

Dr. AMBEDKAR INSTITUTE OF TECHNOLOGY

(An Autonomous Institute, Affiliated to Visvesvaraya Technological University, Belagavi, Accredited by NAAC, with 'A' Grade)
Near JnanaBharathi Campus, Bengaluru – 560056



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Lab Manual

on

“Android Programming” **Subject Code: 18CSL76**

Staffs - In – Charge

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2020-21

A. LAORATORY OVERVIEW

Degree:	BE	Program:	CS & E
Semester:	6	Academic Year:	2020-21
Laboratory Title:	Android Programming Laboratory	Laboratory Code:	18CSL76
L-T-P-S:	0-0-1-0	Duration of SEE:	3 Hrs
CIE Marks:	50	SEE Marks:	50

B. DESCRIPTION

c

There are no prerequisites for learning Android but I would like to mention that you will be coding in Java and XML. It would be helpful if you could learn just the core Java concepts.

2. BASE COURSE

- **Android Programming Laboratory (18CSL76)**

3. COURSE OUTCOMES

At the end of the course, the student will be able to;

- CO1: Create, test and debug Android application by setting up Android development environment.
- CO2: Implement adaptive, responsive user interfaces that work across a wide range of devices.
- CO3: Infer long running tasks and background work in Android applications.
- CO4: Demonstrate methods in storing, sharing and retrieving data in Android applications.
- CO5: Infer the role of permissions and security for Android applications.

4. RESOURCES REQUIRED

- **Hardware resources**
 - Desktop PC
 - Microsoft Windows 7/8/10 (32 or 64 bit)
 - 2 GB RAM minimum, 8 GB recommended
 - 2 GB of available disk space minimum, 4 GB recommended (500 MB for IDE + 1.5 GB for Android SDK and emulator system image)
 - 1280 x 800 minimum screen resolution
- **Software resources**

All the required tools to develop Android applications are freely available and can be downloaded from the Web. Following is the list of software you will need before you start your Android.

- Java JDK5 or latest version
- Java Runtime Environment (JRE) 6
- Android SDK
- Android Studio
- Eclipse IDE for Java Developers
- Android Development Tool kit (ADT kit) / Eclipse

For testing purpose you require physical device because as per my experience it run smoothly than PC Emulator.

5. RELEVANCE OF THE COURSE:

- To carry out Mini project and Main Project work

6. GENERAL INSTRUCTIONS:

- Implement the program in Android Studio.
- External practical examination.
 - All laboratory experiments are to be included
 - Students are allowed to pick one experiment from the lot.
 - Marks distribution: Procedure + Conduction + Viva: 10 + 30 +10 (50)

- Change of experiment is allowed only once and marks allotted to the procedure part to be made zero.

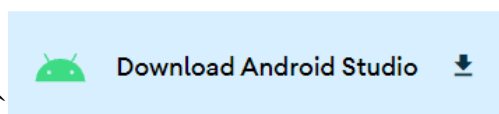
List of Programs

Course objectives:	
1) To learn and acquire art of Android programming. 2) To configure initial application, run in emulator. 3) Understand and implement Android's advanced User interface functions, audio video applications 4) Create, modify and query on SQLite database. 5) Present different ways of sharing data through the use of services.	
Sl. No.	Programs
1.	i) Create an application to design a Visiting Card. The Visiting card should have a company logo at the top right corner. The company name should be displayed in Capital letters, aligned to the center. Information like the name of the employee, job title, phone number, address, email, fax and the website address is to be displayed. Insert a horizontal line between the job title and the phone number. ii) Develop a simple application with one EditText so that the user can write some text in it. Create a button called "Convert Text to Speech" that converts the user input text into voice.
2.	Write a program to create an Activity to read Employee Details (EmpId, Name, Age, Address) from user and store to database and create a menu with menu item (Show Details) on pressing menu details it must go to another activity with employee id search box and search button and display the employee details on the screen.
3.	Write a program to create an activity with a text box and three buttons (save, open and create) open must allow to browse the text file from sdcard and must display the contents of the file on textbox, save button must save the contents of text box to file, create button must allow file user to create a new file and save the entered contents of the textbox.
4.	Write a program to create an activity with two text boxes (date /time and note contents). Create a content provider to store the date and time and note contents to the database. Create another program with a Button (Fetch Today Notes) on press must access the note provider and display the notes stored for today's date.
5.	Write a program to create an activity with two buttons start and stop. On pressing start button the program must start the counter and must keep on counting until stop button is pressed.
6.	Create a program to receive the incoming SMS to the phone and put a notification on screen, on clicking the notification it must display sender number and message content on screen.
7.	Write a program to create a service that will put a notification on the screen every 5 seconds.
8.	Create an .aidl service to do add, subtraction and multiplication and create another application with two buttons to read the inputs and three button add,subtract and multiply to call add, subtract and multiply operation on .aidl service.
9.	Create an activity like a phone dialer with (1,2,3,4,5,6,7,8,9,0,*,#) buttons including call, save and delete buttons. On pressing the call button, it must call the phone number and on pressing the save button it must save the number to the phone contacts.
10.	Create a file of JSON type with values for city_name, Latitude, Longitude, Temperature and Humidity. Develop an application to create an activity with button to parse the JSON file which when clicked should display the data in the textview.

How to Install and Set up Android Studio on Windows?

Step 1: Go to <https://developer.android.com> website.

Step 2: Click on the **Download Android Studio** Button.

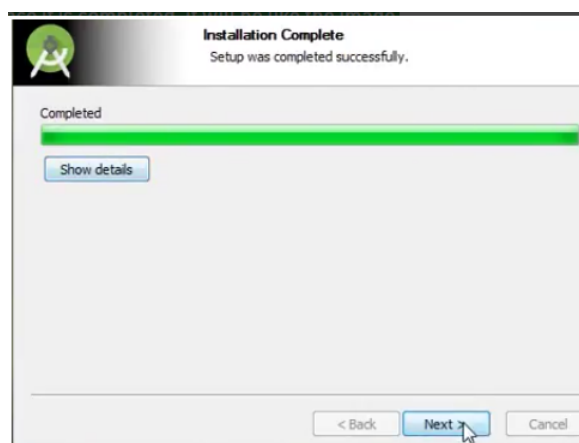


Step 3: After the downloading has finished, open the file from downloads and run it. It will prompt the following dialog box.



Click on next. In the next prompt, it'll ask for a path for installation. Choose a path and hit next.

Step 4: It will start the installation, and once it is completed, it will be like the image shown below.



Click on next.



Step 5: Once “**Finish**” is clicked, it will ask whether the previous settings need to be imported [if the Android studio had been installed earlier], or not. It is better to choose the ‘Don’t import Settings option’.

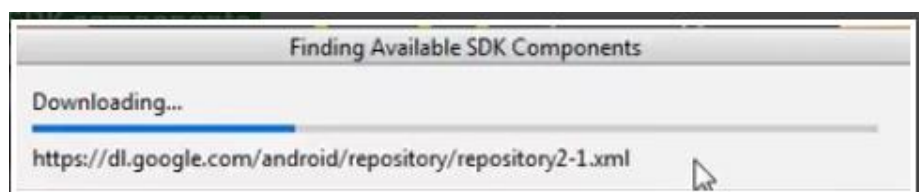


Click the **OK** button.

Step 6: This will start the Android Studio.



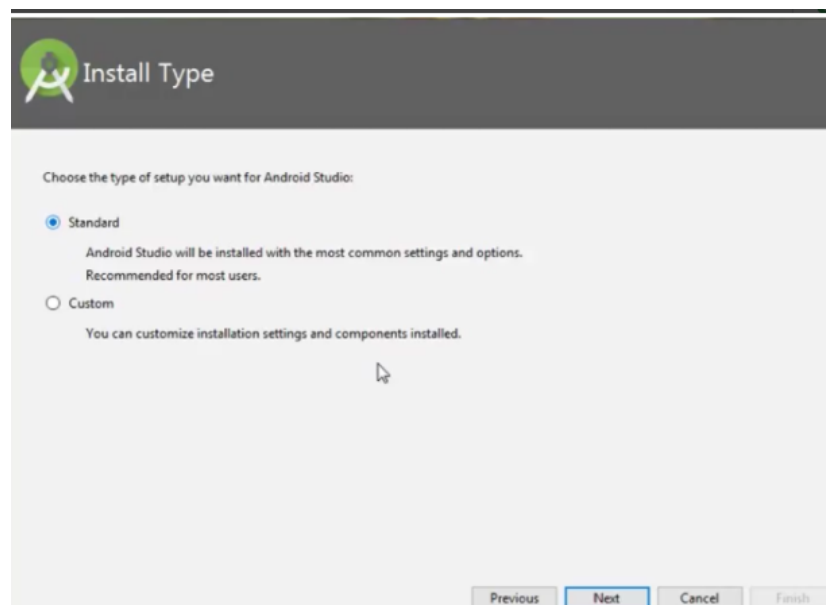
Meanwhile, it will be finding the available SDK components.



Step 7: After it has found the SDK components, it will redirect to the Welcome dialog box.

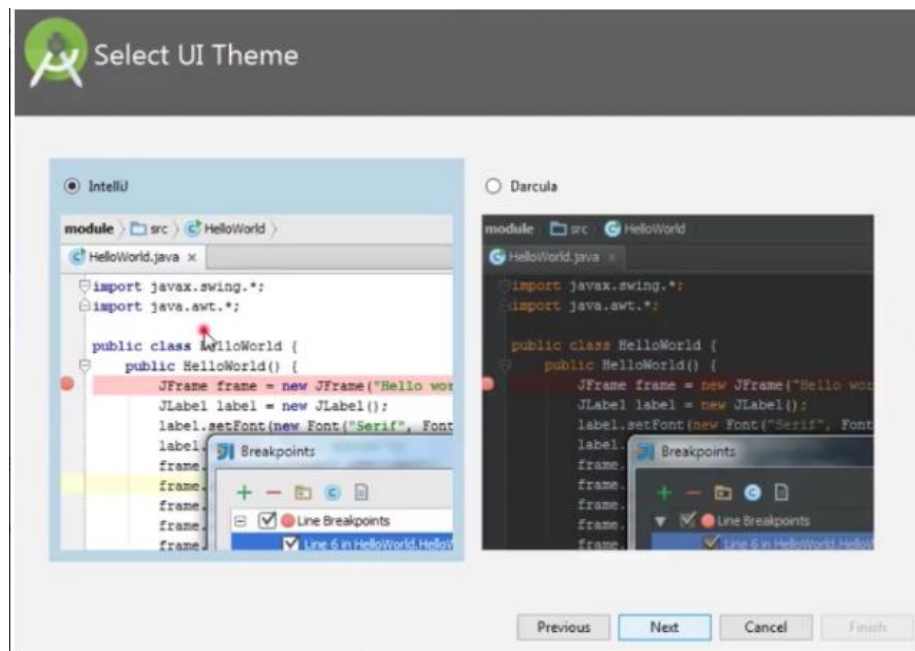


Click on **Next**.



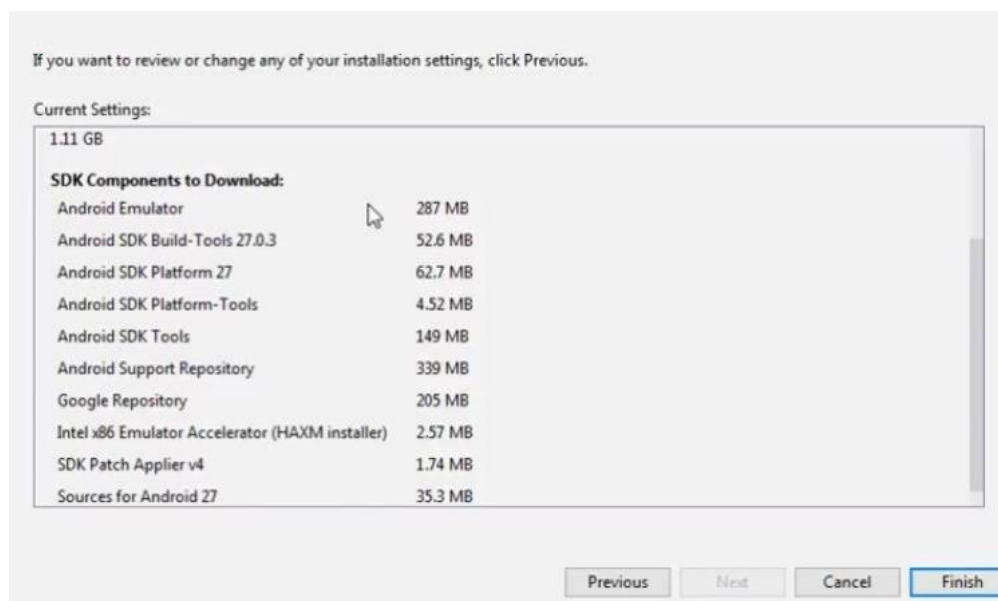
Choose Standard and click on Next. Now choose the theme, whether the **Light** theme or the **Dark** one.

The light one is called the **IntelliJ** theme whereas the dark theme is called **Darcula**. Choose as required.

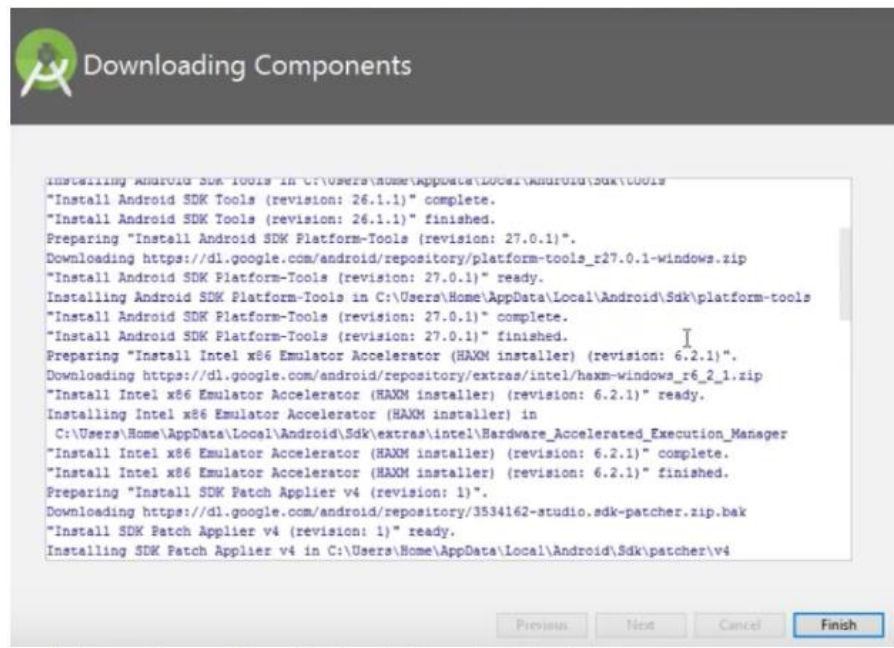


Click on the **Next** button.

Step 8: Now it is time to download the SDK components.

