"Silver"**,**"None"**};  
 **double**[] **valueArray** = {0,1,2,3,4,5,6,7,8,9};  
 **double**[] **multiplierArray** = {1,10,100,1000,10000,100000,1000000,10000000,100000000,1000000000,0.1,0.01};  
 String[] **toleranceArray** = {**"±1%"**,**"±2%"**,**"±0.5%"**,**"±0.25%"**,**"±0.1%"**,**"±0.05%"**,**"±5%"**,**"±10%"**,**"±20%"**};  
  
 @Override  
 **protected void** onCreate(Bundle savedInstanceState) {  
 **super**.onCreate(savedInstanceState);  
 setContentView(R.layout.***activity\_main***);  
  
 *//finding my elements to use thorughout code* **tvFinalResult** = findViewById(R.id.***tvFinalResult***);  
 **tvResult1** = findViewById(R.id.***textView1***);  
 **tvResult2** = findViewById(R.id.***textView2***);  
 **tvResult3** = findViewById(R.id.***textView3***);  
 **tvResult4** = findViewById(R.id.***textView4***);  
  
 **tvFinalResult**.setText(**"Please enter Values"**);  
  
  
 *//------------------------------------------Spinner1 code ------------------------------------------  
 //setting up the spinner and telling it to listen for user* **spinner1** = (Spinner)findViewById(R.id.***spinner1***);  
 ArrayAdapter<String> adapter1 = **new** ArrayAdapter<String>(**this**, android.R.layout.***simple\_spinner\_item***, **bandsArray**);  
 **spinner1**.setAdapter(adapter1);  
 **spinner1**.setOnItemSelectedListener(  
 **new** AdapterView.OnItemSelectedListener() {  
 @Override  
 *// when the listener hears soemting it will run the switch* **public void** onItemSelected(AdapterView<?> arg0, View arg1,**int** arg2, **long** arg3) {  
 **int** position = **spinner1**.getSelectedItemPosition();  
 *// depending the the position of the array I have specified  
 // it will change Text and Colour of the the given elements* **switch**(position) {  
 **case** 0:  
 **tvRate1** = findViewById(R.id.***textView1***);  
 **tvRate1**.setText(String.*valueOf*(**valueArray**[0]));  
 **tvBand1** = findViewById(R.id.***tvBand1***);  
 **tvBand1**.setBackgroundColor(Color.*parseColor*(**"#000000"**));  
 **break**;  
 **case** 1:  
 **tvRate1** = findViewById(R.id.***textView1***);  
 **tvRate1**.setText(String.*valueOf*(**valueArray**[1]));  
 **tvBand1** = findViewById(R.id.***tvBand1***);  
 **tvBand1**.setBackgroundColor(Color.*parseColor*(**"#4B3A26"**));  
 **break**;  
 **case** 2:  
 **tvRate1** = findViewById(R.id.***textView1***);  
 **tvRate1**.setText(String.*valueOf*(**valueArray**[2]));  
 **tvBand1** = findViewById(R.id.***tvBand1***);  
 **tvBand1**.setBackgroundColor(Color.*parseColor*(**"#ff0000"**));  
 **break**;  
 **case** 3:  
 **tvRate1** = findViewById(R.id.***textView1***);  
 **tvRate1**.setText(String.*valueOf*(**valueArray**[3]));  
 **tvBand1** = findViewById(R.id.***tvBand1***);  
 **tvBand1**.setBackgroundColor(Color.*parseColor*(**"#ffaa00"**));  
 **break**;  
 **case** 4:  
 **tvRate1** = findViewById(R.id.***textView1***);  
 **tvRate1**.setText(String.*valueOf*(**valueArray**[4]));  
 **tvBand1** = findViewById(R.id.***tvBand1***);  
 **tvBand1**.setBackgroundColor(Color.*parseColor*(**"#ffea00"**));  
 **break**;  
 **case** 5:  
 **tvRate1** = findViewById(R.id.***textView1***);  
 **tvRate1**.setText(String.*valueOf*(**valueArray**[5]));  
 **tvBand1** = findViewById(R.id.***tvBand1***);  
 **tvBand1**.setBackgroundColor(Color.*parseColor*(**"#00ff11"**));  
 **break**;  
 **case** 6:  
 **tvRate1** = findViewById(R.id.***textView1***);  
 **tvRate1**.setText(String.*valueOf*(**valueArray**[6]));  
 **tvBand1** = findViewById(R.id.***tvBand1***);  
 **tvBand1**.setBackgroundColor(Color.*parseColor*(**"#0051ff"**));  
 **break**;  
 **case** 7:  
 **tvRate1** = findViewById(R.id.***textView1***);  
 **tvRate1**.setText(String.*valueOf*(**valueArray**[7]));  
 **tvBand1** = findViewById(R.id.***tvBand1***);  
 **tvBand1**.setBackgroundColor(Color.*parseColor*(**"#782fde"**));  
 **break**;  
 **case** 8:  
 **tvRate1** = findViewById(R.id.***textView1***);  
 **tvRate1**.setText(String.*valueOf*(**valueArray**[8]));  
 **tvBand1** = findViewById(R.id.***tvBand1***);  
 **tvBand1**.setBackgroundColor(Color.*parseColor*(**"#a3a3a3"**));  
 **break**;  
 **case** 9:  
 **tvRate1** = findViewById(R.id.***textView1***);  
 **tvRate1**.setText(String.*valueOf*(**valueArray**[9]));  
 **tvBand1** = findViewById(R.id.***tvBand1***);  
 **tvBand1**.setBackgroundColor(Color.*parseColor*(**"#fffcfc"**));  
 **break**;  
 **default**:  
 *// code block* }  
 }  
  
