**LAB PROGRAMS**

**PART B**

**06. XML AND JSON FILE PARSING**

**XML FILE**

<?xml version="1.0" encoding="utf-8"?>

<LinearLayout

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:orientation="vertical"

tools:context=".MainActivity"

tools:ignore="NestedWeights,HardcodedText">

<TextView

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="PARSING XML AND JSON DATA"

android:layout\_gravity="center"

android:layout\_marginTop="10dp"

android:textSize="28sp" />

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="fill\_parent"

android:orientation="horizontal"

android:baselineAligned="false">

<LinearLayout

android:layout\_width="0dp"

android:layout\_height="fill\_parent"

android:orientation="vertical"

android:gravity="center"

android:layout\_weight="1" >

<Button

android:id="@+id/parseXML"

android:layout\_width="match\_parent"

android:layout\_height="60dp"

android:text="Parse XML Data"

android:layout\_gravity="center"

android:layout\_margin="10dp" />

<LinearLayout

android:id="@+id/resultXML"

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="1"

android:visibility="gone"

android:orientation="vertical">

<TextView

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="1"

android:gravity="center"

android:text="XML DATA"

android:textSize="24sp" />

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="3"

android:paddingRight="30dp"

android:paddingLeft="30dp"

android:paddingTop="10dp"

android:paddingBottom="10dp"

android:orientation="vertical">

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="1">

<TextView

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:gravity="center\_vertical"

android:text="City\_Name: "

android:textSize="24sp" />

<TextView

android:id="@+id/XML\_city\_name"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:gravity="center\_vertical"

android:text="None"

android:textSize="24sp" />

</LinearLayout>

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="1">

<TextView

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:gravity="center\_vertical"

android:text="Latitude: "

android:textSize="24sp" />

<TextView

android:id="@+id/XML\_latitude"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:gravity="center\_vertical"

android:text="None"

android:textSize="24sp" />

</LinearLayout>

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="1">

<TextView

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:gravity="center\_vertical"

android:text="Longitude: "

android:textSize="24sp" />

<TextView

android:id="@+id/XML\_longitude"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:gravity="center\_vertical"

android:text="None"

android:textSize="24sp" />

</LinearLayout>

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="1">

<TextView

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:gravity="center\_vertical"

android:text="Temperature: "

android:textSize="24sp" />

<TextView

android:id="@+id/XML\_temperature"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:gravity="center\_vertical"

android:text="None"

android:textSize="24sp" />

</LinearLayout>

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="1">

<TextView

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:gravity="center\_vertical"

android:text="Humidity: "

android:textSize="24sp" />

<TextView

android:id="@+id/XML\_humidity"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:gravity="center\_vertical"

android:text="None"

android:textSize="24sp" />

</LinearLayout>

</LinearLayout>

</LinearLayout>

</LinearLayout>

<LinearLayout

android:layout\_width="0dp"

android:layout\_height="fill\_parent"

android:orientation="vertical"

android:gravity="center"

android:layout\_weight="1" >

<Button

android:id="@+id/parseJSON"

android:layout\_width="match\_parent"

android:layout\_height="60dp"

android:text="Parse JSON Data"

android:layout\_gravity="center"

android:layout\_margin="10dp" />

<LinearLayout

android:id="@+id/resultJSON"

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="1"

android:visibility="gone"

android:orientation="vertical">

<TextView

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="1"

android:gravity="center"

android:text="JSON DATA"

android:textSize="24sp" />

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="3"

android:paddingRight="30dp"

android:paddingLeft="30dp"

android:paddingTop="10dp"

android:paddingBottom="10dp"

android:orientation="vertical">

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="1">

<TextView

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:gravity="center\_vertical"

android:text="City\_Name: "

android:textSize="24sp" />

<TextView

android:id="@+id/JSON\_city\_name"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:gravity="center\_vertical"

android:text="None"

android:textSize="24sp" />

</LinearLayout>

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="1">

<TextView

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:gravity="center\_vertical"

android:text="Latitude: "

android:textSize="24sp" />

<TextView

android:id="@+id/JSON\_latitude"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:gravity="center\_vertical"

android:text="None"

android:textSize="24sp" />

</LinearLayout>

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="1">

<TextView

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:gravity="center\_vertical"

