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CSE - B

Ex. No. 8 Android Application to send SMS and Notification

Aim:

Develop an Android Application to send SMS and Notification for the SMS. Send SMS to a specific Mobile Number. a. Use TextViews to read the message content and Mobile Number. b. Use Button to 'SEND'. c. On pressing Send button, send the SMS to the specified mobile number and Notification. Receive SMS a. Display the notification in status bar of the receiver. b. On clicking the notification, enter into receivers Message box.

Layouts Used: Intents for sending and receiving sms.

Code:

MainActivity.java:

```
package com.example.ex8;

import android.Manifest;
import android.app.NotificationChannel;
import android.app.NotificationManager;
import android.app.PendingIntent;
import android.content.Intent;
import android.content.pm.PackageManager;
import android.os.Build;
import android.os.Bundle;
import android.telephony.SmsManager;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
```

```
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;
import androidx.core.content.ContextCompat;
import androidx.core.app.NotificationCompat;
import androidx.core.app.NotificationManagerCompat;

public class MainActivity extends AppCompatActivity {

    private static final String CHANNEL_ID = "sms_channel";
    private static final int SEND_SMS_PERMISSION_REQUEST_CODE =
1;
    private static final int RECEIVE_SMS_PERMISSION_REQUEST_CODE
= 2;

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

        if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.O) {
            createNotificationChannel();
        }

        Button sendButton = findViewById(R.id.sendButton);
        sendButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                checkAndRequestSendSmsPermission();
            }
        });
    }

    private void checkAndRequestSendSmsPermission() {
        if (ContextCompat.checkSelfPermission(this,
Manifest.permission.SEND_SMS)
```

```
            != PackageManager.PERMISSION_GRANTED) {
        // Permission is not granted, request the permission
        ActivityCompat.requestPermissions(this,
                new String[]{Manifest.permission.SEND_SMS},
                SEND_SMS_PERMISSION_REQUEST_CODE);
    } else {
        // Permission has already been granted
        // Check and request RECEIVE_SMS permission
        checkAndRequestReceiveSmsPermission();
    }
}

private void checkAndRequestReceiveSmsPermission() {
    if (ContextCompat.checkSelfPermission(this,
Manifest.permission.RECEIVE_SMS)
            != PackageManager.PERMISSION_GRANTED) {
        // Permission is not granted, request the permission
        ActivityCompat.requestPermissions(this,
                new String[]{Manifest.permission.RECEIVE_SMS},
                RECEIVE_SMS_PERMISSION_REQUEST_CODE);
    } else {
        // Permission has already been granted
        // You can proceed with sending SMS
        sendMessage();
    }
}

private void createNotificationChannel() {
    if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.O) {
        CharSequence name = "SMS Channel";
        String description = "Channel for SMS notifications";
        int importance = NotificationManager.IMPORTANCE_DEFAULT;
        NotificationChannel channel = new
NotificationChannel(CHANNEL_ID, name, importance);
        channel.setDescription(description);
```

```
            NotificationManager notificationManager =
getSystemService(NotificationManager.class);
            notificationManager.createNotificationChannel(channel);
        }
    }

    private void sendMessage() {
        String mobileNumber = ((EditText)
findViewById(R.id.mobileNumberEditText)).getText().toString();
        String message = ((EditText)
findViewById(R.id.messageEditText)).getText().toString();

        try {
            SmsManager smsManager = SmsManager.getDefault();
            smsManager.sendTextMessage(mobileNumber, null, message,
null, null);
            Toast.makeText(this, "SMS sent", Toast.LENGTH_SHORT).show();
        } catch (Exception e) {
            Toast.makeText(this, "SMS sending failed",
Toast.LENGTH_SHORT).show();
            e.printStackTrace();
        }
    }
}
```

