Lab Program 1A

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.

```
<?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:gravity="center"
    android:orientation="vertical"
    android:layout_height="match_parent"
    tools:context=".MainActivity"
    android:background="#80E5FF">
    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center_horizontal"      >
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Dr.AIT "
            android:textColor="@color/black"
            android:textSize="80dp" />

        <ImageView
            android:layout_width="98dp"
            android:layout_height="match_parent"
            android:src="@drawable/drait" />
    </LinearLayout>
    <View
        android:id="@+id/view"
        android:layout_width="wrap_content"
        android:layout_height="1dp"
        android:background="@color/black" />
    <TextView
        android:id="@+id/textView3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Nandish Rao B R"
        android:textSize="35dp"
        android:textColor="@color/black"/>
    <TextView
        android:layout_height="wrap_content"
        android:layout_width="wrap_content"
        android:text="1DA20CS419"
        android:id="@+id/textView4"
        android:textSize="25dp"
        android:textColor="@color/black"        />
    <TextView
        android:layout_height="wrap_content"
        android:layout_width="wrap_content"
        android:text="Ph:9972429490"
```

```
        android:textSize="25dp"
        android:textColor="@color/black"/>
    <TextView
        android:layout_height="wrap_content"
        android:layout_width="wrap_content"
        android:text="Add:BIDADI"
        android:textSize="25dp"
        android:textColor="@color/black" />
    <TextView
        android:layout_height="wrap_content"
        android:layout_width="wrap_content"
        android:text="Email:1da20cs419.cs@drait.edu.in"
        android:textSize="20dp"
        android:textColor="@color/black"/>
</LinearLayout>
```

1.B)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"?>
<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"
    android:gravity="center"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="296dp"
        android:layout_height="63dp"
        android:layout_margin="5dp"
        android:text="TEXT TO SPEECH APPLICATION"
        android:textAlignment="center"
        android:textColor="@color/black"
        android:textSize="25sp"
        android:textStyle="bold" />

    <EditText
        android:id="@+id/tv"
        android:layout_width="305dp"
        android:layout_height="115dp"
        android:layout_margin="5dp"
        android:inputType="textMultiLine" />

    <Button
        android:id="@+id/bc"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Convert Text to Speech"
        android:layout_margin="5dp"
        />
</LinearLayout>
```

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 {
    TextToSpeech t1;
    EditText txtinput;
    Button txttospeech;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        txtinput = findViewById(R.id.tv);
        txttospeech = findViewById(R.id.bc);
        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(getBaseContext(),tospeak,Toast.LENGTH_SHORT).show();

                t1.speak(tospeak,TextToSpeech.QUEUE_FLUSH, null);
            }
        });
    }
    public void onPause()
    {
        if(t1 != null)
        {
            t1.stop();
            t1.shutdown();
        }
        super.onPause(); }
}
```

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
<?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"
    android:gravity="center"
    android:layout_margin="20dp"
    tools:context=".MainActivity">
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="20dp"
        android:textStyle="bold"
        android:textColor="@color/black"
        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:textSize="20dp"
        android:textStyle="bold"
        android:textColor="@color/black"
        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:textSize="20dp"
        android:textStyle="bold"
        android:textColor="@color/black"
        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:textSize="20dp"
        android:textStyle="bold"
```

```
        android:textColor="@color/black"
        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:layout_marginRight="8dp"
            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>

// activity_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:orientation="vertical"
    android:gravity="center"
    android:layout_margin="10dp"
    android:layout_height="match_parent">
    <TextView
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:textStyle="bold"
        android:textSize="20dp"
        android:textColor="@color/black"
        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:textSize="20dp"
        android:text="Results"
        android:id="@+id/txt_display"/>
</LinearLayout>
```

// main_activity.java

```
package com.example.databseprogram;

import android.os.Bundle;
import android.app.Activity;
import andro
.
id.content.ContentValues;
import android.content.Intent;
import android.database.sqlite.SQLiteDatabase;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends Activity implements
View.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,"button clicked",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);
        }
    } }
```

// MyDatabase.java

```
package com.example.databseprogram;

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.databseprogram;
import android.app.Activity;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;
public class SearchActivity extends Activity implements
View.OnClickListener{
```

```
    EditText txtempid;
    Button btnsearch;
    TextView txtdisplay;
    public void onCreate(Bundle b)
    {
        super.onCreate(b);
        setContentView(R.layout.activity_search);
        txtempid=(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_SHORT).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_SHORT).show();
            }
        }
    }
}
```

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.

```
//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"
    android:gravity="center"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textColor="@color/black"
        android:textSize="30dp"
        android:id="@+id/counter_id"
        />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="start"
        android:id="@+id/btn_start"/>
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="stop"
        android:id="@+id/btn_stop"/>

</LinearLayout>


// main_activity.java

package com.example.counter;

import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.os.Handler;
import android.widget.EditText;
import android.widget.Button;
import android.widget.TextView;
import android.os.Message;

public class MainActivity extends  AppCompatActivity implements
View.OnClickListener,Runnable {
    Button start,stop;
    EditText ed1;
    TextView display;
```

```
    int i=0;
    Boolean running=false;
    Thread thread;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        display=findViewById(R.id.counter_id);
        start=findViewById(R.id.btn_start);
        stop=findViewById(R.id.btn_stop);
        start.setOnClickListener(this);
        stop.setOnClickListener(this);
    }

    @Override
    public void onClick(View v) {
        if(v.equals(start)){
            running = true;
            thread= new Thread(this);
            thread.start();
        }
        else if (v.equals(stop)){
            thread.interrupt();
            running=false;
        }
    }
    Handler hand=new Handler()
    {
        @Override
        public void handleMessage(@NonNull Message msg) {
            display.setText(""+msg.what);
        }
    };
    @Override
    public void run() {
        while(i<100 && running){
            try {
                thread.sleep(1000);
            }
            catch (Exception e){
                System.out.println(e);
            }
            hand.sendEmptyMessage(i);
            i++;
        }
    }
}
```

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

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

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Receive number"
        android:textColor="@color/black"
        android:textSize="40dp"
        android:id="@+id/txt_num"/>
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Receive message"
        android:textSize="30dp"
        android:textColor="#020C47"
        android:id="@+id/txt_msg"/>

</LinearLayout>
```

//main_activity.java

```
package com.example.message_num;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    TextView txtnum, txtmsg;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        txtnum=findViewById(R.id.txt_num);
        txtmsg=findViewById(R.id.txt_msg);
        Bundle b = getIntent().getBundleExtra("data");
        if(b!=null)
        {
            String s1= b.getString("num");
```

```
            String s2= b.getString("msg");
            txtnum.setText(s1);
            Toast.makeText(this, "Message Received",
Toast.LENGTH_LONG).show();
            txtmsg.setText(s2);
        }
    }
}
```

//MySMSReciver.java

```
package com.example.message_num;
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 context, Intent intent) {
        Object[] objmsg = (Object[])intent.getExtras().get("pdus");
        for(int i=0; i<objmsg.length; i++) {
            SmsMessage m = SmsMessage.createFromPdu((byte[])objmsg[i]);
            Bundle b1 = new Bundle();
            b1.putString("num",m.getOriginatingAddress());
            b1.putString("msg",m.getMessageBody());
            Intent it = new Intent(context, MainActivity.class);
            it.putExtra("data", b1);
            it.setFlags(Intent.FLAG_ACTIVITY_NEW_TASK);
            context.startActivity(it);
            break;
        }
    }
}
```

// manifest.xml

```
  <?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.message_num"
    android:versionCode="1"
    android:versionName="1.0"
    xmlns:tools="http://schemas.android.com/tools">
    <uses-sdk
        android:minSdkVersion="23"
        android:targetSdkVersion="32" />


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

    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
```

```
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Message_num"
        tools:targetApi="31">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

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

            <meta-data
                android:name="android.app.lib_name"
                android:value="" />
        </activity>
        <receiver android:name=".MySMSReceiver"
            android:exported="true">
            <intent-filter>
                <action
android:name="android.provider.Telephony.SMS_RECEIVED"/>
            </intent-filter>
        </receiver>
    </application>

</manifest>
```

7. Write 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.notify;
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.notify;
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(getBaseContext(), "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(getBaseContext(), "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(getBaseContext(),
                    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.sendEmptyMessage(i++);
        }
        }
    }
}
```

AndroidManifest.java

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools">
    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Notify"
        tools:targetApi="31">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
```

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

            <meta-data
                android:name="android.app.lib_name"
                android:value="" />
        </activity>
 </application>
</manifest>
```

4.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.

//content provider

//activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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:layout_margin="10dp"
    android:orientation="vertical" >
    <TextView
        android:layout_width="match_parent"
        android:textSize="20dp"
        android:textColor="@color/black"
        android:layout_height="wrap_content"
        android:text="Enter Date:" />
    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="20dp"
        android:textColor="@color/black"
        android:id="@+id/txt_date" />
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="20dp"
        android:textColor="@color/black"
        android:text="Enter Note Content:" />
    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/txt_Content"
        android:textSize="20dp"
        android:textColor="@color/black"
        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>
```

//main_activity.java

```
package com.example.labprogram4a;

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.notes-provider/notes"),
                    values);

            Toast.makeText(getBaseContext(),"Data Inserted Successfully",

                    Toast.LENGTH_LONG).show();

        }
    }
}

//notes_provider.java
package com.example.labprogram4a;

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.notes-provider/notes";
   SQLiteDatabase db;
   ProviderDatabase dbHelper;
   static final UriMatcher uriMatcher;
   static{
      uriMatcher = new UriMatcher(UriMatcher.NO_MATCH);
      uriMatcher.addURI("com.example.notes-provider", "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,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;
   }
}
```

```
//provider database
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
   }
}


//mainifest file
</activity>
      <provider android:name="NotesProvider"
         android:authorities="com.example.notes-provider"
         android:exported="true"/>
   </application>

// Content Resolver

//activity_main.xml

<?xml version="1.0" encoding="utf-8"?>
<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:layout_margin="10dp"
   tools:context=".MainActivity"
   android:orientation="vertical"
   android:gravity="center">
   <TextView
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:textColor="@color/black"
```

```
        android:textSize="20dp"
        android:text="Enter Date toSearch"/>
    <EditText android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textColor="@color/black"
        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:textColor="@color/black"
        android:id="@+id/lbl_message"/>
</LinearLayout>

//main_activity.java

package com.example.labprogram4b;


import android.content.ContentValues;
import android.database.Cursor;
import android.net.Uri;
import android.os.Bundle;
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 android.app.Activity;


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.notes-
provider/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();

            }
        }
    }

}
```

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.

//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"
    android:gravity="center"
    tools:context=".MainActivity">
    <RelativeLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"></RelativeLayout>
    <EditText
        android:id="@+id/txt_disp"
        android:layout_width="282dp"
        android:layout_marginBottom="10dp"
        android:layout_height="wrap_content"></EditText>
    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:gravity="center"
        android:orientation="horizontal">
        <Button
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_gravity="center"
            android:layout_marginRight="5dp"
            android:text="1"
            android:id="@+id/btn_one"></Button>
        <Button
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:gravity="center"
            android:text="2"
            android:layout_marginRight="5dp"
            android:id="@+id/btn_two"></Button>
        <Button
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:gravity="center"
            android:text="3"
            android:id="@+id/btn_three"></Button>

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

```
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginRight="5dp"
        android:layout_gravity="center"
        android:text="4"
        android:id="@+id/btn_four"></Button>
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginRight="5dp"
        android:gravity="center"
        android:text="5"
        android:id="@+id/btn_five"></Button>
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:gravity="center"
        android:text="6"
        android:id="@+id/btn_six"></Button>
</LinearLayout>
<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:gravity="center"
    android:orientation="horizontal">
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginRight="5dp"
        android:layout_gravity="center"
        android:text="7"
        android:id="@+id/btn_seven"></Button>
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:gravity="center"
        android:layout_marginRight="5dp"
        android:text="8"
        android:id="@+id/btn_eight"></Button>
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:gravity="center"
        android:text="9"
        android:id="@+id/btn_nine"></Button>
</LinearLayout>
<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:gravity="center"
    android:orientation="horizontal">
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
```

```
            android:layout_gravity="center"
            android:layout_marginRight="5dp"
            android:text="#"
            android:id="@+id/btn_hash"></Button>
        <Button
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:gravity="center"
            android:layout_marginRight="5dp"
            android:text="0"
            android:id="@+id/btn_zero"></Button>
        <Button
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:gravity="center"
            android:text="*"
            android:id="@+id/btn_star"></Button>
    </LinearLayout>
    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:gravity="center"
        android:orientation="horizontal">
        <Button
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_gravity="center"
            android:text="save"
            android:layout_marginRight="5dp"
            android:id="@+id/btn_save"></Button>
        <Button
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:gravity="center"
            android:text="call"
            android:layout_marginRight="5dp"
            android:id="@+id/btn_call"></Button>
        <Button
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:gravity="center"
            android:text="del"
            android:id="@+id/btn_del"></Button>
    </LinearLayout>
</LinearLayout>
//main_activity.java

package com.example.dailer;

import androidx.activity.result.contract.ActivityResultContracts;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.provider.ContactsContract;
```

```
import android.util.Log;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity implements View.OnClickListener {
    EditText disp;
    Button
btnone,btntwo,btnthree,btnfour,btnfive,btnsix,btnseven,btneight,btnnine,btnhash,btnzero,btnstar,btnsave,btn
call,btndel;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        disp=(EditText)findViewById(R.id.txt_disp);
        btnone=(Button) findViewById(R.id.btn_one);
        btntwo=(Button) findViewById(R.id.btn_two);
        btnthree=(Button) findViewById(R.id.btn_three);
        btnfour=(Button) findViewById(R.id.btn_four);
        btnfive=(Button) findViewById(R.id.btn_five);
        btnsix=(Button) findViewById(R.id.btn_six);
        btnseven=(Button) findViewById(R.id.btn_seven);
        btneight=(Button) findViewById(R.id.btn_eight);
        btnnine=(Button) findViewById(R.id.btn_nine);
        btnhash=(Button) findViewById(R.id.btn_hash);
        btnzero=(Button) findViewById(R.id.btn_zero);
        btnstar=(Button) findViewById(R.id.btn_star);
        btnsave=(Button) findViewById(R.id.btn_save);
        btncall=(Button) findViewById(R.id.btn_call);
        btndel=(Button) findViewById(R.id.btn_del);
        btnone.setOnClickListener(this);
        btntwo.setOnClickListener(this);
        btnthree.setOnClickListener(this);
        btnfour.setOnClickListener(this);
        btnfive.setOnClickListener(this);
        btnsix.setOnClickListener(this);
        btnseven.setOnClickListener(this);
        btneight.setOnClickListener(this);
        btnnine.setOnClickListener(this);
        btnhash.setOnClickListener(this);
        btnzero.setOnClickListener(this);
        btnsave.setOnClickListener(this);
        btncall.setOnClickListener(this);
        btndel.setOnClickListener(this);
    }

    @Override
    public void onClick(View v) {
        if(v.equals(btnone)){
            disp.append("1");
        }
        else if (v.equals(btntwo)){
            disp.append("2");
        }
        else if (v.equals(btnthree)){
```

```
            disp.append("3");
        }
        else if(v.equals(btnfour)){
            disp.append("4");
        }
        else if(v.equals(btnfive)){
            disp.append("5");
        }
        else if(v.equals(btnsix)){
            disp.append("6");
        }
        else if (v.equals(btnseven)){
            disp.append("7");
        }
        else if (v.equals(btneight)){
            disp.append("8");
        }
        else if (v.equals(btnnine)){
            disp.append("9");
        }
        else if (v.equals(btnhash)){
            disp.append("#");
        }
        else if (v.equals(btnzero)){
            disp.append("0");
        }
        else if (v.equals(btnstar)){
            disp.append("*");
        }
        else if (v.equals(btnsave)){
            String num=disp.getText().toString();
            Intent intent = new Intent(Intent.ACTION_INSERT,
                    ContactsContract.Contacts.CONTENT_URI);
            intent.putExtra(ContactsContract.Intents.Insert.PHONE,num);
            startActivity(intent);
        }
        else if(v.equals(btncall)){
            String num=disp.getText().toString();
            Intent it=new Intent(Intent.ACTION_DIAL);
            it.setData(Uri.parse("tel:"+num));
            startActivity(it);
        }
        else if(v.equals(btndel)){
            String num=disp.getText().toString();
            if(num.length()>0){
                num=num.substring(0,num.length()-1);
            }
            disp.setText(num);
        }
    }
}

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

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:layout_marginTop="20dp"
        android:text="Parsing JSON File"
        android:textSize="30dp"
        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:textStyle="bold"
        android:textColor="@color/black"
        android:textSize="20dp"
        android:id="@+id/txt_resultdisplay"/>
</LinearLayout>
```

///main_activity.java

```
package com.example.pro10;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
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("samlecity.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();
                }
            }
        });
    }
}
```

city.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 %"
  }
]
```