 @Override  
 **public void** onNothingSelected(AdapterView<?> arg0) {  
 }  
  
 }  
 );  
  
 *//------------------------------------------spinner2 code------------------------------------------  
 //setting up the spinner and telling it to listen for user* **spinner2** = (Spinner)findViewById(R.id.***spinner2***);  
 ArrayAdapter<String> adapter2 = **new** ArrayAdapter<String>(**this**, android.R.layout.***simple\_spinner\_item***, **bandsArray**);  
 **spinner2**.setAdapter(adapter2);  
 **spinner2**.setOnItemSelectedListener(  
 **new** AdapterView.OnItemSelectedListener() {  
  
 @Override  
 *// when the listener hears soemting it will run the switch* **public void** onItemSelected(AdapterView<?> arg0, View arg1,**int** arg2, **long** arg3) {  
 **int** position = **spinner2**.getSelectedItemPosition();  
 *// depending the the position of the array I have specified  
 // it will change Text and Colour of the the given elements* **switch**(position) {  
 **case** 0:  
 **tvRate2** = findViewById(R.id.***textView2***);  
 **tvRate2**.setText(String.*valueOf*(**valueArray**[0]));  
 **tvBand2** = findViewById(R.id.***tvBand2***);  
 **tvBand2**.setBackgroundColor(Color.*parseColor*(**"#000000"**));  
 **break**;  
 **case** 1:  
 **tvRate2** = findViewById(R.id.***textView2***);  
 **tvRate2**.setText(String.*valueOf*(**valueArray**[1]));  
 **tvBand2** = findViewById(R.id.***tvBand2***);  
 **tvBand2**.setBackgroundColor(Color.*parseColor*(**"#4B3A26"**));  
 **break**;  
 **case** 2:  
 **tvRate2** = findViewById(R.id.***textView2***);  
 **tvRate2**.setText(String.*valueOf*(**valueArray**[2]));  
 **tvBand2** = findViewById(R.id.***tvBand2***);  
 **tvBand2**.setBackgroundColor(Color.*parseColor*(**"#ff0000"**));  
 **break**;  
 **case** 3:  
 **tvRate2** = findViewById(R.id.***textView2***);  
 **tvRate2**.setText(String.*valueOf*(**valueArray**[3]));  
 **tvBand2** = findViewById(R.id.***tvBand2***);  
 **tvBand2**.setBackgroundColor(Color.*parseColor*(**"#ffaa00"**));  
 **break**;  
 **case** 4:  
 **tvRate2** = findViewById(R.id.***textView2***);  
 **tvRate2**.setText(String.*valueOf*(**valueArray**[4]));  
 **tvBand2** = findViewById(R.id.***tvBand2***);  
 **tvBand2**.setBackgroundColor(Color.*parseColor*(**"#ffea00"**));  
 **break**;  
 **case** 5:  
 **tvRate2** = findViewById(R.id.***textView2***);  
 **tvRate2**.setText(String.*valueOf*(**valueArray**[5]));  
 **tvBand2** = findViewById(R.id.***tvBand2***);  
 **tvBand2**.setBackgroundColor(Color.*parseColor*(**"#00ff11"**));  
 **break**;  
 **case** 6:  
 **tvRate2** = findViewById(R.id.***textView2***);  
 **tvRate2**.setText(String.*valueOf*(**valueArray**[6]));  
 **tvBand2** = findViewById(R.id.***tvBand2***);  
 **tvBand2**.setBackgroundColor(Color.*parseColor*(**"#0051ff"**));  
 **break**;  
 **case** 7:  
 **tvRate2** = findViewById(R.id.***textView2***);  
 **tvRate2**.setText(String.*valueOf*(**valueArray**[7]));  
 **tvBand2** = findViewById(R.id.***tvBand2***);  
 **tvBand2**.setBackgroundColor(Color.*parseColor*(**"#782fde"**));  
 **break**;  
 **case** 8:  
 **tvRate2** = findViewById(R.id.***textView2***);  
 **tvRate2**.setText(String.*valueOf*(**valueArray**[8]));  
 **tvBand2** = findViewById(R.id.***tvBand2***);  
 **tvBand2**.setBackgroundColor(Color.*parseColor*(**"#a3a3a3"**));  
 **break**;  
 **case** 9:  
 **tvRate2** = findViewById(R.id.***textView2***);  
 **tvRate2**.setText(String.*valueOf*(**valueArray**[9]));  
 **tvBand2** = findViewById(R.id.***tvBand2***);  
 **tvBand2**.setBackgroundColor(Color.*parseColor*(**"#fffcfc"**));  
 **break**;  
 **default**:  
 *// code block* }  
 }  
  
