1 a] 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
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.

Program:
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"
android:background="@color/white"
tools:context=".MainActivity">
<TextView
android:id="@+id/textView"
android:layout_width="285dp"
android:layout_height="wrap_content"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="126dp"
android:layout_marginBottom="579dp"
android:text="SCEM Mangalore"
android:textSize="36sp" />
<ImageView
android:id="@+id/imageView"
android:layout_width="77dp"
android:layout_height="87dp"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="17dp"
android:layout_marginBottom="618dp"
app:srcCompat="@drawable/logo" />
<View
android:id="@+id/view"
```

```
android:layout_width="wrap_content"
android:layout_height="12dp"
android:background="#4444"
android:layout_alignParentBottom="true"
android:layout_marginBottom="479dp" />
<TextView
android:id="@+id/textView2"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="112dp"
android:layout_marginBottom="419dp"
android:text="Mr. Ganaraj K"
android:textAlignment="center"
android:textSize="30sp"
android:textStyle="bold" />
<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="112dp"
android:layout_marginBottom="355dp"
android:text="Asst. Professor-ISE"
android:textSize="24sp" />
<TextView
android:id="@+id/textView4"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="60dp"
android:layout_marginBottom="295dp"
android:text="Address: SCEM Mangalore"
android:textSize="24sp" />
<TextView
android:id="@+id/textView5"
```

```
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="143dp"
android:layout_marginBottom="237dp"
android:text="Ph: 8086714071"
android:textSize="24sp" />
<TextView
android:id="@+id/textView6"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="89dp"
android:layout_marginBottom="194dp"
android:text="Email: kganaraj09@gmail.com"
android:textSize="18sp" />
</RelativeLayout>
```

MainActivity.java

```
package com.example.expt1;
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:

1b] Develop an android application to design a student ID card for the students of a College as per the below

requirements. The ID card should have two virtual partitions divided by a horizontal divider. In the first
partition, the institute logo should be placed at the top aligned to the center. Institute name should be displayed
below the logo in capital letters. In the next level the students department must appear in capital letters. The
second partition should begin with students photo aligned to the center. Student Name, USN, Phone Number and
Address should appear below the photo in a uniform order. Design the UI according to the requirements defined.
Also write the corresponding java program.

2

Develop an Android application using controls like Button, Text View, Edit Text for designing a calculator having basic functionality like Addition, Subtraction, Multiplication and Division.

Program:

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="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="179dp"
android:layout_marginBottom="652dp"
android:text="SimpleCalci"
android:textSize="24sp"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintLeft_toLeftOf="parent"
app:layout_constraintRight_toRightOf="parent"
app:layout_constraintTop_toTopOf="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="138dp"
android:layout_marginBottom="540dp"
android:ems="10"
android:hint="Enter Number-1"
android:inputType="textPersonName"
android:text="" />
<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="135dp"
android:hint="Enter Number-2"
android:layout_marginBottom="469dp"
android:ems="10"
android:inputType="textPersonName"
android:text="" />
<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="233dp"
android:layout_marginBottom="374dp"
android:text="0"
android:textSize="30sp" />
<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="103dp"
android:onClick="div"
android:layout_marginBottom="208dp"
android:text="DIV" />
<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="291dp"
android:onClick="mul"
android:layout_marginBottom="208dp"
android:text="MUL" />
<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="101dp"
android:layout_marginBottom="324dp"
android:onClick="sub"
android:text="SUB" />
<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="293dp"
android:layout_marginBottom="322dp"
android:onClick="add"
android:text="ADD" />
</RelativeLayout>
```

MainActivity.java

```
package com.example.simplecalciapplication;
import androidx.appcompat.app.AppCompatActivity;
```

