

1. 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 website address is to be displayed. Insert a horizontal line between the job title and the phone number.



activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="204dp"
        android:layout_height="82dp"
        android:layout_alignParentEnd="true"
        android:layout_alignParentBottom="true"
        android:layout_marginEnd="187dp"
        android:layout_marginBottom="601dp"
        android:text="BIET"
        android:textAlignment="center"
        android:textColor="#771919"
        android:textSize="35sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <ImageView
```

```

    android:id="@+id/imageView"
    android:layout_width="117dp"
    android:layout_height="103dp"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="48dp"
    android:layout_marginBottom="598dp"
    app:srcCompat="@drawable/logo" />

```

<View

```

    android:layout_width="320dp"
    android:layout_height="2dp"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="43dp"
    android:layout_marginBottom="569dp"
    android:background="#2B2829" />

```

<TextView

```

    android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="86dp"
    android:layout_marginBottom="463dp"
    android:text="SANTHOSH T"
    android:textColor="#D81D74"
    android:textSize="40sp" />

```

<TextView

```

    android:id="@+id/textView2"
    android:layout_width="344dp"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginStart="37dp"
    android:layout_marginEnd="30dp"
    android:layout_marginBottom="315dp"
    android:text="Assistant Professor"
    android:textAlignment="center"
    android:textColor="#233878"
    android:textSize="50sp" />

```

```

<TextView
    android:id="@+id/textView3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="156dp"
    android:layout_marginBottom="220dp"
    android:text="BIET, DAVANAGERE"
    android:textAlignment="center"
    android:textColor="#681177"
    android:textSize="50sp" />

<TextView
    android:id="@+id/textView4"
    android:layout_width="348dp"
    android:layout_height="109dp"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="23dp"
    android:layout_marginBottom="96dp"
    android:text="Email:tsanthosh@bietdvg.edu"
    android:textAlignment="center"
    android:textColor="#852323"
    android:textSize="30sp" />

</RelativeLayout>

```

MainActivity.java

```

package com.example.labpgm1;
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);
    }
}

```

OUTPUT:



2. Develop an Android application using controls like Button, TextView, EditText for designing a calculator having basic functionality like Addition, Subtraction, Multiplication, and Division.

- 1) Firstly, Create an Application by Name “calciApplication”
- 2) Go to xml code of design change the layout to “RelativeLayout”
- 3) Add TextView component & change the following properties:
 - Size: 36sp
 - Text: Simple Calci
 - Center-Align
- 4) Add PlainText(EditText) component & change the following properties in XML Code:
 - Text: “”
 - Hint: “Enter the Number 1”
 - id: “@+id/editText1”
- 5) Add PlainText(EditText) component & change the following properties in XML Code:
 - Text: “”
 - Hint: “Enter the Number 2 ”
 - id: “@+id/editText2”
- 6) Add TextView component to display result & change the following properties:
 - Size: 40dp
 - Text: “0”
 - Center-Align
 - id: “@+id/textView1”
- 7) Add 4 Buttons & rename the four buttons “Add”, “Sub”, ”Mul” and “div” with following addition:
 - Onclick: “add”(Add Button)
 - Onclick: “sub”(Sub Button)
 - Onclick: “mul”(Mul Button)
 - Onclick: “div”(Div Button)

```

                                activity_main.xml
<?xml version="1.0" encoding="utf-8"?>
<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"
tools:context=".MainActivity">

```

```
<TextView
```

```

    android:id="@+id/textView1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="69dp"
    android:layout_marginBottom="613dp"
    android:fontFamily="monospace"
    android:text="Calculator"
    android:textAlignment="center"
    android:textColor="#E91E63"
    android:textSize="48sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent" />

```

```
<EditText
```

```

    android:id="@+id/editText1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="72dp"
    android:layout_marginBottom="513dp"
    android:ems="10"
    android:inputType="text"
    android:text=""
    android:hint="Enter Number 1"
    android:textSize="24sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent" />

```

```
<EditText
```

```

    android:id="@+id/editText2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"

```

```

    android:layout_marginEnd="72dp"
    android:layout_marginBottom="427dp"
    android:ems="10"
    android:inputType="text"
    android:hint="Enter Number 2"
    android:text=""
    android:textSize="24sp"
    tools:layout_editor_absoluteX="77dp"
    tools:layout_editor_absoluteY="268dp" />

```

<TextView

