**Gray Scale the Image in ImageView**

***activity\_main.xml***

*<?*xml version="1.0" encoding="utf-8"*?>*<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:orientation="vertical"  
 android:gravity="center\_horizontal"  
 android:background="#000000">  
  
 <ImageView  
 android:id="@+id/imgView"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="380dp"  
 android:src="@drawable/one" />  
  
 <Button  
 android:id="@+id/button"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="GrayScale" />  
  
</LinearLayout>

***MainActivity.java***

package com.example.myapplication;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.annotation.SuppressLint;  
import android.graphics.Bitmap;  
import android.graphics.BitmapFactory;  
import android.graphics.Color;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.ImageView;  
  
public class MainActivity extends AppCompatActivity {  
ImageView img;  
 @SuppressLint("MissingInflatedId")  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 img=findViewById(R.id.*imgView*);  
 findViewById(R.id.*button*).setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 img.setImageBitmap(*grayScaleImage*(BitmapFactory.*decodeResource*(getResources(),R.drawable.*one*)));  
 }  
 });  
  
 }  
 public static Bitmap grayScaleImage(Bitmap src) {  
 *// constant factors* final double GS\_RED = 0.299;  
 final double GS\_GREEN = 0.587;  
 final double GS\_BLUE = 0.114;  
  
 *// create output bitmap* Bitmap bmOut = Bitmap.*createBitmap*(src.getWidth(), src.getHeight(), src.getConfig());  
 *// pixel information* int A, R, G, B;  
 int pixel;  
  
 *// get image size* int width = src.getWidth();  
 int height = src.getHeight();  
  
 *// scan through every single pixel* for(int x = 0; x < width; ++x) {  
 for(int y = 0; y < height; ++y) {  
 *// get one pixel color* pixel = src.getPixel(x, y);  
 *// retrieve color of all channels* A = Color.*alpha*(pixel);  
 R = Color.*red*(pixel);  
 G = Color.*green*(pixel);  
 B = Color.*blue*(pixel);  
 *// take conversion up to one single value* R = G = B = (int)(GS\_RED \* R + GS\_GREEN \* G + GS\_BLUE \* B);  
 *// set new pixel color to output bitmap* bmOut.setPixel(x, y, Color.*argb*(A, R, G, B));  
 }  
 }  
  
 *// return final image* return bmOut;  
 }  
  
}