```
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.TextView;
public class MainActivity extends AppCompatActivity {
EditText e1, e2;
TextView tv1;
@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
e1 = findViewById(R.id.editText1);
e2 = findViewById(R.id.editText2);
tv1 = findViewById(R.id.textView1);
}
public void add(View V){
int a1 = Integer.parseInt(e1.getText().toString());
int a2 = Integer.parseInt(e2.getText().toString());
int result = a1+a2;
tv1.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;
tv1.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;
tv1.setText(""+result);
}
public void div(View V){
float a1 = Integer.parseInt(e1.getText().toString());
float a2 = Integer.parseInt(e2.getText().toString());
float result = a1/a2;
tv1.setText(""+result);
}
```

}
OUTPUT:

3]
Create a SIGN Up activity with Username and Password. Validation of password should happen based on the
following rules:
Minimum length of the password is 8
Password should contain letters, numbers and special characters.
Password should contain minimum one uppercase letter, lowercase letter, number and special character

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.

Program:
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="160dp"
android:layout_height="42dp"

```
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="112dp"
android:layout_marginBottom="573dp"
android:text="Sign Up"
android:textSize="28dp"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintLeft_toLeftOf="parent"
app:layout_constraintRight_toRightOf="parent"
app:layout_constraintTop_toTopOf="parent" />
<EditText
android:id="@+id/emailEditText"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="29dp"
android:layout_marginBottom="431dp"
android:ems="10"
android:hint="Email ID"
android:inputType="textEmailAddress"
android:textSize="28dp" />
<EditText
android:id="@+id/passwordEditText"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="34dp"
android:layout_marginBottom="345dp"
android:ems="10"
android:hint="Password"
android:inputType="textPassword"
android:textSize="28dp" />
<Button
android:id="@+id/signUpBtn"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentEnd="true"
```

```
android:layout_alignParentBottom="true"
android:layout_marginEnd="106dp"
android:layout_marginBottom="226dp"
android:text="Sign Up"
android:textSize="28dp" />
</RelativeLayout>
```

MainActivity.java

```
package com.example.loginapplication;
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.Pattern;
public class MainActivity extends AppCompatActivity {
EditText emailEditText, passwordEditText;
Button signUpBtn;
@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
emailEditText = findViewById(R.id.emailEditText);
passwordEditText = findViewById(R.id.passwordEditText);
signUpBtn = findViewById(R.id.signUpBtn);
signUpBtn.setOnClickListener(new View.OnClickListener() {
@Override
public void onClick(View v) {
String email = emailEditText.getText().toString();
String password = passwordEditText.getText().toString();
if (!isValidPassword(password)) {
Toast.makeText(MainActivity.this, "Password Does not match the rules",
Toast.LENGTH_LONG).show();
return;
}
Intent intent = new Intent(MainActivity.this, LoginActivity.class);
intent.putExtra("email", email);
intent.putExtra("password", password);
```

```
startActivity(intent);
}
});
}
Pattern lowercase = Pattern.compile("^.*[a-z].*$");
Pattern uppercase = Pattern.compile("^.*[A-Z].*$");
Pattern number = Pattern.compile("^.*[0-9].*$");
Pattern specialCharacter = Pattern.compile("^.*[^a-zA-Z0-9].*$");
private Boolean isValidPassword(String password) {
if (password.length() < 8) {
return false;
}
if (!lowercase.matcher(password).matches()) {
return false;
}
if (!uppercase.matcher(password).matches()) {
return false;
}
if (!number.matcher(password).matches()) {
return false;
}
if (!specialCharacter.matcher(password).matches()) {
return false;
}
return true;
}
}
```

activity_login.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=".LoginActivity">
<TextView
android:id="@+id/textView"
android:layout_width="210dp"
android:layout_height="54dp"
```

```
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="120dp"
android:layout_marginBottom="576dp"
android:text="Login Activity"
android:textSize="28dp" />
<EditText
android:id="@+id/emailEditText"
android:layout_width="222dp"
android:layout_height="80dp"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="108dp"
android:layout_marginBottom="424dp"
android:ems="10"
android:hint="Email ID"
android:inputType="textEmailAddress"
android:textSize="28dp" />
<EditText
android:id="@+id/passwordEditText"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="40dp"
android:layout_marginBottom="299dp"
android:ems="10"
android:hint="Password"
android:inputType="textPassword"
android:textSize="28dp" />
<Button
android:id="@+id/loginBtn"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="173dp"
android:layout_marginBottom="189dp"
android:text="login"
```

```
android:textSize="26dp" />
</RelativeLayout>
```