SMSReceiver.java:

```
package com.example.ex8;

import android.app.NotificationChannel;
import android.app.NotificationManager;
import android.app.PendingIntent;
import android.content.BroadcastReceiver;
import android.content.Context;
```

```
import android.content.Intent;
import android.os.Build;
import android.provider.Telephony;
import android.telephony.SmsMessage;

import androidx.core.app.NotificationCompat;
import androidx.core.app.NotificationManagerCompat;

public class SMSReceiver extends BroadcastReceiver {
    private static final String CHANNEL_ID = "sms_channel";

    @Override
    public void onReceive(Context context, Intent intent) {
        // Handle incoming SMS and display a notification.
        if (intent.getAction() != null &&
intent.getAction().equals("android.provider.Telephony.SMS_RECEIVED")) {
            SmsMessage[] messages =
Telephony.Sms.Intents.getMessagesFromIntent(intent);

            if (messages != null && messages.length > 0) {
                String sender = messages[0].getOriginatingAddress();
                String messageBody = messages[0].getMessageBody();

                createNotification(context, sender, messageBody);
            }
        }
    }

    private void createNotification(Context context, String sender, String
messageBody) {
        if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.O) {
            NotificationChannel channel = new
NotificationChannel(CHANNEL_ID, "SMS Channel",
NotificationManager.IMPORTANCE_DEFAULT);
```

```
            NotificationManager notificationManager =
context.getSystemService(NotificationManager.class);
            notificationManager.createNotificationChannel(channel);
        }

        Intent messageBoxIntent = new Intent(context,
MessageBoxActivity.class);
        messageBoxIntent.putExtra("sender", sender);
        messageBoxIntent.putExtra("message", messageBody);

        PendingIntent pendingIntent = PendingIntent.getActivity(context, 0,
messageBoxIntent, PendingIntent.FLAG_UPDATE_CURRENT);

        NotificationCompat.Builder builder = new
NotificationCompat.Builder(context, CHANNEL_ID)
                .setSmallIcon(R.drawable.noti)
                .setContentTitle("New SMS")
                .setContentText("From: " + sender)
                .setPriority(NotificationCompat.PRIORITY_DEFAULT)
                .setContentIntent(pendingIntent)
                .setAutoCancel(true);

        NotificationManagerCompat notificationManager =
NotificationManagerCompat.from(context);
        notificationManager.notify(1, builder.build());
    }
}
```

MessageBoxActivity.java:

```
         // MessageBoxActivity.java
package com.example.ex8;

import android.os.Bundle;
```

```
import androidx.appcompat.app.AppCompatActivity;
import android.widget.TextView;

public class MessageBoxActivity extends AppCompatActivity {

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

        TextView senderTextView = findViewById(R.id.senderTextView);
        TextView messageTextView = findViewById(R.id.messageTextView);

        // Get data from the intent
        String sender = getIntent().getStringExtra("sender");
        String message = getIntent().getStringExtra("message");

        // Display sender and message in TextViews
        senderTextView.setText("Sender: " + sender);
        messageTextView.setText("Message: " + message);
    }
}
```

Activity_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
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=".MainActivity">

    <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"
    android:padding="16dp"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/mobileNumberEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Mobile Number" />

    <EditText
        android:id="@+id/messageEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/mobileNumberEditText"
        android:hint="Message" />

    <Button
        android:id="@+id/sendButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/messageEditText"
        android:text="Send" />

  </RelativeLayout>

</androidx.constraintlayout.widget.ConstraintLayout>
```

Activity_message_box.xml:

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

```
<androidx.constraintlayout.widget.ConstraintLayout
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">


    <TextView
        android:id="@+id/senderTextView"
        android:layout_width="166dp"
        android:layout_height="48dp"
        android:layout_marginTop="248dp"
        android:text=""
        android:textSize="24sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.497"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <TextView
        android:id="@+id/messageTextView"
        android:layout_width="178dp"
        android:layout_height="64dp"
        android:layout_marginTop="372dp"
        android:text=""
        android:textSize="24sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.48"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <TextView
        android:id="@+id/textView3"
        android:layout_width="186dp"
```

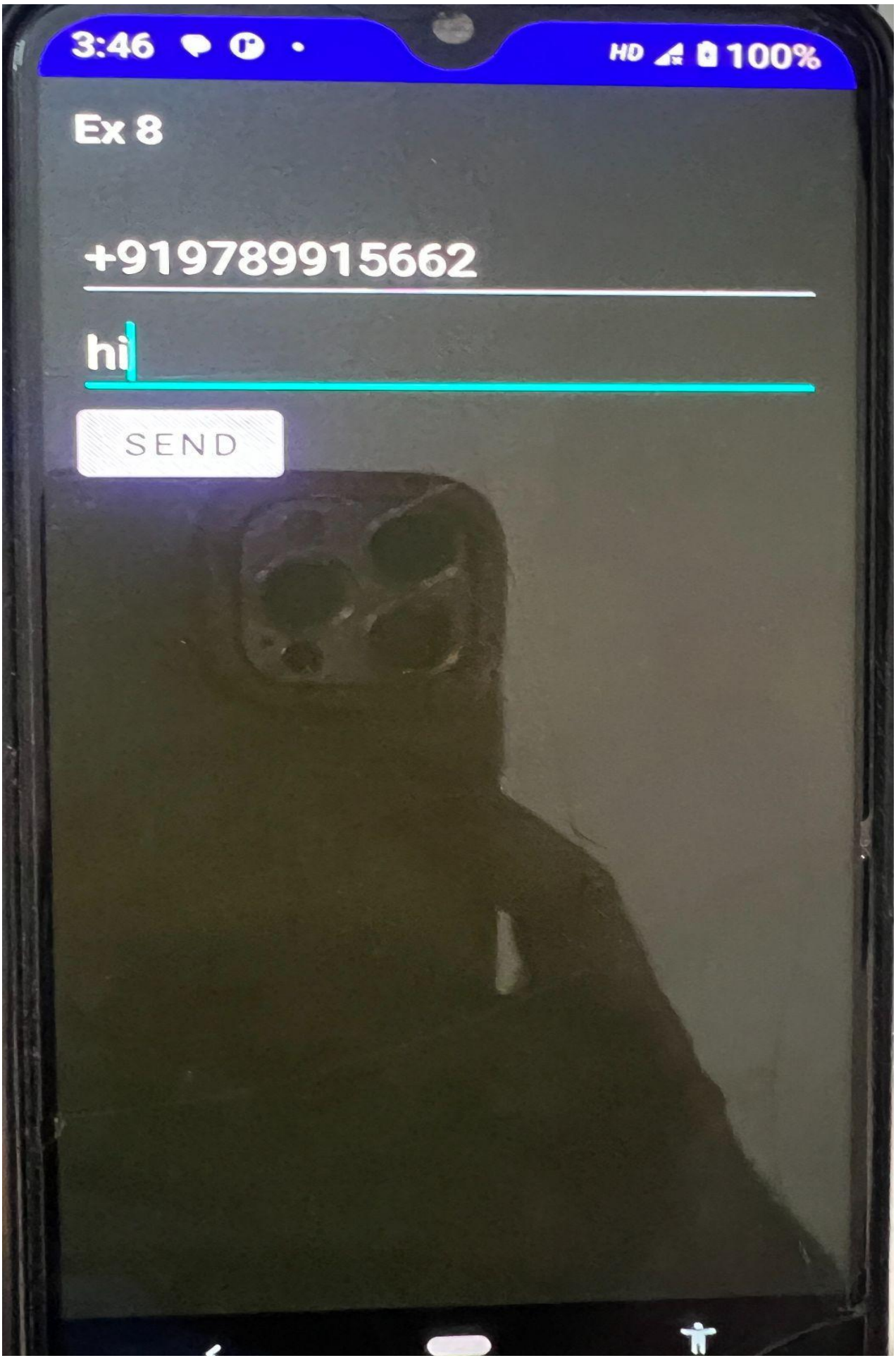
```
        android:layout_height="49dp"
        android:layout_marginTop="40dp"
        android:textSize="24sp"
        android:text="Message Box"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.497"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

AndroidManifest.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.ex8">

    <uses-permission android:name="android.permission.SEND_SMS" />
    <uses-permission android:name="android.permission.RECEIVE_SMS"
/>
    <uses-permission android:name="android.permission.READ_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/Theme.Ex8">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
```

```
            <category android:name="android.intent.category.LAUNCHER"
/>
            </intent-filter>
        </activity>

        <receiver android:name=".SMSReceiver"
            android:exported="true">
            <intent-filter>
                <action
android:name="android.provider.Telephony.SMS_RECEIVED" />
            </intent-filter>
        </receiver>


        <activity android:name=".MessageBoxActivity"></activity>


    </application>



</manifest>
```

Output:


3:46
HD
100%
Ex 8
+919789915662
hi
SEND


3:46
25
+91 866-7816034
SMS
Today, 3:44 PM
hello
hi
SMS

Best Practices:

- Used appropriate names for textviews

Learning Outcomes:

- Learnt to send and receive SMS
- Learnt to receive notification