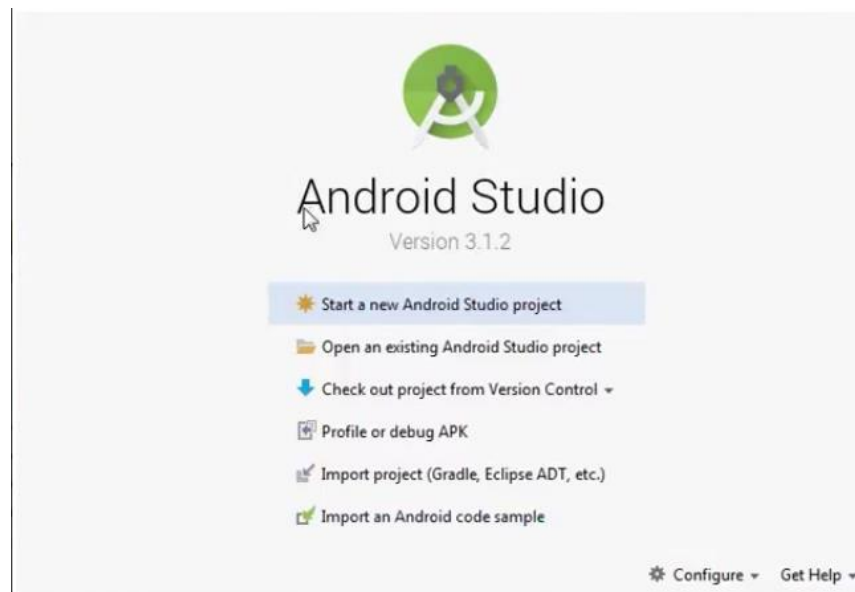


Click on Finish. Components begin to download let it complete.



The Android Studio has been successfully configured. Now it's time to launch and build apps. Click on the Finish button to launch it.

Step 9: Click on **Start a new Android Studio project** to build a new app.



To run your first android app in Android Studio you may refer to [Running your first Android app.](#)

Create your First Android Application

Step1: Launch Android Studio.

Step 2: Select File ☐ New ☐ New Project

Step 3: In "Choose your project", select "Phone and Tablet" tab ☐ "Empty Activity" ☐ Next.

Step 4: In "Configure your project" ☐ Set "Name" to "Hello Android" (this will be the "Title" in your phone's application menu) ☐ The "Package name" and "Save Location" will be updated automatically ☐ In

"Language", select "Java" ☐ Leave the "Minimum API Level" and the rest to default ☐ Finish.

It could take a few minutes to set up your first app. Watch the "progress bar" at the bottom status bar.

Once the progress bar indicates completion, a hello-world app is created by default.

Setup Emulator (Android Virtual Device (AVD))

To run your Android application under the emulator, you need to first create an Android Virtual Devices (AVD). An AVD models a specific device. You can create AVDs to emulate different android devices (e.g., phone/tablet, android version, screen size, and etc.).

Step 1: In Android studio, select "Tools" ☐ AVD Manager.

Step 2: Click "Create Virtual Device".

Step 3: In "Choose a device definition" ☐ In "Category", choose "Phone" ☐ In "Name", choose "2.7 QVGA" (the smallest device available - you can try a bigger device later) ☐ Next.

Step 4: In "System Image: Recommended" ☐ Select the version with the highest API level

☐ Click "Download" ☐ Next.

Step 5: In "AVD Name", enter "2.7 QVGA API 27" (default) ☐ Finish.

Running the Android Application on Emulator

Step 1: Select the "Run" menu ☐ "Run app" ☐ Under "Available Virtual Devices", select "2.7 QVGA API 27" ☐ OK.

Step 2: It may take a few MINUTES to fire up the app on the emulator. You first see a Google logo ☐ then "Android" ☐ then the "wallpaper" ☐ then the "Hello, world!" message.

Step 3: DO NOT CLOSE THE EMULATOR, as it really takes a long time to start. You could always re-run the app (or run a new app) on the same emulator. Try re-run the app by selecting "Run" menu ☐ "Run app".

Program -1

- i) Create an application to design a Visiting Card. The Visiting card should have a company logo at the top right corner. The company name should be displayed in Capital letters, aligned to the center. Information like the name of the employee, job title, phone number, address, email, fax and the website address is to be displayed. Insert a horizontal line between the job title and the phone number.

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
-<LinearLayout tools:context=".MainActivity"
    android:gravity="center"
    android:orientation="vertical"
    android:layout_height="match_parent"
    android:layout_width="match_parent"
    xmlns:tools="http://schemas.android.com/tools"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:android="http://schemas.android.com/apk/res/android">

    -<LinearLayout
        android:layout_height="wrap_content"
        android:layout_width="match_parent"
        android:layout_gravity="center_horizontal">

        <TextView
            android:layout_height="wrap_content"
            android:layout_width="wrap_content"
            android:textSize="38dp"
            android:textColor="@color/colorAccent"
            android:text=" GOOGLE"
            android:id="@+id/textView"/>

        <ImageView
            android:layout_height="wrap_content"
            android:layout_width="wrap_content"
            android:id="@+id/imageView"
            app:srcCompat="@drawable/logo"
            android:layout_marginTop="4dp"/>

        <View
            android:layout_height="4dp"
            android:layout_width="wrap_content"
            android:id="@+id/view"
            android:layout_marginTop="103dp"
            android:background="@color/colorAccent"
            android:layout_marginBottom="498dp"/>

    </LinearLayout>
```

```
<TextView
    android:layout_height="30dp"
    android:layout_width="81dp"
    android:text="Dr.B R Ambedkar"
    android:id="@+id/textView3"
    android:layout_marginBottom="16dp"
    android:textStyle="bold"/>

<TextView
    android:layout_height="wrap_content"
    android:layout_width="wrap_content"
    android:text="The greatest Leader of India"
    android:id="@+id/textView4"
    android:textStyle="bold"/>

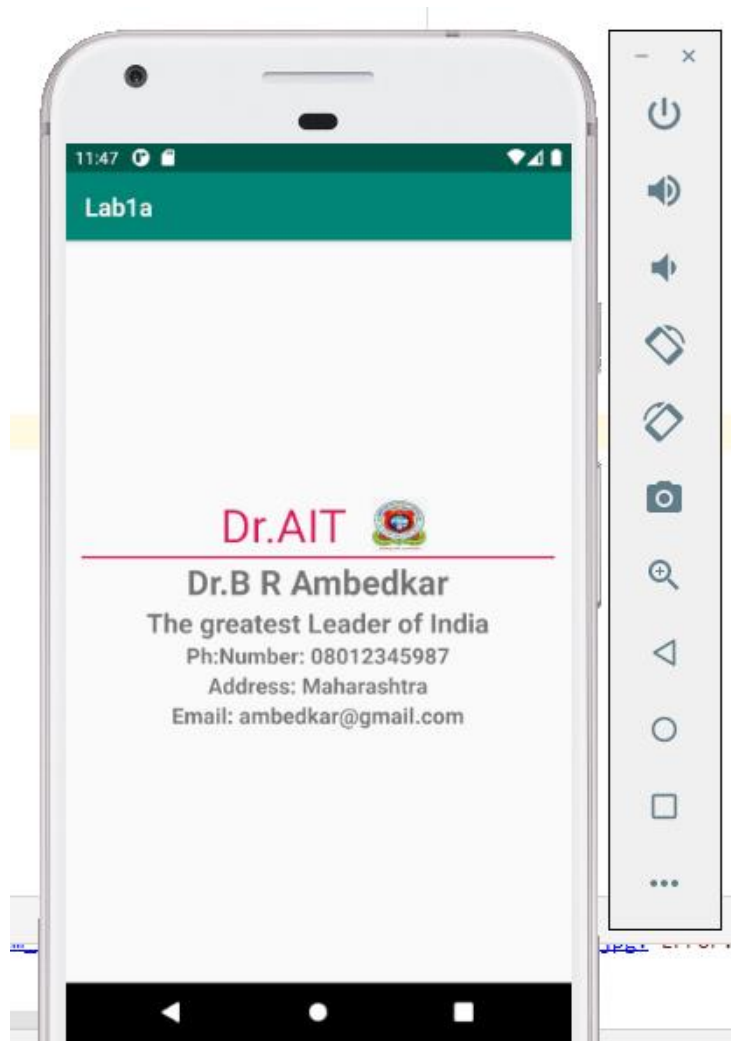
<TextView
    android:layout_height="wrap_content"
    android:layout_width="wrap_content"
    android:text="Ph: Number: 2019201923"
    android:id="@+id/textView6"
    android:textStyle="bold"/>

<TextView
    android:layout_height="wrap_content"
    android:layout_width="wrap_content"
    android:text="Address: Maharashtra"
    android:id="@+id/textView7"
    android:textStyle="bold"/>

<TextView
    android:layout_height="wrap_content"
    android:layout_width="wrap_content"
    android:text="Email: ambedkar@gmail.com"
    android:id="@+id/textView8"
    android:textStyle="bold"/>

</LinearLayout>
```

OUTPUT



Program -1

- ii) Develop a simple application with one EditText so that the user can write some text in it. Create a button called “Convert Text to Speech” that converts the user input text into voice.
-

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">

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="TEXT TO SPEECH APPLICATION"
    android:textSize="18sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.498"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.071" />

<EditText
    android:id="@+id/txt_input"
    android:layout_width="237dp"
    android:layout_height="177dp"
    android:layout_marginStart="100dp"
    android:layout_marginTop="209dp"
    android:layout_marginEnd="77dp"
    android:layout_marginBottom="437dp"
    android:inputType="textMultiLine"/>

<Button
    android:id="@+id/btn_txt2spch"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="75dp"
    android:layout_marginTop="399dp"
    android:layout_marginEnd="51dp"
    android:layout_marginBottom="284dp"

    android:text="Convert Text to Speech"
```

```
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />
```

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

MainActivity.java

```
package com.example.texttospeech;
```

```
import androidx.appcompat.app.AppCompatActivity;
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 t1;
    EditText txtinput;
    Button txttospeech;
```

```
    @Override
```

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

```
        txtinput = findViewById(R.id.txt_input);
        txttospeech = findViewById(R.id.btn_txt2spch);
```

```
        t1 = new TextToSpeech(getApplicationContext(), new TextToSpeech.OnInitListener() {
            @Override
            public void onInit(int status) {
                if(status != TextToSpeech.ERROR) {
                    t1.setLanguage(Locale.ENGLISH);
                }
            }
        });
```

```
        txttospeech.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String tospeak = txtinput.getText().toString();
                Toast.makeText(getApplicationContext(), tospeak, Toast.LENGTH_SHORT).show();
```

```
                t1.speak(tospeak, TextToSpeech.QUEUE_FLUSH, null);
            }
        });
    }
}
```

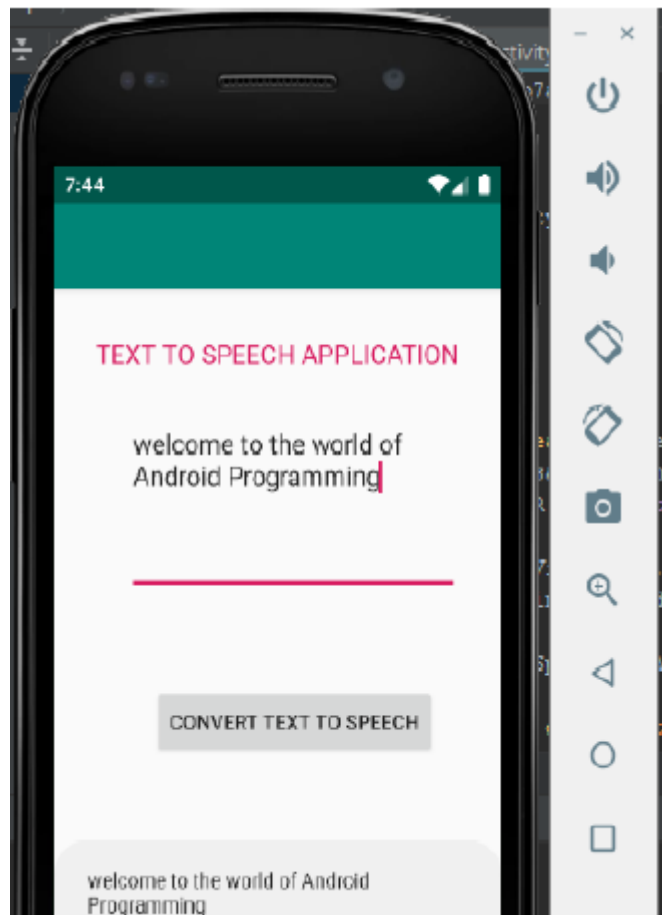
```

    });
}

public void onPause()
{
    if(t1 != null)
    {
        t1.stop();
        t1.shutdown();
    }
    super.onPause(); }
}

```

OUTPUT



Program -2

Write a program to create an Activity to read Employee Details (EmpId, Name, Age, Address) from user and store to database and create a menu with menu item (Show Details) on pressing menu details it must go to another activity with employee id search box and search button and display the employee details on the screen.

activity_main.xml

```
<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"
" android:gravity="center">

<TextView
android:layout_width="match_paren"
android:layout_height="wrap_conten"
android:text="Employee_id"/>

<EditText
android:layout_width="match_paren"
android:layout_height="wrap_conten"
android:id="@+id/txt_id"/>

<TextView
android:layout_width="match_paren"
android:layout_height="wrap_conten"
android:text="Employee_name"/>

<EditText
android:layout_width="match_paren"
android:layout_height="wrap_conten"
android:id="@+id/txt_name"/>

<TextView
android:layout_width="match_paren"
android:layout_height="wrap_conten"
android:text="Employee_age"/>

<EditTextandroid:layout_width="match_parent"
android:layout_height="wrap_conten"
android:id="@+id/txt_age"/>
```



```
<TextView
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:text="Employee_address"/>
```

```
<EditText
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:id="@+id/txt_address"/>
```

```
<LinearLayout
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:orientation="horizontal"
android:layout_gravity="center">
```

```
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Submit"
android:layout_gravity="center"
android:id="@+id/btn_submit"/>
```

```
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Search"
android:layout_gravity="center"
android:id="@+id/btn_search"/>
```

```
</LinearLayout>
```

```
</LinearLayout>
```

Search.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" >
```

```
<TextView
android:layout_width="fill_parent"
android:layout_height="wrap_content"
android:text="Enter Employee id" />
```

```
<EditText
android:layout_width="match_pare"
android:layout_height="wrap_content"
android:id="@+id/txt_empid"/>
```

```

<Button
    android:layout_width="wrap_conten
    android:layout_height="wrap_content"
    android:text="Search"
    android:layout_gravity="center"
    android:id="@+id/txt_search"/>

```

```

<TextView
    android:layout_width="fill_parent"
    android:layout_height="wrap_content"
    android:gravity="center"
    android:text="Text view"
    android:id="@+id/txt_display"/>

```

```

</LinearLayout>

```

Main_activity.java

```

package com.example.employeeedetails;
import android.os.Bundle;
import android.app.Activity;
import android.content.ContentValues;
import android.content.Intent;
import android.database.sqlite.SQLiteDatabase;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

```

```

public class MainActivity extends Activity implements OnClickListener {
    EditText txtid,txtname,txtage,txtaddress;
    Button btnsubmit,btnsearch;

```

```

    @Override

```

```

    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        txtid=(EditText)findViewById(R.id.txt_id);
        txtname=(EditText)findViewById(R.id.txt_name);
        txtage=(EditText)findViewById(R.id.txt_age);
        txtaddress=(EditText)findViewById(R.id.txt_address);
        btnsubmit=(Button)findViewById(R.id.btn_submit);
        btnsubmit.setOnClickListener(this);
        btnsearch=(Button)findViewById(R.id.btn_search);
        btnsearch.setOnClickListener(this);

```

```

    }

```

@Override

public boolean onCreateOptionsMenu(Menu menu) {

// Inflate the menu; this adds items to the action bar if it is present.

getMenuInflater().inflate(R.menu.main, menu);
return true;

}

@Override

public void onClick(View v) {

// TODO

Auto-
generated
method stub
Toast.make
Text(this,
"buttoncli
ked",
15000).show
();

if(v.equals(btnsubmit))
{

String

sid=txtid.getText().toString();

S
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.
t
o
S
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)
;
String
saddress=txtaddress.getText().t
oString();

MyDatabase dat=new
MyDatabase(this,MyDatabase.DATABAS
E_NAME, null,1);

SQLiteDatabase
database=dat.getWritableDatabase();
ContentValues cv= new ContentValues();
cv.put("id", sid);
cv.put("name", sname);

cv.put("age",sage );
cv.put("address",
saddress);
database.insert("Employee", null,
cv); database.close();
Toast.makeText(this, "Data Inserted successfully", 15000).show();
}

else if(v.equals(btnsearch))
{
Intent it=new Intent(this,SearchActivity.class);
startActivity(it);
}

```

}

}

MyDatabase.java

```
package com.example.employeedetails;

import android.content.Context;

import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteDatabase.CursorFactory;
import android.database.sqlite.SQLiteOpenHelper;

public class MyDatabase extends SQLiteOpenHelper
{
    public static String
    DATABASE_NAME="Employee.db"; public static
    String EMPLOYEE_TABLE="employee";

    public MyDatabase(Context context, String name, CursorFactory
        factory, int version) {
        super(context, name, factory, version);
        // TODO Auto-generated constructor stub
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        // TODO Auto-generated method stub
        db.execSQL("create table employee (id TEXT,name TEXT,age TEXT,address
TEXT)");
    }

    @Override
    public void onUpgrade(SQLiteDatabase arg0, int arg1, int arg2) {
        // TODO Auto-generated method stub
    }
}
```

Searchactivity.java

```
package com.example.employeedetails;
import android.app.Activity;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

public class SearchActivity extends Activity implements OnClickListener{
    EditText txttempid;
    Button btnsearch;
    TextView
    txtdisplay;

    public void onCreate(Bundle b)
    {
        super.onCreate(b);
        setContentView(R.layout.search
        );

        txttempid=(EditText)findViewById(R.id.txt_empid);
        btnsearch=(Button)findViewById(R.id.txt_search);
        txtdisplay=(TextView)findViewById(R.id.txt_display);

        btnsearch.setOnClickListener(this);

    }

    @Override
    public void onClick(View v) {
        // TODO Auto-generated method stub
        Toast.makeText(this, "Button clicked",
        15000).show(); if(v.equals(btnsearch))
        {

            String eid=txttempid.getText().toString();

            SQLiteDatabase dat=new SQLiteDatabase(this,
            SQLiteDatabase.DATABASE_NAME, null,1);

            SQLiteDatabase
            database=dat.getReadableDatabase();
            String[]
            columns=new
            String[]
            {"id","name","age",
            "address"};
            String
            where="id=?";
```

```

String[] value= new String[] { eid.trim() };
Cursor
cu=database.query(MyDatabase.EMPLOY
EE_TABLE, columns, where,

value, null, null, null);
    txtdisplay.setText("")
    );
    if(cu.moveToNext())
    {

        String id=cu.getString(0); String
        name=cu.getString(1); String
        age=cu.getString(2); String
        address=cu.getString(3);

        txtdisplay.append(id+ " " +name+ " "+age+ " "+address+"\n");
    }

    else
    {

Toast.makeText(this, "No Id Exist", 15000).show();

    }

    }
}

```


Manifest.xml

```
<?xmlversion="1.0"encoding="utf-8"?>
<manifestxmlns:android="http://schemas.android.com/apk/res/android"
package="com.example.employeedetails"
android:versionCode="1"
android:versionName="1.0">

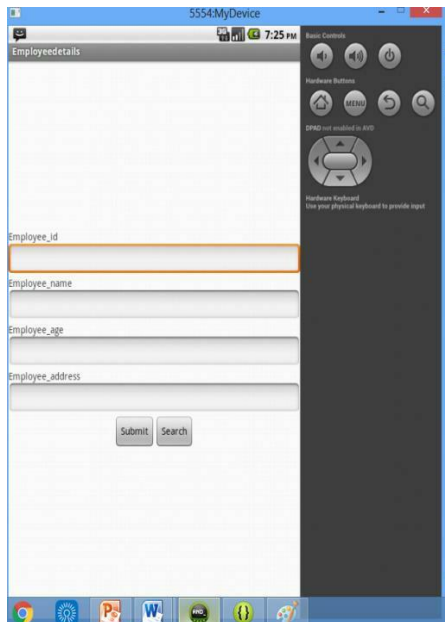
<uses-sdk
android:minSdkVersion="8"
android:targetSdkVersion="18"/>

<application
android:allowBackup="true"
android:icon="@drawable/ic_launcher"
android:label="@string/app_name"
android:theme="@style/AppTheme">
<activity
android:name="com.example.employeedetails.MainActivity"
android:label="@string/app_name">

<intent-filter>
<actionandroid:name="android.intent.action.MAIN"/>
<categoryandroid:name="android.intent.category.LAUNCHER"/>
</intent-filter>
</activity>
<activity android:name="SearchActivity"> </activity>
</application>

</manifest>
```

OUTPUT:





Program -3

Write a program to create an activity with a text box and three buttons (save, ,open and create) open must allow to browse the text file from sdcard and must display the contents of the file on textbox, save button must save the contents of text box to file, create button must allow file user to create a new file and save the entered contents of the textbox.

activity_main.xml

```
<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"
    " android:gravity="center">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        android:gravity="center">

        <Button
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Create new file"
            android:id="@+id/btn_create"
            android:layout_gravity="left"/>

        <Button
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Open"
            android:id="@+id/btn_open"
            android:layout_gravity="right"/>

    </LinearLayout>

    <TextView
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:gravity="center"
        android:text="File:"
        android:id="@+id/lbl_file" />
```

```
<EditText
    android:layout_width="match_parent"
    android:layout_height="200dp"
    android:id="@+id/txt_content"/>
```

```
<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Save"
    android:layout_gravity="center"
    android:id="@+id/btn_save"/>
```

```
</LinearLayout>
```

Dialog_layout.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" >

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Enter File Name"/>

    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/txt_filename"/>

</LinearLayout>
```

Manifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.p2"
    android:versionCode="1"
    android:versionName="1.0"
    >

    <uses-sdk
        android:minSdkVersion="8"
        android:targetSdkVersion="18"
        />

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

    <application
        android:allowBackup="true"
        android:icon="@drawable/ic_launcher"
        android:label="@string/app_name"
        android:theme="@style/AppTheme" >
        <activity
            android:name="com.example.p2.MainActivity"
            android:label="@string/app_name" >
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

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

</manifest>
```

MainActivity.java

```
package com.example.p2;

import java.io.BufferedReader;
import java.io.File;
import java.io.FileInputStream;
import java.io.FileOutputStream;
import java.io.IOException;
import java.io.InputStreamReader;
import java.io.OutputStreamWriter;

import android.os.Bundle;
import android.os.Environment;
import android.app.Activity;
import android.app.AlertDialog;
import android.content.DialogInterface;
import android.content.Intent;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends Activity implements OnClickListener {

    TextView lblFile;

    EditText txtContent;
    Button

    btnCreate, btnSave, btnOpen; int

    FILE_CHOOSE_REQUEST=1;

    String filepath;

    String

    filename;

    @Override
    protected void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        lblFile=(TextView)findViewById(R.id.lbl_file);

        txtContent=(EditText)findViewById(R.id.txt_content);
```

```

        btnCreate=(Button)findViewById(R.id.btn_create);
        btnCreate.setOnClickListener(this);

        btnSave=(Button)findViewById(R.id.btn_save);
        btnSave.setOnClickListener(this);

        btnOpen=(Button)findViewById(R.id.btn_open);
        btnOpen.setOnClickListener(this);
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.main, menu);
        return true;
    }

    public void onActivityResult(int requestCode,int resultCode, Intent data)
    {
        super.onActivityResult(requestCode, resultCode, data);

        if(resultCode==RESULT_OK)
        {
            filepath=data.getData().getPath();
            filename=filepath.substring(filepath.lastIndexOf("/")+1);
            filepath=filepath.substring(0,filepath.lastIndexOf("/"));
            readFromFile(filepath,filename);
            lblFile.setText(filepath+"/"+filename);
        }
        else
        {
            Toast.makeText(this,"Wrong Choice of File",
Toast.LENGTH_LONG).show();
        }

        public void writeToFile(String path,String filename)
        {
            try {

```



```

        FileOutputStream fileout=new
FileOutputStream(new File(path+"/"+filename));
        OutputStreamWriter outputWriter=new
OutputStreamWriter(fileout);
        outputWriter.write(txtContent.getText().toString());
        outputWriter.close();

```

```

        //display file saved message
        Toast.makeText(getBaseContext(), "File Saved
successfully!", Toast.LENGTH_SHORT).show();

```

```

    } catch (Exception e) {
        Toast.makeText(getBaseContext(),
            e.getLocalizedMessage(),
            Toast.LENGTH_SHORT).show();
    }
}

```

```

public void readFromFile(String path,String filename)
{

```

```

    try {

```

```

        FileInputStream fileIn=new
FileInputStream(path+"/"+filename);
        InputStreamReader inputReader= new
InputStreamReader(fileIn);

```

```

        BufferedReader
br=new
BufferedReader(
inputReader);
        String
data=br.readLine
e();
        while(data!=null)
        {

```

```

            txtContent.append(data)
            ; data=br.readLine();

```

```

        }

```

```

        br.close();

```

```

    } catch (Exception e) {
        Toast.makeText(getBaseContext(),e.getLocalizedMessage(),
            Toast.LENGTH_SHORT).show();
    }
}

```

```

public void onShowCreateDialog()
{

```

```

    AlertDialog.Builder builder=new AlertDialog.Builder(this);
    final View dialogView=getLayoutInflater().inflate(R.layout.dialog_layout,
    null); builder.setView(dialogView);
    builder.setPositiveButton("Ok", new

```

```
DialogInterface.OnClickListener() { @Override
```

```

        public void onClick(DialogInterface arg0, int arg1) {
            // TODO Auto-generated method
            stub EditText
txtFilename=(EditText)dialogView.findViewById(R.id.txt_filename);

            filepath=Environment.getExternalStorageDirectory().getAbsolutePath();
            filename=txtFilename.getText().toString();
            File f=new File(filepath+"/"+filename);
            try {
                f.createNewFile();
            } catch (IOException e) {
                // TODO Auto-generated catch
                block
                Toast.makeText(getBaseContext(),
                ""+e.getLocalizedMessage(),
                Toast.LENGTH_LONG).show();
            }

            lblFile.setText(filepath+"/"+filename);

        }
    });
    builder.setNegativeButton("Cancel",
    null); AlertDialog
    dialog=builder.create(); dialog.show();
}

```

```

@Override
public void onClick(View v) {
    // TODO Auto-generated method stub

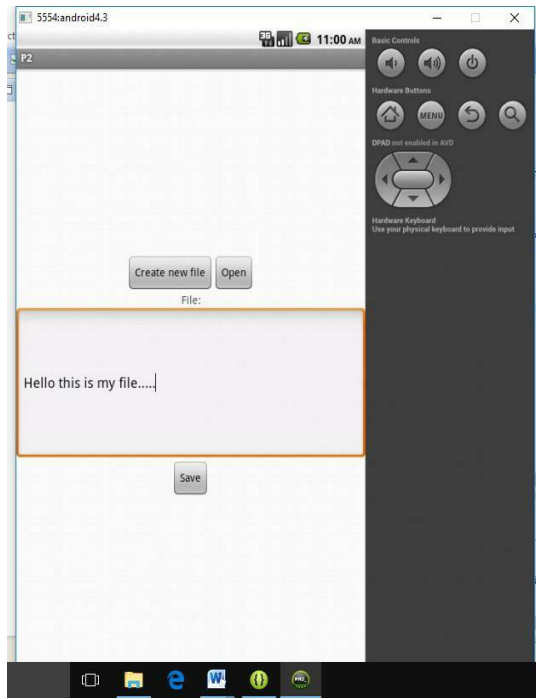
    if(v.equals(btnOpen))
    {
        Intent it=new Intent(Intent.ACTION_GET_CONTENT);
        //it.setType("*.*");
        it.setType("file/*");
        startActivityForResult(it,
        0);
    }
    else if(v.equals(btnCreate))
    {
        onShowCreateDialog();
    }
    else if(v.equals(btnSave))
    {
        writeFile(filepath, filename);
    }
}

```

}

}

OUTPUT:



Write a program to create an activity with two text boxes (date /time and note contents). Create a content provider to store the date and time and note contents to the database. Create another program with a Button (Fetch Today Notes) on press must access the note provider and display the notes stored for today's date.

activity_main.xml

Content Provider part

```
<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"
    tools:context=".MainActivity"
    android:gravity="center"
    android:orientation="vertical"
    >
```

```
<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Enter Date:" />
```

```
<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/txt_date" />
```

```
<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Enter Note Content:" />
```

```
<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/txt_Content"
    android:height="200dp" />
```

```
<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Add Note"
    android:id="@+id/btn_add_note" />
```

```
</LinearLayout>
```

Manifest.xml

```

<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.p3noteprovider"
    android:versionCode="1"
    android:versionName="1.0"
    >

    <uses-sdk
        android:minSdkVersion="8"
        android:targetSdkVersion="18"
    />

    <application
        android:allowBackup="true"
        android:icon="@drawable/ic_launcher"
        android:label="@string/app_name"
        android:theme="@style/AppTheme" >
        <activity
            android:name="com.example.p3noteprovider.MainActivity"
            android:label="@string/app_name" >
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

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

        <provider android:name="NotesProvider"
            android:authorities="com.example.notesprovider"
            android:exported="true"/>

    </application>

</manifest>