LoginActivity.java

```
package com.example.loginapplication;
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;
public class LoginActivity extends AppCompatActivity {
EditText emailEditText, passwordEditText;
Button loginBtn;
int counter=2;
@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_login);
emailEditText=findViewById(R.id.emailEditText);
passwordEditText=findViewById(R.id.passwordEditText);
loginBtn=findViewById(R.id.loginBtn);
String registeredEmail=getIntent().getStringExtra("email");
String registeredPassword=getIntent().getStringExtra("password");
loginBtn.setOnClickListener(new View.OnClickListener() {
@Override
public void onClick(View v) {
String email=emailEditText.getText().toString();
String password=passwordEditText.getText().toString();
if(registeredEmail.equals(email)&& registeredPassword.equals(password))
{
Intent intent=new Intent(LoginActivity.this,LoginSuccessActivity.class);
startActivity(intent);
}
else{
Toast.makeText(LoginActivity.this,"Invalid
Credentials",Toast.LENGTH_LONG).show();
}
counter--;
```

```
if (counter==0)
{
Toast.makeText(getBaseContext(),"FAILED LOGIN
ATTEMPTS",Toast.LENGTH_LONG).show();
loginBtn.setEnabled(false);
}
}
});
}
}
```

activity_login_success.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=".LoginSuccessActivity">
<TextView
android:id="@+id/textView2"
android:layout_width="297dp"
android:layout_height="190dp"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="42dp"
android:layout_marginBottom="400dp"
android:text="Login Successful"
android:textSize="38dp" />
</RelativeLayout>
```

LoginSuccessActivity.java

```
package com.example.loginapplication;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
public class LoginSuccessActivity extends AppCompatActivity {
@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_login_success);
}
```

}
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.

Pre-requisite: 3.Store 5 images of your choice with filenames one, two, three, four and five with jpeg
or png file format in res/drawable folder
Program:
activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools"
android:layout_width="match_parent"
android:layout_height="match_parent"
android:orientation="vertical"
android:gravity="center"
tools:context=".MainActivity">
<Button
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:text="Click here to Change Wallpaper"
android:id="@+id/btn1"/>
</LinearLayout>
```

MainActivity.java

```
package com.example.wallpapperapp;
import android.annotation.SuppressLint;
import android.app.WallpaperManager;
import android.graphics.Bitmap;
import android.graphics.drawable.BitmapDrawable;
import android.graphics.drawable.Drawable;
import android.os.Bundle;
import android.widget.Button;
```

```
import androidx.appcompat.app.AppCompatActivity;
import java.io.IOException;
import java.util.Timer;
import java.util.TimerTask;
public class MainActivity extends AppCompatActivity {
Button changewallpaper;
Timer mytimer;
Drawable drawable;
WallpaperManager wpm;
int prev=1;
@Override
protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
mytimer = new Timer();
wpm = WallpaperManager.getInstance(this);
changewallpaper = findViewById(R.id.btn1); changewallpaper.setOnClickListener(view ->
setWallpaper());
}
private void setWallpaper() {
mytimer.schedule(new TimerTask() {
@SuppressLint("UseCompatLoadingForDrawables")
@Override
public void run() {
if(prev==1) {
drawable = getResources().getDrawable(R.drawable.one);
prev = 2;
}
else if(prev==2) {
drawable = getResources().getDrawable(R.drawable.two);
prev=3;
}
else if(prev==3) {
drawable = getResources().getDrawable(R.drawable.three);
prev=4;
}
else if(prev==4) {
drawable = getResources().getDrawable(R.drawable.four);
prev=5;
}
```

```
else if(prev==5) {
drawable = getResources().getDrawable(R.drawable.five);
prev=1;
}
Bitmap wallpaper = ((BitmapDrawable)drawable).getBitmap();
try {
wpm.setBitmap(wallpaper);
} catch (IOException e) {
e.printStackTrace();
}
}
},0,30000); } }
```

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 Text View control.