```

    android:id="@+id/textView2"
    android:layout_width="165dp"
    android:layout_height="88dp"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="135dp"
    android:layout_marginBottom="322dp"
    android:text=""
    android:textSize="50sp"
    android:textAlignment="center"
    android:textColor="#F44336"
    tools:layout_editor_absoluteX="168dp"
    tools:layout_editor_absoluteY="359dp" />

```

<Button

```

    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="263dp"
    android:layout_marginBottom="241dp"
    android:text="ADD"
    android:onClick="add"
    tools:layout_editor_absoluteX="90dp"
    tools:layout_editor_absoluteY="437dp" />

```

<Button

```

    android:id="@+id/button2"
    android:layout_width="wrap_content"

```

```

        android:layout_height="wrap_content"
        android:layout_alignParentEnd="true"
        android:layout_alignParentBottom="true"
        android:layout_marginEnd="81dp"
        android:layout_marginBottom="239dp"
        android:text="SUB"
        android:onClick="sub"
        tools:layout_editor_absoluteX="256dp"
        tools:layout_editor_absoluteY="437dp" />

<Button
    android:id="@+id/button3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="262dp"
    android:layout_marginBottom="113dp"
    android:text="MUL"
    android:onClick="mul"
    tools:layout_editor_absoluteX="87dp"
    tools:layout_editor_absoluteY="552dp" />

<Button
    android:id="@+id/button4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="83dp"
    android:layout_marginBottom="115dp"
    android:text="DIV"
    android:onClick="div"
    tools:layout_editor_absoluteX="253dp"
    tools:layout_editor_absoluteY="538dp" />
</RelativeLayout>

```

MainActivity.java

```

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

```



```

public class MainActivity extends AppCompatActivity {
    EditText e1,e2;
    TextView tv;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        e1 =(EditText)findViewById(R.id.editText1);
        e2 = (EditText)findViewById(R.id.editText2);
        tv= (TextView)findViewById(R.id.textView2);
    }

    public void add(View v)
    {
        int a1=Integer.parseInt(e1.getText().toString());
        int a2= Integer.parseInt(e2.getText().toString());
        int result=a1+a2;
        tv.setText(""+result);
    }

    public void sub(View v)
    {
        int a1=Integer.parseInt(e1.getText().toString());
        int a2= Integer.parseInt(e2.getText().toString());
        int result=a1-a2;
        tv.setText(""+result);
    }

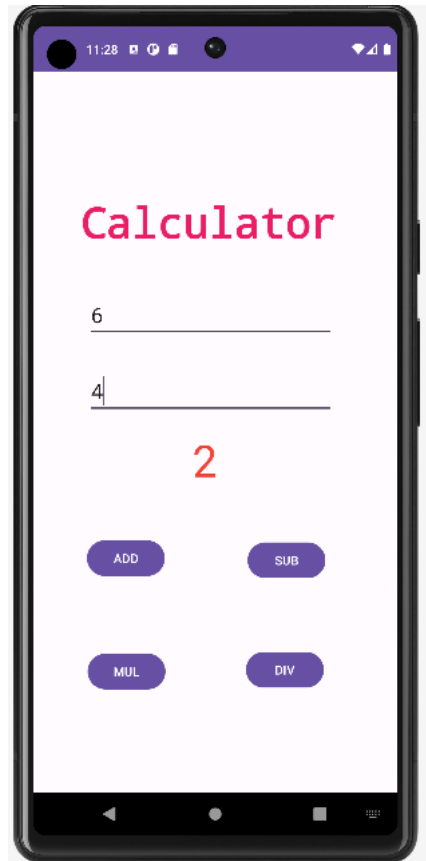
    public void mul(View v)
    {
        int a1=Integer.parseInt(e1.getText().toString());
        int a2= Integer.parseInt(e2.getText().toString());
        int result=a1*a2;
        tv.setText(""+result);
    }

    public void div(View v)
    {
        int a1=Integer.parseInt(e1.getText().toString());
        int a2= Integer.parseInt(e2.getText().toString());
        int result=a1/a2;
        tv.setText(""+result);
    }
}

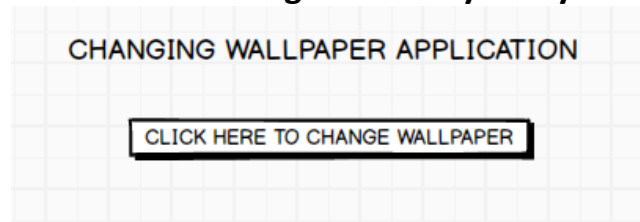
```

```
}
```

OUTPUT:



4. Develop an application to set an image as wallpaper. On click of a button, the wallpaper image should start to change randomly every 30 seconds.



activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<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"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="401dp"
        android:layout_height="58dp"
        android:layout_alignParentEnd="true"
        android:layout_alignParentBottom="true"
        android:layout_marginEnd="3dp"
        android:layout_marginBottom="560dp"
        android:fontFamily="sans-serif-condensed-light"
        android:text="Wallpaper"
        android:textAlignment="center"

        android:textAppearance="@style/TextAppearance.AppCompat.Large"
        android:textColor="#F44336"
        android:textSize="48sp"
        android:textStyle="bold"
        tools:layout_editor_absoluteX="171dp"
        tools:layout_editor_absoluteY="120dp" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentEnd="true"
```

```

        android:layout_alignParentBottom="true"
        android:layout_marginEnd="74dp"
        android:layout_marginBottom="351dp"
        android:text="Change Wallpaper"
        android:onClick="start"
        android:textSize="26sp" />
</RelativeLayout>

```

MainActivity.java

```

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.graphics.BitmapFactory;
import android.app.WallpaperManager;
import java.io.IOException;
import java.util.Random;
import java.util.Timer;
import java.util.TimerTask;

public class MainActivity extends AppCompatActivity
{
    Button b1;
    boolean running;
    int[] ls = new int[]{R.drawable.i1, R.drawable.i2,
R.drawable.i3,R.drawable.i4};
    public void start(View v)
    {
        if (!running) {
            new Timer().schedule(new Mytimer(), 0, 3000);
            running = true;
        }
    }

    @Override
    protected void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        b1 = (Button) findViewById(R.id.button);
    }
}

```

```

private class Mytimer extends TimerTask
{
    @Override
    public void run()
    {
        try
        {
            WallpaperManager wp =
WallpaperManager.getInstance(getApplicationContext());
            Random random = new Random();
            wp.setBitmap(BitmapFactory.decodeResource(getResources(), ls[random.nextInt(4)]));
        }
        catch (IOException e)
        {
        }
    }
}
}

```

AndroidManifest.xml

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

OUTPUT:



5. Write a program to create an activity with two buttons START and STOP. On pressing of the START button, the activity must start the counter by displaying the numbers from One and the counter must keep on counting until the STOP button is pressed. Display the counter value in a TextView control.

activity_main.xml

```
?xml version="1.0" encoding="utf-8"?>
<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"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_alignParentEnd="true"
        android:layout_alignParentBottom="true"
        android:layout_marginEnd="0dp"
        android:layout_marginBottom="634dp"
        android:fontFamily="sans-serif-black"
        android:text="Counter Application"
        android:textAlignment="center"

        android:textAppearance="@style/TextAppearance.AppCompat.Large"
        android:textSize="34sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentEnd="true"
        android:layout_alignParentBottom="true"
        android:layout_marginEnd="98dp"
        android:layout_marginBottom="474dp"
        android:hint="Counter Value"
```

```

        android:text=""
        android:textAlignment="center"
        android:textSize="34sp"
        android:textStyle="bold" />

<Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="257dp"
    android:layout_marginBottom="304dp"
    android:text="START"
    android:backgroundTint="#8BC34A"
    android:textAlignment="center"
    android:textSize="20sp" />

<Button
    android:id="@+id/button2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="46dp"
    android:layout_marginBottom="305dp"
    android:text="STOP"
    android:backgroundTint="#E91E63"
    android:textAlignment="center"
    android:textSize="20sp" />

</RelativeLayout>

```

MainActivity.java

```

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.os.Handler;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
public class MainActivity extends AppCompatActivity {

```

```

TextView txtCounter;
Button btn_start,btn_stop; int count=0;
Handler customHandler=new Handler();

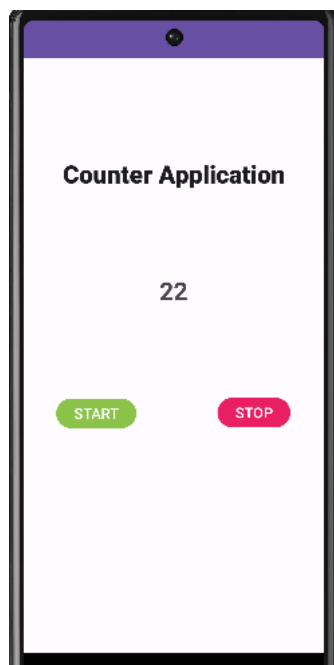
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    txtCounter= (TextView) findViewById(R.id.textView);
    btn_start = (Button) findViewById(R.id.button);
    btn_stop=(Button) findViewById(R.id.button2);
    btn_start.setOnClickListener(new View.OnClickListener()
    {
        @Override
        public void onClick(View v)
        { customHandler.postDelayed(updateTimerThread,0);
        }
    });
    btn_stop.setOnClickListener(new View.OnClickListener()
    { @Override
    public void onClick(View v)
    { customHandler.removeCallbacks(updateTimerThread);
    }
    });

}

private final Runnable updateTimerThread =new Runnable()
{ @Override
public void run()
{ txtCounter.setText(""+count);
  customHandler.postDelayed(this,1000); count++;
}
};
}

```

Output:



6. Create two files of XML and JSON type with values for City_Name, Latitude, Longitude, Temperature, and Humidity. Develop an application to create an activity with two buttons to parse the XML and JSON files which when clicked should display the data in their respective layouts side by side.

- 1) Firstly, Create an Application by Name "JsonParser"
- 2) Go to xml code of design change the layout to "RelativeLayout"
- 3) Add TextView component & change the following properties:
 - 1) Size: 38dp
 - 2) Text: XML and JSON Parser
 - 3) Center-Align
- 4) Add Two Buttons to Design & change the name "ParseXml" & "ParseJson" with following onclick functions:
 - ParseXml-Button: parsexml
 - ParseJson-Button: parsejson
- 5) Add TextView component & change the following properties:
 - Id: display
 - Text: ""
 - Align: Center
- 6) Add Assets folder by following the given hierarchy: App->new->folder->Assets folder
- 7) Inside the assets folder create new files of xml and json using the following hierarchy: new->file->city.xml
new->file->city.json

once created place the following details inside the "city.xml" and "city.json"

city.xml:

```
<?xml version="1.0"?>
<records>
<place>
<name>Mysore</name>
<lat>12.295</lat>
<long>76.639</long>
<temperature>22</temperature>
<humidity>90%</humidity>
</place>
```

```

<place>
<name>Bangalore</name>
<lat>13.295</lat>
<long>77.639</long>

<temperature>25</temperature>
<humidity>74%</humidity>
</place>
</records>

```

city.json:

```

[
{
"name":"HASSAN",
"lat":"12.295",
"long":"76.639",
"temperature":"22",
"humidity":"92%"
},
{
"name":"MANDYA",
"lat":"10.11",
"long":"66.639",
"temperature":"24",
"humidity":"82%"
}
]

```

activity_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<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"
tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="257dp"

        android:layout_height="59dp"

```

```

    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="74dp"
    android:layout_marginBottom="573dp"
    android:text="PARSER"
    android:textAlignment="center"
    android:textSize="36sp"
    android:textStyle="bold"
    tools:layout_editor_absoluteX="194dp"
    tools:layout_editor_absoluteY="126dp" />

```

<Button

```

    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="249dp"
    android:layout_marginBottom="442dp"
    android:backgroundTint="#F1B763"
    android:onClick="parsexml"
    android:text="XML"
    android:textAlignment="center" />

```

<Button

```

    android:id="@+id/button2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="80dp"
    android:layout_marginBottom="442dp"
    android:backgroundTint="#CDDC39"
    android:onClick="parsejson"
    android:text="JSON"
    android:textAlignment="center" />

```

<TextView android:id="@+id/display"

```

    android:layout_width="402dp"
    android:layout_height="332dp"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="9dp"
    android:layout_marginBottom="11dp"
    android:textAlignment="center"

```

```

        android:textColor="#EF3A78" />
</RelativeLayout>

```

MainActivity.java

```

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.TextView;
import android.widget.Toast;
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 java.nio.charset.StandardCharsets;
import javax.xml.parsers.DocumentBuilder;
import javax.xml.parsers.DocumentBuilderFactory;
public class MainActivity extends AppCompatActivity {
    TextView display; @Override
    protected void onCreate(Bundle savedInstanceState)
    { super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        display=findViewById(R.id.display);
    }
    public void parsexml(View v){ try {
        InputStream is=getAssets().open("city.xml");
        DocumentBuilderFactory documentBuilderFactory =
DocumentBuilderFactory.newInstance();
        DocumentBuilder documentBuilder =
documentBuilderFactory.newDocumentBuilder();
        Document document=documentBuilder.parse(is);
        StringBuilder stringBuilder=new StringBuilder();
        stringBuilder.append("XML DATA");
        stringBuilder.append("\n");
        NodeList nodeList=document.getElementsByTagName("place");
        for(int i=0; i<nodeList.getLength();i++){
            Node node = nodeList.item(i);
            if (node.getNodeType()==Node.ELEMENT_NODE) {
                Element element = (Element)node;
                stringBuilder.append("\n Name:").append(getValue("name",element));
                stringBuilder.append("\n Latitude:").append(getValue("lat",element));
                stringBuilder.append("\n Longitude:").append(getValue("long",element));
            }
        }
    } catch (Exception e) {
        e.printStackTrace();
    }
}
}

```

```

stringBuilder.append("\nTemperature:").append(getValue("temperature",element));
stringBuilder.append("\nhumidity").append(getValue("humidity",element));
    stringBuilder.append("\n    ");

    }
    }
    display.setText(stringBuilder.toString());
}
catch (Exception e){ e.printStackTrace();
    Toast.makeText(MainActivity.this,"Error in reading XML
FILE",Toast.LENGTH_LONG).show();
}
}
public void parsejson(View V){ String json;
    StringBuilder stringBuilder = new StringBuilder();
    try {
        InputStream is = getAssets().open("city.json");
        int size=is.available();
        byte[] buffer=new byte[size]; is.read(buffer);
        json = new String(buffer, StandardCharsets.UTF_8);
        JSONArray jsonArray = new JSONArray(json);
        stringBuilder.append("JSON DATA");
        stringBuilder.append("\n    ");
        for(int i=0;i<jsonArray.length();i++){
            JSONObject jsonObject = jsonArray.getJSONObject(i);

stringBuilder.append("\nName:").append(jsonObject.getString("name"));
stringBuilder.append("\nLatitude:").append(jsonObject.getString("lat"));
);
stringBuilder.append("\nLongitude:").append(jsonObject.getString("long"));
stringBuilder.append("\nTemperature:").append(jsonObject.getString("temperature"));
stringBuilder.append("\nHumidity:").append(jsonObject.getString("humidity"));

            stringBuilder.append("\n    ");
        }
        display.setText(stringBuilder.toString());
        is.close();
    }

    catch (Exception e){ e.printStackTrace();
        Toast.makeText(MainActivity.this,"Error in reading JSON
file",Toast.LENGTH_LONG).show();
    }

}
}

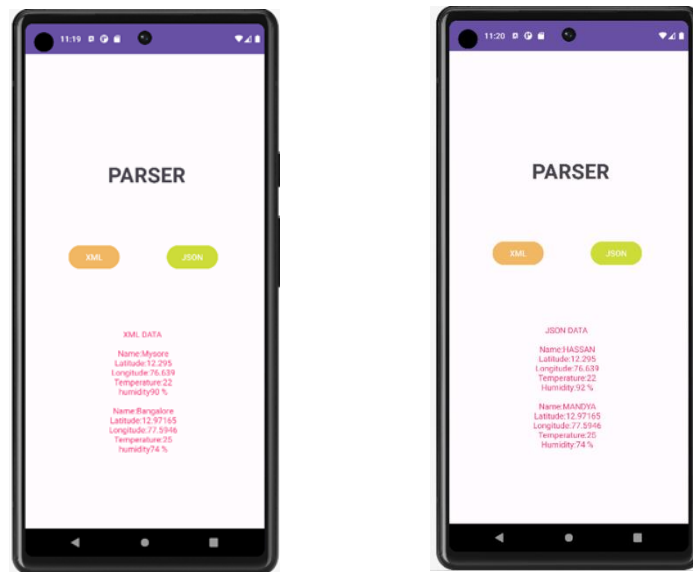
```

```

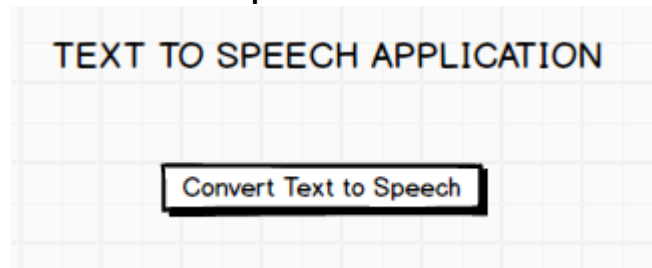
private String getValue(String tag,Element element){ return
element.getElementsByTagName(tag).item(0).getChildNodes().item(0).getNodeValue();
}
}

```

OUTPUT:



7. 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"?>
<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"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_alignParentEnd="true"
        android:layout_alignParentBottom="true"
        android:layout_marginEnd="0dp"
        android:layout_marginBottom="610dp"
        android:text="Text To Speech"
        android:textAlignment="center"
        android:textColor="#E91E63"
        android:textSize="34sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/editTextText"
        android:layout_width="324dp"
        android:layout_height="55dp"
        android:layout_alignParentEnd="true"
        android:layout_alignParentBottom="true"
        android:layout_marginEnd="41dp"
        android:layout_marginBottom="470dp"
```

```

        android:ems="10"
        android:hint="Enter Text"
        android:inputType="text"
        android:textAlignment="center"
        android:textSize="24sp"
        android:textStyle="bold" />

<Button
    android:id="@+id/button"
    android:layout_width="176dp"
    android:layout_height="61dp"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="120dp"
    android:layout_marginBottom="337dp"
    android:text="Convert"
    android:textSize="24sp"
    android:textStyle="bold" />

</RelativeLayout>

```

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 java.util.Locale;

public class MainActivity extends AppCompatActivity {

    EditText t;
    Button b;
    TextToSpeech ts;
    @Override
    protected void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        t = findViewById(R.id.editTextText);
        b = findViewById(R.id.button);
    }
}

```



```

        // create an object textToSpeech and adding features
into it
        ts = new TextToSpeech(getApplicationContext(), new
TextToSpeech.OnInitListener()
        {
            @Override
            public void onInit(int i)
            {

                // if No error is found then only it will run

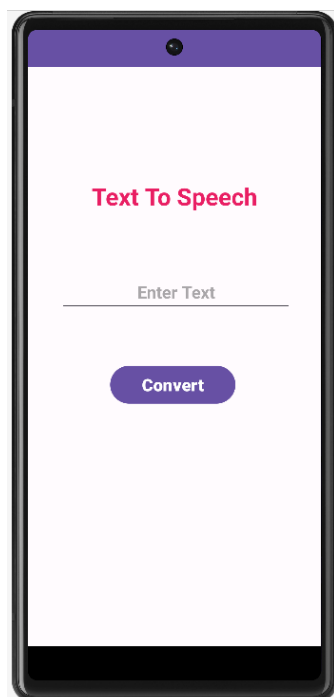
                if(i!=TextToSpeech.ERROR)
                {
                    // To Choose language of speech
                    ts.setLanguage(Locale.UK);
                }
            }
        });

        // Adding OnClickListener
b.setOnClickListener(new View.OnClickListener()
{
    @Override
    public void onClick(View v)
    {

        ts.speak(t.getText().toString(), TextToSpeech.QUEUE_FLUSH, null);
    }
});
    }
}

```

Output:



8. Create an activity like a phone dialer with CALL and SAVE 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"?>
<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"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="298dp"
        android:layout_height="wrap_content"
        android:layout_alignParentEnd="true"
        android:layout_alignParentBottom="true"
        android:layout_marginEnd="45dp"
        android:layout_marginBottom="621dp"
        android:fontFamily="sans-serif-condensed"
        android:text="Call Application"
        android:textAlignment="center"

        android:textAppearance="@style/TextAppearance.AppCompat.Large"
        android:textSize="36dp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
```

```

<EditText
    android:id="@+id/input"
    android:layout_width="277dp"
    android:layout_height="50dp"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="123dp"
    android:layout_marginBottom="518dp"
    android:ems="10"
    android:hint="Enter Number"
    android:inputType="text"
    android:scaleType="center" />

```

```

<Button
    android:id="@+id/clearbtn"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="25dp"
    android:layout_marginBottom="522dp"
    android:text="Clear" />

```

```

<Button
    android:id="@+id/button2"
    android:layout_width="76dp"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="307dp"
    android:layout_marginBottom="406dp"
    android:onClick="inputNumber"
    android:text="1" />

```

```

<Button
    android:id="@+id/button3"
    android:layout_width="76dp"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="183dp"

```

```

    android:layout_marginBottom="410dp"
    android:onClick="inputNumber"
    android:text="2" />

```

<Button

```

    android:id="@+id/button4"
    android:layout_width="76dp"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="53dp"
    android:layout_marginBottom="411dp"
    android:onClick="inputNumber"
    android:text="3" />

```

<Button

```

    android:id="@+id/button5"
    android:layout_width="76dp"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="310dp"
    android:layout_marginBottom="306dp"
    android:onClick="inputNumber"
    android:text="4" />

```

<Button

```

    android:id="@+id/button6"
    android:layout_width="76dp"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="185dp"
    android:layout_marginBottom="310dp"
    android:onClick="inputNumber"
    android:text="5" />

```

<Button

```

    android:id="@+id/button7"
    android:layout_width="76dp"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="51dp"
    android:layout_marginBottom="315dp"

```

```

    android:onClick="inputNumber"
    android:text="6" />

```

<Button

```

    android:id="@+id/button8"
    android:layout_width="76dp"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="310dp"
    android:layout_marginBottom="217dp"
    android:onClick="inputNumber"
    android:text="7" />

```

<Button

```

    android:id="@+id/button9"
    android:layout_width="76dp"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="186dp"
    android:layout_marginBottom="216dp"
    android:onClick="inputNumber"
    android:text="8" />

```

<Button

```

    android:id="@+id/button10"
    android:layout_width="76dp"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="49dp"
    android:layout_marginBottom="224dp"
    android:onClick="inputNumber"
    android:text="9" />

```

<Button

```

    android:id="@+id/button11"
    android:layout_width="76dp"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="308dp"
    android:layout_marginBottom="123dp"

```

```
android:onClick="inputNumber"
```

```
android:text="#" />
```

```
<Button
```

```
    android:id="@+id/button12"
    android:layout_width="76dp"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="184dp"
    android:layout_marginBottom="127dp"
    android:onClick="inputNumber"
    android:text="0" />
```

```
<Button
```

```
    android:id="@+id/button13"
    android:layout_width="76dp"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="52dp"
    android:layout_marginBottom="131dp"
    android:onClick="inputNumber"
    android:text="*" />
```

```
<Button
```

```
    android:id="@+id/callbtn"
    android:layout_width="110dp"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="224dp"
    android:layout_marginBottom="41dp"
    android:text="Call" />
```

```
<Button
```

```
    android:id="@+id/savebtn"
    android:layout_width="108dp"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="61dp"
    android:layout_marginBottom="41dp"
```

```

        android:text="Save" />

</RelativeLayout>

```

MainActivity.java

```

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.provider.ContactsContract;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity
{
    EditText number;
    Button clear, call, save;

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

        number = findViewById(R.id.input);
        call = findViewById(R.id.callbtn);
        save = findViewById(R.id.savebtn);
        clear = findViewById(R.id.clearbtn);

        clear.setOnClickListener(new View.OnClickListener()
        {
            @Override
            public void onClick(View v)
            {
                number.setText("");
            }
        });

        call.setOnClickListener(new View.OnClickListener()
        {
            @Override
            public void onClick(View v) {
                String phno = number.getText().toString();
                Intent intent = new Intent(Intent.ACTION_DIAL);
            }
        });
    }
}

```

```

        intent.setData(Uri.parse("tel:" + phno));
        startActivity(intent);
    }
});

save.setOnClickListener(new View.OnClickListener()
{
    @Override
    public void onClick(View v) {
        String phno = number.getText().toString();
        Intent intent = new Intent(Intent.ACTION_INSERT);

intent.setType(ContactsContract.Contacts.CONTENT_TYPE);
intent.putExtra(ContactsContract.Intents.Insert.PHONE, phno);
startActivity(intent);
    }
});
}

public void inputNumber(View V)
{
    Button btn=(Button) V;
    String dig=btn.getText().toString();
    String phnbr=number.getText().toString();
    number.setText(phnbr +dig);
}
}

```

OUTPUT:

