Siddhesh Mhatre DES’S NMITD C23071

## Deccan Education Society’s

Navinchandra Mehta Institute of Technology and Development

**C E R T I F I C A T E**

This is to certify that Mr. **Siddhesh Santosh Mhatre**

M.C.A. Semester **III** with Roll No.**C23071** has completed All practical of

**Mobile Computing Lab** under supervision of **Mrs. Monisa Rodrigues** in this college during the year 2023-2025.

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| --- | --- | --- | --- | --- | --- |
| CO | R1  (Attendance) | R2  (Performance during lab session) | R3  (Innovation in problem solving technique) | R4  (Mock Viva) | R5  **(V**ariation in implementation of learnt topics on projects) |
| CO1 |  |  |  |  |  |
| CO2 |  |  |  |  |  |
| CO3 |  |  |  |  |  |
| CO4 |  |  |  |  |  |

Practical-in-charge Head of Department MCA Department

**(NMITD)**

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| Siddhesh Mhatre DES’S NMITD  **INDEX** | |  | C23071 | |
| **SR NO** | **NAME OF THE EXPERIMENT** | **DATE** | **FACULTY SIGN** | **CO** |
| **1** | **Introduction to Android and it’s components:**   1. Write a program to demonstrate activity life cycle. 2. Design the User Interface using Linear Layout. 3. Design the User Interface using Relative Layout. 4. Design the User Interface using Table Layout. 5. Create an android application that displays an image using frame layout and when the user clicks on that image another image should be displayed on the screen. 6. Create an android application to add two numbers and display result in Toast Message. 7. Write a program to implement Intent to pass data from one activity to another activity(Explicit Intent). 8. Create an application to implement implicit intent with following functionality. 9. Design a option menu (use whatsapp option menu as reference) 10. Create an application which has a button and displays a popup menu when the user clicks that   button.   1. Design an application which has an Image and display context menu on that image and also   create and redirect to different activities.   1. Create an application which has two buttons. When the user clicks on the first button the first fragment will be displayed and when the user clicks on the second button the second fragment will be displayed. 2. Create an application to demonstrate Android Service (Playing music in background). 3. Design a screen which displays the frame image and write a quote on that. |  |  | **CO1** |
| **2** | **Basic Controls and UI Components:**   1. Write an application to increase font size using seekbar. 2. Demonstrate different shapes of control. 3. Create android Application that displays selected values from radio buttons and checkboxes. |  |  | **CO1** |
| **3** | **Database Connectivity:**   1. Create an Android application to read and write content in internal storage. 2. Create an Android application to read and write content in external storage 3. Write an android program for shared preference to store value in name-value pairs. 4. Create a login form with a remember me checkbox. Save the username and password if the checkbox is checked using shared |  |  | **CO3** |
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| Siddhesh Mhatre DES’S NMITD C23071 | | | | |
|  | preference and show the welcome page when the login button is clicked.   1. Create an Android application to insert, update, select, and delete records from the Student table using SQLite Database. 2. Write a program to create a user registration form, after registration data will be inserted in the SQLite database, and design an activity that displays that information. 3. Create an Android application that reads all contacts stored in the device using a content provider. |  |  |  |
| **4** | **Graphics and animation, Multimedia:**   1. Write an Android application to play, pause, and stop an audio file. 2. Write an Android application to play a video with Media controller. 3. Create an Android application to draw graphics(different shapes) on canvas. Include an option menu to display various graphics options. 4. Create an android application that applies different animations on an image. 5. Create an Android application to implement frame animation. |  |  | **CO2** |
| **5** | **Location Based Services:**   1. Create an Android application to display the current location of your device (display longitude and latitude values). 2. Create an Android application that displays the current location of your device from longitude and latitude values(Reverse Geocoding). 3. Create an Android application that accepts longitude and latitude from the user and marks that location on google map. 4. Create an Android application that enables and disables Wi-Fi of the phone. 5. Create an Android application that enables and disables Bluetooth of the phone. |  |  | **CO2** |
| **6** | **REST API integration:**   1. Create an Android application to demonstrate JSON data parsing using HTTPUrlConnection (you can use https://api.github.com/users JSON data). 2. Create an Android application to demonstrate JSON data parsing using OkHttp (you can use https://api.github.com/users JSON data). 3. Create an Android application to demonstrate JSON data parsing using Volley(you can use https://api.github.com/users JSON data). 4. Create an Android application to demonstrate JSON data parsing using Retrofit(you can use https://api.github.com/users JSON data). |  |  | **CO3** |
| **7** | **Introduction to Dart and Flutter:**  1. Write a Flutter program to demonstrate Text widget and its properties. |  |  | **CO4** |
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| Siddhesh Mhatre DES’S NMITD C23071 | | | | |
|  | 1. Write a Flutter program to display dog names(demonstrate stateless widget and column widgets). 2. Write a Flutter program that allows the user to enter a city in a text field and displays city name(demonstrate stateful widget). 3. Write a Flutter program to change the background color(demonstrate stateful widget). 4. Write a Flutter program to demonstrate navigation(user should be navigated from first screen to second screen). 5. Write a Flutter program to design a Login form. |  |  |  |
| **8** | **Data Handling:**   1. Write a Flutter program based on RestAPI to fetch data. 2. Write a flutter program to demonstrate JSON serialization and Deserialization. |  |  | **CO4** |
|  | | | | |

