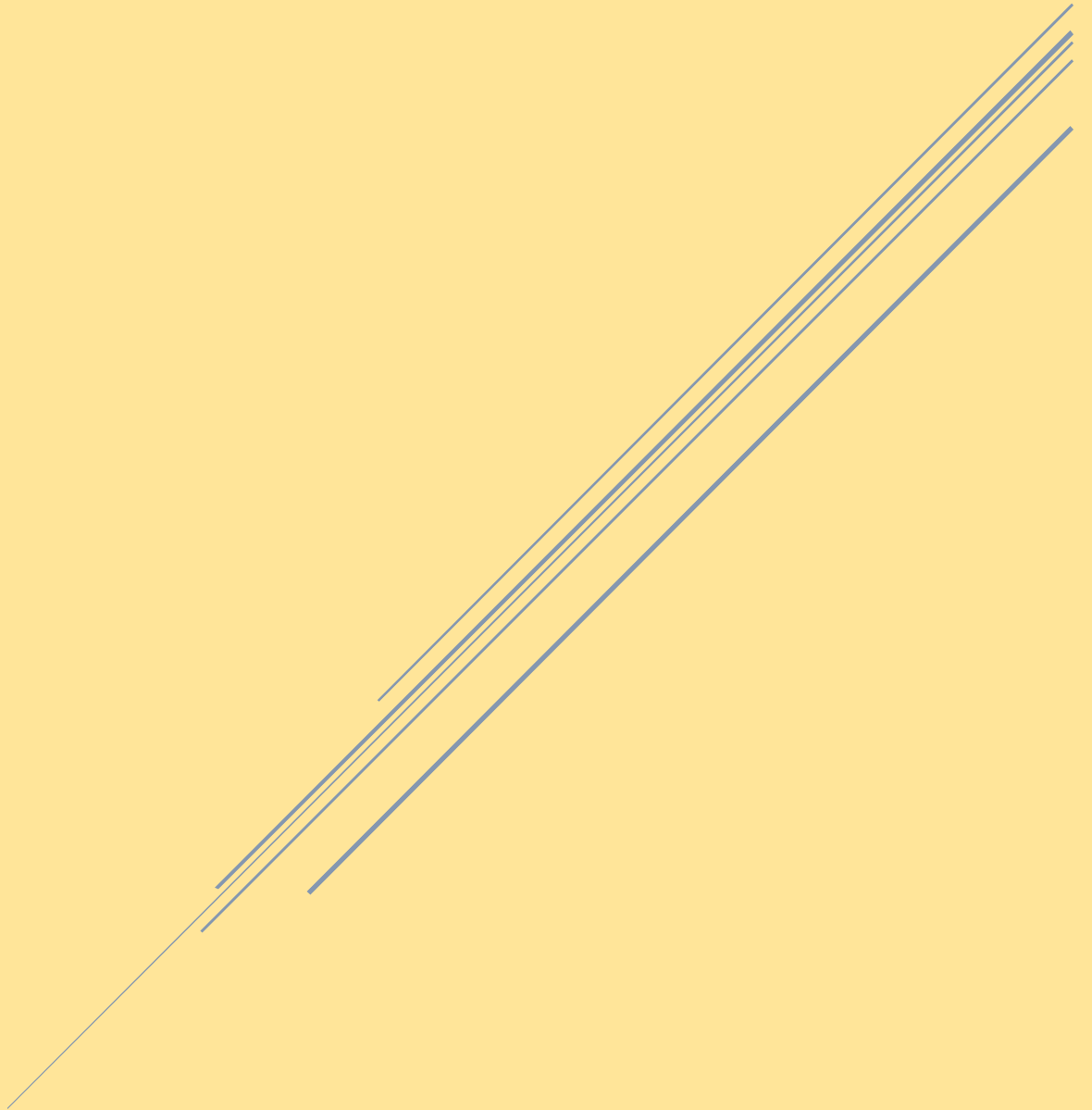


MY MOBILE APPLICATION MANUAL



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

Soln)

Image used as icon3.jpeg



MainActivity.java

```
package com.example.lab1;

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);
    }
}
```

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:layout_alignWithParentIfMissing="true"
    android:layout_alignParentLeft="true"
    android:layout_alignParentTop="true"
    android:layout_alignParentRight="true"
    android:layout_alignParentBottom="true"
    android:layout_centerInParent="true"
    android:layout_centerHorizontal="true"
    android:layout_centerVertical="true"
    android:animateLayoutChanges="false"
    android:background="#F3F1ED"
    android:divider="@android:drawable/bottom_bar"
    android:orientation="vertical">
```

```

android:layout_marginTop="10dp"
android:paddingLeft="1dp"
android:paddingTop="1dp"
tools:context=".MainActivity">
<RelativeLayout
    android:layout_width="match_parent"
    android:layout_height="100dp">
    <TextView
        android:layout_width="390dp"
        android:layout_height="89dp"
        android:layout_marginLeft="20dp"
        android:capitalize="sentences"
        android:fontFamily="casual"
        android:foregroundGravity="center"
        android:paddingLeft="10dp"
        android:paddingRight="20dp"
        android:text="\nRNS INSTITUTE OF TECHNOLOGY\n"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        android:textColor="#06114E"
        android:textSize="20sp"
        android:textStyle="bold|italic"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
    <ImageView
        android:layout_width="100dp"
        android:layout_height="100dp"
        android:layout_marginLeft="350dp"
        android:layout_marginTop="30dp"
        android:layout_marginRight="20dp"
        android:src="@drawable/icon3" />
</RelativeLayout>
<TableRow
    android:id="@+id/hr"
    android:layout_width="match_parent"
    android:layout_height="1dp"
    android:background="#CE851414"
    android:paddingTop="10dp"
    android:paddingBottom="10dp"></TableRow>
<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginLeft="10dp"
    android:layout_marginTop="10dp"
    android:fontFamily="serif-monospace"
    android:paddingLeft="20dp"
    android:paddingTop="20dp"
    android:text="Name : Vibha V\n\nJob Title : Student\nPhone Number : 9482263118\n"
    android:textColor="#1E0202"
    android:textSize="20dp" />

```