```

MainActivity.java

```
package com.example.p3noteprovider;
```

```
import android.net.Uri;
import android.os.Bundle;
import android.app.Activity;
import android.content.ContentValues;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
```

```
public class MainActivity extends Activity implements OnClickListener {
```

```
    EditText txtDate,txtContent;
```

```
    Button btnAddNote;
```

```
    @Override
```

```
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    txtDate=(EditText)findViewById(R.id.txt_date);
    txtContent=(EditText)findViewById(R.id.txt_Content);

    btnAddNote=(Button)findViewById(R.id.btn_add_note);
    btnAddNote.setOnClickListener(this);
}
```

```
    @Override
```

```
public boolean onCreateOptionsMenu(Menu menu) {
    // Inflate the menu; this adds items to the action bar if it is present.
    getMenuInflater().inflate(R.menu.main, menu);
    return true;
}
```

```
    @Override
```

```
public void onClick(View v) {
    // TODO Auto-generated method stub

    if(v.equals(btnAddNote))
    {
        String sdate=txtDate.getText().toString();
        String scontent=txtContent.getText().toString();

        ContentValues values = new ContentValues();
        values.put("note_date",sdate);
        values.put("content",scontent);
```

```
getContentResolver().insert(Uri.parse("content://com.example.notesprovider/notes"),
values);
```

```

        Toast.makeText(getApplicationContext(),"Data
        Inserted
        Successfully",
        Toast.LENGTH_LONG).show();
    }

}

```

NotesProvider.java

```

package com.example.p3noteprovider;

import
android.content.ContentProvider;
import android.content.ContentValues;
import android.content.Context;
import
android.content.UriMatcher;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import
android.database.sqlite.SQLiteQueryBuilder;
import android.net.Uri;

public class NotesProvider extends ContentProvider
{
    static final String URL =
    "content://com.example.notesprovider/notes"; SQLiteDatabase db;
    ProviderDatabase dbHelper;

    static final UriMatcher
    uriMatcher; static{
        uriMatcher = new UriMatcher(UriMatcher.NO_MATCH);
        uriMatcher.addURI("com.example.notesprovider", "notes",1);
    }

    @Override
    public int delete(Uri arg0, String arg1, String[] arg2) {
        // TODO Auto-generated method
        stub return 0;
    }

    @Override
    public String getType(Uri arg0) {
        // TODO Auto-generated method
        stub return null;
    }

    @Override
    public Uri insert(Uri arg0, ContentValues cv) {
        // TODO Auto-generated method

```



```

        stub db =
            dbHelper.getWritableDatabase();
            db.insert(ProviderDatabase.TABLE_NAME,null,cv
            ); db.close();
        return null;
    }

    @Override
    public boolean onCreate() {
        // TODO Auto-generated method stub

        dbHelper=new
        ProviderDatabase(getContext(),ProviderDatabase.DATABASE_NAME+".db",null,1);
        return (db == null)? false:true;

    }

    @Override
    public Cursor query(Uri uri, String[] arg1, String arg2, String[]
        arg3, String arg4) {
        // TODO Auto-generated method

        stub Cursor cursor=null;

        db = dbHelper.getReadableDatabase();
        cursor=db.query(ProviderDatabase.TABLE_NAME,a
            rg1,arg2,arg3,arg4,null,null);
        return cursor;

    }

    @Override
    public int update(Uri arg0, ContentValues arg1, String arg2, String[] arg3) {
        // TODO Auto-generated method stub
        return 0;
    }
}

```

ProviderDatabase.java

```

package com.example.p3noteprovider;
import android.content.Context;

```

```

import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteDatabase.CursorFactory;
import android.database.sqlite.SQLiteOpenHelper;

    public class ProviderDatabase extends SQLiteOpenHelper
    {
public static String DATABASE_NAME="noteprovider";
public static String TABLE_NAME="notes";
public static String COLUMN_DATE="note_date";
public static String COLUMN_NOTE="content";

        public ProviderDatabase(Context context, String
                                name, CursorFactory factory, int
                                version) {
            super(context, name, factory, version);

            // TODO Auto-generated constructor stub
        }

        @Override
        public void onCreate(SQLiteDatabase db) {
            // TODO Auto-generated method stub

            db.execSQL("create table notes (note_date TEXT,content TEXT)");

        }

        @Override
        public void onUpgrade(SQLiteDatabase db, int arg1, int arg2) {
            // TODO Auto-generated method stub

        }
    }

```

Content Resolver part

activity_main.xml

```
<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"
tools:context=".MainActivity"
android:orientation="vertical"
" android:gravity="center">

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Enter Date to Search"/>

    <EditText android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/txt_search"/>

    <Button
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/btn_search"
        android:text="Search"/>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        " android:text="Data To Show"
        android:id="@+id/lbl_message"/>

</LinearLayout>

```

Manifest.xml

```

<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.p3providerclient"
    android:versionCode="1"
    android:versionName="1.0"

```

```

>
<uses-sdk
    android:minSdkVersion="8"
    android:targetSdkVersion="18"
/>

<application
    android:allowBackup="true"
    android:icon="@drawable/ic_launcher"
    android:label="@string/app_name"
    android:theme="@style/AppTheme" >
    <activity
        android:name="com.example.p3providerclient.MainActivity"
        android:label="@string/app_name" >
        <intent-filter>
            <action android:name="android.intent.action.MAIN" />

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

</manifest>

```

MainActivity.java

```

package com.example.p3providerclient;
import android.net.Uri;
import android.os.Bundle;
import android.app.Activity;
import android.content.ContentValues;

```

```

import android.database.Cursor;
import android.view.Menu;
import android.view.View;
import
android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends Activity implements OnClickListener {
    EditText txtSearch;
    Button btnSearch;
    TextView lblMessage;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        txtSearch=(EditText)findViewById(R.id.txt_search);
        lblMessage=(TextView)findViewById(R.id.lbl_message);

        btnSearch=(Button)findViewById(R.id.btn_search);
        btnSearch.setOnClickListener(this);
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.main, menu);
        return true;
    }

    @Override
    public void onClick(View v) {
        // TODO Auto-generated method stub

        if(v.equals(btnSearch))
        {
            String
            searchDate=txtSearch.getText().toString(); String
            where="note_date=?";

            Cursor cursor

```

```
=getContentResolver().query(Uri.parse("content://com.example.notesprovider/notes"),
new String[]{"note_date","content"},where, new String[]{searchDate},null);
```

```
if(cursor!=null&&cursor.moveToNext())
{
```

```
String ndate=cursor.getString(0);
String content=cursor.getString(1);
```

```
lblMessage.setText(ndate+" "+content+"\n");
```

```
}
else
{
```

```
Toast.makeText(getBaseContext(),"No
```

**Data
Available",**

```
Toast.LENGTH_LONG).show();
```

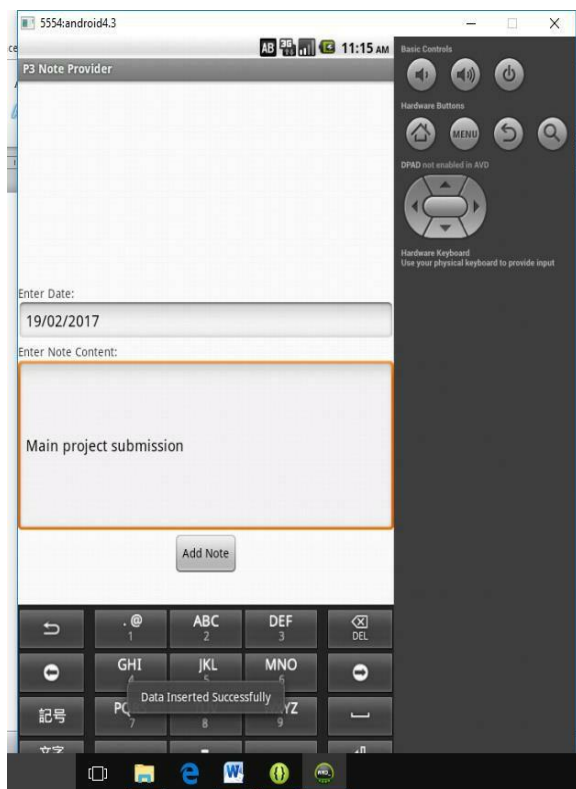
```
}
```

```
}
```

```
}
```

```
}
```

OUTPUT



Program -5

Create a program to create an activity with two buttons start and stop. On pressing start button the program must start the counter and must keep on counting until stop button is pressed.

activity_main.xml

```
<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"
    " android:gravity="center">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Counter"
        android:layout_gravity="center"
        android:id="@+id/lbl_counter"/>

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="start"
        android:layout_gravity="center"
        android:id="@+id/btn_start"/>

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="stop"
        android:layout_gravity="center"
        android:id="@+id/btn_stop"/>

</LinearLayout>
```

MainActivity.java

```
package com.example.p4;

import android.os.Bundle;
import android.os.Handler;
import android.os.Message;
import android.app.Activity;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;

import android.widget.Button;
import android.widget.TextView;
public class MainActivity extends Activity implements OnClickListener,
    Runnable{ int i=0;
    TextView lblcounter;
    Button btnstart,btnstop;
    Thread thread;
    boolean running=false;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        btnstart=(Button)findViewById(R.id.btn_start);
        btnstop=(Button)findViewById(R.id.btn_stop);
        btnstart.setOnClickListener(this);
        btnstop.setOnClickListener(this);

        lblcounter=(TextView)findViewById(R.id.lbl_counter);

    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.main, menu);
        return true;
    }

    @Override
    public void onClick(View v) {
        // TODO Auto-generated method
        stub if(v.equals(btnstart))
```



```

        {
            running=true;
            thread=new
            Thread(this);
            thread.start();
        }

        else if(v.equals(btnstop))
        {
            //thread.interrupt();
            running=false;
        }

    }

    Handler hand=new Handler()
    {
        public void handleMessage(Message m)
        {
            lblcounter.setText(""+m.what);
        }
    };

    @Override
    public void run() {
        // TODO Auto-generated method stub
        //int i=0;

        while(i<100 && running)

        {
            try {
                Thread.sleep(1000);
            } catch (InterruptedException e) {
                // TODO Auto-generated catch
                block e.printStackTrace();
            }
            hand.sendMessage(i)
            ; i++;
            // lblcounter.setText(""+i);

        }

    }

}

```

Manifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.p4"
    android:versionCode="1"
    android:versionName="1.0"
    >

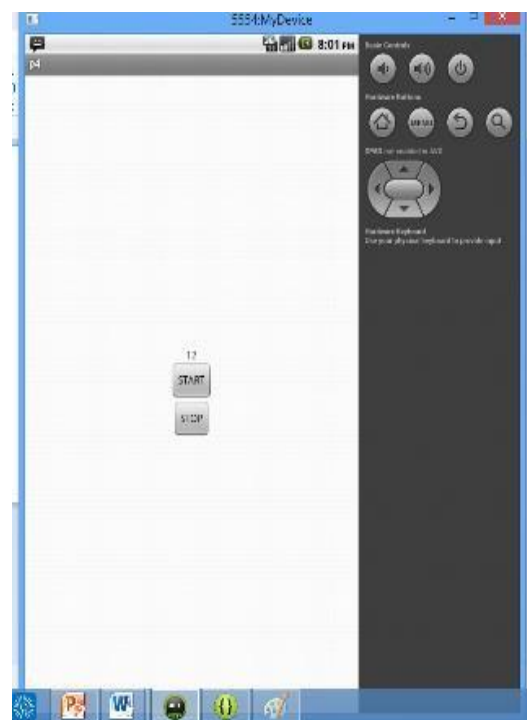
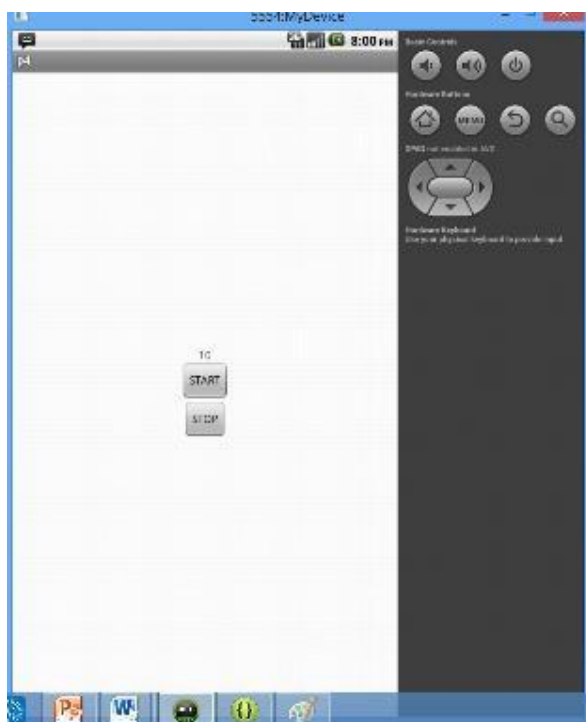
    <uses-sdk
        android:minSdkVersion="8"
        android:targetSdkVersion="18"
    />

    <application
        android:allowBackup="true"
        android:icon="@drawable/ic_launcher"
        android:label="@string/app_name"
        android:theme="@style/AppTheme">
        <activity
            android:name="com.example.p4.MainActivity"
            android:label="@string/app_name">
            <intent-filter>
            <action android:name="android.intent.action.MAIN" />

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

    </manifest>
```

OUTPUT:



Program -6

Create a program to receive the incoming SMS to the phone and put a notification on screen, on clicking the notification it must display sender number and message content on screen.

activity_main.xml

```
<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"
    android:gravity="center">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Sender Number"
        android:paddingBottom="50px"
        android:id="@+id/lbl_number"/>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Message content"
        android:id="@+id/lbl_message"/>

</LinearLayout>
```

MainActivity.java

```
package com.example.p5; import
android.os.Bundle; import
android.app.Activity; import
android.view.Menu; import
android.widget.TextView;

public class MainActivity extends
    Activity { TextView
        lblnumber, lblmessage;

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

```

lblnumber=(TextView)findViewById(R.id.lbl_number);
lblmessage=(TextView)findViewById(R.id.lbl_message);
Bundle b= getIntent().getBundleExtra("data");

```

```

    if(b!=null)
    {
String number=b.getString("number");
String content=b.getString("content");

```

```

        lblnumber.setText(number)
        ;
        lblmessage.setText(content);
    }
}

```

@Override

```

public boolean onCreateOptionsMenu(Menu menu) {
    // Inflate the menu; this adds items to the action bar if it is present.
    getMenuInflater().inflate(R.menu.main, menu);
    return true;
}
}

```

MySmsReceiver.java

```

package com.example.p5;
import
android.content.BroadcastReceiver;
import android.content.Context;
import
android.content.Intent;
import android.os.Bundle;
import android.telephony.SmsMessage;

```

```

public class MySmsReceiver extends BroadcastReceiver{
    @Override
    public void onReceive(Context arg0, Intent arg1) {
        // TODO Auto-generated method stub
        Object[]
        objmessages=(Object[])arg1.getExtras().get("pdus");
        for(int i=0; i<objmessages.length;i++)
        {
            SmsMessage
            m=SmsMessage.createFromPdu((byte[])objmessages[i]); Bundle
            b1=new Bundle();
            b1.putString("number",
            m.getOriginatingAddress());
            b1.putString("content", m.getMessageBody());
            Intent it=new Intent(arg0, MainActivity.class);
            it.putExtra("data", b1);

