

**KAUNAS UNIVERSITY OF TECHNOLOGY**

**FACULTY OF INFORMATICS**

**COMPUTER DEPARTMENT**

### App Development for Smart Mobile Systems 2nd Labaratory work

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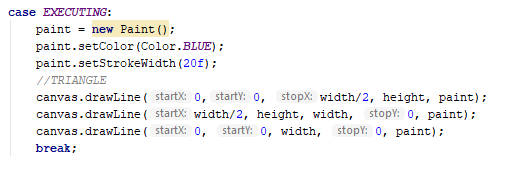
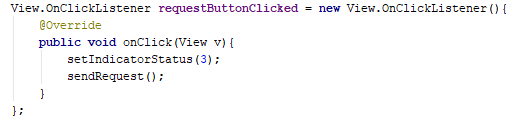
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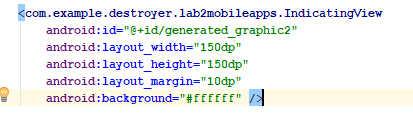
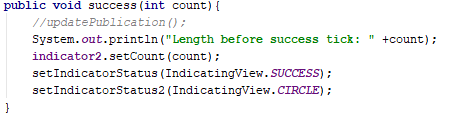
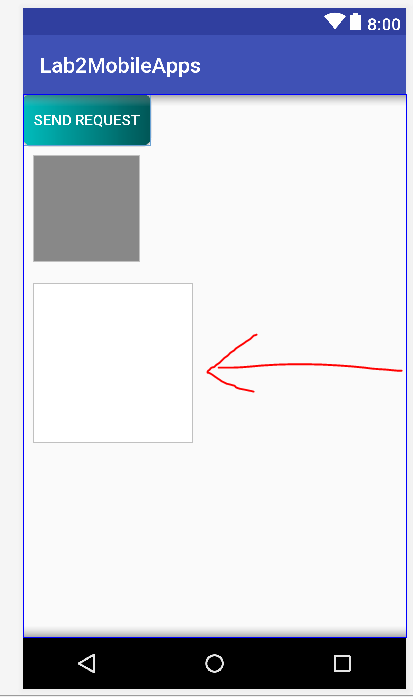
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### Tasks:

### Text describing how each task was solved:

Task #1: I added a new switch case in my Indicated View class which is responsible for the drawing of the triangle, and then selected that case whenever the button was clicked.

Task #2: First of all I created an empty JSON array, and passed the combined string from the json site to it. Then I found the length of that array by using array.Length() method. Then I created another Indicating View component in my activity design, made it’s background white and added yet another case to Indicating Views onDraw method which is responsible for drawing of the circle and number inside. I also created a new public property called count in my Indicating View class which has a default value of 0, and which is used to store the length of *the* JSONarray.

Task #3: I completed this task by giving default button design a gradient color scheme.

### Literature list:

<https://stackoverflow.com/questions/12166559/how-to-add-a-gradient-to-buttons-in-android-through-xml>

<https://stackoverflow.com/questions/12899428/how-to-set-paint-setcolorr-color-white>

<https://stackoverflow.com/questions/12166476/android-canvas-drawtext-set-font-size-from-width>

<https://stackoverflow.com/questions/15309029/android-paint-stroke-width-positioning>

### Source code of my tasks:

**package** com.example.destroyer.lab2mobileapps;  
  
**import** android.app.Activity;  
**import** android.os.Bundle;  
**import** android.support.v7.app.AppCompatActivity;  
**import** android.view.View;  
**import** android.widget.Button;  
**import** android.widget.TextView;  
  
**import** com.example.destroyer.lab2mobileapps.R;  
  
**public class** MainActivity **extends** Activity **implements** RequestOperator.RequestOperatorListener {  
  
 Button **sendRequestButton**;  
 TextView **title**;  
 TextView **bodyText**;  
 **private** IndicatingView **indicator**;  
 **private** IndicatingView **indicator2**;  
 **private** ModelPost **publication**;  
 **private int count**;  
  
 @Override  
 **protected void** onCreate(Bundle savedInstanceState){  
 **super**.onCreate(savedInstanceState);  
 setContentView(R.layout.***mainactivitydesign***);  
  
 **sendRequestButton** = (Button) findViewById(R.id.***send\_request***);  
 **sendRequestButton**.setOnClickListener(**requestButtonClicked**);  
  
 **title** = (TextView) findViewById(R.id.***title***);  
 **bodyText** = (TextView) findViewById(R.id.***body\_text***);  
 **indicator** = (IndicatingView) findViewById(R.id.***generated\_graphic***);  
 **indicator2** = (IndicatingView) findViewById(R.id.***generated\_graphic2***);  
 }  
  
 View.OnClickListener **requestButtonClicked** = **new** View.OnClickListener(){  
 @Override  
 **public void** onClick(View v){  
 setIndicatorStatus(3);  
 sendRequest();  
 }  
 };  
  
 **private void** sendRequest(){  
 RequestOperator ro = **new** RequestOperator();  
 ro.setListener(**this**);  
 ro.start();  
 }  
  
 **public void** updatePublication(){  
  
 runOnUiThread(**new** Runnable() {  
 @Override  
 **public void** run() {  
  
 **if**(**publication** != **null**){  
 **title**.setText(**publication**.getTitle());  
 **bodyText**.setText(**publication**.getBodyText());  
 }**else**{  
 **title**.setText(**""**);  
 **bodyText**.setText(**""**);  
 }  
 }  
 });  
 }  
*/\*  
 @Override  
 public void success(ModelPost publication){  
 this.publication = publication;  
 updatePublication();  
 setIndicatorStatus(IndicatingView.SUCCESS);  
 }  
 \*/* @Override  
 **public void** success(**int** count){  
 *//updatePublication();* System.***out***.println(**"Length before success tick: "** +count);  
 **indicator2**.setCount(count);  
 setIndicatorStatus(IndicatingView.***SUCCESS***);  
 setIndicatorStatus2(IndicatingView.***CIRCLE***);  
 }  
  
 **public void** failed(**int** responseCode){  
 **this**.**publication** = **null**;  
 updatePublication();  
 setIndicatorStatus(IndicatingView.***FAILED***);  
 }  
  
 **public void** setIndicatorStatus(**final int** status){  
 runOnUiThread(**new** Runnable() {  
 @Override  
 **public void** run() {  
 **indicator**.setState(status);  
 **indicator**.invalidate();  
 }  
 });  
 }  
 **public void** setIndicatorStatus2(**final int** status){  
 runOnUiThread(**new** Runnable() {  
 @Override  
 **public void** run() {  
 **indicator2**.setState(status);  
 **indicator2**.invalidate();  
 }  
 });  
 }  
}

**package** com.example.destroyer.lab2mobileapps;  
  
**import** android.content.Context;  
**import** android.graphics.Canvas;  
**import** android.graphics.Color;  
**import** android.graphics.Paint;  
**import** android.util.AttributeSet;  
**import** android.view.View;  
**import** android.widget.Switch;  
  
**public class** IndicatingView **extends** View {  
  
 **public static final int *NOTEXECUTED*** = 0;  
 **public static final int *SUCCESS*** = 1;  
 **public static final int *FAILED*** = 2;  
 **public static final int *EXECUTING*** = 3;  
 **public static final int *CIRCLE*** = 4;  
  
 **int state** = ***NOTEXECUTED***;  
 **int count** = 0;  
  
 **public** IndicatingView(Context context) { **super**(context);}  
  
 **public** IndicatingView(Context context, AttributeSet attrs) { **super**(context, attrs);}  
  
 **public** IndicatingView(Context context, AttributeSet attrs, **int** defStyleAttr) {  
 **super**(context, attrs, defStyleAttr);  
 }  
  
 **public int** getState(){ **return state**; }  
  
 **public void** setState(**int** state) { **this**.**state** = state; }  
  
 **public void** setCount(**int** count){  
 **this**.**count** = count;  
 }  
  
 **public void** onDraw(Canvas canvas){  
 **super**.onDraw(canvas);  
 **int** width = getWidth();  
 **int** height = getHeight();  
 Paint paint;  
 **switch**(**state**){  
 **case *SUCCESS***:  
 paint = **new** Paint();  
 paint.setColor(Color.***GREEN***);  
 paint.setStrokeWidth(20f);  
 *//checkmark* canvas.drawLine(0,0,width/2, height, paint);  
 canvas.drawLine(width/2, height, width, height/2, paint);  
 **break**;  
  
 **case *FAILED***:  
 paint = **new** Paint();  
 paint.setColor(Color.***RED***);  
 paint.setStrokeWidth(20f);  
 *//X* canvas.drawLine(0,0, width, height, paint);  
 canvas.drawLine(0, height, width, 0, paint);  
 **break**;  
  
 **case *EXECUTING***:  
 paint = **new** Paint();  
 paint.setColor(Color.***BLUE***);  
 paint.setStrokeWidth(20f);  
 *//TRIANGLE* canvas.drawLine(0,0, width/2, height, paint);  
 canvas.drawLine(width/2, height, width, 0, paint);  
 canvas.drawLine(0, 0, width, 0, paint);  
 **break**;  
  
 **case *CIRCLE***:  
 paint = **new** Paint();  
 paint.setColor(Color.***BLACK***);  
 paint.setStrokeWidth(20f);  
 paint.setTextSize(width/2);  
 canvas.drawCircle(width/2, height/2, height/2, paint);  
 paint.setColor(Color.***WHITE***);  
 canvas.drawText(Integer.*toString*(**count**), width\*0.1f, height\*0.7f, paint);  
 **break**;  
  
 **default**:  
 **break**;  
 }  
 }  
}

**package** com.example.destroyer.lab2mobileapps;  
  
**import** android.view.Display;  
  
**import** org.json.JSONArray;  
**import** org.json.JSONException;  
**import** org.json.JSONObject;  
  
**import** java.io.BufferedReader;  
**import** java.io.IOException;  
**import** java.io.InputStreamReader;  
**import** java.net.HttpURLConnection;  
**import** java.net.URL;  
  
**public class** RequestOperator **extends** Thread {  
  
 **public interface** RequestOperatorListener{  
 *//void success(ModelPost publication);* **void** success(**int** count);  
 **void** failed(**int** responseCode);  
 }  
  
 **private** RequestOperatorListener **listener**;  
 **private int responseCode**;  
  
 **public void** setListener(RequestOperatorListener listener){ **this**.**listener** = listener; }  
*/\*  
 @Override  
 public void run(){  
 super.run();  
 try{  
 ModelPost publication = request();  
  
 if(publication != null){  
 success(publication);  
 }  
 else  
 failed(responseCode);  
 }catch (IOException e){  
 failed(-1);  
 }catch (JSONException e){  
 failed(-2);  
 }  
 }  
  
 private ModelPost request() throws IOException, JSONException {  
  
 //URL address  
 URL obj = new URL("http://jsonplaceholder.typicode.com/posts");  
  
 //Executor  
 HttpURLConnection con = (HttpURLConnection) obj.openConnection();  
  
 //Determines what method will be used (GET, POST, PUT OR DELETE)  
 con.setRequestMethod("GET");  
  
 //Determine the content type  
 con.setRequestProperty("Content-Type", "application/json");  
  
 responseCode = con.getResponseCode();  
 System.out.println("Response Code: " + responseCode);  
  
 InputStreamReader streamReader;  
  
 if(responseCode == 200){  
 streamReader = new InputStreamReader(con.getInputStream());  
 }else{  
 streamReader = new InputStreamReader(con.getErrorStream());  
 }  
  
 BufferedReader in = new BufferedReader(streamReader);  
 String inputLine;  
 StringBuffer response = new StringBuffer();  
  
 while((inputLine = in.readLine()) != null){  
 response.append(inputLine);  
 }  
 in.close();  
  
 System.out.println(response.toString());  
  
 if(responseCode == 200) {  
 return parsingJsonObject(response.toString());  
 }  
 else {  
 return null;  
 }  
 }  
\*/* @Override  
 **public void** run(){  
 **super**.run();  
 **try**{  
 **int** count = request();  
  
 **if**(count != -1){  
 success(count);  
 }  
 **else** failed(**responseCode**);  
 }**catch** (IOException e){  
 failed(-1);  
 }**catch** (JSONException e){  
 failed(-2);  
 }  
 }  
 **private int** request() **throws** IOException, JSONException {  
  
 *//URL address* URL obj = **new** URL(**"http://jsonplaceholder.typicode.com/posts"**);  
  
 *//Executor* HttpURLConnection con = (HttpURLConnection) obj.openConnection();  
  
 *//Determines what method will be used (GET, POST, PUT OR DELETE)* con.setRequestMethod(**"GET"**);  
  
 *//Determine the content type* con.setRequestProperty(**"Content-Type"**, **"application/json"**);  
  
 **responseCode** = con.getResponseCode();  
 System.***out***.println(**"Response Code: "** + **responseCode**);  
  
 InputStreamReader streamReader;  
  
 **if**(**responseCode** == 200){  
 streamReader = **new** InputStreamReader(con.getInputStream());  
 }**else**{  
 streamReader = **new** InputStreamReader(con.getErrorStream());  
 }  
  
 BufferedReader in = **new** BufferedReader(streamReader);  
 String inputLine;  
 StringBuffer response = **new** StringBuffer();  
  
 **while**((inputLine = in.readLine()) != **null**){  
 response.append(inputLine);  
 }  
 in.close();  
  
 System.***out***.println(response.toString());  
  
 *//JSONObject obje = new JSONObject(response.toString());* JSONArray array = **new** JSONArray(response.toString());  
 System.***out***.println(array.length());  
  
 **if**(**responseCode** == 200) {  
 **return** array.length();  
 }  
 **else** {  
 **return** -1;  
 }  
 }  
  
 **public** ModelPost parsingJsonObject(String response) **throws** JSONException{  
  
 JSONObject object = **new** JSONObject(response);  
  
 ModelPost post = **new** ModelPost();  
  
 post.setId(object.optInt(**"id"**, 0));  
 post.setUserId(object.optInt(**"userId"**, 0));  
  
 post.setTitle(object.getString(**"title"**));  
 post.setBodyText(object.getString(**"body"**));  
  
 **return** post;  
 }  
  
 **private void** failed(**int** code){  
 **if**(**listener** != **null**){  
 **listener**.failed(code);  
 }  
 }  
  
 **private void** success(**int** count){  
 **if**(**listener** != **null**)  
 **listener**.success(count);  
 }  
}

**package** com.example.destroyer.lab2mobileapps;  
  
**public class** ModelPost {  
  
 **int id**;  
 **int userId**;  
 String **title**;  
 String **bodyText**;  
  
 **public** ModelPost(){}  
  
 **public** ModelPost(**int** id, **int** userId, String title, String bodyText){  
 **this**.**id** = id;  
 **this**.**userId** = userId;  
 **this**.**title** = title;  
 **this**.**bodyText** = bodyText;  
 }  
  
 **public int** getId(){  
 **return id**;  
 }  
  
 **public void** setId(**int** id){  
 **this**.**id** = id;  
 }  
  
 **public int** getUserId(){  
 **return userId**;  
 }  
  
 **public void** setUserId(**int** userId){  
 **this**.**userId** = userId;  
 }  
  
 **public** String getTitle(){  
 **return title**;  
 }  
  
 **public void** setTitle(String title){  
 **this**.**title** = title;  
 }  
  
 **public** String getBodyText(){  
 **return bodyText**;  
 }  
  
 **public void** setBodyText(String bodyText){  
 **this**.**bodyText** = bodyText;  
 }  
}

<**manifest xmlns:android="http://schemas.android.com/apk/res/android"  
 package="com.example.destroyer.lab2mobileapps"**>  
  
 <**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**>  
 <**category android:name="android.intent.category.LAUNCHER"**/>  
 <**action android:name="android.intent.action.MAIN"**/>  
 </**intent-filter**>  
 </**activity**>  
  
 </**application**>  
  
</**manifest**>

*<?***xml version="1.0" encoding="utf-8"***?>*<**LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 android:orientation="vertical" android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"**>  
  
 <**Button  
 android:id="@+id/send\_request"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:background="@drawable/button"  
 android:padding="10dp"  
 android:text="@string/send\_request"  
 android:textColor="#fff"** />  
  
 <**com.example.destroyer.lab2mobileapps.IndicatingView  
 android:id="@+id/generated\_graphic"  
 android:layout\_width="100dp"  
 android:layout\_height="100dp"  
 android:layout\_margin="10dp"  
 android:background="#888888"** />  
  
 <**com.example.destroyer.lab2mobileapps.IndicatingView  
 android:id="@+id/generated\_graphic2"  
 android:layout\_width="150dp"  
 android:layout\_height="150dp"  
 android:layout\_margin="10dp"  
 android:background="#ffffff"** />  
  
 <**TextView  
 android:id="@+id/title"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:textSize="18sp"  
 android:textColor="@android:color/holo\_blue\_dark"**/>  
  
 <**TextView  
 android:id="@+id/body\_text"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:paddingTop="10dp"  
 android:textColor="@android:color/black"  
 android:textSize="12sp"** />  
  
</**LinearLayout**>

*<?***xml version="1.0" encoding="utf-8"***?>*<**selector xmlns:android="http://schemas.android.com/apk/res/android"**>  
  
 <**item android:state\_pressed="true"  
 android:drawable="@drawable/button\_pressed"**/>  
  
 <**item android:drawable="@drawable/button\_default"**/>  
  
</**selector**>

*<?***xml version="1.0" encoding="utf-8"***?>*<**shape  
 xmlns:android="http://schemas.android.com/apk/res/android"**>  
 <**gradient  
 android:startColor="#00bbbb"  
 android:centerColor="#008888"  
 android:endColor="#005555"** />  
 <**corners  
 android:radius="7dp"**/>  
  
 <**padding  
 android:bottom="1dp"  
 android:left="1dp"  
 android:right="1dp"  
 android:top="1dp"** />  
  
 *<!-- <solid android:color="#00ab4c"/> -->*</**shape**>

<**resources**>  
 <**string name="app\_name"**>Lab2MobileApps</**string**>  
 <**string name="send\_request"**>Send Request</**string**>  
</**resources**>

*<?***xml version="1.0" encoding="utf-8"***?>*<**resources**>  
 <**color name="colorPrimary"**>#3F51B5</**color**>  
 <**color name="colorPrimaryDark"**>#303F9F</**color**>  
 <**color name="colorAccent"**>#FF4081</**color**>  
</**resources**>