```

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginLeft="10dp"
    android:fontFamily="serif-monospace"
    android:paddingLeft="20dp"
    android:text="Address : #657, 22nd cross \n\t\t Kumaraswamy Layout ,\t Bengaluru\n"
    android:textColor="#170101"
    android:textSize="20dp" />
<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginLeft="10dp"
    android:fontFamily="serif-monospace"
    android:paddingLeft="20dp"
    android:text="EMail : vibhavish2000@gmail.com\n Fax : 080 - 26663118\n\nWebsite :
www.github.com/vibha-v-657"
    android:textColor="#220303"
    android:textSize="20dp" /></LinearLayout>

```

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

Soln)

Activity_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent" android:layout_height="match_parent"
    tools:context=".MainActivity"
    tools:ignore="NamespaceTypo">
    <Button android:id="@+id/button_clear" android:layout_width="87dp" android:layout_height="53dp"
        android:layout_marginTop="30dp" android:text="C"
        app:layout_constraintStart_toStartOf="@+id/button_add"
        app:layout_constraintTop_toBottomOf="@+id/button_add" />
    <Button android:id="@+id/button_sub" android:layout_width="87dp" android:layout_height="53dp"
        android:layout_marginStart="20dp" android:layout_marginTop="30dp" android:text="-"
        app:layout_constraintStart_toEndOf="@+id/button_three"
        app:layout_constraintTop_toBottomOf="@+id/button_mul" />
    <Button android:id="@+id/button_add" android:layout_width="87dp" android:layout_height="53dp"
        android:layout_marginStart="20dp" android:layout_marginTop="30dp" android:text="+"
        app:layout_constraintStart_toEndOf="@+id/button_equal"
        app:layout_constraintTop_toBottomOf="@+id/button_sub" />
    <Button android:id="@+id/button_mul" android:layout_width="87dp" android:layout_height="53dp"

```

```

android:layout_marginStart="20dp" android:layout_marginTop="30dp" android:text="*"
app:layout_constraintStart_toEndOf="@+id/button_six"
app:layout_constraintTop_toBottomOf="@+id/button_div" />
<Button android:id="@+id/button_equal" android:layout_width="62dp" android:layout_height="53dp"
android:layout_marginStart="20dp" android:layout_marginTop="30dp" android:text="="
app:layout_constraintStart_toEndOf="@+id/button_zero"
app:layout_constraintTop_toBottomOf="@+id/button_three" />
<Button android:id="@+id/button_zero" android:layout_width="62dp" android:layout_height="53dp"
android:layout_marginStart="20dp" android:layout_marginTop="30dp" android:text="0"
app:layout_constraintStart_toEndOf="@+id/button_dot"
app:layout_constraintTop_toBottomOf="@+id/button_two" />
<Button android:id="@+id/button_dot" android:layout_width="62dp" android:layout_height="53dp"
android:layout_marginStart="20dp" android:layout_marginTop="30dp" android:text="."
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/button_one" />
<Button android:id="@+id/button_three" android:layout_width="62dp" android:layout_height="53dp"
android:layout_marginStart="20dp" android:layout_marginTop="30dp" android:text="3"
app:layout_constraintStart_toEndOf="@+id/button_two"
app:layout_constraintTop_toBottomOf="@+id/button_six" />
<Button android:id="@+id/button_two" android:layout_width="62dp" android:layout_height="53dp"
android:layout_marginStart="20dp" android:layout_marginTop="30dp" android:text="2"
app:layout_constraintStart_toEndOf="@+id/button_one"
app:layout_constraintTop_toBottomOf="@+id/button_five" />
<Button android:id="@+id/button_one" android:layout_width="62dp" android:layout_height="53dp"
android:layout_marginStart="20dp" android:layout_marginTop="30dp" android:text="1"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/button_four" />
<Button android:id="@+id/button_six" android:layout_width="62dp" android:layout_height="53dp"
android:layout_marginStart="20dp" android:layout_marginTop="30dp" android:text="6"
app:layout_constraintStart_toEndOf="@+id/button_five"
app:layout_constraintTop_toBottomOf="@+id/button_nine" />
<Button android:id="@+id/button_seven" android:layout_width="62dp" android:layout_height="53dp"
android:layout_marginStart="20dp" android:layout_marginTop="20dp" android:text="7"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/txt_result"
/>
<Button android:id="@+id/button_eight" android:layout_width="62dp" android:layout_height="53dp"
android:layout_marginStart="20dp" android:layout_marginTop="20dp" android:text="8"
app:layout_constraintStart_toEndOf="@+id/button_seven"
app:layout_constraintTop_toBottomOf="@+id/txt_result" />
<Button android:id="@+id/button_nine" android:layout_width="62dp" android:layout_height="53dp"
android:layout_marginStart="20dp" android:layout_marginTop="20dp" android:text="9"
app:layout_constraintStart_toEndOf="@+id/button_eight"
app:layout_constraintTop_toBottomOf="@+id/txt_result" />
<Button android:id="@+id/button_four" android:layout_width="62dp" android:layout_height="53dp"
android:layout_marginStart="20dp" android:layout_marginTop="30dp" android:text="4"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/button_seven" />

```

```

<TextView android:id="@+id/textView" android:layout_width="wrap_content"
android:layout_height="wrap_content" android:layout_marginTop="30dp" android:text="SIMPLE
CALCULATOR" android:textSize="26dp" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" />
<TextView android:id="@+id/textView2" android:layout_width="wrap_content"
android:layout_height="wrap_content" android:layout_marginStart="20dp"
android:layout_marginTop="20dp" android:text="Result" android:textSize="18dp"
android:textStyle="bold"
app:layout_constraintEnd_toStartOf="@+id/textView" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/textView" />
<EditText android:id="@+id/txt_result" android:layout_width="310dp" android:layout_height="46dp"
android:layout_marginTop="20dp" android:ems="10" android:inputType="textPersonName"
app:layout_constraintStart_toStartOf="@+id/textView2"
app:layout_constraintTop_toBottomOf="@+id/textView2" />
<Button android:id="@+id/button_div" android:layout_width="87dp" android:layout_height="53dp"
android:layout_marginStart="20dp" android:layout_marginTop="20dp"
android:text="/" app:layout_constraintStart_toEndOf="@+id/button_nine"
app:layout_constraintTop_toBottomOf="@+id/txt_result" />
<Button android:id="@+id/button_five" android:layout_width="62dp" android:layout_height="53dp"
android:layout_marginStart="20dp" android:layout_marginTop="30dp" android:text="5"
app:layout_constraintStart_toEndOf="@+id/button_four"
app:layout_constraintTop_toBottomOf="@+id/button_eight" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```
package com.example.calculator;
```

