**Implementation up to date:**

Till date, we have managed to build a basic messaging interface for the sender as well as the receiver to send and receive messages. In addition to that we have designed a basic UX for the sender and user interface. The codes used for the implementation of the above-mentioned tasks are hereby shown below:

The implementation codes for the messaging part are:

***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="com.example.artist.firstapp.MainActivity">  
  
 <EditText  
 android:id="@+id/editText2"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginLeft="73dp"  
 android:layout\_marginStart="73dp"  
 android:layout\_marginTop="85dp"  
 android:ems="10"  
 android:hint="Recipient"  
 android:inputType="number"  
 android:layout\_alignParentTop="true"  
 android:layout\_alignParentLeft="true"  
 android:layout\_alignParentStart="true" />  
  
 <EditText  
 android:id="@+id/editText3"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignLeft="@+id/editText2"  
 android:layout\_alignStart="@+id/editText2"  
 android:layout\_below="@+id/editText2"  
 android:layout\_marginTop="17dp"  
 android:ems="10"  
 android:hint="Message"  
 android:inputType="textPersonName" />  
  
 <Button  
 android:id="@+id/button"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignLeft="@+id/editText3"  
 android:layout\_alignStart="@+id/editText3"  
 android:layout\_below="@+id/editText3"  
 android:layout\_marginTop="25dp"  
 android:text="Send" />  
  
 <Button  
 android:id="@+id/button2"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignTop="@+id/button"  
 android:layout\_marginLeft="60dp"  
 android:layout\_marginStart="60dp"  
 android:layout\_toEndOf="@+id/button"  
 android:layout\_toRightOf="@+id/button"  
 android:text="Clear" />  
</RelativeLayout>

***AndroidManifest.xml***

*<?*xml version="1.0" encoding="utf-8"*?>*<manifest xmlns:android="http://schemas.android.com/apk/res/android"  
 package="com.example.artist.firstapp">  
  
 <uses-permission android:name="android.permission.SEND\_SMS" />  
 <uses-permission android:name="android.permission.RECEIVE\_SMS" />  
  
 <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>  
  
 <receiver  
 android:name="com.example.artist.firstapp.MyReceiver"  
 android:enabled="true"  
 android:exported="true">  
 <intent-filter>  
 <action android:name="android.intent.action.Telephony.SMS\_RECEIVED"/>  
 </intent-filter>  
 </receiver>  
 </application>  
  
</manifest>

***MainActivity.java***

package com.example.artist.firstapp;  
import android.Manifest;  
import android.content.pm.PackageManager;  
import android.os.Bundle;  
import android.app.Activity;  
  
import android.support.v4.app.ActivityCompat;  
import android.support.v4.content.ContextCompat;  
import android.telephony.SmsManager;  
  
import android.util.Log;  
import android.view.Menu;  
import android.view.View;  
  
import android.widget.Button;  
import android.widget.EditText;  
import android.widget.Toast;  
  
public class MainActivity extends Activity {  
 private static final int *MY\_PERMISSIONS\_REQUEST\_SEND\_SMS* =0 ;  
 Button sendBtn;  
 Button delete;  
 EditText txtphoneNo;  
 EditText txtMessage;  
 String phoneNo;  
 String message;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.activity\_main);  
  
 sendBtn = (Button) findViewById(R.id.button);  
 txtphoneNo = (EditText) findViewById(R.id.editText2);  
 txtMessage = (EditText) findViewById(R.id.editText3);  
 delete = (Button) findViewById(R.id.button2);  
  
 delete.setOnClickListener(new View.OnClickListener() {  
 public void onClick(View v) {  
 txtphoneNo.setText("");  
 txtMessage.setText("");  
 }  
 });  
  
 sendBtn.setOnClickListener(new View.OnClickListener() {  
 public void onClick(View view) {  
 sendSMSMessage();  
 }  
 });  
 }  
  
 protected void sendSMSMessage() {  
 phoneNo = txtphoneNo.getText().toString();  
 message = txtMessage.getText().toString();  
  
 if (ContextCompat.*checkSelfPermission*(this,  
 Manifest.permission.*SEND\_SMS*)  
 != PackageManager.*PERMISSION\_GRANTED*) {  
 if (ActivityCompat.*shouldShowRequestPermissionRationale*(this,  
 Manifest.permission.*SEND\_SMS*)) {  
 } else {  
 ActivityCompat.*requestPermissions*(this,  
 new String[]{Manifest.permission.*SEND\_SMS*},  
 *MY\_PERMISSIONS\_REQUEST\_SEND\_SMS*);  
 }  
 }  
 }  
  
 @Override  
 public void onRequestPermissionsResult(int requestCode,String permissions[], int[] grantResults) {  
 switch (requestCode) {  
 case *MY\_PERMISSIONS\_REQUEST\_SEND\_SMS*: {  
 if (grantResults.length > 0  
 && grantResults[0] == PackageManager.*PERMISSION\_GRANTED*) {  
 SmsManager smsManager = SmsManager.*getDefault*();  
 smsManager.sendTextMessage(phoneNo, null, message, null, null);  
 Toast.*makeText*(getApplicationContext(), "SMS sent :)",  
 Toast.*LENGTH\_LONG*).show();  
 } else {  
 Toast.*makeText*(getApplicationContext(),  
 "SMS failed, please try again :(", Toast.*LENGTH\_LONG*).show();  
 return;  
 }  
 }  
 }  
  
 }}

***MyReceiver.java***

package com.example.artist.firstapp;  
  
import android.annotation.TargetApi;  
import android.content.BroadcastReceiver;  
import android.content.Context;  
import android.content.Intent;  
import android.os.Build;  
import android.os.Bundle;  
import android.telephony.SmsMessage;  
import android.util.Log;  
import android.widget.Toast;  
  
public class MyReceiver extends BroadcastReceiver {  
 private static final String *TAG* =  
 MyReceiver.class.getSimpleName();  
 public static final String *pdu\_type* = "pdus";  
 boolean isVersionM;  
 int i;  
 @TargetApi(Build.VERSION\_CODES.*M*)  
 @Override  
 public void onReceive(Context context, Intent intent) {  
 Bundle bundle = intent.getExtras();  
 SmsMessage[] msgs;  
 String strMessage = "";  
 String format = bundle.getString("format");  
 Object[] pdus = (Object[]) bundle.get(*pdu\_type*);  
 if (pdus != null) {  
 isVersionM = (Build.VERSION.*SDK\_INT* >= Build.VERSION\_CODES.*M*);  
 }  
 msgs = new SmsMessage[pdus.length];  
 for ( i = 0; i < msgs.length; i++) {  
 if (isVersionM) {  
 msgs[i] = SmsMessage.*createFromPdu*((byte[]) pdus[i], format);  
 } else {  
 msgs[i] = SmsMessage.*createFromPdu*((byte[]) pdus[i]);  
 }  
 }  
 strMessage += "SMS from " + msgs[i].getOriginatingAddress();  
 strMessage += " :" + msgs[i].getMessageBody() + "\n";  
 Log.*d*(*TAG*, "onReceive: " + strMessage);  
 Toast.*makeText*(context, strMessage, Toast.*LENGTH\_LONG*).show();  
 }  
}

Now the implementation codes for the “Sender-receiver” UX are:

***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="com.example.artist.shitastrophe.MainActivity">

<Button  
 android:id="@+id/button"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Sender"  
 tools:layout\_editor\_absoluteX="48dp"  
 tools:layout\_editor\_absoluteY="145dp"  
 android:layout\_alignBaseline="@+id/button2"  
 android:layout\_alignBottom="@+id/button2"  
 android:layout\_toLeftOf="@+id/button3"  
 android:layout\_toStartOf="@+id/button3"  
 android:layout\_marginRight="13dp"  
 android:layout\_marginEnd="13dp" />  
  
 <Button  
 android:id="@+id/button2"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Receiver"  
 tools:layout\_editor\_absoluteX="251dp"  
 tools:layout\_editor\_absoluteY="145dp"  
 android:layout\_above="@+id/button3"  
 android:layout\_toRightOf="@+id/button3"  
 android:layout\_toEndOf="@+id/button3"  
 android:layout\_marginLeft="17dp"  
 android:layout\_marginStart="17dp"  
 android:layout\_marginBottom="69dp" />  
  
 <Button  
 android:id="@+id/button3"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Exit"  
 tools:layout\_editor\_absoluteX="129dp"  
 tools:layout\_editor\_absoluteY="255dp"  
 android:layout\_alignParentBottom="true"  
 android:layout\_centerHorizontal="true"  
 android:layout\_marginBottom="197dp" />  
</RelativeLayout>

***AndroidManifest.xml***

*<?*xml version="1.0" encoding="utf-8"*?>*<manifest xmlns:android="http://schemas.android.com/apk/res/android"  
 package="com.example.artist.shitastrophe">  
  
 <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>  
 <activity android:name=".sender"></activity>  
 <activity android:name=".receiver"></activity>  
 </application>  
  
</manifest>

***sender.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:id="@+id/editText2"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:hint="Recipient Name"  
 android:inputType="textPersonName"  
 android:layout\_alignParentTop="true"  
 android:layout\_centerHorizontal="true"  
 android:layout\_marginTop="75dp" />  
  
 <EditText  
 android:id="@+id/editText4"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignLeft="@+id/editText2"  
 android:layout\_alignStart="@+id/editText2"  
 android:layout\_below="@+id/editText2"  
 android:layout\_marginTop="13dp"  
 android:ems="10"  
 android:hint="Recipient Number"  
 android:inputType="number" />  
  
 <Button  
 android:id="@+id/button4"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentLeft="true"  
 android:layout\_alignParentStart="true"  
 android:layout\_below="@+id/editText4"  
 android:layout\_marginLeft="34dp"  
 android:layout\_marginStart="34dp"  
 android:layout\_marginTop="28dp"  
 android:text="Add" />  
  
 <Button  
 android:id="@+id/button5"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentEnd="true"  
 android:layout\_alignParentRight="true"  
 android:layout\_alignTop="@+id/button4"  
 android:layout\_marginEnd="35dp"  
 android:layout\_marginRight="35dp"  
 android:text="Delete" />  
  
 <ListView  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:layout\_marginTop="25dp"  
 android:layout\_below="@+id/button4"  
 android:layout\_alignParentLeft="true"  
 android:layout\_alignParentStart="true" />  
</RelativeLayout>

***receiver.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:id="@+id/editText"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentLeft="true"  
 android:layout\_alignParentStart="true"  
 android:layout\_alignParentTop="true"  
 android:layout\_marginLeft="63dp"  
 android:layout\_marginStart="63dp"  
 android:layout\_marginTop="49dp"  
 android:ems="10"  
 android:hint="Contact Name"  
 android:inputType="textPersonName" />  
  
 <EditText  
 android:id="@+id/editText3"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:hint="Contact Number"  
 android:inputType="number"  
 android:layout\_below="@+id/editText"  
 android:layout\_alignLeft="@+id/editText"  
 android:layout\_alignStart="@+id/editText" />  
  
 <Button  
 android:id="@+id/button6"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentLeft="true"  
 android:layout\_alignParentStart="true"  
 android:layout\_below="@+id/editText3"  
 android:layout\_marginLeft="19dp"  
 android:layout\_marginStart="19dp"  
 android:layout\_marginTop="41dp"  
 android:text="Add" />  
  
 <Button  
 android:id="@+id/button7"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignBaseline="@+id/button6"  
 android:layout\_alignBottom="@+id/button6"  
 android:layout\_toEndOf="@+id/editText3"  
 android:layout\_toRightOf="@+id/editText3"  
 android:text="Delete" />  
  
 <ListView  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:layout\_alignLeft="@+id/button6"  
 android:layout\_alignStart="@+id/button6"  
 android:layout\_below="@+id/button6"  
 android:layout\_marginTop="61dp" />  
  
 <Button  
 android:id="@+id/button8"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Send code"  
 android:layout\_centerVertical="true"  
 android:layout\_centerHorizontal="true" />  
</RelativeLayout>