Java

```java
package com.example.lab11;
import android.Manifest;
import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.content.IntentFilter;
import android.content.pm.PackageManager;
import android.os.Bundle;
import android.telephony.SmsManager;
import android.telephony.SmsMessage;
import android.util.Log;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;
import androidx.core.content.ContextCompat;

public class MainActivity extends AppCompatActivity {

    private static final int MY_PERMISSIONS_REQUEST_SEND_SMS = 1;
    private static final String SMS_RECEIVED = "android.provider.Telephony.SMS_RECEIVED";

    private EditText editTextPhoneNumber;
    private EditText editTextMessage;
    private TextView textViewReceivedMessage;
    private BroadcastReceiver receiver;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        editTextPhoneNumber = findViewById(R.id.edit_text_phone_number);
        editTextMessage = findViewById(R.id.edit_text_message);
        textViewReceivedMessage = findViewById(R.id.text_view_received_message);
        Button buttonSend = findViewById(R.id.button_send);

        buttonSend.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                sendSMS();
            }
        });
```

```java
        if (ContextCompat.checkSelfPermission(this, Manifest.permission.RECEIVE_SMS) !=
PackageManager.PERMISSION_GRANTED) {
            ActivityCompat.requestPermissions(this, new
String[]{Manifest.permission.RECEIVE_SMS}, MY_PERMISSIONS_REQUEST_SEND_SMS);
        }

        receiver = new BroadcastReceiver() {
            @Override
            public void onReceive(Context context, Intent intent) {
                if (intent.getAction() != null && intent.getAction().equals(SMS_RECEIVED)) {
                    Bundle bundle = intent.getExtras();
                    if (bundle != null) {
                        Object[] pdus = (Object[]) bundle.get("pdus");
                        if (pdus != null) {
                            for (Object pdu : pdus) {
                                SmsMessage smsMessage = SmsMessage.createFromPdu((byte[]) pdu);
                                String sender = smsMessage.getDisplayOriginatingAddress();
                                String message = smsMessage.getMessageBody();
                                textViewReceivedMessage.setText("From: " + sender + "\nMessage: " +
message);
                            }
                        }
                    }
                }
            }
        };
        registerReceiver(receiver, new IntentFilter(SMS_RECEIVED));
    }

    @Override
    protected void onDestroy() {
        super.onDestroy();
        unregisterReceiver(receiver);
    }

    private void sendSMS() {
        String phoneNumber = editTextPhoneNumber.getText().toString();
        String message = editTextMessage.getText().toString();

        if (ContextCompat.checkSelfPermission(this, Manifest.permission.SEND_SMS) !=
PackageManager.PERMISSION_GRANTED) {
            ActivityCompat.requestPermissions(this, new String[]{Manifest.permission.SEND_SMS},
MY_PERMISSIONS_REQUEST_SEND_SMS);
        } else {
            try {
                SmsManager smsManager = SmsManager.getDefault();
                smsManager.sendTextMessage(phoneNumber, null, message, null, null);
```

```java
            Toast.makeText(this, "SMS sent successfully", Toast.LENGTH_SHORT).show();
        } catch (Exception e) {
            Log.e("Send SMS", "Sending SMS failed", e);
            Toast.makeText(this, "SMS sending failed", Toast.LENGTH_SHORT).show();
        }
    }
  }
}
```

xml

```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:padding="16dp">

    <EditText
        android:id="@+id/edit_text_phone_number"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter phone number"
        android:inputType="phone"
        android:layout_marginBottom="8dp" />

    <EditText
        android:id="@+id/edit_text_message"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter message"
        android:inputType="textMultiLine"
        android:layout_marginBottom="8dp" />

    <Button
        android:id="@+id/button_send"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Send SMS"
        android:layout_gravity="center"
        android:layout_marginBottom="16dp" />

    <TextView
        android:id="@+id/text_view_received_message"
```

```xml
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Received messages will appear here"
        android:textSize="16sp"
        android:padding="8dp"
        android:background="#e0e0e0" />
</LinearLayout>
```