 @Override  
 **public void** onNothingSelected(AdapterView<?> arg0) {  
 }  
  
 }  
 );  
  
 *//------------------------------------------spinner3 code------------------------------------------  
 //setting up the spinner and telling it to listen for user* **spinner3** = (Spinner)findViewById(R.id.***spinner3***);  
 ArrayAdapter<String> adapter3 = **new** ArrayAdapter<String>(**this**, android.R.layout.***simple\_spinner\_item***, **multiplierColourArray**);  
 **spinner3**.setAdapter(adapter3);  
 **spinner3**.setOnItemSelectedListener(  
 **new** AdapterView.OnItemSelectedListener() {  
  
 @Override  
 *// when the listener hears soemting it will run the switch* **public void** onItemSelected(AdapterView<?> arg0, View arg1,**int** arg2, **long** arg3) {  
 **int** position = **spinner3**.getSelectedItemPosition();  
 *// depending the the position of the array I have specified  
 // it will change Text and Colour of the the given elements* **switch**(position) {  
 **case** 0:  
 **tvMultiplier** = findViewById(R.id.***textView3***);  
 **tvMultiplier**.setText(String.*valueOf*(**multiplierArray**[0]));  
 **tvMultiband** = findViewById(R.id.***tvMultiBand***);  
 **tvMultiband**.setBackgroundColor(Color.*parseColor*(**"#000000"**));  
 **break**;  
 **case** 1:  
 **tvMultiplier** = findViewById(R.id.***textView3***);  
 **tvMultiplier**.setText(String.*valueOf*(**multiplierArray**[1]));  
 **tvMultiband** = findViewById(R.id.***tvMultiBand***);  
 **tvMultiband**.setBackgroundColor(Color.*parseColor*(**"#4B3A26"**));  
 **break**;  
 **case** 2:  
 **tvMultiplier** = findViewById(R.id.***textView3***);  
 **tvMultiplier**.setText(String.*valueOf*(**multiplierArray**[2]));  
 **tvMultiband** = findViewById(R.id.***tvMultiBand***);  
 **tvMultiband**.setBackgroundColor(Color.*parseColor*(**"#ff0000"**));  
 **break**;  
 **case** 3:  
 **tvMultiplier** = findViewById(R.id.***textView3***);  
 **tvMultiplier**.setText(String.*valueOf*(**multiplierArray**[3]));  
 **tvMultiband** = findViewById(R.id.***tvMultiBand***);  
 **tvMultiband**.setBackgroundColor(Color.*parseColor*(**"#ffaa00"**));  
 **break**;  
 **case** 4:  
 **tvMultiplier** = findViewById(R.id.***textView3***);  
 **tvMultiplier**.setText(String.*valueOf*(**multiplierArray**[4]));  
 **tvMultiband** = findViewById(R.id.***tvMultiBand***);  
 **tvMultiband**.setBackgroundColor(Color.*parseColor*(**"#ffea00"**));  
 **break**;  
 **case** 5:  
 **tvMultiplier** = findViewById(R.id.***textView3***);  
 **tvMultiplier**.setText(String.*valueOf*(**multiplierArray**[5]));  
 **tvMultiband** = findViewById(R.id.***tvMultiBand***);  
 **tvMultiband**.setBackgroundColor(Color.*parseColor*(**"#00ff11"**));  
 **break**;  
 **case** 6:  
 **tvMultiplier** = findViewById(R.id.***textView3***);  
 **tvMultiplier**.setText(String.*valueOf*(**multiplierArray**[6]));  
 **tvMultiband** = findViewById(R.id.***tvMultiBand***);  
 **tvMultiband**.setBackgroundColor(Color.*parseColor*(**"#0051ff"**));  
 **break**;  
 **case** 7:  
 **tvMultiplier** = findViewById(R.id.***textView3***);  
 **tvMultiplier**.setText(String.*valueOf*(**multiplierArray**[7]));  
 **tvMultiband** = findViewById(R.id.***tvMultiBand***);  
 **tvMultiband**.setBackgroundColor(Color.*parseColor*(**"#782fde"**));  
 **break**;  
 **case** 8:  
 **tvMultiplier** = findViewById(R.id.***textView3***);  
 **tvMultiplier**.setText(String.*valueOf*(**multiplierArray**[8]));  
 **tvMultiband** = findViewById(R.id.***tvMultiBand***);  
 **tvMultiband**.setBackgroundColor(Color.*parseColor*(**"#a3a3a3"**));  
 **break**;  
 **case** 9:  
 **tvMultiplier** = findViewById(R.id.***textView3***);  
 **tvMultiplier**.setText(String.*valueOf*(**multiplierArray**[9]));  
 **tvMultiband** = findViewById(R.id.***tvMultiBand***);  
 **tvMultiband**.setBackgroundColor(Color.*parseColor*(**"#fffcfc"**));  
 **break**;  
 **case** 10:  
 **tvMultiplier** = findViewById(R.id.***textView3***);  
 **tvMultiplier**.setText(String.*valueOf*(**multiplierArray**[10]));  
 **tvMultiband** = findViewById(R.id.***tvMultiBand***);  
 **tvMultiband**.setBackgroundColor(Color.*parseColor*(**"#dbc202"**));  
 **break**;  
 **case** 11:  
 **tvMultiplier** = findViewById(R.id.***textView3***);  
 **tvMultiplier**.setText(String.*valueOf*(**multiplierArray**[11])) ;  
 **tvMultiband** = findViewById(R.id.***tvMultiBand***);  
 **tvMultiband**.setBackgroundColor(Color.*parseColor*(**"#dbdbdb"**));  
 **break**;  
 **default**:  
 *// code block* }  
  
 }  
  
 @Override  
 **public void** onNothingSelected(AdapterView<?> arg0) {  
 }  
  
 }  
 );  
  
 *//------------------------------------------spinner4 code------------------------------------------  
 //setting up the spinner and telling it to listen for user* **spinner4** = (Spinner)findViewById(R.id.***spinner4***);  
 ArrayAdapter<String> adapter4 = **new** ArrayAdapter<String>(**this**, android.R.layout.***simple\_spinner\_item***, **toleranceColourArray**);  
 **spinner4**.setAdapter(adapter4);  
 **spinner4**.setOnItemSelectedListener(  
 **new** AdapterView.OnItemSelectedListener() {  
 @Override  
 *// when the listener hears soemting it will run the switch* **public void** onItemSelected(AdapterView<?> arg0, View arg1,**int** arg2, **long** arg3) {  
 **int** position = **spinner4**.getSelectedItemPosition();  
 **tvTolerBand** = findViewById(R.id.***tvtolerBand***);  
 **tvTolerBand**.setVisibility(View.***VISIBLE***);;  
 *// depending the the position of the array I have specified  
 // it will change Text and Colour of the the given elements* **switch**(position) {  
 **case** 0:  
 **tvTolerance** = findViewById(R.id.***textView4***);  
 **tvTolerance**.setText(String.*valueOf*(**toleranceArray**[0]));  
 **tvTolerBand** = findViewById(R.id.***tvtolerBand***);  
 **tvTolerBand**.setBackgroundColor(Color.*parseColor*(**"#4B3A26"**));  
 **break**;  
 **case** 1:  
 **tvTolerance** = findViewById(R.id.***textView4***);  
 **tvTolerance**.setText(String.*valueOf*(**toleranceArray**[1]));  
 **tvTolerBand** = findViewById(R.id.***tvtolerBand***);  
 **tvTolerBand**.setBackgroundColor(Color.*parseColor*(**"#ff0000"**));  
 **break**;  
 **case** 2:  
 **tvTolerance** = findViewById(R.id.***textView4***);  
 **tvTolerance**.setText(String.*valueOf*(**toleranceArray**[2]));  
 **tvTolerBand** = findViewById(R.id.***tvtolerBand***);  
 **tvTolerBand**.setBackgroundColor(Color.*parseColor*(**"#00ff11"**));  
 **break**;  
 **case** 3:  
 **tvTolerance** = findViewById(R.id.***textView4***);  
 **tvTolerance**.setText(String.*valueOf*(**toleranceArray**[3]));  
 **tvTolerBand** = findViewById(R.id.***tvtolerBand***);  
 **tvTolerBand**.setBackgroundColor(Color.*parseColor*(**"#0051ff"**));  
 **break**;  
 **case** 4:  
 **tvTolerance** = findViewById(R.id.***textView4***);  
 **tvTolerance**.setText(String.*valueOf*(**toleranceArray**[4]));  
 **tvTolerBand** = findViewById(R.id.***tvtolerBand***);  
 **tvTolerBand**.setBackgroundColor(Color.*parseColor*(**"#782fde"**));  
 **break**;  
 **case** 5:  
 **tvTolerance** = findViewById(R.id.***textView4***);  
 **tvTolerance**.setText(String.*valueOf*(**toleranceArray**[5]));  
 **tvTolerBand** = findViewById(R.id.***tvtolerBand***);  
 **tvTolerBand**.setBackgroundColor(Color.*parseColor*(**"#a3a3a3"**));  
 **break**;  
 **case** 6:  
 **tvTolerance** = findViewById(R.id.***textView4***);  
 **tvTolerance**.setText(String.*valueOf*(**toleranceArray**[6]));  
 **tvTolerBand** = findViewById(R.id.***tvtolerBand***);  
 **tvTolerBand**.setBackgroundColor(Color.*parseColor*(**"#dbc202"**));  
 **break**;  
 **case** 7:  
 **tvTolerance** = findViewById(R.id.***textView4***);  
 **tvTolerance**.setText(String.*valueOf*(**toleranceArray**[7]));  
 **tvTolerBand** = findViewById(R.id.***tvtolerBand***);  
 **tvTolerBand**.setBackgroundColor(Color.*parseColor*(**"#dbdbdb"**));  
 **break**;  
 **case** 8:  
 **tvTolerance** = findViewById(R.id.***textView4***);  
 **tvTolerance**.setText(String.*valueOf*(**toleranceArray**[8]));  
 **tvTolerBand** = findViewById(R.id.***tvtolerBand***);  
 **tvTolerBand**.setVisibility(View.***INVISIBLE***);;  
 **break**;  
 **default**:  
 *// code block* }  
 }  
  
 @Override  
 **public void** onNothingSelected(AdapterView<?> arg0) {  
 }  
  
 }  
 );  
 }  
  
  
 *//when the calculate button is pressed* **public void** doCalc(View view) {  
 *// get the values the user inputted* **double** calc1 = Double.*valueOf*(**tvResult1**.getText().toString());  
 **double** calc2 = Double.*valueOf*(**tvResult2**.getText().toString());  
 **double** calc3 = Double.*valueOf*(**tvResult3**.getText().toString());  
 String calc4 = **tvResult4**.getText().toString();  
  
 *//calculation to find answer* **double** FinalOutput = (((calc1 \* 10) + calc2) \* calc3);  
 *//display to the user* **tvFinalResult**.setText(FinalOutput +**" Ω "** + calc4);  
  
 }  
  
 *//when the reset button is pressed* **public void** doReset(View view) {  
 *// set elements to empty* **tvRate1**.setText(**"0"**);  
 **tvRate2**.setText(**"0"**);  
 **tvMultiplier**.setText(**"0"**);  
 **tvTolerance**.setText(**"±0%"**);  
 **tvFinalResult**.setText(**"Please Enter Values"**);  
 **tvBand1**.setBackgroundColor(Color.*parseColor*(**"#000000"**));  
 **tvBand2**.setBackgroundColor(Color.*parseColor*(**"#000000"**));  
 **tvMultiband**.setBackgroundColor(Color.*parseColor*(**"#000000"**));  
 **tvTolerBand**.setBackgroundColor(Color.*parseColor*(**"#000000"**));  
 }  
}

**Conclusion**

**• State if you completed the lab or how far you managed to get**

I completed the lab in full.

**• State the part of the lab you spent the most time on or what issue was the hardest to overcome**

The area of the lab I spent the most time on was setting up all my arrays correctly so that they had the correct colors in them. Also, the other arrays making sure they had the correct values in each. This took patience as they all had to be correctly filled as if they were not the calculator could return the wrong value and display misinformation.

The hardest part of the lab was getting the spinners working correctly, they were a bit tricker than some of the previous stuff we had learned but I got it in the end.

**• Specify a goal for yourself for next time**

Next time around I would like to deal with more complexity. From this lab I noticed a jump in complexity from the previous labs. This was a welcome difficulty spike, and I would be interested in trying something more difficult as to allow my skills within the Java language and Android Studio to improve.