```

```

        it.setFlags(Intent.FLAG_ACTIVITY_NEW_
TASK); arg0.startActivity(it);
        break;
    }
}
}

```

AndroidManifest.xml

```

<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.p5"
    android:versionCode="1"
    android:versionName="1.0"
    >

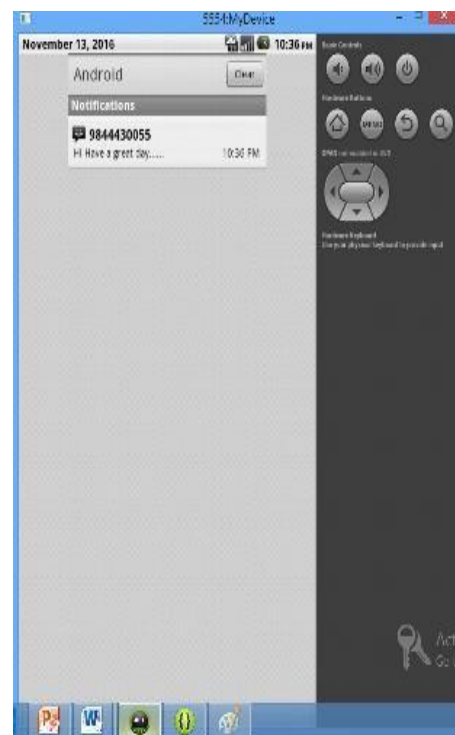
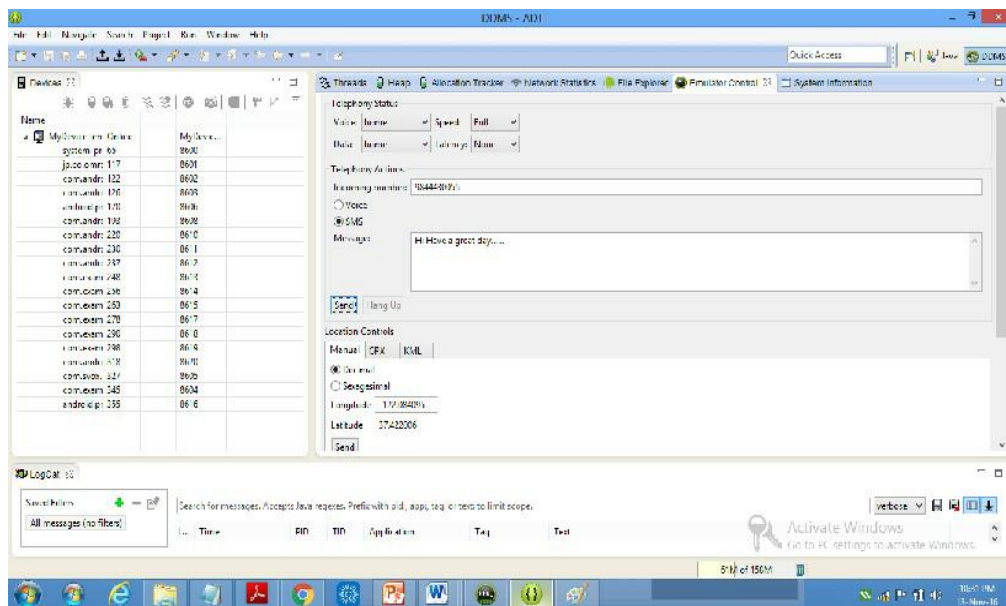
    <uses-sdk
        android:minSdkVersion="8"
        android:targetSdkVersion="18"
        />

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

    <application
        android:allowBackup="true"
        android:icon="@drawable/ic_launcher"
        android:label="@string/app_name"
        android:theme="@style/AppTheme" >
        <activity
            android:name="com.example.p5.MainActivity"
            " android:label="@string/app_name" >
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
        <receiver android:name="com.example.p5.MySmsReceiver">
            <intent-filter>
                <action android:name="android.provider.Telephony.SMS_RECEIVED"/>
            </intent-filter>
        </receiver>
    </application>
</manifest>

```

OUTPUT:



Program -7

Create a program to create a service that will put a notification on the screen every 5 seconds.

activity_main.xml

```
<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"
        android:gravity="center" >

<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Start Notification"
    android:layout_gravity="center"
    android:id="@+id/btn_start"/>

<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Stop Notification"
    android:layout_gravity="center"
    android:id="@+id/btn_stop"/>
</LinearLayout>
```

MainActivity.java

```
package com.example.p6;
import android.os.Bundle;
import android.app.Activity;
import
    android.content.Intent;
import android.view.Menu;
import android.view.View;
import
    android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.Toast;

public class MainActivity extends Activity implements OnClickListener{
    Button btnstart,btnstop;
    @Override
    protected void onCreate(Bundle savedInstanceState)
    { super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      btnstart=(Button)findViewById(R.id.btn_start);
      btnstart.setOnClickListener(this);
```



```

        btnstop=(Button)findViewById(R.id.btn_stop);
        btnstop.setOnClickListener(this);
    }
    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.main, menu);
        return true;
    }
    @Override
    public void onClick(View v) {
        // TODO Auto-generated method stub

        if(v.equals(btnstart))
        {
            Intent it=new
            Intent(this,ServiceClass.class); Bundle
            b=new Bundle(); b.putBoolean("stop",
            true); it.putExtra("data", b);
            startService(it);
        }

        else
        {

            Intent it=new Intent(this,ServiceClass.class);
            stopService(it);

        }
    }
}

```

ServiceClass.Java

```
package com.example.p6;
```

```
import android.app.NotificationChannel;
import android.app.NotificationManager;
import android.app.Service;
import android.content.Intent;
import android.graphics.Color;
import android.os.Bundle;
import android.os.Handler;
import android.os.IBinder;
import android.os.Message;
import android.widget.Toast;

import androidx.core.app.NotificationCompat;

public class ServiceClass extends Service{

    boolean running=false;
    MyThread thread;

    public static final String NOTIFICATION_CHANNEL_ID = "10001" ;
    public static final int NOTIFICATION_ID = 1 ;
    private final static String default_notification_channel_id = "default" ;

    public void onCreate()
    {
        super.onCreate();
        Toast.makeText(getApplicationContext(), "Service Created",
Toast.LENGTH_LONG).show();
        running=true; thread=new MyThread(); thread.start();
    }

    public int onStartCommand(Intent intent, int flags,int startId)
    {
        super.onStartCommand(intent, flags, startId);
        Toast.makeText(getApplicationContext(), "Service started",
Toast.LENGTH_LONG).show();
        Bundle b=intent.getBundleExtra("data"); running=b.getBoolean("stop");

        if(!thread.isAlive())
        {
            thread=new MyThread(); thread.start();
        }

        return Service.START_NOT_STICKY;
    }

    @Override
    public IBinder onBind(Intent arg0) {

return null;

    }
}
```

```

public void onDestroy()
{
    running=false;
    Toast.makeText(getApplicationContext(), "Service stopped",
Toast.LENGTH_LONG).show();
    super.onDestroy();
}

Handler hand=new Handler()
{
    public void handleMessage(Message m)
    {
        NotificationManager
manager=(NotificationManager) getSystemService(NOTIFICATION_SERVICE);

        NotificationCompat.Builder mBuilder = new
NotificationCompat.Builder(getApplicationContext(),
        default_notification_channel_id )
        .setSmallIcon(R.drawable.ic_launcher_foreground )
        .setContentTitle( "From Service" )
        .setContentText( "Hai " +m.what );

        if (android.os.Build.VERSION.SDK_INT >=
android.os.Build.VERSION_CODES.O ) {

            int importance = NotificationManager.IMPORTANCE_HIGH ;
            NotificationChannel notificationChannel = new
                NotificationChannel( NOTIFICATION_CHANNEL_ID ,
"NOTIFICATION_CHANNEL_NAME" , importance) ;
            notificationChannel.enableLights( true ) ;
            notificationChannel.setLightColor(Color.RED ) ;
            notificationChannel.enableVibration( true ) ;
            notificationChannel.setVibrationPattern( new long []{ 100 , 200 ,
300 , 400 , 500 , 400 , 300 , 200 , 400 }) ;
            mBuilder.setChannelId( NOTIFICATION_CHANNEL_ID ) ;
            assert manager != null;
            manager.createNotificationChannel(notificationChannel) ;
        }
        assert manager != null;
        manager.notify(NOTIFICATION_ID, mBuilder.build()) ;

    }

};
class MyThread extends Thread
{
    public void run()
    {
        int i=0; while(running)
        {

            try {
                Thread.sleep(5000);
            } catch (InterruptedException e) {
// TODO Auto-generated catch block e.printStackTrace();
            }

            hand.sendMessage(i++);
        }
    }
}

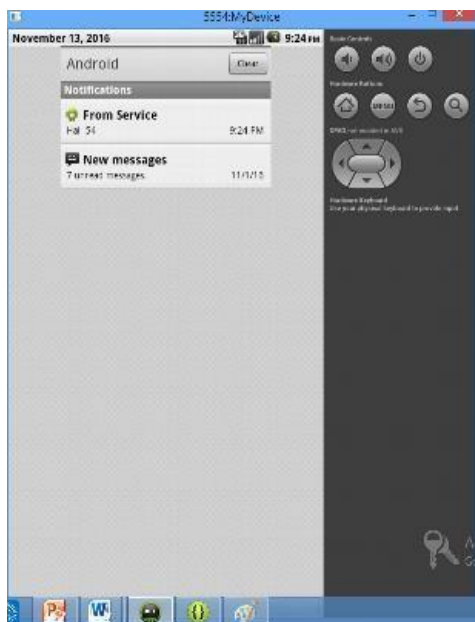
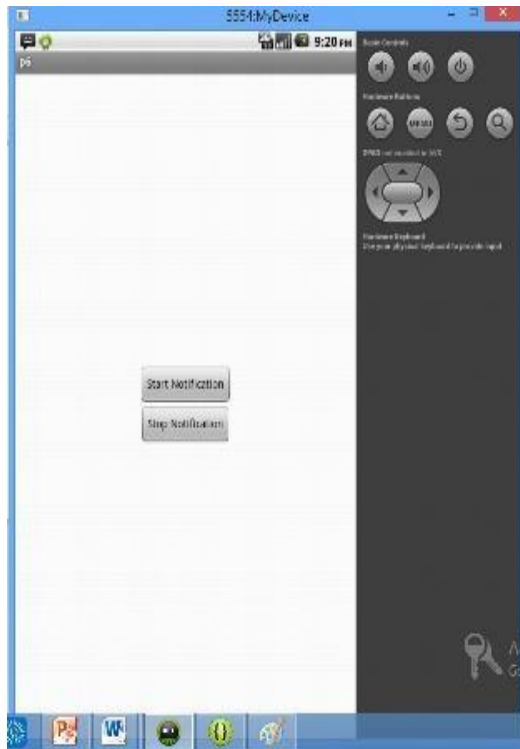
```

```
}  
}
```

AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>  
<manifest xmlns:android="http://schemas.android.com/apk/res/android"  
    package="com.example.p6"  
    android:versionCode="1"  
    android:versionName="1.0" >  
    <uses-sdk  
        android:minSdkVersion="8"  
        android:targetSdkVersion="18" />  
    <application  
        android:allowBackup="true"  
        android:icon="@drawable/ic_launcher"  
        android:label="@string/app_name"  
        android:theme="@style/AppTheme" >  
        <activity  
            android:name="com.example.p6.MainActivity"  
            android:label="@string/app_name" >  
            <intent-filter>  
                <action android:name="android.intent.action.MAIN" />  
                <category android:name="android.intent.category.LAUNCHER" />  
            </intent-filter>  
        </activity>  
        <service android:name="ServiceClass"></service>  
    </application>  
</manifest>
```

OUTPUT:



Program -8

Create an .aidl service to do add, subtraction and multiplication and create another application with two buttons to read the inputs and three button add,subtract and multiply to call add,subtract and multiply operation on .aidl service.

activity_main.xml

Part-1 (has an empty layout)

Activity_main.xml

-NA-

Manifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.p7"
    android:versionCode="1"
    android:versionName="1.0" >

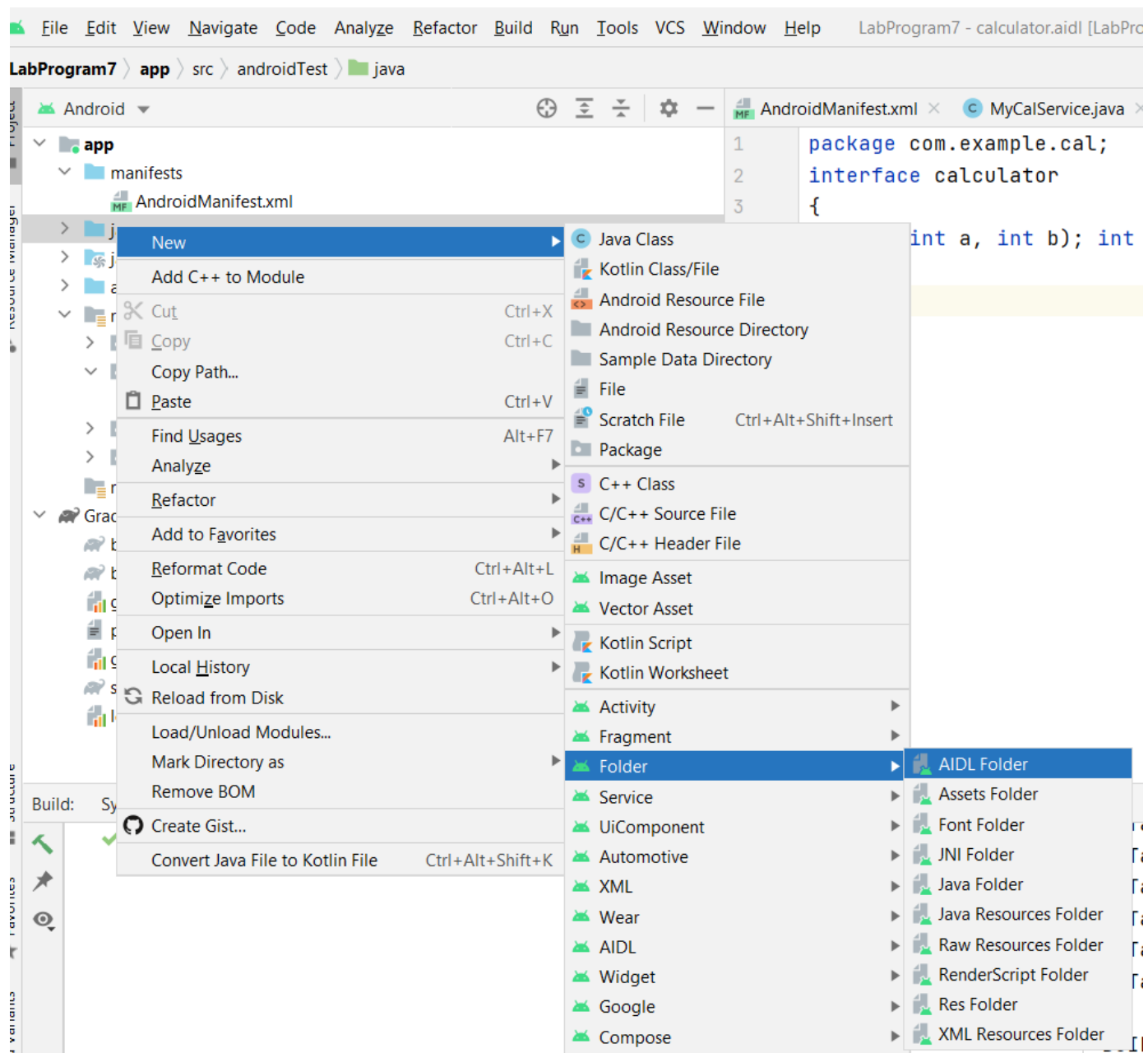
    <uses-sdk android:minSdkVersion="8"
        android:targetSdkVersion="18" />
    <application
        android:allowBackup="true"
        android:icon="@drawable/ic_launcher"
        android:label="@string/app_name"
        android:theme="@style/AppTheme" >
        <activity
            android:name="com.example.p7.MainActivity"
            android:label="@string/app_name" >
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
        <service
            android:name="MyCalService">
            <intent-filter>
                <action android:name="com.simple.cal"/>
            </intent-filter>
        </service>

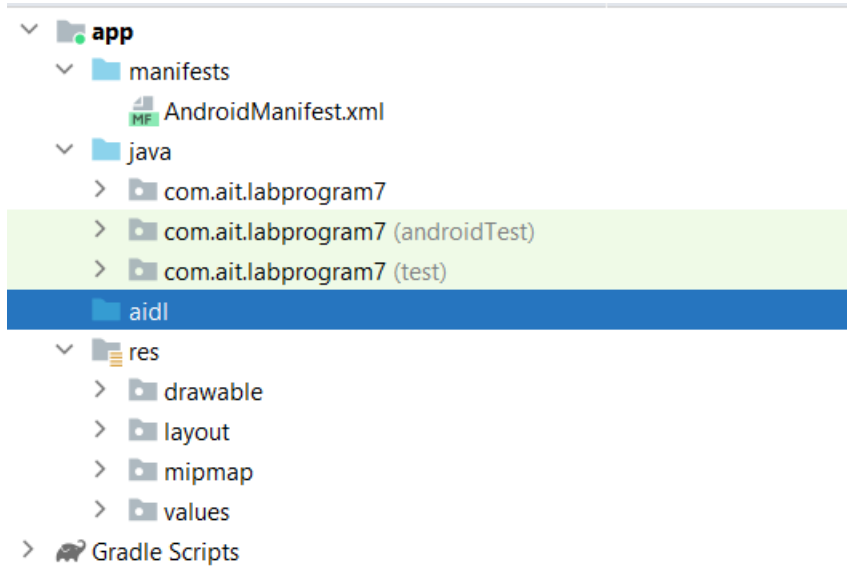
    </application>

</manifest>
```

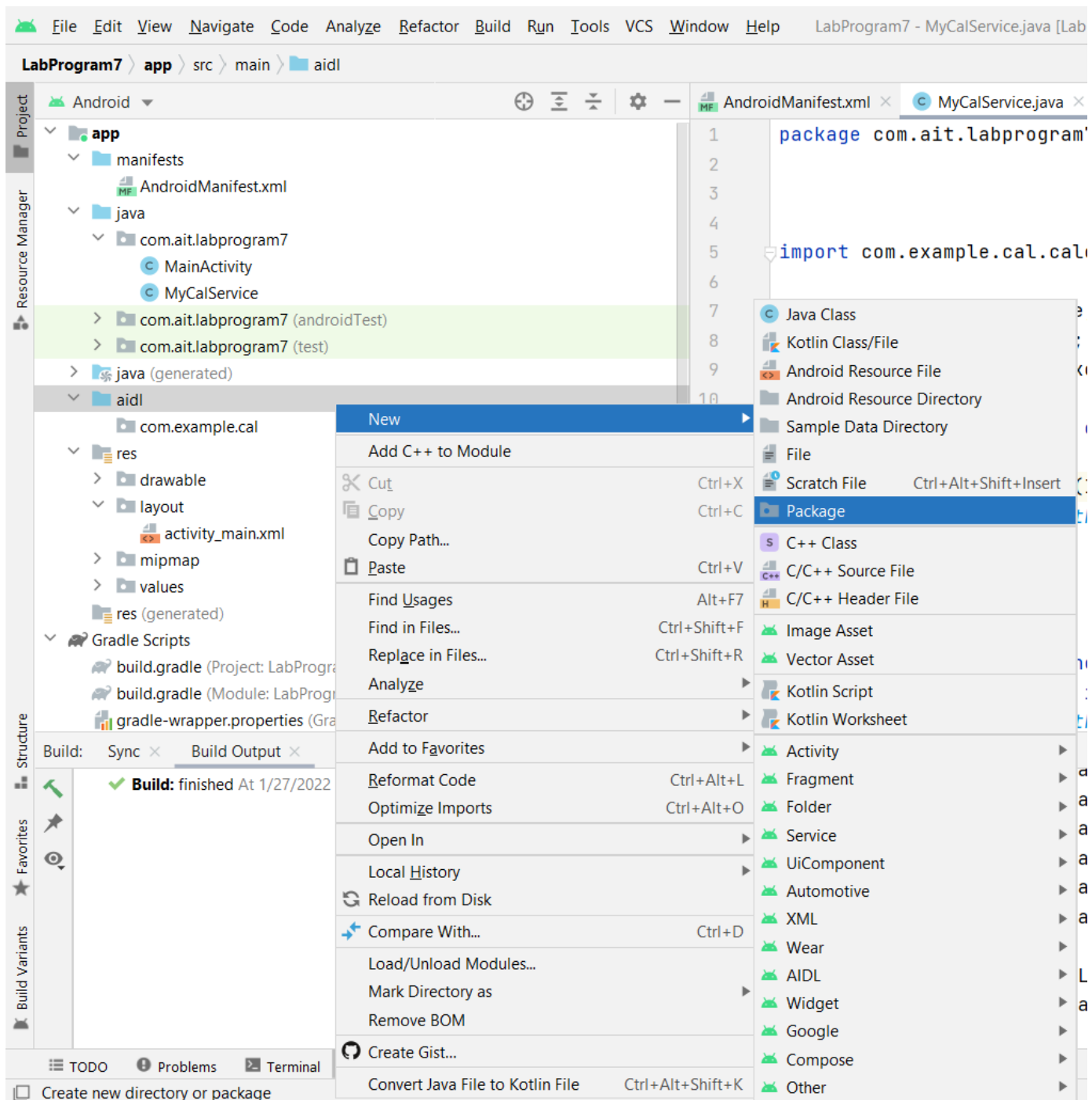
calculator.aidl

Right Click on Java Folder and Create a New AIDL Folder



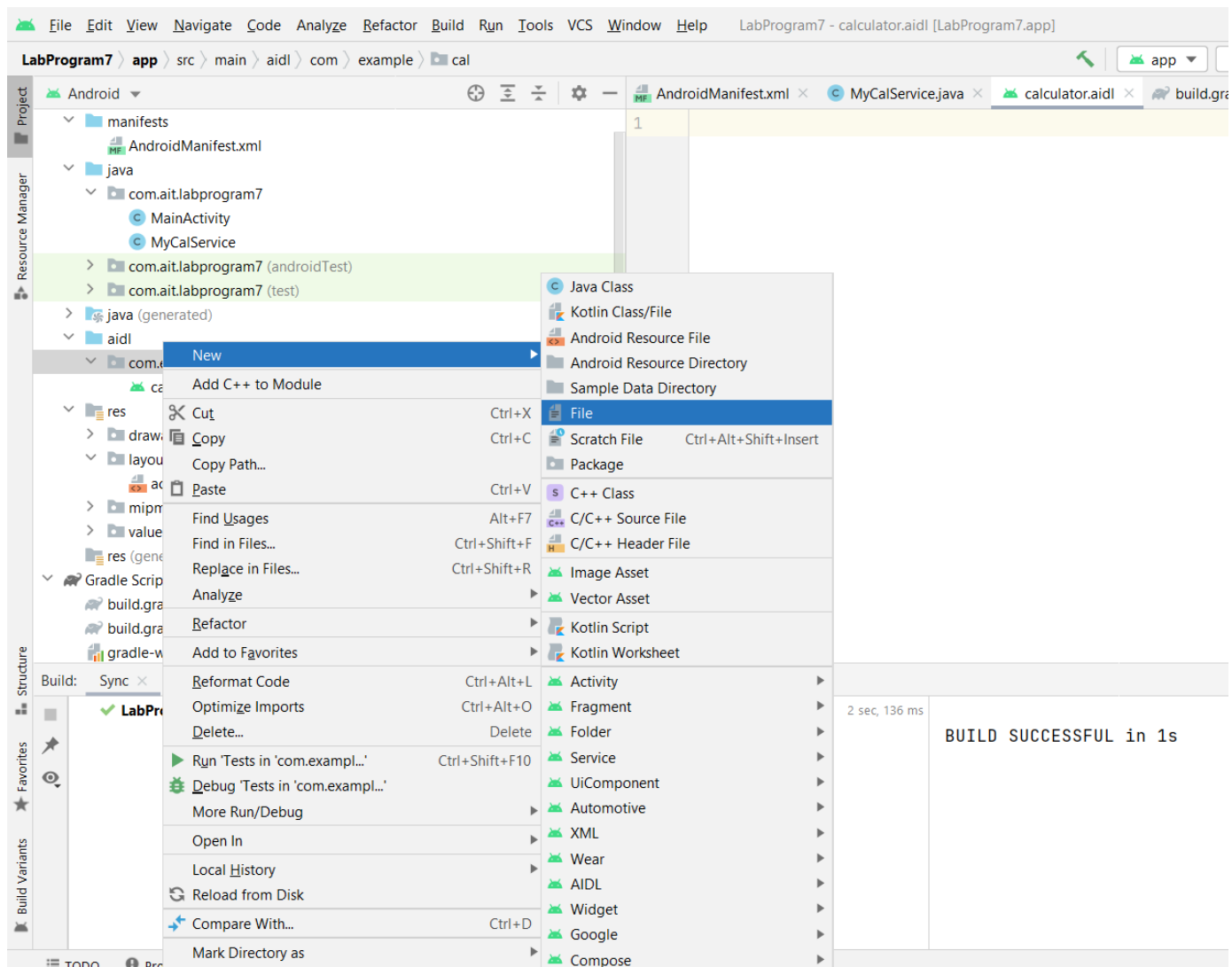


**Right Click on aidl folder and Create a New Package com.example.cal
under aidl folder**



Create a New file calculator.aidl under the package com.example.cal

package



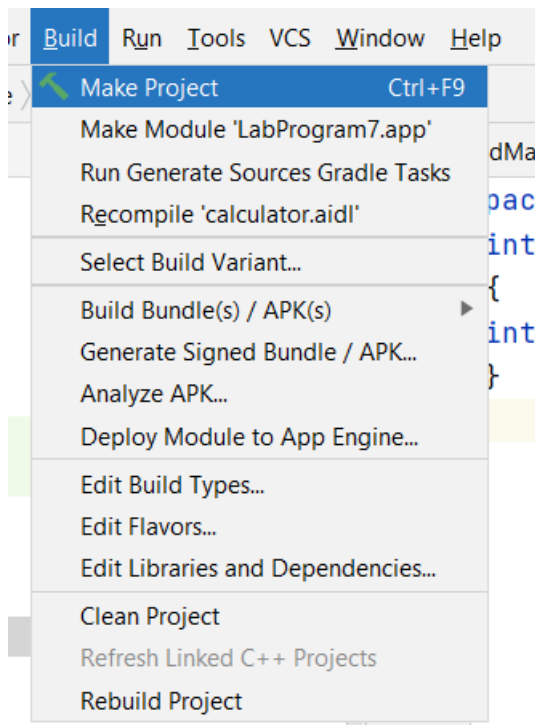
Add Below Code in the Aidl folder

package com.example.cal;

interface calculator

```
{  
int add(int a, int b);  
int sub(int a, int b);  
int mul(int a, int b);  
}
```

After the above step Build Project by calling Make



MainActivity.java -- No changes

MyCalService.java

```
package com.example.p7;
```

```
import com.example.cal.calculator;
```

```
import android.app.Service;
```

```
import android.content.Intent;
```

```
import android.os.IBinder;
```

```
import android.os.RemoteException;
```

```
public class MyCalService extends
```

```
Service{
```

```
    @Override
```

```
    public IBinder onBind(Intent arg0) {
```

```
        // TODO Auto-generated method
```

```
        stub return stub;
```

```
    }
```

```
    calculator.Stub stub=new
```

```
        calculator.Stub() { @Override
```

```
        public int sub(int a, int b) throws RemoteException {
```

```
            // TODO Auto-generated method
```

```
            stub return a-b;
```

```
        }
```

```

        @Override
        public int mul(int a, int b) throws RemoteException {
            // TODO Auto-generated method
            stub return a*b;
        }

        @Override
        public int add(int a, int b) throws RemoteException {
            // TODO Auto-generated method
            stub return a+b;
        }
    };
}

```

Part-2

Activity_main.xml

```

<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"
    android:gravity="center" >

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Enter first number" />

    <EditText android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/txt_first"/>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Enter second number" />

    <EditText android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/txt_second"/>

    <TextView
        android:layout_width="wrap_content"
        "
        android:layout_height="wrap_content"
        " android:text="result"

```

```
android:id="@+id/txt_result"/>
```

```
<LinearLayout  
android:layout_width="match_parent"  
android:layout_height="match_parent"  
android:orientation="horizontal"  
android:gravity="center">
```

```
<Button android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:text="add"  
android:layout_gravity="center"  
android:id="@+id/btn_add"/>
```

```
<Button android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:text="sub"  
android:layout_gravity="center"  
android:id="@+id/btn_sub"/>
```

```
<Button android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:text="mul"  
android:layout_gravity="center"  
android:id="@+id/btn_mul"/>
```

```
</LinearLayout>
```

```
</LinearLayout>
```

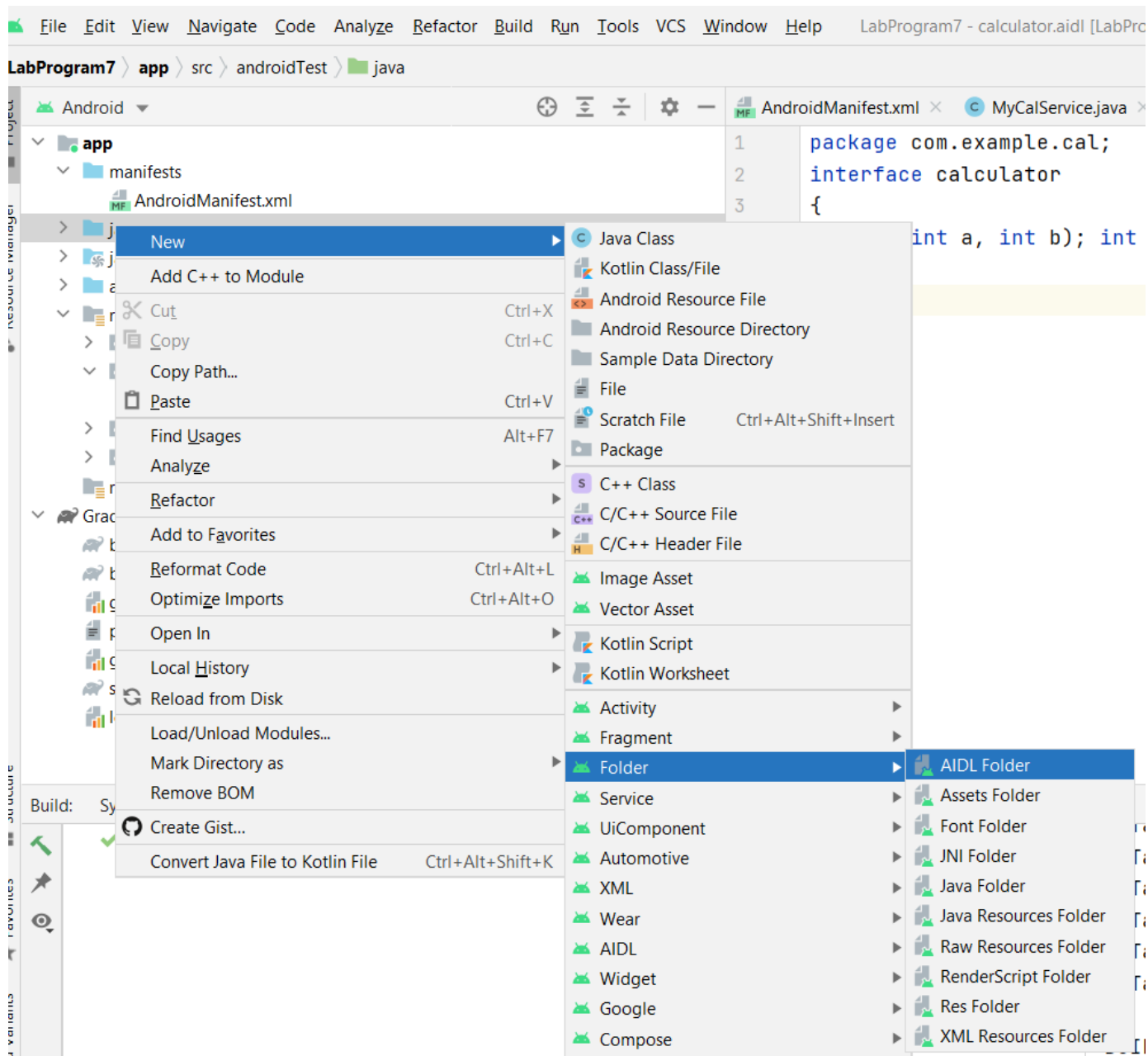
Manifest.xml

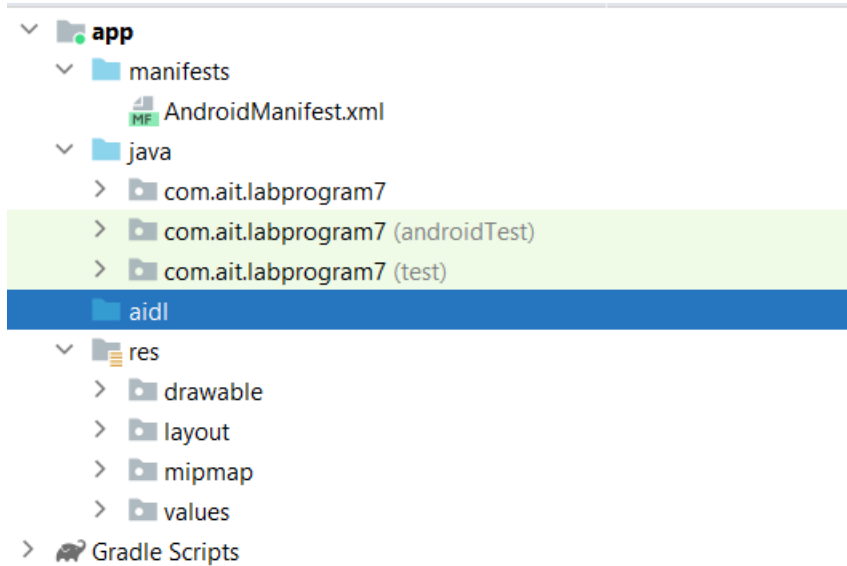
```
<?xml version="1.0" encoding="utf-8"?>  
<manifest xmlns:android="http://schemas.android.com/apk/res/android"  
package="com.example.p7_1"  
android:versionCode="1"  
android:versionName="1.0" >  
<uses-sdk android:minSdkVersion="8"  
android:targetSdkVersion="18" />  
  <application  
    android:allowBackup="true"  
    android:icon="@drawable/ic_launcher"  
    android:label="@string/app_name"  
    android:theme="@style/AppTheme" >  
    <activity  
      android:name="com.example.p7_1.MainActivity"  
      android:label="@string/app_name" >  
      <intent-filter>  
        <action android:name="android.intent.action.MAIN" />  
  
        <category android:name="android.intent.category.LAUNCHER" />  
      </intent-filter>
```

```
</activity>
</application>
</manifest>
```

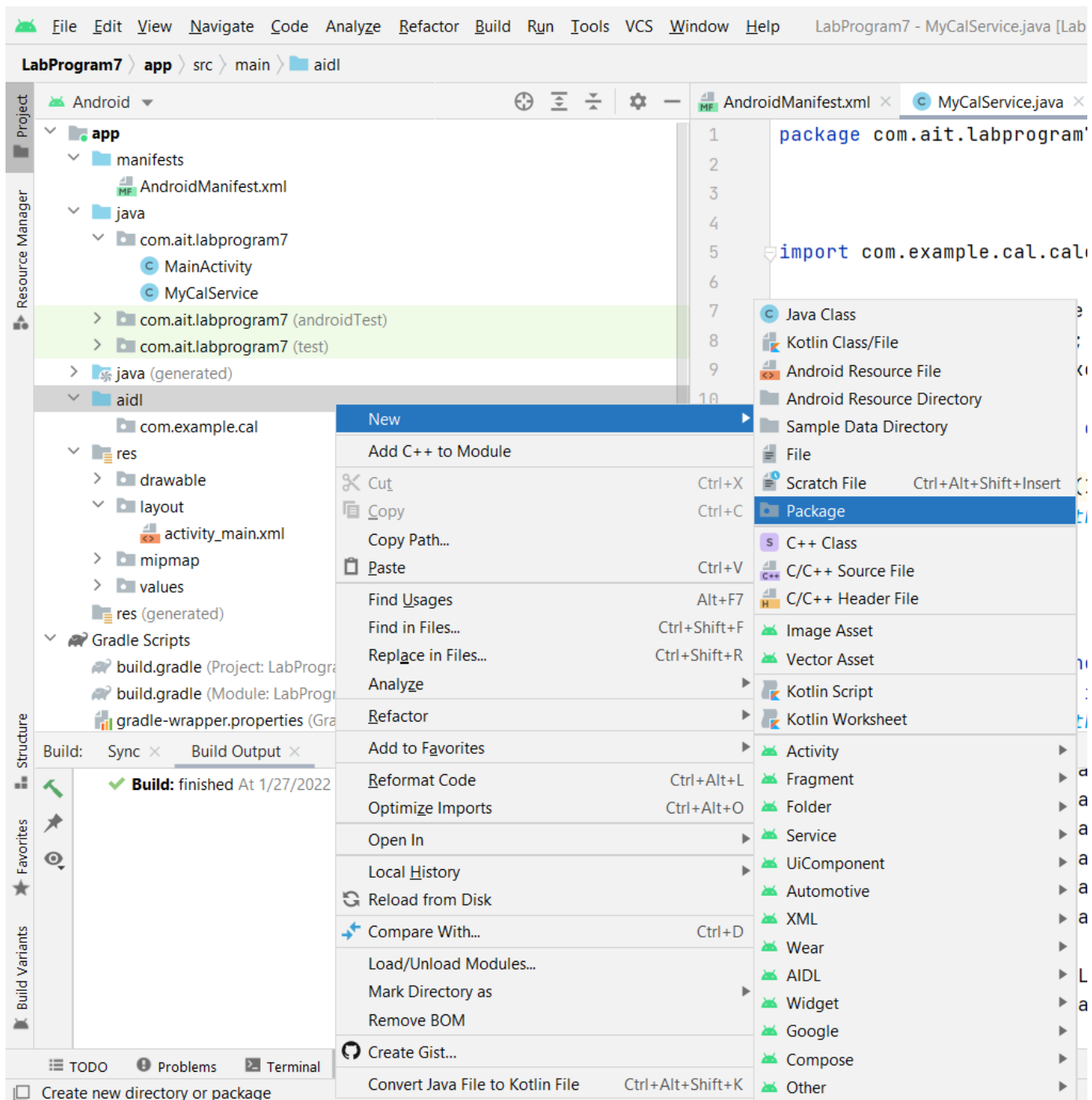
calculator.aidl

Right Click on Java Folder and Create a New AIDL Folder



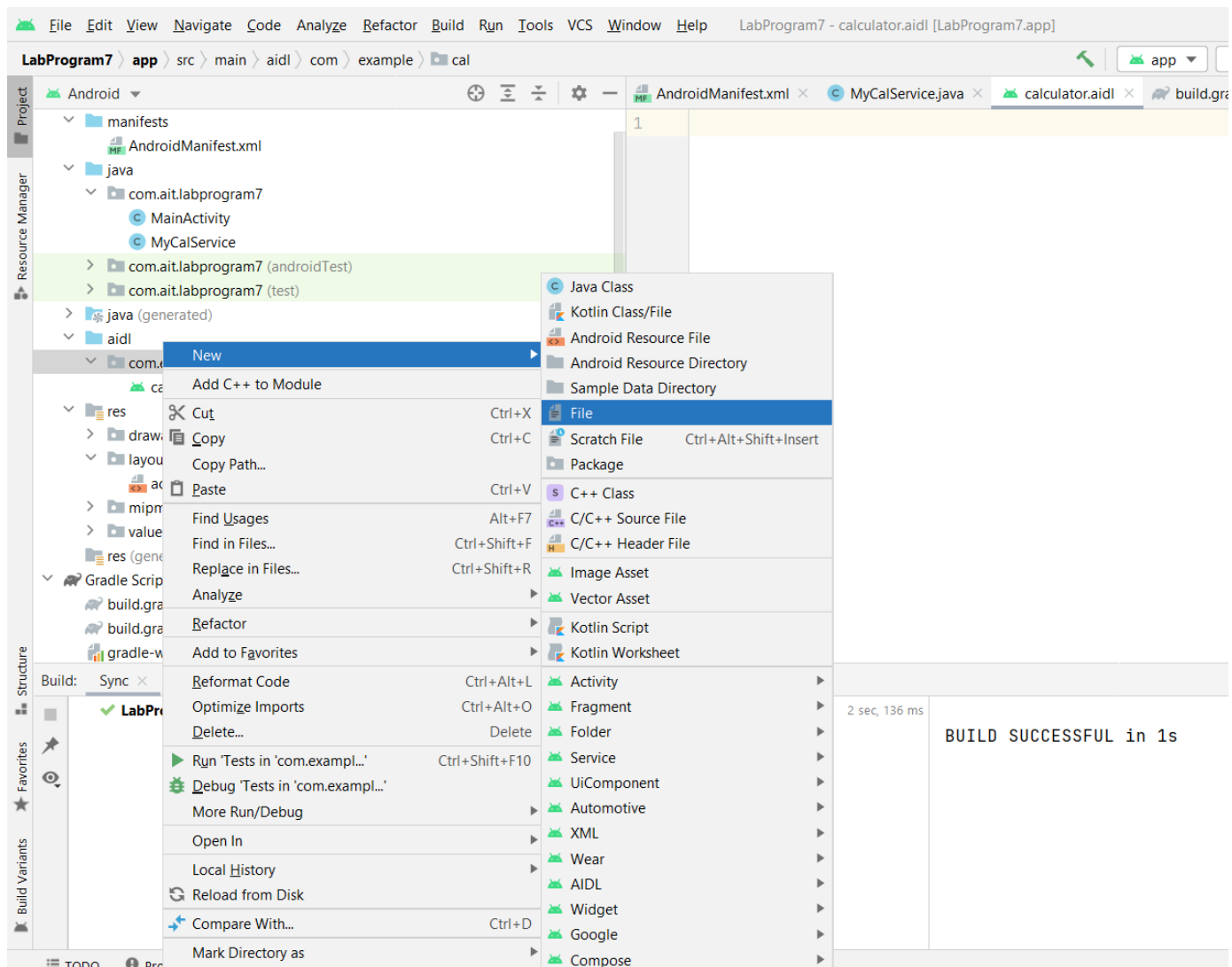


**Right Click on aidl folder and Create a New Package com.example.cal
under aidl folder**



Create a New file calculator.aidl under the package com.example.cal

package

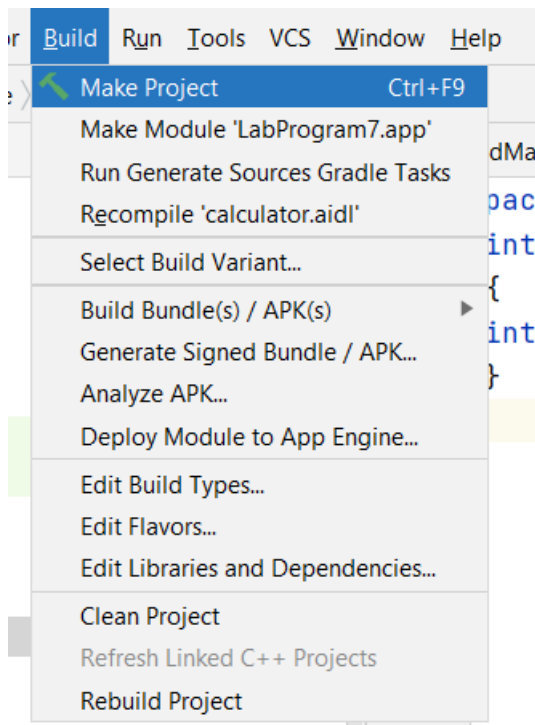


Add Below Code in the Aidl folder

```
package com.example.cal;
```

```
interface calculator
{
    int add(int a, int b);
    int sub(int a, int b);
    int mul(int a, int b);
}
```

After the above step Build Project by calling Make



MainActivity.java

```
package com.example.p7_1;

import com.example.cal.calculator;

import android.os.Bundle;
import android.os.IBinder;
import android.os.RemoteException;
import android.app.Activity;
import android.content.ComponentName;
import android.content.Intent;
import android.content.ServiceConnection;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends Activity implements OnClickListener,
    ServiceConnection{ EditText txtfirst, txtsecond;
    Button
    btnadd,btnsub,btnmul;
    TextView txtresult;

    calculator cal;
```

```

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

    txtfirst=(EditText)findViewById(R.id.txt_first);
    txtsecond=(EditText)findViewById(R.id.txt_second);
    txtresult=(TextView)findViewById(R.id.txt_result);
    btnadd=(Button)findViewById(R.id.btn_add);
    btnadd.setOnClickListener(this);
    btnsub=(Button)findViewById(R.id.btn_sub);
    btnsub.setOnClickListener(this);
    btnmul=(Button)findViewById(R.id.btn_mul);
    btnmul.setOnClickListener(this);
    Intent intent=new Intent("com.simple.cal");
    intent.setPackage("com.example.p7");
    bindService(intent, this, BIND_AUTO_CREATE);

}

@Override
public boolean onCreateOptionsMenu(Menu menu) {
    // Inflate the menu; this adds items to the action bar if it is present.
    getMenuInflater().inflate(R.menu.main, menu);
    return true;
}

@Override
public void onClick(View v) {
    // TODO Auto-generated method stub

    String s1=txtfirst.getText().toString();
    String
    s2=txtsecond.getText().toString();

    int
    a=Integer.parseInt(s1);
    int
    b=Integer.parseInt(s2);

    if(v.equals(btnadd))
    {

```

```

try {
int result=cal.add(a,b); txtresult.setText(""+result);
} catch (RemoteException e) {
// TODO Auto-generated catch block
e.printStackTrace();
}

        else if(v.equals(btnsub))
        {
try {
int result=cal.sub(a,b);
txtresult.setText(""+result);
} catch (RemoteException e) {
// TODO Auto-generated catch block e.printStackTrace();
}
}

else if(v.equals(btnmul))

{ try
{int result=cal.mul(a,b); txtresult.setText(""+result);

                } catch (RemoteException e) {
                // TODO Auto-generated catch
                block e.printStackTrace();
                }
        } }

@Override
public void onServiceConnected(ComponentName arg0, IBinder arg1) {
// TODO Auto-generated method stub
    Toast.makeText(getApplicationContext(), "Service Connected",
Toast.LENGTH_LONG).show();
    cal=(calculator)calculator.Stub.asInterface(arg1);
}

        @Override
        public void onServiceDisconnected(ComponentName arg0) {
            // TODO Auto-generated method stub

        }

    }
}

```

OUTPUT:

Addition



Subtraction



Multiplication



Program -9

Create an activity like a phone dialer with (1,2,3,4,5,6,7,8,9,0,*,#) buttons and call and save button on pressing the call button, it must call the phone number and on pressing the save button it must save the number to the phone contacts.

activity_main.xml

```
<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:gravity="center"
    android:orientation="vertical"
    >

    <RelativeLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"

        <Button
            android:id="@+id/btn_del"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Del"
            android:layout_alignParentRight="true"
            />

        <EditText android:id="@+id/txt_display"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_toLeftOf="@id/btn_del"
            android:layout_alignBaseline="@id/btn_del" />

    </RelativeLayout>

    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:orientation="horizontal" >
```

```
<Button
    android:id="@+id/btn_one"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="1" />
```

```
<Button
    android:id="@+id/btn_two"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="2" />
```

```
<Button
    android:id="@+id/btn_three"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="3" />
```

```
</LinearLayout>
```

```
<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:orientation="horizontal" >
```

```
<Button
    android:id="@+id/btn_four"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="4" />
```

```
<Button
    android:id="@+id/btn_five"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="5" />
```

```
<Button
    android:id="@+id/btn_six"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
```

```
android:text="6" />
</LinearLayout>
```

```
<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:orientation="horizontal" >

    <Button
        android:id="@+id/btn_seven"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:text="7" />

    <Button
        android:id="@+id/btn_eight"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:text="8" />

    <Button
        android:id="@+id/btn_nine"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:text="9" />
</LinearLayout>
```

```
<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:orientation="horizontal" >

    <Button
        android:id="@+id/btn_star"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:text="*" />

    <Button
        android:id="@+id/btn_zero"
        android:layout_width="wrap_content"
```



```
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="0" />
```

```
<Button
    android:id="@+id/btn_ash"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="#" />
</LinearLayout>
```

```
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    " android:gravity="center"
    android:orientation="horizontal" >
```

```
<Button
    android:id="@+id/btn_call"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:gravity="center"
    android:text="call" />
```

```
<Button
    android:id="@+id/btn_save"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="save" />
```

```
</LinearLayout>
```

```
</LinearLayout>
```

MainActivity.java

```
package com.example.p8;

import android.net.Uri;
import android.os.Bundle;
import android.provider.ContactsContract;
import android.app.Activity;
import android.content.Intent;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
```

```

import android.widget.Button;
import
android.widget.EditText;

public class MainActivity extends Activity implements OnClickListener {

    EditText txtNumber;

    Button
    btnOne,btnTwo,btnThree,btnFour,btnFive,btnSix,btnSeven,btnEight,btnNine,btnZero,btnCall,
    btnSave,btnDel,btnStar,btnHash;

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

        txtNumber=(EditText)findViewById(R.id.txt_display);

        btnOne=(Button)findViewById(R.id.btn_one);
        btnOne.setOnClickListener(this);

        btnTwo=(Button)findViewById(R.id.btn_two);
        btnTwo.setOnClickListener(this);

        btnThree=(Button)findViewById(R.id.btn_three);
        btnThree.setOnClickListener(this);

        btnFour=(Button)findViewById(R.id.btn_four);
        btnFour.setOnClickListener(this);

        btnFive=(Button)findViewById(R.id.btn_five);
        btnFive.setOnClickListener(this);

        btnSix=(Button)findViewById(R.id.btn_six);
        btnSix.setOnClickListener(this);

        btnSeven=(Button)findViewById(R.id.btn_seven);
        btnSeven.setOnClickListener(this);

        btnEight=(Button)findViewById(R.id.btn_eight);
        btnEight.setOnClickListener(this);

        btnNine=(Button)findViewById(R.id.btn_nine);
        btnNine.setOnClickListener(this);

```

```

    btnZero=(Button)findViewById(R.id.btn_zero);
    btnZero.setOnClickListener(this);

    btnSave=(Button)findViewById(R.id.btn_save);
    btnSave.setOnClickListener(this);

    btnCall=(Button)findViewById(R.id.btn_call);
    btnCall.setOnClickListener(this);

    btnStar=(Button)findViewById(R.id.btn_star);
    btnStar.setOnClickListener(this);

    btnHash=(Button)findViewById(R.id.btn_ash);
    btnHash.setOnClickListener(this);

    btnDel=(Button)findViewById(R.id.btn_del);
    btnDel.setOnClickListener(this);

}

@Override
public boolean onCreateOptionsMenu(Menu menu) {
    // Inflate the menu; this adds items to the action bar if it is present.
    getMenuInflater().inflate(R.menu.main, menu);
    return true;
}

@Override
public void onClick(View v) {
    // TODO Auto-generated method stub

    if(v.equals(btnOne))
    {
        txtNumber.append("1");
    }
    else if(v.equals(btnTwo))
    {
        txtNumber.append("2");
    }
    else if(v.equals(btnThree))
    {
        txtNumber.append("3");
    }
}

```

```
else if(v.equals(btnFour))
{
    txtNumber.append("4");
}
else if(v.equals(btnFive))
{
    txtNumber.append("5");
}
else if(v.equals(btnSix))
{
    txtNumber.append("6");
}
else if(v.equals(btnSeven))
{
    txtNumber.append("7");
}
else if(v.equals(btnEight))
{
    txtNumber.append("8");
}
else if(v.equals(btnNine))
{
    txtNumber.append("9");
}
else if(v.equals(btnZero))
{
    txtNumber.append("0");
}
else if(v.equals(btnStar))
{
    txtNumber.append("*");
}
else if(v.equals(btnHash))
{
    txtNumber.append("#");
}
else if(v.equals(btnDel))
{
    String
    num=txtNumber.getText().toString();
    if(num.length()>0)
    {
        num=num.substring(0,num.length()-1);
    }
    txtNumber.setText(num);
}
else if(v.equals(btnCall))
{

```

```
String
num=txtNumber.getText().toString();
Intent it=new
Intent(Intent.ACTION_CALL);
it.setData(Uri.parse("tel:"+num));
startActivity(it);
}
else if(v.equals(btnSave))
{
String num=txtNumber.getText().toString();
Intent intent = new
Intent(Intent.ACTION_INSERT,
ContactsContract.Contacts.CONTENT_URI);
intent.putExtra(ContactsContract.Intents.Insert.PHONE,num);
startActivity(intent);
}
}
}
```

Manifest.xml

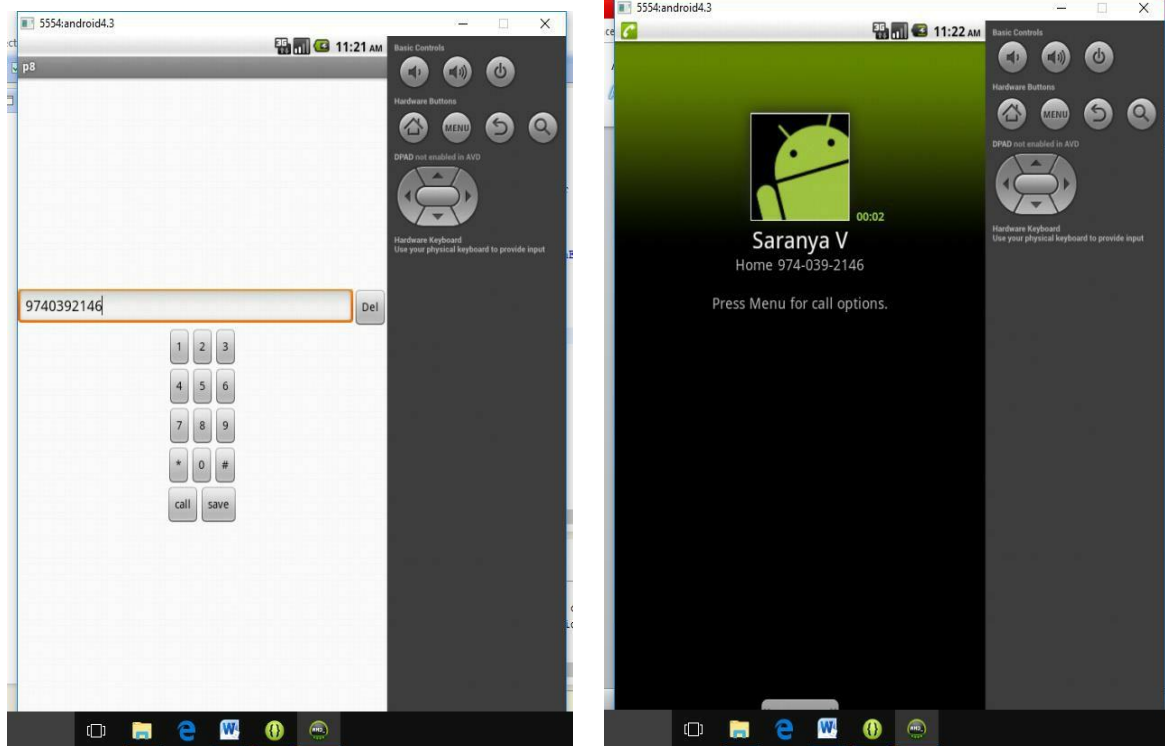
```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
package="com.example.p8"
android:versionCode="1"
android:versionName="1.0"
<uses-sdk android:minSdkVersion="8"
android:targetSdkVersion="18" />
<uses-permission android:name="android.permission.CALL_PHONE"/>

<application
android:allowBackup="true"
android:icon="@drawable/ic_launcher"
android:label="@string/app_name"
android:theme="@style/AppTheme" >
<activity
android:name="com.example.p8.MainActivity"
android:label="@string/app_name" >
<intent-filter>
<action android:name="android.intent.action.MAIN" />
<category android:name="android.intent.category.LAUNCHER" />
</intent-filter>
</activity>
</application>

</manifest>
```

have a standard Android screen. Next, we click on the home button as the light theme or dark theme and get as required one choice the theme we want to be the Light theme or

OUTPUT:



Program -10

Create a file of JSON type with values for city_name, Latitude, Longitude, Temperature and

Humidity. Develop an application to create an activity with button to parse the JSON file which when clicked should display the data in the textview.

activity_main.xml

```
<?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"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:text="Parsing JSON File"
        android:textColor="@android:color/holo_red_dark"
        android:textStyle="bold" />

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="PARSE JSON FILE"
        android:layout_gravity="center"
        android:id="@+id/btn_parsejson" />

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:text="Display Results"
        android:id="@+id/txt_resultdisplay"/>

</LinearLayout>
```

MainActivity.java

```
package com.example.labmanualjsonparse;

import androidx.appcompat.app.AppCompatActivity;
```

```

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;

import org.json.JSONArray;
import org.json.JSONObject;
import org.w3c.dom.Document;
import org.w3c.dom.Element;
import org.w3c.dom.Node;
import org.w3c.dom.NodeList;

import java.io.InputStream;

import javax.xml.parsers.DocumentBuilder;
import javax.xml.parsers.DocumentBuilderFactory;

public class MainActivity extends AppCompatActivity {

    Button btnjson;
    TextView txtdisplayresults;

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

        btnjson = findViewById(R.id.btn_parsejson);
        txtdisplayresults = findViewById(R.id.txt_resultdisplay);

        btnjson.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                try{
                    InputStream is = getAssets().open("samplecity.json");
                    int size = is.available();
                    byte[] buffer = new byte[size];
                    is.read(buffer);
                    is.close();

                    String json = new String(buffer, "UTF-8");
                    JSONArray jsonArray = new JSONArray(json);

                    txtdisplayresults.setText(" ");
                    for(int i = 0;i<jsonArray.length();i++)
                    {
                        JSONObject obj =jsonArray.getJSONObject(i);
                        txtdisplayresults.setText(txtdisplayresults.getText() + "\n Name: " + obj.getString("name")+ "\n");
                        txtdisplayresults.setText(txtdisplayresults.getText() + " Latitude: " + obj.getString("lat")+ "\n");
                        txtdisplayresults.setText(txtdisplayresults.getText() + " Longitude: " +

```



```
obj.getString("long")+ "\n");
        txtdisplayresults.setText(txtdisplayresults.getText() + " Temperature: " +
obj.getString("temperature")+ "\n");
        txtdisplayresults.setText(txtdisplayresults.getText() + " Humidity: " +
obj.getString("humidity")+ "\n");
        txtdisplayresults.setText(txtdisplayresults.getText() + "----- ");
    }
}
catch (Exception e)
{
    e.printStackTrace();
}
});
}
}
```

samplecity.json

```
[
{ "name": "Mysore ",
  "lat": "12.295 ",
  "long": "76.639 ",
  "temperature": "22 ",
  "humidity": "92 %"
},
{ "name": "Bangalore",
  "lat": "12.97165 ",
  "long": "77.5946 ",
  "temperature": "25 ",
  "humidity": "74 %"
}
]
```

OUTPUT:

