

5. Develop an app

- a) To display notifications
- b) Utilize content providers to access contact information.

a)

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:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/buttonNotify"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="notify_me"
        tools:layout_editor_absoluteX="33dp"
        tools:layout_editor_absoluteY="40dp"
        tools:ignore="MissingConstraints" />

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

MainActivity.java

```
package com.example.prog5;

import android.os.Bundle;

import androidx.appcompat.app.AppCompatActivity;

import android.app.Notification;
import android.app.NotificationChannel;
import android.app.NotificationManager;
import android.app.PendingIntent;
import android.app.TaskStackBuilder;
import android.content.Context;
import android.content.Intent;
import android.widget.Button;
import androidx.core.app.NotificationCompat;

@SuppressWarnings("ALL")
public class MainActivity extends AppCompatActivity {
    Button but;
    Context context=MainActivity.this;
    String CHANNEL_ID="my_channel_01";
    CharSequence name = "my_channel";
```

```

@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    but= findViewById(R.id.buttonNotify);
    NotificationManager notificationManager = (NotificationManager)
        context.getSystemService(Context.NOTIFICATION_SERVICE);

    but.setOnClickListener(v -> {
        NotificationChannel mChannel = new
NotificationChannel(CHANNEL_ID, name,
        NotificationManager.IMPORTANCE_HIGH);
        notificationManager.createNotificationChannel(mChannel);

        Intent notificationIntent = new Intent(context,
MainActivity.class);

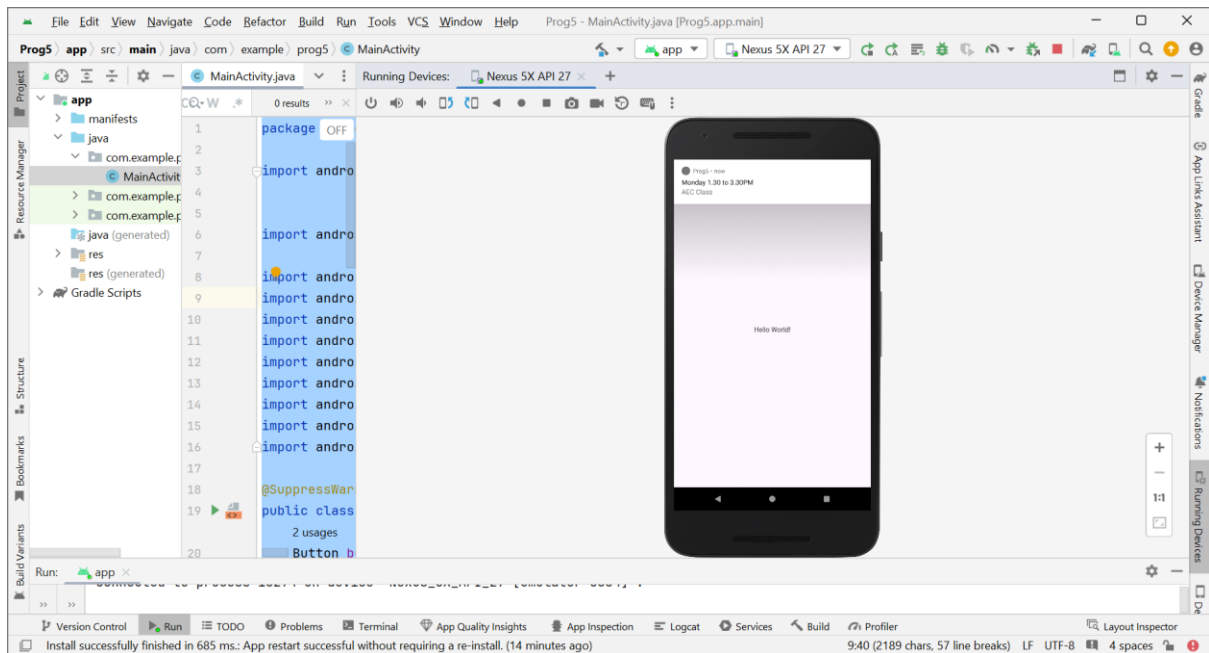
        TaskStackBuilder stackBuilder =
TaskStackBuilder.create(context);
        stackBuilder.addParentStack(MainActivity.class);
        stackBuilder.addNextIntent(notificationIntent);

        PendingIntent pendingIntent = stackBuilder.getPendingIntent(0,
        PendingIntent.FLAG_IMMUTABLE);
        NotificationCompat.Builder builder = new
        NotificationCompat.Builder(context, CHANNEL_ID);

        Notification notification = builder.setContentTitle("Monday
1.30 to 3.30PM")
            .setContentText("AEC Class")
            .setTicker("Test!")
            .setSmallIcon(R.mipmap.ic_launcher)
            .setAutoCancel(true)
            .setContentIntent(pendingIntent).build();

        notificationManager.notify(0, notification);
    });
}
}

```



5b)

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:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="button"
        tools:layout_editor_absoluteX="33dp"
        tools:layout_editor_absoluteY="40dp"
        tools:ignore="MissingConstraints" />

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

MainActivity.java

```

package com.example.prog5b;

import android.os.Bundle;

import androidx.activity.EdgeToEdge;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;

import android.Manifest;
import android.annotation.SuppressLint;
import android.app.Activity;
import android.content.Intent;
import android.database.Cursor;
import android.net.Uri;
import android.os.Bundle;
import android.provider.ContactsContract;
import android.widget.Button;
import android.widget.Toast;

import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;

@SuppressWarnings("ALL")
public class MainActivity extends AppCompatActivity {

    public static final int RequestPermissionCode = 1 ;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Button button = findViewById(R.id.button);
        EnableRuntimePermission();
        button.setOnClickListener(v -> {
            Intent intent = new Intent(Intent.ACTION_PICK,
                ContactsContract.Contacts.CONTENT_URI);
            startActivityForResult(intent, 1);
        });
    }

    public void EnableRuntimePermission() {

        if
(ActivityCompat.shouldShowRequestPermissionRationale(MainActivity.this,
            Manifest.permission.READ_CONTACTS))
        {
            Toast.makeText(MainActivity.this, "CONTACTS permission allows us
to Access CONTACTS app", Toast.LENGTH_LONG).show();
        } else {
            ActivityCompat.requestPermissions(MainActivity.this, new
String[]{
                Manifest.permission.READ_CONTACTS},
RequestPermissionCode);
        }
    }

    @Override
    public void onActivityResult(int reqCode, int resultCode, Intent data) {
        super.onActivityResult(reqCode, resultCode, data);
        if (reqCode == 1) {

```

```

        if (resultCode == Activity.RESULT_OK) {
            Uri contactData = data.getData();
            try (Cursor c = managedQuery(contactData, null, null, null,
null)) {
                if (c.moveToFirst()) {
                    String id =

c.getString(c.getColumnIndexOrThrow(ContactsContract.Contacts._ID));
                    @SuppressWarnings("Range")
                    String hasPhone =

c.getString(c.getColumnIndex(ContactsContract.Contacts.HAS_PHONE_NUMBER));
                    if (hasPhone.equalsIgnoreCase("1")) {
                        Cursor phones =

getContentResolver().query(ContactsContract.CommonDataKinds.Phone.CONTENT_URIs,
null,
ContactsContract.CommonDataKinds.Phone.CONTACT_ID + " = " + id, null,
null);

                        phones.moveToFirst();
                        @SuppressWarnings("Range")
                        String cNumber =

phones.getString(phones.getColumnIndex(ContactsContract.CommonDataKinds.Phone.NUMBER));

                        Toast.makeText(getApplicationContext(),
cNumber,

                        Toast.LENGTH_SHORT).show();
                        phones.close();

                    }
                }
            }
        } catch (Exception e)
        {
            e.printStackTrace();
        }
    }
}
}
}
}

```

AndroidManifest.xml

```

<uses-permission android:name="android.permission.READ_CONTACTS"/>

```