

## Prog 1A ) Create an application to design a Visiting Card

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_gravity="center"
    android:orientation="horizontal"
    tools:context=".MainActivity">

    <ImageView
        android:id="@+id/imageView"
        android:layout_width="106dp"
        android:layout_height="115dp"
        android:layout_alignParentEnd="true"
        android:layout_alignParentRight="true"
        android:layout_alignParentBottom="true"
        android:layout_marginEnd="30dp"
        android:layout_marginRight="30dp"
        android:layout_marginBottom="459dp"
        app:srcCompat="@drawable/draitlogo" />

    <TextView
        android:id="@+id/textView"
        android:layout_width="211dp"
        android:layout_height="122dp"
        android:layout_alignParentBottom="true"
        android:layout_marginEnd="24dp"
        android:layout_marginRight="24dp"
        android:layout_marginBottom="452dp"
        android:layout_toStartOf="@+id/imageView"
        android:layout_toLeftOf="@+id/imageView"
        android:gravity="center"
        android:text="Dr.Ambedkar Institute of Technology"
        android:textAllCaps="true"
        android:textColor="#000000"
        android:textColorHighlight="#B18181"
        android:textSize="26sp"
        android:textStyle="bold" />

    <View
        android:layout_width="match_parent"
        android:layout_height="3dp"
        android:layout_alignParentBottom="true"
        android:layout_marginBottom="441dp"
        android:background="@color/teal_700" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentEnd="true"
        android:layout_alignParentRight="true"
        android:layout_alignParentBottom="true"
        android:layout_marginEnd="100dp"
        android:layout_marginRight="100dp"
        android:layout_marginBottom="369dp"
        android:gravity="center"
        android:text="Deekshith S A"
        android:textColor="#CF1717"
        android:textSize="36sp"
        android:textStyle="italic" />

    <TextView
```

```

    android:id="@+id/textView3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentRight="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="112dp"
    android:layout_marginRight="112dp"
    android:layout_marginBottom="345dp"
    android:text="Machine Learning Intern"
    android:textColor="#1E1E1E"
    android:textSize="18sp" />

```

<TextView

```

    android:id="@+id/textView5"
    android:layout_width="422dp"
    android:layout_height="38dp"
    android:layout_alignParentEnd="true"
    android:layout_alignParentRight="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="-5dp"
    android:layout_marginRight="-5dp"
    android:layout_marginBottom="309dp"
    android:gravity="center"
    android:text="Dept. of Computer Sciecnce and Engineering"
    android:textColor="#000000"
    android:textSize="18sp" />

```

<LinearLayout

```

    android:layout_width="match_parent"
    android:layout_height="51dp"
    android:layout_alignParentBottom="true"
    android:layout_marginBottom="233dp"
    android:orientation="vertical">

```

<TextView

```

    android:id="@+id/textView8"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center"
    android:text="Email: 1da18cs042.cs@drait.edu.in"
    android:textColor="#009688"
    android:textSize="18sp" />

```

<TextView

```

    android:id="@+id/textView9"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center"
    android:text="Mobile: +91 94823 98202"
    android:textColor="#009688"
    android:textSize="18sp" />

```

</LinearLayout>

</RelativeLayout>

## Prog 1B ) Text to speech

### activity\_main.xml

```
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:id="@+id/textViewtts"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:fontFamily="sans-serif-black"
    android:text="TEXT TO SPEECH APP"
    android:textAlignment="center"
    android:textColor="#4A154B"
    android:textSize="22dp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.174" />

<EditText
    android:id="@+id/edttxtype"
    android:layout_width="324dp"
    android:layout_height="64dp"
    android:ems="10"
    android:hint="Enter text here"
    android:inputType="textPersonName"
    android:text=""
    android:textAlignment="center"
    android:textColor="#E01E5A"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.494"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.343" />

<Button
    android:id="@+id/btnspeech"
    android:layout_width="200dp"
    android:layout_height="60dp"
    android:backgroundTint="#4A154B"
    android:text="SPEECH"
    android:textColor="#ECB22E"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.497"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.551" />

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

## MainActivity.java

```
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 implements View.OnClickListener,
TextToSpeech.OnInitListener {

    Button btnspeak;
    EditText txtspeak;
    TextToSpeech textToSpeech;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        txtspeak = (EditText)findViewById(R.id.edtxttype);
        btnspeak = (Button)findViewById(R.id.btnspeech);
        btnspeak.setOnClickListener(this);
        textToSpeech = new TextToSpeech(getApplicationContext(), this);
        textToSpeech.setLanguage(Locale.UK);
    }

    @Override
    public void onClick(View v)
    {
        String text = txtspeak.getText().toString();
        textToSpeech.speak(text, TextToSpeech.QUEUE_FLUSH, null);
    }

    @Override
    public void onInit(int status)
    {
        if(status != TextToSpeech.ERROR)
        {
            Toast.makeText(getApplicationContext(), "Success", Toast.LENGTH_LONG).show();
        }
    }
}
```

---

**Prog 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.**

#### AndroidManifest.xml

```
<activity android:name="SearchActivity"> </activity>
```

#### activity\_main.xml

```
<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">

<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_parent"
    android:layout_height="wrap_content"
    android:layout_marginLeft="10dp"
    android:text="Employee_id"/>

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

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginLeft="10dp"
    android:text="Employee_name"/>

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

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginLeft="10dp"
    android:text="Employee_age"/>

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

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginLeft="10dp"
```

```

        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>

</androidx.constraintlayout.widget.ConstraintLayout>

```

## Search.xml

```

<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:layout_marginLeft="10dp"
        android:text="Enter Employee id" />

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

    <Button
        android:layout_width="wrap_content"
        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>
```

### MyDatabase.java

```
import android.content.Context;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteDatabase.CursorFactory;
import android.database.sqlite.SQLiteOpenHelper;
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

```
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", Toast.LENGTH_LONG).show();
    if (v.equals(btnsearch))
    {
        String eid=txtempid.getText().toString();
        MyDatabase dat=new MyDatabase(this, MyDatabase.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.EMPLOYEE_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", Toast.LENGTH_LONG).show();
    }
}
}
}

```

### MainActivity.java

```

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 void onClick(View v)
    {
        // TODO Auto-generated method stub
        Toast.makeText(this, "buttonclicked", Toast.LENGTH_SHORT).show();
        if(v.equals(btnsubmit))
        {
            String sid=txtid.getText().toString();
            String sname=txtname.getText().toString();
            String sage=txtage.getText().toString();
            String saddress=txtaddress.getText().toString();

            MyDatabase dat=new MyDatabase(this,MyDatabase.DATABASE_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",
Toast.LENGTH_SHORT).show();
        }

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

```

---

**Prog 3 ) 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.**

#### **AndroidManifest.xml**

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

#### **activity\_main.xml**

```
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:gravity="center_horizontal"
    android:padding="16dp">
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal">
        <Button
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="Create new file"
            android:id="@+id/btn_create"
            android:layout_weight="1"/>
        <Button
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="Open a file"
            android:id="@+id/btn_open"
            android:layout_weight="1"/>
    </LinearLayout>

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="File path:"
        android:textSize="16sp"
        android:id="@+id/lbl_file" />

    <EditText
        android:layout_width="match_parent"
        android:layout_height="200dp"
        android:id="@+id/txt_content"
        android:hint="Open a file to view its contents or create a new file to enter
contents to that file"/>

    <Button
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="25dp"
        android:text="Save"
        android:id="@+id/btn_save"/>
</LinearLayout>
```

#### **MainActivity.java**

```
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(getApplicationContext(),"File Saved successfully!",
Toast.LENGTH_SHORT).show();
    }
    catch (Exception e)
    {
        Toast.makeText(getApplicationContext(),e.getMessage(),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();
        while(data!=null)
        {
            txtContent.append(data);
            data=br.readLine();
        }
        br.close();
    }
    catch (Exception e)
    {
        Toast.makeText(getApplicationContext(),e.getMessage(),
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);
    }
}
}
}

```

### dialog\_layout.xml

```

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:padding="16dp">
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="20sp"
        android:text="Enter the name of the file: ">

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

</LinearLayout>

```

---

**Prog 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.**

Create 2 different projects, one for content provider and one for content resolver. First Run Content Provider , then minimize and then run content resolver

## Content Provider Project

### AndroidManifest.xml

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

### Activity\_main.xml

```
<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:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Content Provider"
    android:textColor="@color/black"
    android:textSize="30dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.114"
    tools:ignore="MissingConstraints" />
```

```
<EditText
    android:id="@+id/ed_date"
    android:layout_width="196dp"
    android:layout_height="50dp"
    android:fontFamily="sans-serif-medium"
    android:hint="Enter Date here"
    android:inputType="date"
    android:textColor="@color/black"
    android:textColorHint="@color/black"
    android:textSize="23sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.497"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.23"
    tools:ignore="MissingConstraints" />
```

```
<EditText
    android:id="@+id/ed_content"
    android:layout_width="350dp"
    android:layout_height="200dp"
```

```

    android:height="200dp"
    android:fontFamily="sans-serif-medium"
    android:hint="Enter Note Content Here"
    android:inputType="text"
    android:paddingLeft="75px"
    android:textColor="@color/black"
    android:textColorHint="@color/black"
    android:textSize="23sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.491"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.45"
    tools:ignore="MissingConstraints" />

```

```

<Button
    android:id="@+id/btn_add_note"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:backgroundTint="@color/black"
    android:text="Add Note"
    android:textColor="@color/white"
    android:textSize="20dp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.498"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.707"
    tools:ignore="MissingConstraints" />

```

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

## NotesProvider.java

```

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
        return 0;
    }
    @Override

```

```

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

@Override
public Uri insert(Uri arg0, ContentValues cv)
{
    // TODO Auto-generated method
    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
    Cursor cursor=null;
    db = dbHelper.getReadableDatabase();
    cursor=db.query(ProviderDatabase.TABLE_NAME,arg1,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

```

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);
    }

    @Override
    public void onCreate(SQLiteDatabase db)
    {

```



```

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

    @Override
    public void onUpgrade(SQLiteDatabase db, int arg1, int arg2)
    {
    }
}

```

## MainActivity.java

```

import androidx.appcompat.app.AppCompatActivity;
import android.net.Uri;
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;
import android.os.Bundle;

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.ed_date);
        txtContent=(EditText) findViewById(R.id.ed_content);
        btnAddNote=(Button) findViewById(R.id.btn_add_note);
        btnAddNote.setOnClickListener(this);
    }

    @Override
    public void onClick(View v)
    {
        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"),valu
            es);

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

```

## Content Provider Project

### activity\_main.xml

```
<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:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Content Resolver"
        android:textColor="@color/black"
        android:textSize="25dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.113"
        tools:ignore="MissingConstraints" />

    <EditText
        android:id="@+id/ed_date"
        android:layout_width="245dp"
        android:layout_height="55dp"
        android:fontFamily="sans-serif-medium"
        android:hint="Enter Date here"
        android:inputType="date"
        android:paddingLeft="20dp"
        android:textColor="@color/black"
        android:textColorHint="@color/black"
        android:textSize="15sp"

        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.25"
        tools:ignore="MissingConstraints" />

    <Button
        android:id="@+id/btn_search"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:backgroundTint="@color/black"
        android:text="Search"
        android:textColor="@color/white"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.402"
        tools:ignore="MissingConstraints" />

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

```

        android:textColor="@color/black"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.553"
        tools:ignore="MissingConstraints" />

```

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

## MainActivity.java

```

import android.net.Uri;
import android.os.Bundle;
import android.app.Activity;
import android.database.Cursor;
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.ed_date);
        lblMessage=(TextView) findViewById(R.id.lbl_message);
        btnSearch=(Button) findViewById(R.id.btn_search);
        btnSearch.setOnClickListener(this);
    }
    @Override
    public void onClick(View v) {
        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(getApplicationContext(),"No DataAvailable",
Toast.LENGTH_LONG).show();
            }
        }
    }
}

```

**Prog 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:id="@+id/lbl_counter"
        android:layout_width="136dp"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_marginBottom="30dp"
        android:text="counter"
        android:textSize="20dp"
        android:textColor="#4A154B"
        android:textStyle="bold"
        android:textAlignment="center" />

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="start"
        android:layout_marginTop="30dp"
        android:layout_marginBottom="30dp"
        android:backgroundTint="#4A154B"
        android:textColor="#ECB22E"
        android:textStyle="bold"
        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:backgroundTint="#ECB22E"
        android:textColor="#4A154B"
        android:textStyle="bold"
        android:id="@+id/btn_stop"/>

</LinearLayout>
```

#### **MainActivity.java**

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

@Override
public void onClick(View v)
{
    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()
{
    //int i=0;
    while(i<100 && running)
    {
        try
        {
            Thread.sleep(1000);
        }
        catch (InterruptedException e)
        {
            e.printStackTrace();
        }
        hand.sendMessage(i);
        i++;
        //lblcounter.setText(""+i);
    }
}

```

```
}  
}
```

---

**Prog 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.**

#### AndroidManifest.xml

```
<receiver  
    android:name="com.example.program_6_recievesms.MySmsReceiver"  
    android:exported="true">  
    <intent-filter>  
        <action android:name="android.provider.Telephony.SMS_RECEIVED"/> </intent-filter>  
    </receiver>
```

#### activity\_main.xml

```
<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="Hello World!"  
        app:layout_constraintBottom_toBottomOf="parent"  
        app:layout_constraintLeft_toLeftOf="parent"  
        app:layout_constraintRight_toRightOf="parent"  
        app:layout_constraintTop_toTopOf="parent" />  
  
</androidx.constraintlayout.widget.ConstraintLayout>
```

#### MySmsReceiver.java

```
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;  
        }  
    }  
}
```

```
}  
}
```

## MainActivity.java

```
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;  
    }  
}
```

---

## Prog 7 ) Create a program to create a service that will put a notification on the screen every 5 seconds

### AndroidManifest.xml

```
<service android:name="ServiceClass"></service>
```

### activity\_main.xml

```
<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">

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="200dp"
        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>
```

### ServiceClass.java

```
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(getBaseContext(), "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++);
        }
    }
}

```

### MainActivity.java

```

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);
        }
    }
}

```

```

    }
}
}

```

---

**Prog 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.**

**Create two projects, one for part 1 and another for part 2. In part 2, mainactivity.java file, in the line `intent.setPackage("com.example.program_8_aidlcalculator");` give the path of project 1.**

**Include package line in calculator.aidl file, otherwise it wont build the project. First run part 1, then run part 2.**

## Part 1

### AndroidManifest.xml

```

<service
    android:name="MyCalService"
    android:exported="true">
    <intent-filter>
        <action android:name="com.simple.cal"/>
    </intent-filter>
</service>

```

**activity\_main.xml – don't change anything, let it be hello world**

### calculator.aidl

```

package com.example.cal;
interface calculator
{
    int add(int a, int b);
    int sub(int a, int b);
    int mul(int a, int b);
}

```

### MyCalService.java

```

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;
        }
    };
}

```

### MainActivity.java

```

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

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

```

## Part 2

### Calculator.aidl

```

package com.example.cal;
interface calculator
{
    int add(int a, int b);
    int sub(int a, int b);
    int mul(int a, int b);
}

```

### 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>

```

### MainActivity.java

```

import android.app.Activity;
import android.content.ComponentName;
import android.content.Intent;
import android.content.ServiceConnection;
import android.os.Bundle;
import android.os.IBinder;
import android.os.RemoteException;
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;
import com.example.cal.calculator;

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.program_8_aidlcalculator");
        bindService(intent, this, BIND_AUTO_CREATE);
    }
    @Override
    public boolean onCreateOptionsMenu(Menu menu)
    {
        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
}
}

```

---

**Prog 9 ) Create an activity like a phone dialler 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**

#### AndroidManifest.xml

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

#### 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_sev"
        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_hash"
        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

```

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 txtnum;
    Button
    btnone, btntwo, btnthree, btnfour, btnfive, btnsix, btnsev, btneight, btnnine, btnzero, btnstar, b
    tndel, btnhash, btnsave, btncall;

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

```

```

    btnsev=(Button) findViewById(R.id.btn_sev);
    btnsev.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);

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

    btnhash=(Button) findViewById(R.id.btn_hash);
    btnhash.setOnClickListener(this);

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

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

    btncall=(Button) findViewById(R.id.btn_call);
    btncall.setOnClickListener(this);
}
@Override
public void onClick(View v)
{
    if(v.equals(btnone))
    {
        txtnum.append("1");
    }
    else if(v.equals(btntwo))
    {
        txtnum.append("2");
    }
    else if(v.equals(btnthree)) {
        txtnum.append("3");
    }
    else if(v.equals(btnfour))
    {
        txtnum.append("4");
    }
    else if(v.equals(btnfive))
    {
        txtnum.append("5");
    }
    else if(v.equals(btnsix))
    {
        txtnum.append("6");
    }
    else if(v.equals(btnsev))
    {
        txtnum.append("7");
    }
    else if(v.equals(btneight))
    {
        txtnum.append("8");
    }
    else if(v.equals(btnnine))
    {
        txtnum.append("9");
    }
}

```

```

    }
    else if (v.equals(btnzero))
    {
        txtnum.append("0");
    }
    else if (v.equals(btnstar))
    {
        txtnum.append("*");
    }
    else if (v.equals(btnhash))
    {
        txtnum.append("#");
    }
    else if (v.equals(btnndel))
    {
        String num = txtnum.getText().toString();
        if (num.length() > 0)
        {
            num = num.substring(0, num.length() - 1);
        }
        txtnum.setText(num);
    }
    else if (v.equals(btnncall))
    {
        String num = txtnum.getText().toString();
        String callInfo = "tel:" + num;
        Intent callIntent = new Intent(Intent.ACTION_DIAL);
        callIntent.setData(Uri.parse(callInfo));
        startActivity(callIntent);
    }
    else if (v.equals(btnsave))
    {
        String num = txtnum.getText().toString();
        Intent intent = new Intent(Intent.ACTION_INSERT,
ContactsContract.Contacts.CONTENT_URI);
        intent.putExtra(ContactsContract.Intents.Insert.PHONE, num);
        startActivity(intent);
    }
    }
}
}

```

---

**Prog 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.**

#### 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 %"
  }
]
```

#### activity\_main.xml

```
<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

```
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();
                }
            }
        });
    }
}

```