android:text="Longitude: "

android:textSize="24sp" />

<TextView

android:id="@+id/JSON\_longitude"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:gravity="center\_vertical"

android:text="None"

android:textSize="24sp" />

</LinearLayout>

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="1">

<TextView

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:gravity="center\_vertical"

android:text="Temperature: "

android:textSize="24sp" />

<TextView

android:id="@+id/JSON\_temperature"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:gravity="center\_vertical"

android:text="None"

android:textSize="24sp" />

</LinearLayout>

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="1">

<TextView

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:gravity="center\_vertical"

android:text="Humidity: "

android:textSize="24sp" />

<TextView

android:id="@+id/JSON\_humidity"

android:layout\_width="0dp"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:gravity="center\_vertical"

android:text="None"

android:textSize="24sp" />

</LinearLayout>

</LinearLayout>

</LinearLayout>

</LinearLayout>

</LinearLayout>

</LinearLayout>

**JAVA FILE**

package com.example.lab6;

import androidx.annotation.RequiresApi;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Build;

import android.os.Bundle;

import android.provider.Settings;

import android.view.View;

import android.widget.TextView;

import org.json.JSONArray;

import org.json.JSONException;

import org.json.JSONObject;

import org.xmlpull.v1.XmlPullParser;

import org.xmlpull.v1.XmlPullParserException;

import org.xmlpull.v1.XmlPullParserFactory;

import java.io.IOException;

import java.io.InputStream;

import java.nio.charset.StandardCharsets;

import java.util.ArrayList;

public class MainActivity extends AppCompatActivity {

@RequiresApi(api = Build.VERSION\_CODES.KITKAT)

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

findViewById(R.id.parseXML).setOnClickListener(v -> {

try {

XmlPullParserFactory parserFactory = XmlPullParserFactory.newInstance();

XmlPullParser parser = parserFactory.newPullParser();

InputStream is = getAssets().open("data.xml");

parser.setFeature(XmlPullParser.FEATURE\_PROCESS\_NAMESPACES, false);

parser.setInput(is, null);

for (int eventType = parser.getEventType(); eventType != XmlPullParser.END\_DOCUMENT; eventType = parser

.next())

if (eventType == XmlPullParser.START\_TAG) {

String eltName = parser.getName();

if ("City\_Name".equals(eltName))

((TextView) findViewById(R.id.XML\_city\_name)).setText(parser.nextText());

else if ("Latitude".equals(eltName))

((TextView) findViewById(R.id.XML\_latitude)).setText(parser.nextText());

else if ("Longitude".equals(eltName))

((TextView) findViewById(R.id.XML\_longitude)).setText(parser.nextText());

else if ("Temperature".equals(eltName))

((TextView) findViewById(R.id.XML\_temperature)).setText(parser.nextText());

else if ("Humidity".equals(eltName))

((TextView) findViewById(R.id.XML\_humidity)).setText(parser.nextText());

}

findViewById(R.id.parseXML).setVisibility(View.GONE);

findViewById(R.id.resultXML).setVisibility(View.VISIBLE);

is.close();

} catch (XmlPullParserException | IOException ignored) {

}

});

findViewById(R.id.parseJSON).setOnClickListener(v -> {

try {

InputStream is = getAssets().open("data.json");

byte[] buffer = new byte[is.available()];

is.read(buffer);

is.close();

JSONArray obj = new JSONArray(new String(buffer, StandardCharsets.UTF\_8));

((TextView) findViewById(R.id.JSON\_city\_name)).setText(obj.getJSONObject(0).getString("City\_Name"));

((TextView) findViewById(R.id.JSON\_latitude)).setText(obj.getJSONObject(0).getString("Latitude"));

((TextView) findViewById(R.id.JSON\_longitude)).setText(obj.getJSONObject(0).getString("Longitude"));

((TextView) findViewById(R.id.JSON\_temperature)).setText(obj.getJSONObject(0).getString("Temperature"));

((TextView) findViewById(R.id.JSON\_humidity)).setText(obj.getJSONObject(0).getString("Humidity"));

findViewById(R.id.parseJSON).setVisibility(View.GONE);

findViewById(R.id.resultJSON).setVisibility(View.VISIBLE);

} catch (IOException | JSONException e) {

e.printStackTrace();

}

});

}

}

**05. COUNTER APPLICATION**

**XML FILE**

<?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="#282c34"

tools:context=".MainActivity">

<TextView

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:layout\_margin="10dp"

android:gravity="center"

android:paddingTop="20dp"

android:text="counter application"

android:textAllCaps="true"

android:textColor="#abb2bf"

android:textSize="58dp"

android:textStyle="bold" />

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:orientation="vertical">

<TextView

android:id="@+id/counter\_value"

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:layout\_weight="1"

android:gravity="center"

android:text="Counter value"

android:textColor="#d19a66"

android:textSize="48dp" />

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:gravity="center"

android:layout\_weight="1"

android:orientation="vertical">

<Button

android:id="@+id/start\_button"

android:layout\_width="300dp"

android:layout\_height="100dp" android:text="start"

android:textAllCaps="true"

android:textSize="24dp" />

<Space

android:layout\_width="match\_parent"

android:layout\_height="20dp"/>

<Button

android:id="@+id/stop\_button"

android:layout\_width="300dp"

android:layout\_height="100dp"

android:text="stop"

android:textAllCaps="true"

android:textSize="24dp" />

</LinearLayout>

</LinearLayout>

</LinearLayout>

**JAVA FILE**

package com.example.counter\_app\_revision;

import android.os.Bundle;

import android.os.Handler;

import android.view.View;

import android.widget.Button;

import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

int counterVal = 0; //counting variable

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

/\* Text view for counter value\*/

TextView counterTextvw = findViewById(R.id.counter\_value);

Button startBtn = findViewById(R.id.start\_button);//button view for start button

Button stopBtn = findViewById(R.id.stop\_button);//button view for stop button

Handler handler = new Handler();

startBtn.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

new Thread(new Runnable() {

@Override

public void run() {

counterVal = 0;

while (!stopBtn.isPressed()) {

try {

Thread.sleep(500);

} catch (InterruptedException e) {

e.printStackTrace();

return;

}

counterTextvw.post(new Runnable() {

@Override

public void run() {

counterTextvw.setText("" + counterVal++);

}

});

}

}

}).start();

}

});

stopBtn.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

try{

Thread.sleep(500);

Thread.interrupted();

}catch (Exception e){

e.printStackTrace();

}

// handler.removeCallbacksAndMessages(null);

}

});

}

}

**07.** **TEXT TO SPEECH**

**XML file**

<?xml version="1.0" encoding="utf-8"?>

<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"

tools:context=".MainActivity"

android:transitionGroup="true">

<TextView android:text="Text to Speech Application" android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:id="@+id/textview"

android:textSize="30dp"

android:layout\_alignParentTop="true"

android:layout\_centerHorizontal="true" />

<ImageView

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:id="@+id/imageView"

android:src="@drawable/ic\_launcher\_foreground"

android:layout\_centerHorizontal="true"

android:theme="@style/Base.TextAppearance.AppCompat" />

<EditText

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:id="@+id/editText"

android:layout\_below="@+id/imageView"

android:layout\_marginTop="46dp"

android:hint="Enter Text"

android:layout\_alignParentRight="true"

android:layout\_alignParentEnd="true"

android:layout\_alignParentLeft="true"

android:layout\_alignParentStart="true"

android:textColor="#ff7aff10"

android:textColorHint="#ffff23d1" />

<Button

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Convert Text to Speech"

android:id="@+id/button"

android:layout\_below="@+id/editText"

android:layout\_centerHorizontal="true"

android:layout\_marginTop="46dp" />

</RelativeLayout>

**Java file**

package com.example.texttospeech\_revision;

import androidx.appcompat.app.AppCompatActivity;

import android.media.AudioManager;

import android.os.Build;

import android.os.Bundle;

import android.speech.tts.TextToSpeech;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.Toast;

import java.util.Locale;

public class MainActivity extends AppCompatActivity {

TextToSpeech mTts;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

EditText ed1 = (EditText) findViewById(R.id.editText);

Button b1 = (Button) findViewById(R.id.button);

mTts = new TextToSpeech(getApplicationContext(), new TextToSpeech.OnInitListener() {

@Override

public void onInit(int status) {

if (status == TextToSpeech.SUCCESS) {

int result = mTts.setLanguage(Locale.US);

if (result == TextToSpeech.LANG\_MISSING\_DATA || result == TextToSpeech.LANG\_NOT\_SUPPORTED) {

/\* Unsuccessful - operation result\*/

Toast.makeText(getApplicationContext(), " The Language is not supported", Toast.LENGTH\_SHORT).show();

} else {

/\* Successful - operation result\*/

b1.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

String toSpeak = ed1.getText().toString();

speak\_text(toSpeak); //call function, speak

}

});

}

} else {

Toast.makeText(getApplicationContext(), "Init Failed", Toast.LENGTH\_SHORT).show();

}

}

});

setVolumeControlStream(AudioManager.STREAM\_MUSIC);//set the audio stream type with music control stream

}

void speak\_text(String s) {

Bundle bundle = new Bundle();

bundle.putInt(TextToSpeech.Engine.KEY\_PARAM\_STREAM, AudioManager.STREAM\_MUSIC);

if (Build.VERSION.SDK\_INT >= Build.VERSION\_CODES.LOLLIPOP) {

/\* Call the function speak - using bundle\*/

mTts.speak(s, TextToSpeech.QUEUE\_FLUSH, bundle, null);

// mTts.speak(s,TextToSpeech.QUEUE\_FLUSH,null,null);

}

}

@Override

protected void onDestroy() {

super.onDestroy();

/\* Destroy engine\*/

if (mTts != null) {

mTts.stop();

mTts.shutdown();

}

}

}

**08. CALL AND SAVE APPLICATION**

**XML FILE**

<?xml version="1.0" encoding="utf-8"?>

<layout 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:orientation="vertical"

tools:context=".MainActivity">

<RelativeLayout

android:layout\_width="match\_parent"

android:layout\_height="match\_parent">

<TextView

android:id="@+id/header"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:layout\_marginTop="30dp"

android:background="@color/white"

android:gravity="center"

android:text="CALL AND SAVE APP"

android:textColor="@color/black"

android:textSize="26sp"

android:textStyle="bold" />

<Space

android:id="@+id/space"

android:layout\_below="@id/header"

android:layout\_width="match\_parent"

android:layout\_height="25dp"

android:background="@color/black"

/>

<EditText

android:id="@+id/result"

android:layout\_width="300dp"

android:layout\_height="wrap\_content"

android:layout\_below="@id/space"

android:layout\_marginStart="10dp"

android:hint="Enter Number Here"

android:textSize="20sp" />

<Button

android:id="@+id/buttonClear"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_below="@id/space"

android:layout\_marginStart="10dp"

android:layout\_toRightOf="@id/result"

android:text="DEL"

android:textSize="20sp" />

<com.google.android.material.button.MaterialButton

android:id="@+id/buttonOne"

android:layout\_width="70dp"

android:layout\_height="70dp"

android:layout\_below="@id/result"

android:layout\_marginStart="70dp"

android:layout\_marginTop="30dp"

android:text="@string/one"

app:cornerRadius="35dp" />

<com.google.android.material.button.MaterialButton

android:id="@+id/buttonTwo"

android:layout\_width="70dp"

android:layout\_height="70dp"

android:layout\_marginTop="30dp"

app:cornerRadius="35dp"

android:layout\_marginStart="30dp"

android:layout\_below="@id/result"

android:layout\_toRightOf="@id/buttonOne"

android:text="@string/two"

/>

<com.google.android.material.button.MaterialButton

android:id="@+id/buttonThree"

android:layout\_width="70dp"

android:layout\_height="70dp"

android:layout\_marginTop="30dp"

app:cornerRadius="35dp"

android:layout\_marginStart="30dp"

android:layout\_below="@id/result"

android:layout\_toRightOf="@id/buttonTwo"

android:text="@string/three"

/>

<com.google.android.material.button.MaterialButton

android:id="@+id/buttonFour"

android:layout\_width="70dp"

android:layout\_height="70dp"

android:layout\_below="@id/buttonOne"

android:layout\_marginStart="70dp"

android:layout\_marginTop="30dp"

android:text="@string/four"

app:cornerRadius="35dp" />

<com.google.android.material.button.MaterialButton

android:id="@+id/buttonFive"

android:layout\_width="70dp"

android:layout\_height="70dp"

android:layout\_marginTop="30dp"

app:cornerRadius="35dp"

android:layout\_marginStart="30dp"

android:layout\_below="@id/buttonTwo"

android:layout\_toRightOf="@id/buttonOne"

android:text="@string/five"

/>

<com.google.android.material.button.MaterialButton

android:id="@+id/buttonSix"

android:layout\_width="70dp"

android:layout\_height="70dp"

android:layout\_marginTop="30dp"

app:cornerRadius="35dp"

android:layout\_marginStart="30dp"

android:layout\_below="@id/buttonThree"

android:layout\_toRightOf="@id/buttonTwo"

android:text="@string/six"

/>

<com.google.android.material.button.MaterialButton

android:id="@+id/buttonSeven"

android:layout\_width="70dp"

android:layout\_height="70dp"

android:layout\_below="@id/buttonFour"

android:layout\_marginStart="70dp"

android:layout\_marginTop="30dp"

android:text="@string/seven"

app:cornerRadius="35dp" />

<com.google.android.material.button.MaterialButton

android:id="@+id/buttonEight"

android:layout\_width="70dp"

android:layout\_height="70dp"

android:layout\_marginTop="30dp"

app:cornerRadius="35dp"

android:layout\_marginStart="30dp"

android:layout\_below="@id/buttonFive"

android:layout\_toRightOf="@id/buttonOne"

android:text="@string/eight"

/>

<com.google.android.material.button.MaterialButton

android:id="@+id/buttonNine"

android:layout\_width="70dp"

android:layout\_height="70dp"

android:layout\_marginTop="30dp"

app:cornerRadius="35dp"

android:layout\_marginStart="30dp"

android:layout\_below="@id/buttonSix"

android:layout\_toRightOf="@id/buttonTwo"

android:text="@string/nine"

/>

<com.google.android.material.button.MaterialButton

android:id="@+id/buttonStar"

android:layout\_width="70dp"

android:layout\_height="70dp"

android:layout\_below="@id/buttonSeven"

android:layout\_marginStart="70dp"

android:layout\_marginTop="30dp"

android:text="@string/star"

app:cornerRadius="35dp" />

<com.google.android.material.button.MaterialButton

android:id="@+id/buttonZero"

android:layout\_width="70dp"

android:layout\_height="70dp"

android:layout\_marginTop="30dp"

app:cornerRadius="35dp"

android:layout\_marginStart="30dp"

android:layout\_below="@id/buttonEight"

android:layout\_toRightOf="@id/buttonOne"

android:text="@string/zero"

/>

<com.google.android.material.button.MaterialButton

android:id="@+id/buttonHash"

android:layout\_width="70dp"

android:layout\_height="70dp"

android:layout\_marginTop="30dp"

app:cornerRadius="35dp"

android:layout\_marginStart="30dp"

android:layout\_below="@id/buttonNine"

android:layout\_toRightOf="@id/buttonTwo"

android:text="@string/hash"

/>

<com.google.android.material.button.MaterialButton

android:id="@+id/call"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_below="@id/buttonZero"

android:layout\_marginStart="100dp"

android:layout\_marginTop="30dp"

android:text="CALL"

app:cornerRadius="35dp" />

<com.google.android.material.button.MaterialButton

android:id="@+id/save"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_below="@id/buttonZero"

android:layout\_marginStart="20dp"

android:layout\_marginTop="30dp"

android:layout\_toRightOf="@id/call"

android:text="SAVE"

app:cornerRadius="35dp" />

</RelativeLayout>

</layout>

**JAVA FILE**

package com.example.callandsave;

import androidx.annotation.NonNull;

import androidx.appcompat.app.AppCompatActivity;

import androidx.annotation.RequiresApi;

import android.Manifest;

import android.annotation.SuppressLint;

import android.content.Context;

import android.content.Intent;

import android.content.pm.PackageManager;

import android.net.Uri;

import android.os.Build;

import android.os.Bundle;

import android.provider.ContactsContract;

import android.telephony.PhoneNumberUtils;

import android.telephony.PhoneStateListener;

import android.telephony.TelephonyManager;

import android.text.SpannableString;

import android.view.Menu;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.Toast;

import androidx.core.app.ActivityCompat;

import androidx.core.content.ContextCompat;

import androidx.databinding.DataBindingUtil;

import com.example.callandsave.databinding.ActivityMainBinding;

public class MainActivity extends AppCompatActivity {

private ActivityMainBinding binding;

private static final int REQUEST\_CALL=1;

private EditText mEditPhoneNumber;

@RequiresApi(api = Build.VERSION\_CODES.LOLLIPOP)

@SuppressLint("SetTextI18n")

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

binding = (ActivityMainBinding) DataBindingUtil.setContentView(this, R.layout.activity\_main);

Button buttonNine = findViewById(R.id.buttonNine);

Button buttonEight = findViewById(R.id.buttonEight);

Button buttonSeven = findViewById(R.id.buttonSeven);

Button buttonSix = findViewById(R.id.buttonSix);

Button buttonFive = findViewById(R.id.buttonFive);

Button buttonFour = findViewById(R.id.buttonFour);

Button buttonThree = findViewById(R.id.buttonThree);

Button buttonTwo = findViewById(R.id.buttonTwo);

Button buttonOne = findViewById(R.id.buttonOne);

Button buttonZero = findViewById(R.id.buttonZero);

Button buttonClear = findViewById(R.id.buttonClear);

Button call = findViewById(R.id.call);

Button buttonSave = findViewById(R.id.save);

Button buttonStar = findViewById(R.id.buttonStar);

Button buttonHash = findViewById(R.id.buttonHash);

EditText text = (EditText) findViewById(R.id.result);

PhoneNumberUtils.formatNumber(text.getText().toString());

binding.result.setShowSoftInputOnFocus(false);

binding.buttonZero.setOnClickListener(v -> binding.result.setText(binding.result.getText() + "0"));

binding.buttonOne.setOnClickListener(v -> binding.result.setText(binding.result.getText() + "1"));

binding.buttonTwo.setOnClickListener(v -> binding.result.setText(binding.result.getText() + "2"));

binding.buttonThree.setOnClickListener(v -> binding.result.setText(binding.result.getText() + "3"));

binding.buttonFour.setOnClickListener(v -> binding.result.setText(binding.result.getText() + "4"));

binding.buttonFive.setOnClickListener(v -> binding.result.setText(binding.result.getText() + "5"));

binding.buttonSix.setOnClickListener(v -> binding.result.setText(binding.result.getText() + "6"));

binding.buttonSeven.setOnClickListener(v -> binding.result.setText(binding.result.getText() + "7"));

binding.buttonEight.setOnClickListener(v -> binding.result.setText(binding.result.getText() + "8"));

binding.buttonNine.setOnClickListener(v -> binding.result.setText(binding.result.getText() + "9"));

binding.buttonStar.setOnClickListener(v -> binding.result.setText(binding.result.getText() + "\*"));

binding.buttonHash.setOnClickListener(v -> binding.result.setText(binding.result.getText() + "#"));

binding.call.setOnClickListener(v->{

if(binding.result.getText().length() > 0) {

String phStr = "tel:" +binding.result.getText().toString();

makePhoneCall(phStr);

}else{

Toast.makeText(MainActivity.this, "Unable to call",Toast.LENGTH\_SHORT).show();

}

});

binding.buttonClear.setOnClickListener(v -> {

if(binding.result.getText().length() > 0) {

CharSequence currentText = binding.result.getText();

binding.result.setText(currentText.subSequence(0, currentText.length()-1));

}

else {

binding.result.setText("");

}

});

binding.save.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

if(!binding.result.getText().toString().isEmpty()){

String phoneNumber=binding.result.getText().toString();

Intent intent = new Intent(Intent.ACTION\_INSERT);

intent.setType(ContactsContract.RawContacts.CONTENT\_TYPE);

intent.putExtra(ContactsContract.Intents.Insert.PHONE, phoneNumber);

}

}

});

}

private void makePhoneCall(String PhStr){

if (Build.VERSION.SDK\_INT >= Build.VERSION\_CODES.LOLLIPOP) {

Intent callIntent = new Intent(Intent.ACTION\_CALL);

callIntent.setData(Uri.parse(PhStr));

startActivity(callIntent);

}

}

}