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

```
import android.os.Bundle;
```

```
import android.view.View; import android.widget.Button; import android.widget.EditText;
```

```
import android.widget.Toast;
```

```
import java.util.regex.Pattern;
```

```
public class MainActivity extends AppCompatActivity implements View.OnClickListener { Button btnOne,
```

```
    btnTwo, btnThree, btnFour, btnFive, btnSix;
```

```
    Button btnSeven, btnEight, btnNine, btnZero; Button btnAdd,btnSub,btnMul,btnDiv;
```

```
    Button btnClear,btnEqual,btnDot; EditText txtResult;
```

```
@Override
```

```

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main);

    btnOne=(Button)findViewById(R.id.button_one); btnOne.setOnClickListener(this);
    btnTwo=(Button)findViewById(R.id.button_two); btnTwo.setOnClickListener(this);
    btnThree=(Button)findViewById(R.id.button_three); btnThree.setOnClickListener(this);
    btnFour=(Button)findViewById(R.id.button_four); btnFour.setOnClickListener(this);
    btnFive=(Button)findViewById(R.id.button_five); btnFive.setOnClickListener(this);
    btnSix=(Button)findViewById(R.id.button_six); btnSix.setOnClickListener(this);
    btnSeven=(Button)findViewById(R.id.button_seven); btnSeven.setOnClickListener(this);
    btnEight=(Button)findViewById(R.id.button_eight); btnEight.setOnClickListener(this);
    btnNine=(Button)findViewById(R.id.button_nine); btnNine.setOnClickListener(this);
    btnZero=(Button)findViewById(R.id.button_zero); btnZero.setOnClickListener(this);
    btnAdd=(Button)findViewById(R.id.button_add); btnAdd.setOnClickListener(this);
    btnSub=(Button)findViewById(R.id.button_sub); btnSub.setOnClickListener(this);
    btnMul=(Button)findViewById(R.id.button_mul); btnMul.setOnClickListener(this);
    btnDiv=(Button)findViewById(R.id.button_div); btnDiv.setOnClickListener(this);
    btnClear=(Button)findViewById(R.id.button_clear); btnClear.setOnClickListener(this);
    btnEqual=(Button)findViewById(R.id.button_equal); btnEqual.setOnClickListener(this);
    btnDot=(Button)findViewById(R.id.button_dot); btnDot.setOnClickListener(this);
    txtResult=(EditText)findViewById(R.id.txt_result); txtResult.setText("");
}

public void onClick(View v)
{
    if(v.equals(btnOne)) txtResult.append("1"); if(v.equals(btnTwo)) txtResult.append("2");
    if(v.equals(btnThree)) txtResult.append("3"); if(v.equals(btnFour)) txtResult.append("4");
    if(v.equals(btnFive)) txtResult.append("5"); if(v.equals(btnSix)) txtResult.append("6");
    if(v.equals(btnSeven)) txtResult.append("7"); if(v.equals(btnEight)) txtResult.append("8");
    if(v.equals(btnNine)) txtResult.append("9"); if(v.equals(btnZero)) txtResult.append("0");
    if(v.equals(btnDot)) txtResult.append("."); if(v.equals(btnClear)) txtResult.setText("");
}

```

```
if(v.equals(btnEqual))
{
try {
String data = txtResult.getText().toString(); if (data.contains("/")) {
String[] operands = data.split("/"); if(operands.length==2) {
double operand1 = Double.parseDouble(operands[0]); double operand2 =
Double.parseDouble(operands[1]); double result = operand1 / operand2;
txtResult.setText(String.valueOf(result));
}
else
{
Toast.makeText(getBaseContext(),"Invalid Input", Toast.LENGTH_LONG).show();
}
}
else if (data.contains("*")) {
String[] operands = data.split(Pattern.quote("*")); if(operands.length==2) {
double operand1 = Double.parseDouble(operands[0]); double operand2 =
Double.parseDouble(operands[1]);
double result = operand1 * operand2; txtResult.setText(String.valueOf(result));
}
else
{
Toast.makeText(getBaseContext(),"Invalid Input", Toast.LENGTH_LONG).show();
}
}
else if (data.contains("+")) {
String[] operands = data.split(Pattern.quote("+")); if(operands.length==2) {
double operand1 = Double.parseDouble(operands[0]); double operand2 =
Double.parseDouble(operands[1]); double result = operand1 + operand2;
```



```
txtResult.setText(String.valueOf(result));
}
else
{
    Toast.makeText(getBaseContext(),"Invalid Input", Toast.LENGTH_LONG).show();
}
}

else if (data.contains("-")) { String[] operands = data.split("-"); if(operands.length==2) {
    double operand1 = Double.parseDouble(operands[0]); double operand2 =
    Double.parseDouble(operands[1]); double result = operand1 - operand2;
    txtResult.setText(String.valueOf(result));
}
else
{Toast.makeText(getBaseContext(),"Invalid Input", Toast.LENGTH_LONG).show();
}
}
}

catch(Exception e) { Toast.makeText(getBaseContext(),"Invalid Input",
Toast.LENGTH_LONG).show();
}
}

if(v.equals(btnAdd)) txtResult.append("+"); if(v.equals(btnSub)) txtResult.append("-");
if(v.equals(btnMul)) txtResult.append("*"); if(v.equals(btnDiv)) txtResult.append("/");
}
}
```

3) 3) Create a SIGN Up activity with Username and Password. Validation of password should happen based on the following rules:

Password should contain uppercase and lowercase letters.

Password should contain letters and numbers.

Password should contain special characters.

Minimum length of the password (the default value is 8).

On successful SIGN UP proceed to the next Login activity. Here the user should SIGN IN using the Username and Password created during signup activity. If the Username and Password are matched then navigate to the next activity which displays a message saying “Successful Login” or else display a toast message saying “Login Failed”. The user is given only two attempts and after that display a toast message saying “Failed Login Attempts” and disable the SIGN IN button. Use Bundle to transfer information from one activity to another.

Soln)

MainActivity.java

```
package com.example.login;
```

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

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

```
import android.os.Bundle;
```

```
import android.view.View;
```

```
import android.widget.Button;
```

```
import android.widget.EditText;
```

```
import android.widget.Toast;
```

```
import java.util.regex.Matcher;
```

```
import java.util.regex.Pattern;
```

```
public class MainActivity extends AppCompatActivity implements View.OnClickListener{
```

```
    EditText txtusr;
```

```
    EditText txtpswd;
```

```
    Button button;
```

```
    String regexexpression="^(?=[A-Z])(?=[a-z])(?=[\\d])(?=[@$!])[A-Za-z\\d@$!]{8,}$";
```

```
@Override
```

```
protected void onCreate(Bundle savedInstanceState) {
```

```
    super.onCreate(savedInstanceState);
```

```
    setContentView(R.layout.activity_main);
```

```
    txtusr = (EditText) findViewById(R.id.text3);
```

```
    txtpswd = (EditText) findViewById(R.id.text4);
```

```
    button = (Button) findViewById(R.id.button1);
```

```
    button.setOnClickListener(this);
```

```
}
```

```
public void onClick(View v)
```

```
{
```

```
    String username= txtusr.getText().toString();
```

```
    String password= txtpswd.getText().toString();
```

```
    if(validatePassword(password)) {
```

```
        Bundle bundle = new Bundle();
```

```
        bundle.putString("user", username);
```

```
        bundle.putString("Lab@2018", password);
```

```
        Intent it = new Intent(this, LoginActivity.class);
```

```
        it.putExtra("data", bundle);
        startActivity(it);
    }
```

```
    else
    {
        Toast.makeText(getBaseContext(), "Invalid password", Toast.LENGTH_LONG).show();
    }
}
```

```
public boolean validatePassword(String password)
{
    Pattern pattern=Pattern.compile(regularexpression);
    Matcher matcher=pattern.matcher(password);
    return matcher.matches();
}
```

```
}
```