Program:

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="378dp"
android:layout_height="68dp"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="18dp"
android:layout_marginBottom="602dp"
android:text="Counter Application"
```

```
android:textSize="38dp"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintLeft_toLeftOf="parent"
app:layout_constraintRight_toRightOf="parent"
app:layout_constraintTop_toTopOf="parent" />
<TextView
android:id="@+id/textView"
android:layout_width="121dp"
android:layout_height="32dp"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="145dp"
android:layout_marginBottom="478dp"
android:text="Counter Value" />
<Button
android:id="@+id/btn_start"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="297dp"
android:layout_marginBottom="295dp"
android:text="Start" />
<Button
android:id="@+id/btn_stop"
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="292dp"
android:text="Stop" />
</RelativeLayout>
```

MainActivity.java

```
package com.example.counterapp;
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 {
Button btnstart, btnstop;
TextView txtcounter;
int i=1;
Handler customHandler=new Handler();
@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
btnstart=findViewById(R.id.btn_start);
btnstop=findViewById(R.id.btn_stop);
txtcounter=findViewById(R.id.textView);
btnstart.setOnClickListener(new View.OnClickListener() {
@Override
public void onClick(View v) {
customHandler.postDelayed(updateTimerThread,0);
}
});
btnstop.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(""+i);
customHandler.postDelayed(this,1000);
i++;
}
};
}
```

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.

Pre-requisite:

1. Create a folder named assets in the following path ParserApplication\app\src\main. So that main folder will have assets, java, res folders and manifest file.
2. Now in assets folder create two files city.json and city.xml with the following contents

Program:

city.json

```
[
{
"name": "Hassan",
"lat": "12.295",
"long": "76.6",
"temperature": "29",
"humidity": "85%"
},
{
"name": "ckm",
"lat": "18.295",
"long": "79.6",
"temperature": "25",
"humidity": "80%"
}
]
```

city.xml

```
<?xml version="1.0"?>
<records>
<place>
<name>Mysuru</name>
<lat>12.295</lat>
<long>76.89</long>
<temperature>34</temperature>
<humidity>90%</humidity>
```

```
</place>
<place>
<name>bengaluru</name>
<lat>18.295</lat>
<long>79.89</long>
<temperature>32</temperature>
<humidity>80%</humidity>
</place>
</records>
```

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="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="173dp"
android:layout_marginBottom="638dp"
android:text="Parser"
android:textSize="36sp"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintLeft_toLeftOf="parent"
app:layout_constraintRight_toRightOf="parent"
app:layout_constraintTop_toTopOf="parent" />
<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="256dp"
android:onClick="parsexml"
android:layout_marginBottom="516dp"
```

```
android:text="XML Parser" />
<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="18dp"
android:onClick="parsejson"
android:layout_marginBottom="515dp"
android:text="JSON Parser" />
<TextView
android:id="@+id/display"
android:layout_width="292dp"
android:layout_height="265dp"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="63dp"
android:layout_marginBottom="141dp"
android:textAlignment="center" />
</RelativeLayout>
```

MainActivity.java

```
package com.example.parser_app;
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("\nName: ").append(getValue("name", element));
stringBuilder.append("\nlat: ").append(getValue("lat", element));
stringBuilder.append("\nLong: ").append(getValue("long", element));
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", 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("\nlat: ").append(jsonObject.getString("lat"));
stringBuilder.append("\nlong: ").append(jsonObject.getString("long"));
stringBuilder.append("\ntemperature: ").append(jsonObject.getString("temperature"));
stringBuilder.append("\nhumdity: ").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 Edit Text 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.

Program:

activity_main.xml

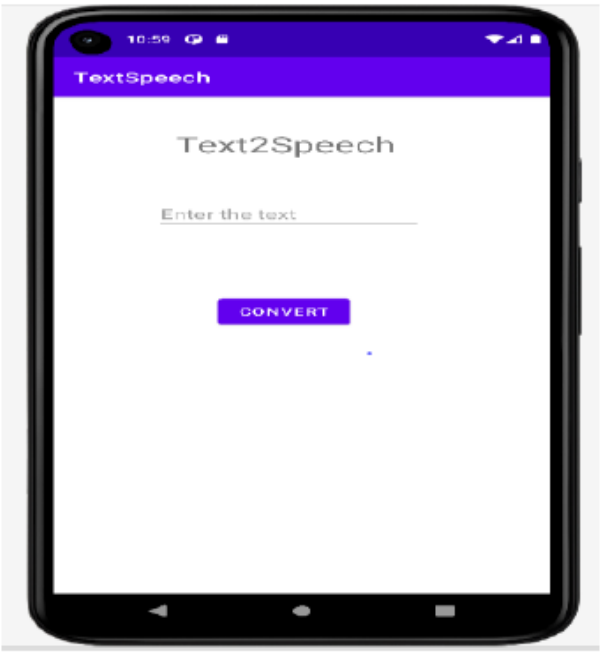
```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools"
android:layout_width="match_parent"
android:layout_height="match_parent"
tools:context=".MainActivity">
<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="122dp"
android:layout_marginBottom="611dp"
android:text="Text2Speech"
android:textSize="30sp"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintLeft_toLeftOf="parent"
app:layout_constraintRight_toRightOf="parent"
app:layout_constraintTop_toTopOf="parent" />
<EditText
android:id="@+id/editText"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="101dp"
android:layout_marginBottom="510dp"
android:ems="10"
android:hint="Enter the text"
android:inputType="textPersonName"
android:text="" />
<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="158dp"
android:onClick="convert"
android:layout_marginBottom="372dp"
android:text="Convert" />
</RelativeLayout>
```

MainActivity.java

```
package com.example.textspeechapp;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.speech.tts.TextToSpeech;
import android.view.View;
import android.widget.EditText;
import java.util.Locale;
public class MainActivity extends AppCompatActivity {
TextToSpeech t1;
EditText e1;
@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
e1 = findViewById(R.id.editText);
t1 = new TextToSpeech(getApplicationContext(), new TextToSpeech.OnInitListener() {
@Override
public void onInit(int status) {
if (status!=TextToSpeech.ERROR)
{
t1.setLanguage(Locale.UK);
}
}
});
}
public void convert(View V){
String tospeak = e1.getText().toString();
t1.speak(tospeak,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.

Program:

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">
<EditText
android:id="@+id/phoneNumberEditText"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_margin="16dp"
android:layout_marginTop="24dp"
android:inputType="phone"
android:textSize="24sp"
```

```
app:layout_constraintEnd_toStartOf="@+id/clearBtn"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />
<Button
android:id="@+id/clearBtn"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_margin="16dp"
android:text="Clear"
app:layout_constraintBottom_toBottomOf="@+id/phoneNumberEditText"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toEndOf="@+id/phoneNumberEditText"
app:layout_constraintTop_toTopOf="@+id/phoneNumberEditText" />
<TableLayout
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_marginTop="32dp"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@id/phoneNumberEditText">
<TableRow
android:layout_width="match_parent"
android:layout_height="match_parent"
android:gravity="center_horizontal">
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_margin="8dp"
android:onClick="inputNumber"
android:text="7" />
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_margin="8dp"
android:onClick="inputNumber"
android:text="8" />
<Button
```

```
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_margin="8dp"
android:onClick="inputNumber"
android:text="9" />
</TableRow>
<TableRow
android:layout_width="match_parent"
android:layout_height="match_parent"
android:gravity="center_horizontal">
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_margin="8dp"
android:onClick="inputNumber"
android:text="4" />
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_margin="8dp"
android:onClick="inputNumber"
android:text="5" />
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_margin="8dp"
android:onClick="inputNumber"
android:text="6" />
</TableRow>
<TableRow
android:layout_width="match_parent"
android:layout_height="match_parent"
android:gravity="center_horizontal">
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_margin="8dp"
android:onClick="inputNumber"
android:text="1" />
```

```
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_margin="8dp"
android:onClick="inputNumber"
android:text="2" />
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_margin="8dp"
android:onClick="inputNumber"
android:text="3" />
</TableRow>
<TableRow
android:layout_width="match_parent"
android:layout_height="match_parent"
android:gravity="center_horizontal">
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_margin="8dp"
android:onClick="inputNumber"
android:text="*" />
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_margin="8dp"
android:onClick="inputNumber"
android:text="0" />
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_margin="8dp"
android:onClick="inputNumber"
android:text="#" />
</TableRow>
<TableRow
android:layout_width="match_parent"
android:layout_height="match_parent"
```

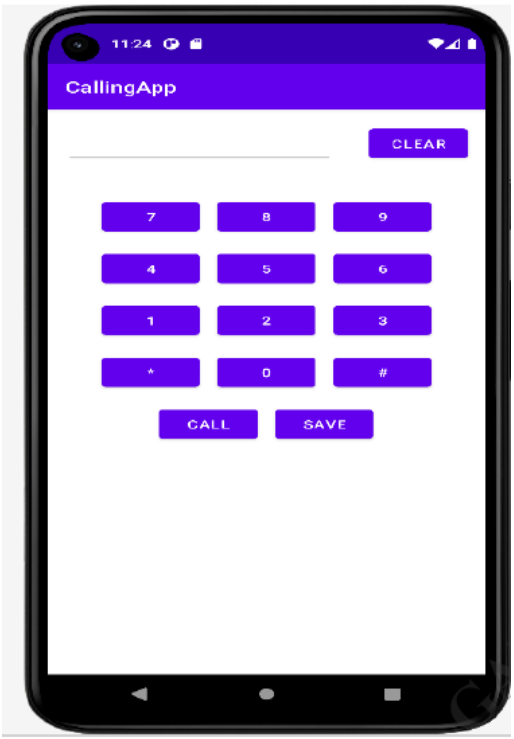
```
android:gravity="center_horizontal">
<Button
android:id="@+id/callBtn"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_margin="8dp"
android:text="Call" />
<Button
android:id="@+id/saveBtn"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_margin="8dp"
android:text="Save" />
</TableRow>
</TableLayout>
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.callingapp;
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;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
EditText phoneNumberEditText;
Button clearBtn, callBtn, saveBtn;
@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
phoneNumberEditText = findViewById(R.id.phoneNumberEditText);
clearBtn = findViewById(R.id.clearBtn);
callBtn = findViewById(R.id.callBtn);
saveBtn = findViewById(R.id.saveBtn);
clearBtn.setOnClickListener(new View.OnClickListener() {
@Override
```

```
public void onClick(View v) {
phoneNumberEditText.setText("");
}
});
callBtn.setOnClickListener(new View.OnClickListener() {
@Override
public void onClick(View v) {
String phoneNumber = phoneNumberEditText.getText().toString();
Intent intent = new Intent(Intent.ACTION_DIAL);
intent.setData(Uri.parse("tel:" + phoneNumber));
startActivity(intent);
}
});
saveBtn.setOnClickListener(new View.OnClickListener() {
@Override
public void onClick(View v) {
String phoneNumber = phoneNumberEditText.getText().toString();
Intent intent = new Intent(Intent.ACTION_INSERT);
intent.setType(ContactsContract.Contacts.CONTENT_TYPE);
intent.putExtra(ContactsContract.Intents.Insert.PHONE, phoneNumber);
startActivity(intent);
}
});
}
public void inputNumber(View v) {
Button btn = (Button)v;
String digit = btn.getText().toString();
String phoneNumber = phoneNumberEditText.getText().toString();
phoneNumberEditText.setText(phoneNumber + digit);
}
}
```

OUTPUT:


11:24
CallingApp
CLEAR
7
8
9
4
5
6
1
2
3
*
0
#
CALL
SAVE