LoginActivity.java

```
package com.example.login;
```

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

```
import android.os.Bundle;
```

```
import android.view.View;
```

```
import android.widget.Button;
```

```
import android.widget.EditText;
```

```
import android.widget.Toast;
```

```
public class LoginActivity extends AppCompatActivity implements View.OnClickListener {
```

```
    EditText txtloginusr;
```

```
    EditText txtloginpswd;
```

```
    Button buttonlogin;
```

```
    String user, pass;
```

```
    int count = 0;
```

```
    @Override
```

```
    protected void onCreate(Bundle savedInstanceState) {
```

```
        super.onCreate(savedInstanceState);
```

```
        setContentView(R.layout.activity_login);
```

```
        txtloginusr = (EditText) findViewById(R.id.text3);
```

```
        txtloginpswd = (EditText) findViewById(R.id.text4);
```

```
        buttonlogin = (Button) findViewById(R.id.button2);
```

```
        buttonlogin.setOnClickListener(this);
```

```
        Bundle bundle = getIntent().getBundleExtra("data");
```

```
        user = bundle.getString("user");
```

```
        pass = bundle.getString("Lab@2018");
```

```
    }
```

```
    public void onClick(View v) {
```

```
        String user1 = txtloginusr.getText().toString();
```

```
        String pass1 = txtloginpswd.getText().toString();
```

```
        if (user.equals(user1) && pass.equals(pass1))
```

```
        {
```

```
            Toast.makeText(this, "Login Successful", Toast.LENGTH_LONG).show();
```

```
        }
```

```

else {
    count++;
    if (count == 3) {
        buttonlogin.setEnabled(false);
        Toast.makeText(this, "Failed Login Attempts", Toast.LENGTH_LONG).show();
    } else {
        Toast.makeText(this, "Login Failed" + count, Toast.LENGTH_LONG).show();
    }
}
}
}

```

activity_main.xml

```

<?xml version="1.0" encoding="utf-8"?>

<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"

    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textfont"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/sign_up_activity"
        android:textColor="#550ADF"
        android:textSize="34sp"
        app:layout_constraintBottom_toBottomOf="parent"

```

```
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.541"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.119" />
```

<TextView

```
    android:id="@+id/text"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="@string/username"
    android:textAlignment="viewStart"
    android:textColor="#7986CB"
    android:textSize="24sp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.109"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.284" />
```

<TextView

```
    android:id="@+id/textView3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="@string/password"
    android:textColor="#7986CB"
    android:textSize="24sp"
```

```
android:textStyle="bold"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.109"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.406" />
```

<EditText

```
android:id="@+id/text3"
android:layout_width="223dp"
android:layout_height="48dp"
android:ems="10"
android:inputType="textPersonName"
android:textSize="20sp"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.946"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.268"
tools:ignore="SpeakableTextPresentCheck"
android:autofillHints="" />
```

<Button

```
android:id="@+id/button1"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="@string/sign_up"
```



```
android:textColor="#212121"
android:textSize="16sp"
app:backgroundTint="#0F96D5"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.553"
tools:ignore="TextContrastCheck" />
```

<EditText

```
android:id="@+id/text4"
android:layout_width="218dp"
android:layout_height="48dp"
android:ems="10"
android:inputType="textPersonName"
android:textSize="20sp"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.922"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.405"
tools:ignore="SpeakableTextPresentCheck"
android:autofillHints="" />
```

</androidx.constraintlayout.widget.ConstraintLayout>

activity_login.xml

<?xml version="1.0" encoding="utf-8"?>

```
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"

    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
```

```
<TextView

    android:id="@+id/textfont"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="LOGIN ACTIVITY"
    android:textColor="#098B9C"
    android:textSize="34sp"
    android:textStyle="bold | italic"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.541"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.119" />
```

```
<TextView

    android:id="@+id/text"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="USERNAME"
    android:textAlignment="viewStart"
```

```
android:textColor="#0B0A0A"  
android:textSize="24sp"  
android:textStyle="bold"  
app:layout_constraintBottom_toBottomOf="parent"  
app:layout_constraintEnd_toEndOf="parent"  
app:layout_constraintHorizontal_bias="0.109"  
app:layout_constraintStart_toStartOf="parent"  
app:layout_constraintTop_toTopOf="parent"  
app:layout_constraintVertical_bias="0.284" />
```

<TextView

```
android:id="@+id/textView3"  
android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:text="PASSWORD"  
android:textColor="#0B0A0A"  
android:textSize="24sp"  
android:textStyle="bold"  
app:layout_constraintBottom_toBottomOf="parent"  
app:layout_constraintEnd_toEndOf="parent"  
app:layout_constraintHorizontal_bias="0.109"  
app:layout_constraintStart_toStartOf="parent"  
app:layout_constraintTop_toTopOf="parent"  
app:layout_constraintVertical_bias="0.406" />
```

<EditText

```
android:id="@+id/text3"  
android:layout_width="223dp"  
android:layout_height="46dp"
```

```
android:ems="10"
android:inputType="textPersonName"
android:textSize="20sp"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.946"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.268"
tools:ignore="SpeakableTextPresentCheck,TouchTargetSizeCheck" />
```

<Button

```
android:id="@+id/button2"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="SIGN UP"
android:textSize="16sp"
app:backgroundTint="#0F96D5"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.553" />
```

<EditText

```
android:id="@+id/text4"
android:layout_width="218dp"
android:layout_height="48dp"
android:ems="10"
```

```
android:inputType="textPersonName"
android:textSize="20sp"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.922"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.405"
tools:ignore="SpeakableTextPresentCheck,SpeakableTextPresentCheck" />
```

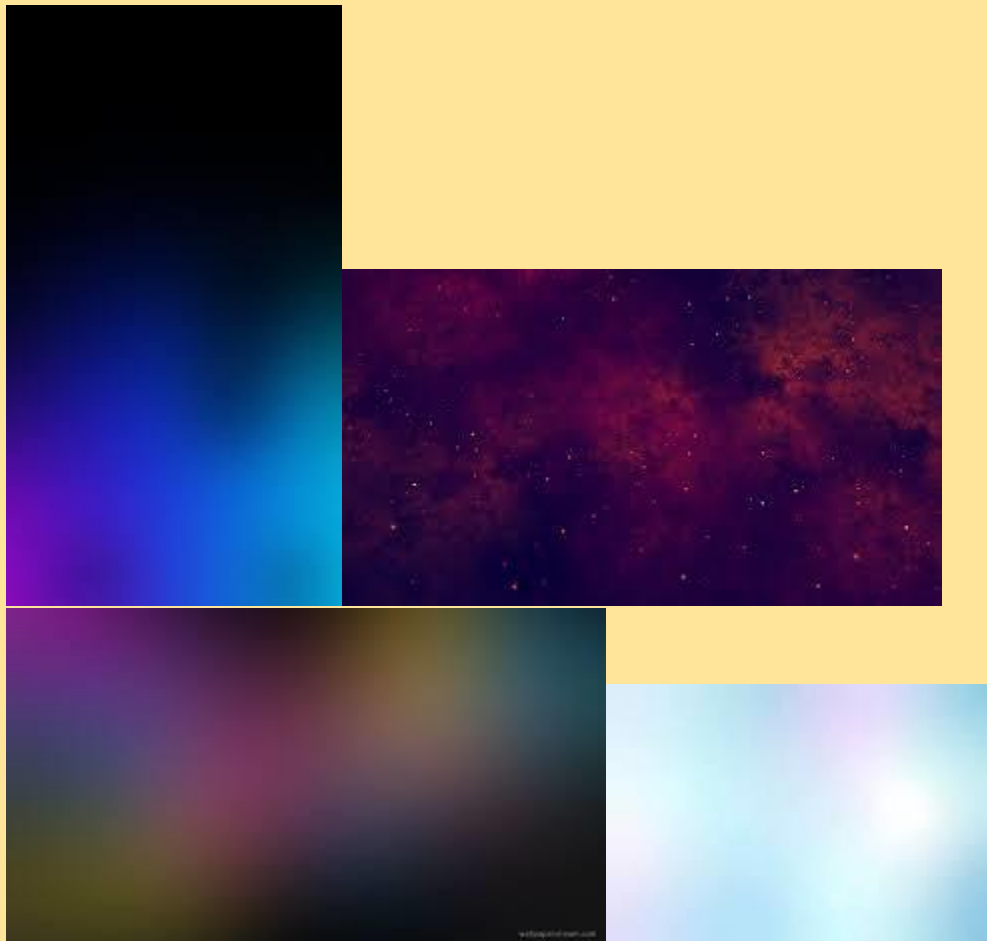
```
</androidx.constraintlayout.widget.ConstraintLayout>
```

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.

Steps

1. Create a New Android Project with Empty Activity.
2. Open activity_main.xml file from res/layout folder, check/add LinearLayout as the root view.
3. Create the layout
4. Add 3 or More images to drawable folder (res->drawable)
5. Declare uses permission android.permission.SET_WALLPAPER in the AndroidManifest.xml file
6. Schedule Timer task to change the wallpaper on every 30 seconds interval.
7. Initialize and use WallpaperManager.setBitmap() method to change the wallpaper.

Images used





Save images as one.jpg,two.jpg, three.jpg and so on in res->drawable

Soln)

MainActivity.java

```
package com.example.lab4;
```

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

```
import android.app.WallpaperManager;
```

```
import android.graphics.BitmapFactory;
```

```
import android.os.Bundle;
```

```
import android.view.View;
```

```
import android.widget.Button;
```

```
import java.util.Timer;
```

```
import java.util.TimerTask;
```

```
public class MainActivity extends AppCompatActivity implements View.OnClickListener {
```

```
    Button btnChangeWallpaper;
```

```
boolean running;
```

```
int[] imagesArray = new int[]{
```

```
    R.drawable.one, R.drawable.two, R.drawable.three,  
    R.drawable.four,R.drawable.five,R.drawable.six,R.drawable.seven,R.drawable.eight,R.drawable.nine,R.d  
    rawable.eight
```

```
};
```

```
int i = 0;
```

```
@Override
```

```
protected void onCreate(Bundle savedInstanceState) {
```

```
    super.onCreate(savedInstanceState);
```

```
    setContentView(R.layout.activity_main);
```

```
    btnChangeWallpaper = (Button) findViewById(R.id.btn_start_change_wallpaper);
```

```
    btnChangeWallpaper.setOnClickListener(this);
```

```
}
```

```
@Override
```

```
public void onClick(View v) {
```

```
    if(!running)
```

```
    {
```

```
        new Timer().schedule (new MyTimer(),0,6000); running=true;
```

```
    }
```

```
}
```

```
class MyTimer extends TimerTask
```

```
{
```

```
    public void run() {
```

```
        try {
```



```
WallpaperManager wallpaperManager = WallpaperManager.getInstance(getBaseContext());
```

```
if (i == 1) i = 1;
```

```
if (i == 2) i = 2;
```

```
if (i == 3) i = 3;
```

```
if (i == 4) i = 4;
```

```
if (i == 5) i = 5;
```

```
if (i == 6) i = 6;
```

```
if (i == 7) i = 7;
```

```
if (i == 8) i = 8;
```

```
if (i == 9) i = 9;
```

```
if (i == 10) i = 10;
```

```
wallpaperManager.setBitmap(BitmapFactory.decodeResource(getResources()
```

```
    , imagesArray[i]));
```

```
    i++;
```

```
}
```

```
catch (Exception e)
```

```
{
```

```
    }  
  
    }  
}  
}
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>  
  
<androidx.constraintlayout.widget.ConstraintLayout  
    xmlns:android="http://schemas.android.com/apk/res/android"  
    xmlns:app="http://schemas.android.com/apk/res-auto"  
    xmlns:tools="http://schemas.android.com/tools"  
    android:layout_width="match_parent"  
    android:layout_height="match_parent"  
    tools:context=".MainActivity">  
  
    <Button  
        android:id="@+id/btn_start_change_wallpaper"  
        android:layout_width="wrap_content"  
        android:layout_height="wrap_content"  
        android:text="change wallpaper"  
        android:textAllCaps="true"  
        android:textSize="34sp"  
        app:layout_constraintBottom_toBottomOf="parent"  
        app:layout_constraintEnd_toEndOf="parent"  
        app:layout_constraintHorizontal_bias="0.5"  
        app:layout_constraintStart_toStartOf="parent"  
        app:layout_constraintTop_toTopOf="parent" />
```

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

AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>  
  
<manifest xmlns:android="http://schemas.android.com/apk/res/android"  
    package="com.example.lab4">  
  
    <uses-permission android:name="android.permission.SET_WALLPAPER"/>  
  
    <application  
        android:allowBackup="true"  
        android:icon="@mipmap/ic_launcher"  
        android:label="@string/app_name"  
        android:roundIcon="@mipmap/ic_launcher_round"  
        android:supportsRtl="true"  
        android:theme="@style/Theme.Lab4">  
  
        <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>  
        </activity>  
    </application>  
  
</manifest>
```

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 TextViewcontrol.

Soln

MainActivity.java

```
package com.example.lab5;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.graphics.Bitmap;
import android.graphics.Color;
import android.graphics.drawable.Drawable;
import android.os.Bundle;
import android.os.Handler;
import android.os.Message;
import android.view.View;
import android.webkit.WebView;
import android.widget.Button;
import android.widget.ImageView;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity implements View.OnClickListener {

    TextView count;

    Button start,stop;

    int counter=0;

    boolean running = false;

    String

    url="https://media1.tenor.com/images/142ffb3aa784ee74e9ce08b57edc89c6/tenor.gif?itemid=5301252";
```

```
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    count=(TextView)findViewById(R.id.count);
    start=(Button)findViewById(R.id.startbtn);
    stop=(Button)findViewById(R.id.stopbtn);
    start.setOnClickListener(this);
    stop.setOnClickListener(this);
}
```

```
@Override
public void onClick(View view)
{
    if(view.equals(start))
    {
        counter=0;
        running=true;
        new MyCounter().start();
    }
    else
        running=false;
}

Handler handler= new Handler(){
    public void handleMessage(Message counter)
    {
        count.setText(String.valueOf(counter.what));
    }
};

class MyCounter extends Thread
{
```

```
public void run()
{
    while(running)
    {
        counter++;
        handler.sendMessage(counter);
        try{
            Thread.sleep(100);
        }
        catch(Exception e){}
    }
}
}
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#EBB8F4"
    tools:context=".MainActivity">
    <TextView
        android:id="@+id/heading"
        android:layout_width="381dp"
        android:layout_height="61dp"
```

```
    android:fontFamily="casual"
    android:gravity="center"
    android:text="COUNTER APPLICATION"
    android:textAppearance="@style/TextAppearance.AppCompat.Large"
    android:textColor="#4E1B57"
    android:textStyle="bold|italic"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintHorizontal_bias="0.41"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.073" />
```

<Button

```
    android:id="@+id/startbtn"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="144dp"
    android:background="#8D15A1"
    android:fontFamily="casual"
    android:text="START"
    android:textColor="#FAF6F6"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.507"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/heading" />
```

<EditText

```
    android:id="@+id/count"
    android:layout_width="79dp"
    android:layout_height="80dp"
```

```
        android:layout_marginStart="164dp"
        android:layout_marginTop="152dp"
        android:ems="10"
        android:fontFamily="sans-serif-black"
        android:gravity="center"
        android:inputType="textPersonName"
        android:textColor="#2A0630"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
<Button
    android:id="@+id/stopbtn"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginBottom="172dp"
    android:background="#781A88"
    android:fontFamily="casual"
    android:text="STOP"
    android:textColor="#FAF6F6"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.535"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/startbtn"
    app:layout_constraintVertical_bias="0.186" />
</androidx.constraintlayout.widget.ConstraintLayout>
```


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.

STEPS

1. Create a New Android Project with Empty Activity.

2. Open activity_main.xml file from res layout folder, check/add ConstraintLayout as the root view.

3. Create the layout design using Drag and Drop framework.

4. Add Listeners to Button Click Event:

❓ Create a class which implements OnClickListener interface.

❓ Override onClick() method of OnClickListener Interface.

❓ Register the button for click event by calling setOnClickListener() method of View class and pass the object of the class that implemented OnClickListener Interface.

5. Create assets folder (Refer Section Android Studio Tutorial)

6. Create input.xml file inside assets folder and paste the below Xml Data

```
<?xml version="1.0"?>
<records>
<employee>
<city_name>Mysore</city_name>
<Latitude>12.295</Latitude>
<Longitude>76.639</Longitude>
<Temperature>22</Temperature>
<Humidity>90%</Humidity>
</employee>
```

</records>

7. Create input.json file inside assets folder and paste the below Json Data

```
{  
  "employee": { "city_name": "Mysore", "Latitude": "12.295",  
    "Longitude": "76.639",  
    "Temperature": 22,  
    "Humidity": "90%"  
  }  
}
```

8. Read the XML and Json Data in the files and display on screen

Soln

MainActivity.java

```
package com.example.parsingxmljsonviceversa;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.content.Intent;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
  
public class MainActivity extends AppCompatActivity implements View.OnClickListener {  
    Button btnParseXml, btnParseJson;  
  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState); setContentView(R.layout.activity_main);  
        btnParseXml=(Button)findViewById(R.id.btn_parsexml);  
        btnParseJson=(Button)findViewById(R.id.btn_parsejson);  
    }  
}
```

```

        btnParseJson.setOnClickListener(this); btnParseXml.setOnClickListener(this);
    }

    @Override
    public void onClick(View v) {
        if(v.equals(btnParseJson))
        {
            Intent it=new Intent(this,ViewActivity.class);
            it.putExtra("mode",1);
            startActivity(it);
        }
        else if(v.equals(btnParseXml))
        {
            Intent it=new Intent(this,ViewActivity.class);
            it.putExtra("mode",2);
            startActivity(it);
        }
    }
}

```

ViewActivity.java

```

package com.example.parsingxmljsonviceversa;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.TextView;
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 ViewActivity extends AppCompatActivity {

    TextView lblXmlData, lblJsonData;

    int mode=0;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_view);

        lblXmlData=(TextView)findViewById(R.id.lbl_xml_data);

        lblJsonData=(TextView)findViewById(R.id.lbl_json_data);

        mode=getIntent().getIntExtra("mode",0);

        if(mode== 1)

            parseJson();

        else

            parseXmlDocument();

    }

    public String parseXmlDocument()

    {

        try {

            InputStream is = getAssets().open("input.xml");

            DocumentBuilderFactory dbFactory = DocumentBuilderFactory.newInstance();

            DocumentBuilder dBuilder = dbFactory.newDocumentBuilder();

            Document doc = dBuilder.parse(is);

            Element element = doc.getDocumentElement();

            element.normalize();

            NodeList nList = doc.getElementsByTagName("employee");

            for (int i = 0; i < nList.getLength(); i++) {
```

```

        Node node = nList.item(i);
        if (node.getNodeType() ==
            Node.ELEMENT_NODE) {
            Element element2 =
                (Element) node;
            lblXmlData.setText("City Name : " + getValue("city_name", element2) + "\n");
            lblXmlData.append("Latitude : " + getValue("Latitude", element2) + "\n");
            lblXmlData.append("Longitude : " + getValue("Longitude", element2) + "\n");
            lblXmlData.append("Temperature : " + getValue("Temperature", element2) + "\n");
            lblXmlData.append("Humidity : " + getValue("Humidity", element2) + "\n");
        }
    }
}

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

return null;
}

private static String getValue(String tag, Element element) {
    NodeList nodeList = element.getElementsByTagName(tag).item(0).getChildNodes();
    Node node = nodeList.item(0);
    return node.getNodeValue();
}

public void parseJson()
{
    try { InputStream inputStream=getAssets().open("input.json");
        byte[] data=new byte[inputStream.available()];
        inputStream.read(data);
        String readData=new String(data);
        JSONObject jsonObject=new JSONObject(readData);
        JSONObject jsonObject1=jsonObject.getJSONObject("employee");
    }
}

```

```

        lblJsonData.setText("City Name:"+jsonObject1.getString("city_name")+"\n");
        lblJsonData.append("Latitude:"+jsonObject1.getString("Latitude")+"\n");
        lblJsonData.append("Longitude:"+jsonObject1.getString("Longitude")+"\n");
        lblJsonData.append("Temperature:"+jsonObject1.getInt("Temperature")+"\n");
        lblJsonData.append("Humidity:"+jsonObject1.getString("Humidity")+"\n");
    }
    catch (Exception e) {e.printStackTrace();}
}
}

```

activity.xml

```

<?xml version="1.0" encoding="utf-8"?>

<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"

    xmlns:app="http://schemas.android.com/apk/res-auto"

    xmlns:tools="http://schemas.android.com/tools"

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    tools:context=".MainActivity">

<Button

    android:id="@+id/btn_parsexml"

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_marginTop="80dp"

    android:text="Parse XML Data"

    app:layout_constraintEnd_toEndOf="parent" app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toBottomOf="@+id/textView4" />

<Button

    android:id="@+id/btn_parsejson"

```

```

        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="80dp"
        android:text="Parse Json Data"
        app:layout_constraintEnd_toEndOf="parent" app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/btn_parsexml" />
<TextView
    android:id="@+id/textView4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="40dp"
    android:text="PARSING XML AND JSON DATA"
    android:textSize="20dp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

activity_view.xml

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".ViewActivity">
<TextView
    android:id="@+id/lbl_xml_data"

```

```
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="30dp"
    android:text="Xml Data"
    app:layout_constraintStart_toStartOf="@+id/textView2"
    app:layout_constraintTop_toBottomOf="@+id/textView2" />
```

<TextView

```
    android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="40dp"
    android:text="PARSING XML AND JSON DATA"
    android:textSize="20dp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
```

<TextView

```
    android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="40dp"
    android:layout_marginTop="20dp"
    android:text="XML DATA"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView" />
```

<TextView

```
    android:id="@+id/textView3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
```



```

        android:layout_marginTop="20dp"
        android:layout_marginEnd="40dp"
        android:text="JSON DATA"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView" />
<TextView
    android:id="@+id/lbl_json_data"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="30dp"
    android:text="Json Data"
    app:layout_constraintEnd_toEndOf="@+id/textView3"
    app:layout_constraintTop_toBottomOf="@+id/textView3" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

In this step Create a separate assets folder and feed these files in it

Right Click on app folder → New→ Folder→ Assets Folder → Press Finish Button

Input.xml

```

<?xml version="1.0"?>
<records>
    <employee>
        <city_name>Mysore</city_name>
        <Latitude>12.295</Latitude>
        <Longitude>76.639</Longitude>
        <Temperature>22</Temperature>
        <Humidity>90%</Humidity>
    </employee>
</records>

```

Input.json

```
{  
  "employee": {  
    "city_name": "Mysore",  
    "Latitude": "12.295",  
    "Longitude": "76.639",  
    "Temperature": 22,  
    "Humidity": "90%"  
  }  
}
```

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.

Soln)

MainActivity.java

```
package com.example.lab7;
```

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

```
import android.os.Bundle;
```

```
import android.speech.tts.TextToSpeech; import android.view.View;
```

```
import android.widget.Button;
```

```
import android.widget.EditText; import android.widget.Toast;
```

```
import java.util.Locale;
```

```
public class MainActivity extends AppCompatActivity implements View.OnClickListener
```

```
{
```

```
    EditText txtSpeak;
```

```
    Button btnSpeak;
```

```
    TextToSpeech textToSpeech;
```

```
    @Override
```

```
    protected void onCreate(Bundle savedInstanceState)
```

```
    {
```

```
        super.onCreate(savedInstanceState);
```

```
        setContentView(R.layout.activity_main);
```

```
        txtSpeak=(EditText)findViewById(R.id.editText);
```

```
        btnSpeak=(Button)findViewById(R.id.btn_speak);
```

```
        btnSpeak.setOnClickListener(this);
```

```
        textToSpeech=new TextToSpeech(getBaseContext(), new TextToSpeech.OnInitListener() {
```

```
    @Override
```

```
    public void onInit(int status) { if(status!=TextToSpeech.ERROR)
```

```
    {
```

```

        Toast.makeText(getBaseContext(),"Success", Toast.LENGTH_LONG).show();
    }
}

});

textToSpeech.setLanguage(Locale.UK);
}

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

```

activity_main.xml

```

<?xml version="1.0" encoding="utf-8"?>

<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/txt_texttospeak"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView android:id="@+id/textView" android:layout_width="wrap_content"
        android:layout_height="wrap_content" android:layout_marginStart="50dp"
        android:layout_marginTop="80dp" android:text="Enter Text to Speak"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText android:id="@+id/editText" android:layout_width="wrap_content"

```

```
        android:layout_height="wrap_content" android:layout_marginTop="48dp" android:ems="10"
        android:inputType="textPersonName" app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.0"

        app:layout_constraintStart_toStartOf="@+id/textView"

        app:layout_constraintTop_toBottomOf="@+id/textView" />
    <Button android:id="@+id/btn_speak"
        android:layout_width="wrap_content" android:layout_height="wrap_content"

        android:layout_marginTop="52dp" android:text="Speak"

        app:layout_constraintEnd_toEndOf="parent" app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editText" />

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

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.

Soln)

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>

<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"

    android:layout_width="match_parent" android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView android:id="@+id/textView" android:layout_width="wrap_content"
        android:layout_height="wrap_content" android:layout_marginTop="50dp" android:text="PHONE
        DIALER" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText android:id="@+id/txt_phonenumber" android:layout_width="wrap_content"
        android:layout_height="wrap_content" android:layout_marginStart="20dp"
        android:layout_marginTop="30dp" android:ems="10" android:inputType="textPersonName"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView"
        />

    <Button android:id="@+id/btn_delete" android:layout_width="wrap_content"
        android:layout_height="wrap_content" android:layout_marginStart="20dp"
        android:layout_marginTop="30dp" android:text="Delete"
        app:layout_constraintStart_toEndOf="@+id/txt_phonenumber"
        app:layout_constraintTop_toBottomOf="@+id/textView" />

    <Button android:id="@+id/btn_one"

        android:layout_width="wrap_content" android:layout_height="wrap_content"
```

```
android:layout_marginStart="20dp" android:layout_marginTop="30dp" android:text="1"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/txt_phonenumber" />
<Button android:id="@+id/btn_two"
    android:layout_width="wrap_content" android:layout_height="wrap_content"
    android:layout_marginTop="30dp" android:text="2"
    app:layout_constraintEnd_toStartOf="@+id/btn_three"
    app:layout_constraintStart_toEndOf="@+id/btn_one"
    app:layout_constraintTop_toBottomOf="@+id/txt_phonenumber" />
<Button android:id="@+id/btn_three"
    android:layout_width="wrap_content" android:layout_height="wrap_content"
    android:layout_marginTop="30dp" android:layout_marginEnd="20dp" android:text="3"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/txt_phonenumber" />
<Button android:id="@+id/btn_four"
    android:layout_width="wrap_content" android:layout_height="wrap_content"
    android:layout_marginStart="20dp" android:layout_marginTop="30dp" android:text="4"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/btn_one" />
<Button android:id="@+id/btn_five"
    android:layout_width="wrap_content" android:layout_height="wrap_content"
    android:layout_marginTop="30dp" android:text="5"
    app:layout_constraintEnd_toStartOf="@+id/btn_six"
    app:layout_constraintStart_toEndOf="@+id/btn_four"
    app:layout_constraintTop_toBottomOf="@+id/btn_two" />
<Button android:id="@+id/btn_six"
    android:layout_width="wrap_content" android:layout_height="wrap_content"
    android:layout_marginTop="30dp" android:layout_marginEnd="20dp" android:text="6"
    app:layout_constraintEnd_toEndOf="parent"
```

```
        app:layout_constraintTop_toBottomOf="@+id/btn_three" />
<Button android:id="@+id/btn_seven"
        android:layout_width="wrap_content" android:layout_height="wrap_content"
        android:layout_marginStart="20dp" android:layout_marginTop="30dp" android:text="7"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/btn_four" />
<Button android:id="@+id/btn_eight"
        android:layout_width="wrap_content" android:layout_height="wrap_content"
        android:layout_marginTop="30dp"
        android:text="8" app:layout_constraintEnd_toStartOf="@+id/btn_nine"
        app:layout_constraintStart_toEndOf="@+id/btn_seven"
        app:layout_constraintTop_toBottomOf="@+id/btn_five" />
<Button android:id="@+id/btn_nine"
        android:layout_width="wrap_content" android:layout_height="wrap_content"
        android:layout_marginTop="30dp" android:layout_marginEnd="20dp" android:text="9"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/btn_six" />
<Button android:id="@+id/btn_zero"
        android:layout_width="wrap_content" android:layout_height="wrap_content"
        android:layout_marginTop="30dp" android:text="0" app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/btn_eight" />
<Button android:id="@+id/btn_call"
        android:layout_width="wrap_content" android:layout_height="wrap_content"
        android:layout_marginStart="20dp" android:layout_marginTop="30dp" android:text="Call"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/btn_zero" />
<Button android:id="@+id/btn_save"
        android:layout_width="wrap_content" android:layout_height="wrap_content"
```



```

        android:layout_marginTop="30dp" android:layout_marginEnd="20dp" android:text="Save"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/btn_zero" />
<Button android:id="@+id/btn_start"
        android:layout_width="wrap_content" android:layout_height="wrap_content"
        android:layout_marginStart="20dp" android:layout_marginTop="30dp" android:text="*"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/btn_seven" />
<Button android:id="@+id/btn_hash"
        android:layout_width="wrap_content" android:layout_height="wrap_content"
        android:layout_marginTop="30dp" android:layout_marginEnd="20dp" android:text="#"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/btn_nine" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.lab8;

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 implements View.OnClickListener
{
    Button btnOne,btnTwo,btnThree,btnFour,btnFive;
    Button btnSix,btnSeven,btnEight,btnNine,btnZero; Button btnDel,btnStar,btnHash,btnCall,btnSave;
    EditText txtPhonenumber;

    @Override
    protected void onCreate(Bundle savedInstanceState)
    {

```

```
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        btnOne=(Button)findViewById(R.id.btn_one); btnOne.setOnClickListener(this);
        btnTwo=(Button)findViewById(R.id.btn_two); btnTwo.setOnClickListener(this);
        btnThree=(Button)findViewById(R.id.btn_three); btnThree.setOnClickListener(this);
        btnFour=(Button)findViewById(R.id.btn_four); btnFour.setOnClickListener(this);
        btnFive=(Button)findViewById(R.id.btn_five); btnFive.setOnClickListener(this);
        btnSix=(Button)findViewById(R.id.btn_six); btnSix.setOnClickListener(this);
        btnSeven=(Button)findViewById(R.id.btn_seven); btnSeven.setOnClickListener(this);
        btnEight=(Button)findViewById(R.id.btn_eight); btnEight.setOnClickListener(this);
        btnNine=(Button)findViewById(R.id.btn_nine); btnNine.setOnClickListener(this);
        btnZero=(Button)findViewById(R.id.btn_zero); btnZero.setOnClickListener(this);
        btnStar=(Button)findViewById(R.id.btn_start); btnStar.setOnClickListener(this);
        btnHash=(Button)findViewById(R.id.btn_hash); btnHash.setOnClickListener(this);
        btnCall=(Button)findViewById(R.id.btn_call); btnCall.setOnClickListener(this);
        btnSave=(Button)findViewById(R.id.btn_save); btnSave.setOnClickListener(this);
        btnDel=(Button)findViewById(R.id.btn_delete); btnDel.setOnClickListener(this);
        txtPhonenumber=(EditText)findViewById(R.id.txt_phonenumber); txtPhonenumber.setText("");
    }

    public void onClick(View v)
    {
        if(v.equals(btnOne)) txtPhonenumber.append("1");
        else if(v.equals(btnTwo)) txtPhonenumber.append("2");
        else if(v.equals(btnThree)) txtPhonenumber.append("3");
        else if(v.equals(btnFour)) txtPhonenumber.append("4");
        else if(v.equals(btnFive)) txtPhonenumber.append("5");
        else if(v.equals(btnSix)) txtPhonenumber.append("6");
        else if(v.equals(btnSeven)) txtPhonenumber.append("7");
        else if(v.equals(btnEight)) txtPhonenumber.append("8");
```

```

else if(v.equals(btnNine)) txtPhonenumber.append("9");
else if(v.equals(btnZero)) txtPhonenumber.append("0");
else if(v.equals(btnStar)) txtPhonenumber.append("*");
else if(v.equals(btnHash)) txtPhonenumber.append("#");
else if(v.equals(btnSave))
{
    Intent contactIntent= new Intent
        (ContactsContract.Intents.Insert.ACTION); contactIntent.setType
        (ContactsContract.RawContacts.CONTENT_TYPE);
    contactIntent.putExtra(ContactsContract.Intents.Insert.NAME,"Unknown");
    contactIntent.putExtra(ContactsContract.Intents.Insert.PHONE,
txtPhonenumber.getText().toString());
    startActivity(contactIntent);
}
else if(v.equals(btnDel))
{
    String data=txtPhonenumber.getText().toString(); if(data.length()>0)
    {
        txtPhonenumber.setText
            (data.substring(0,data.length()-1));
    }
}
else
{
    txtPhonenumber.setText("");
}
}

btnCall.setOnClickListener(new View.OnClickListener()
{
    @Override

```

```

        public void onClick(View v) {
            String data = txtPhonenumber.getText().toString(); Intent intent=new Intent(Intent.ACTION_DIAL);
            intent.setData(Uri.parse("tel:"+ data)); startActivity(intent);
        }
    }
};
}
}

```

AndroidManifest.xml

```

<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.lab8">
    <uses-permission android:name="android.permission.CALL_PHONE"/>
    <application android:allowBackup="true" android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round" android:supportRtl="true"
        android:theme="@style/Theme.Lab8">
        <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>
        </activity>
    </application>
</manifest>

```