**Practical 1**

# Introduction to android and its Components

#### Write a program to demonstrate activity life cycle.

**MainActivity.java**

package com.example.activity\_life\_cycle;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle; import android.util.Log;

public class MainActivity extends AppCompatActivity {

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main); Log.d("lifecycle","onCreate invoked");

}

@Override

protected void onStart() { super.onStart(); Log.d("lifecycle","onStart invoked");

}

@Override

protected void onResume() { super.onResume(); Log.d("lifecycle","onResume invoked");

}

@Override

protected void onPause() { super.onPause(); Log.d("lifecycle","onPause invoked");

}

@Override

protected vaoid onStop() { super.onStop(); Log.d("lifecycle","onStop invoked");

}

@Override

protected void onRestart() { super.onRestart(); Log.d("lifecycle","onRestart invoked");

}

@Override

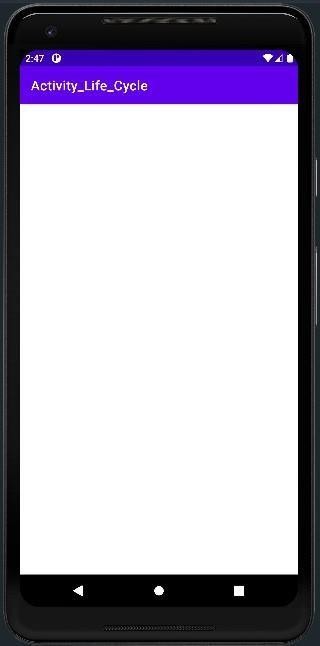
protected void onDestroy() { super.onDestroy(); Log.d("lifecycle","onDestroy invoked");

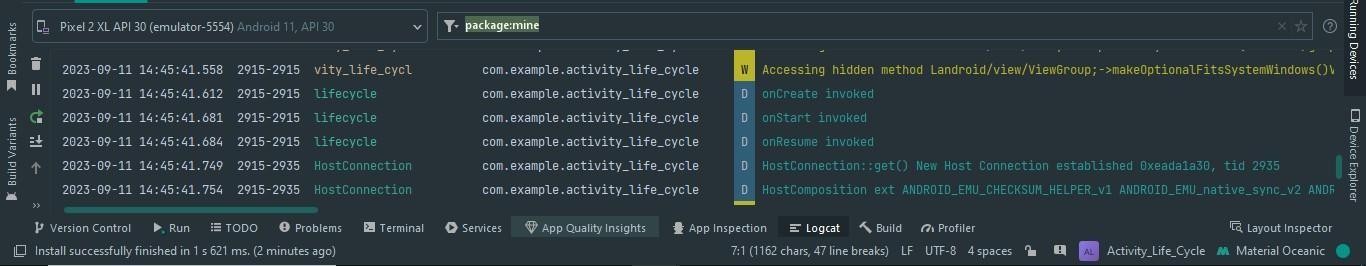
}

}

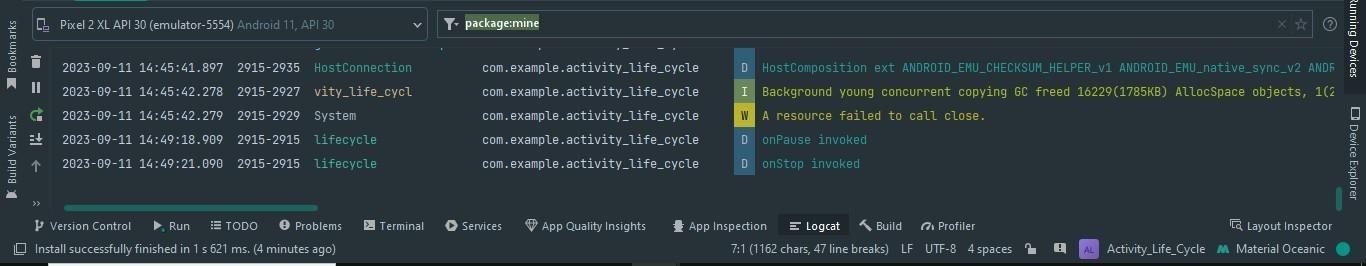
**Logcat Messages**

**When the Application has started**

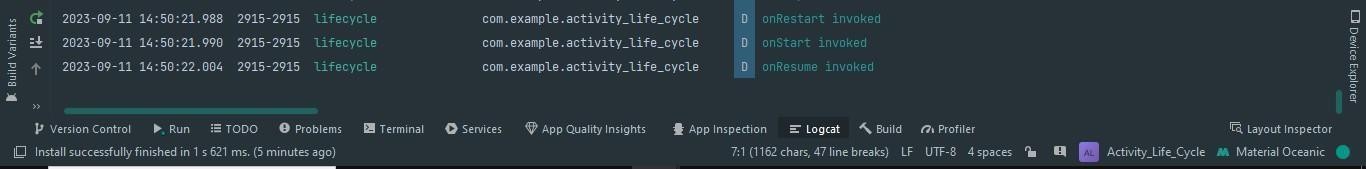




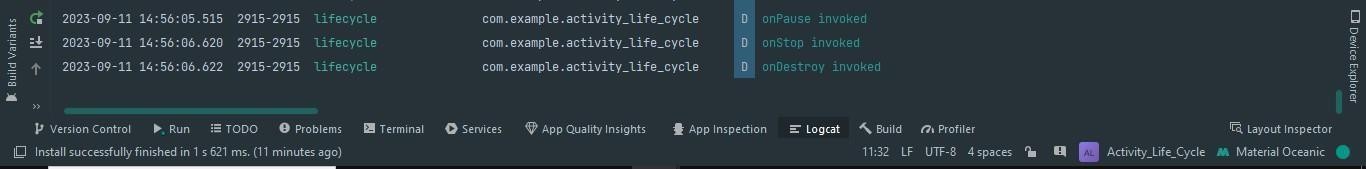
#### When the application is running in background



**When the application is opened again**



#### When the application is closed completely



1. **Design the following User Interface using Linear Layout.**

<?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"](http://schemas.android.com/tools) android:layout\_width="match\_parent" android:layout\_height="match\_parent" tools:context=".MainActivity3"

android:orientation="vertical" android:padding="10dp"

>

<EditText android:inputType="text"

android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:hint="@string/to" android:paddingLeft="10dp"

/>

<EditText android:inputType="text"

android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:hint="@string/subject" android:paddingLeft="10dp"

/>

<EditText android:inputType="text"

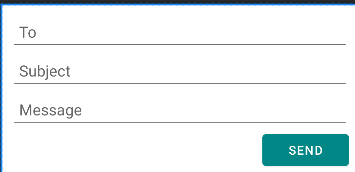
android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:hint="@string/message" android:paddingLeft="10dp"

/>

<Button android:layout\_width="100dp"

android:layout\_height="wrap\_content" android:layout\_gravity="right" android:backgroundTint="@color/teal\_700" android:text="Send"

</LinearLayout>



#### 3..Design the following User Interface using Relative Layout.

<?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"](http://schemas.android.com/tools) android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

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

<ImageButton android:id="@+id/imageButton" android:layout\_width="100dp" android:layout\_height="50dp" android:background="@color/teal\_200"

app:srcCompat="@android:drawable/ic\_media\_play" />

<ImageButton android:id="@+id/imageButton2" android:layout\_width="100dp" android:layout\_height="50dp" android:layout\_above="@+id/imageButton" android:layout\_marginBottom="20dp" android:background="@color/teal\_200"

app:srcCompat="@android:drawable/ic\_media\_next" />

/>

<Button android:layout\_width="100dp"

android:layout\_height="wrap\_content" android:layout\_gravity="right" android:backgroundTint="@color/teal\_700" android:text="Send"

/>

<ImageButton android:id="@+id/imageButton3" android:layout\_width="100dp" android:layout\_height="50dp" android:layout\_below="@+id/imageButton" android:layout\_marginTop="20dp" android:background="@color/teal\_200"

app:srcCompat="@android:drawable/ic\_media\_previous" />

ImageButton android:id="@+id/imageButton4" android:layout\_width="100dp" android:layout\_height="50dp" android:layout\_marginRight="20dp"

android:layout\_toLeftOf="@+id/imageButton"

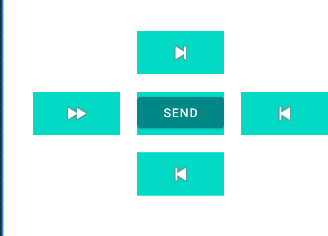
>

android:background="@color/teal\_200" app:srcCompat="@android:drawable/ic\_media\_ff" />

<ImageButton android:id="@+id/imageButton5" android:layout\_width="100dp" android:layout\_height="50dp" android:layout\_marginLeft="20dp"

android:layout\_toRightOf="@+id/imageButton" android:background="@color/teal\_200" app:srcCompat="@android:drawable/ic\_media\_previous" />

</RelativeLayout>



#### Design following UI use Tablelayout. activitymain.xml

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

<TableLayout xmlns:andr[oid="htt](http://schemas.android.com/apk/res/android)p:/[/schemas.android.com/](http://schemas.android.com/apk/res/android)a[pk/res/android](http://schemas.android.com/apk/res/android)" xmlns:app=["http://sc](http://schemas.android.com/apk/res-auto)h[emas.android.com/apk/res-auto"](http://schemas.android.com/apk/res-auto) xmlns:t[ools="ht](http://schemas.android.com/tools)tp:/[/sc](http://schemas.android.com/tools)he[mas.android.com/tools"](http://schemas.android.com/tools) android:layout\_width="match\_parent" android:layout\_height="match\_parent"

android:layout\_margin="40dp" tools:context=".MainActivity">

<TableRow>

<TextView android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="@string/caption" android:textSize="26dp" android:textColor="@color/purple\_200" android:fontFamily="sans-serif-condensed-medium"/>

</TableRow>

<TableRow android:background="@color/teal\_200">

<TextView android:layout\_width="0dp" android:padding="10dp" android:layout\_height="wrap\_content"

android:text="Student ID" android:textSize="20dp" android:textColor="@color/purple\_200" android:gravity="center" android:layout\_weight="1"

android:fontFamily="sans-serif-condensed-medium"/>

<TextView android:layout\_width="0dp" android:padding="10dp" android:layout\_height="wrap\_content"

android:text="Student Name" android:textSize="20dp"

android:layout\_weight="1" android:gravity="center" android:textColor="@color/purple\_200" android:fontFamily="sans-serif-condensed-medium"/>

<TextView android:layout\_width="0dp" android:padding="10dp" android:layout\_height="wrap\_content"

android:text="Marks" android:layout\_weight="1"

android:textSize="20dp" android:gravity="center" android:textColor="@color/purple\_200" android:fontFamily="sans-serif-condensed-medium"/>

</TableRow>

<TableRow>

<TextView android:layout\_width="0dp" android:padding="10dp" android:layout\_height="wrap\_content"

android:text="1"

android:textSize="20dp" android:textColor="@color/purple\_200" android:gravity="center" android:layout\_weight="1"

android:fontFamily="sans-serif-condensed-medium"/>

<TextView android:layout\_width="0dp" android:padding="10dp" android:layout\_height="wrap\_content"

android:text="Atharva" android:textSize="20dp"

android:layout\_weight="1" android:gravity="center" android:textColor="@color/purple\_200" android:fontFamily="sans-serif-condensed-medium"/>

<TextView android:layout\_width="0dp" android:padding="10dp" android:layout\_height="wrap\_content"

android:text="95" android:layout\_weight="1"

android:textSize="20dp" android:gravity="center" android:textColor="@color/purple\_200" android:fontFamily="sans-serif-condensed-medium"/>

</TableRow>

<TableRow>

<TextView android:layout\_width="0dp" android:padding="10dp" android:layout\_height="wrap\_content"

android:text="2" android:textSize="20dp" android:textColor="@color/purple\_200" android:gravity="center" android:layout\_weight="1"

android:fontFamily="sans-serif-condensed-medium"/>

<TextView android:layout\_width="0dp" android:padding="10dp" android:layout\_height="wrap\_content"

android:text="Deep" android:textSize="20dp"

android:layout\_weight="1" android:gravity="center" android:textColor="@color/purple\_200" android:fontFamily="sans-serif-condensed-medium"/>

<TextView android:layout\_width="0dp" android:padding="10dp" android:layout\_height="wrap\_content"

android:text="97" android:layout\_weight="1"

android:textSize="20dp" android:gravity="center" android:textColor="@color/purple\_200" android:fontFamily="sans-serif-condensed-medium"/>

</TableRow>

<TableRow>

<TextView android:layout\_width="0dp" android:padding="10dp" android:layout\_height="wrap\_content"

android:text="3" android:textSize="20dp" android:textColor="@color/purple\_200"

android:gravity="center" android:layout\_weight="1"

android:fontFamily="sans-serif-condensed-medium"/>

<TextView android:layout\_width="0dp" android:padding="10dp" android:layout\_height="wrap\_content"

android:text="Jay" android:textSize="20dp"

android:layout\_weight="1" android:gravity="center" android:textColor="@color/purple\_200" android:fontFamily="sans-serif-condensed-medium"/>

<TextView android:layout\_width="0dp" android:padding="10dp" android:layout\_height="wrap\_content"

android:text="85" android:layout\_weight="1"

android:textSize="20dp" android:gravity="center" android:textColor="@color/purple\_200" android:fontFamily="sans-serif-condensed-medium"/>

</TableRow>

<TableRow>

<TextView android:layout\_width="0dp" android:padding="10dp" android:layout\_height="wrap\_content"

android:text="4" android:textSize="20dp" android:textColor="@color/purple\_200" android:gravity="center" android:layout\_weight="1"

android:fontFamily="sans-serif-condensed-medium"/>

<TextView android:layout\_width="0dp" android:padding="10dp" android:layout\_height="wrap\_content"

android:text="Yash" android:textSize="20dp"

android:layout\_weight="1" android:gravity="center" android:textColor="@color/purple\_200" android:fontFamily="sans-serif-condensed-medium"/>

<TextView android:layout\_width="0dp" android:padding="10dp" android:layout\_height="wrap\_content"

android:text="87" android:layout\_weight="1"

android:textSize="20dp" android:gravity="center" android:textColor="@color/purple\_200" android:fontFamily="sans-serif-condensed-medium"/>

</TableRow>

<TableRow>

<TextView android:layout\_width="0dp" android:padding="10dp" android:layout\_height="wrap\_content"

android:text="5" android:textSize="20dp" android:textColor="@color/purple\_200" android:gravity="center" android:layout\_weight="1"

android:fontFamily="sans-serif-condensed-medium"/>

<TextView android:layout\_width="0dp" android:padding="10dp" android:layout\_height="wrap\_content"

android:text="Priya" android:textSize="20dp"

android:layout\_weight="1" android:gravity="center" android:textColor="@color/purple\_200" android:fontFamily="sans-serif-condensed-medium"/>

<TextView android:layout\_width="0dp" android:padding="10dp" android:layout\_height="wrap\_content"

android:text="99" android:layout\_weight="1"

android:textSize="20dp" android:gravity="center" android:textColor="@color/purple\_200" android:fontFamily="sans-serif-condensed-medium"/>

</TableRow>

<TableRow>

<TextView android:layout\_width="0dp" android:padding="10dp" android:layout\_height="wrap\_content"

android:text="6" android:textSize="20dp" android:textColor="@color/purple\_200" android:gravity="center" android:layout\_weight="1"

android:fontFamily="sans-serif-condensed-medium"/>

<TextView android:layout\_width="0dp" android:padding="10dp" android:layout\_height="wrap\_content"

android:text="Vaidehi" android:textSize="20dp"

android:layout\_weight="1" android:gravity="center" android:textColor="@color/purple\_200" android:fontFamily="sans-serif-condensed-medium"/>

<TextView android:layout\_width="0dp" android:padding="10dp" android:layout\_height="wrap\_content"

android:text="75" android:layout\_weight="1"

android:textSize="20dp" android:gravity="center" android:textColor="@color/purple\_200" android:fontFamily="sans-serif-condensed-medium"/>

</TableRow>

</TableLayout>

**strings.xml**

<resources>

<string name="app\_name">Layouts\_C22059</string>

<string name="caption">Student Details</string>

</resources>



#### Create an android application that displays an image using frame layout and when the user clicks on that image another image should be displayed on the screen.

**activitymain.xml**

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

<FrameLayout xmlns:android=["http://schemas.android.com/](http://schemas.android.com/apk/res/android)a[pk/res/android"](http://schemas.android.com/apk/res/android) xmlns:app=["http://schemas.android.com/](http://schemas.android.com/apk/res-auto)a[pk/res-auto"](http://schemas.android.com/apk/res-auto) xmlns:t[ools="ht](http://schemas.android.com/tools)tp:/[/sch](http://schemas.android.com/tools)e[mas.android.com/tool](http://schemas.android.com/tools)s" android:layout\_width="match\_parent" android:layout\_height="match\_parent"

tools:context=".MainActivity">

<ImageView android:id="@+id/img1"

android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:src="@drawable/img2" android:scaleType="fitXY"/>

<ImageView android:id="@+id/img2"

android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:src="@drawable/img4" android:scaleType="fitXY"/>

</FrameLayout>

**MainActivity.java**

package com.example.framelayout;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle; import android.view.View;

import android.widget.ImageView;

public class MainActivity extends AppCompatActivity { ImageView img1,img2;

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main); img1=findViewById(R.id.img1); img2=findViewById(R.id.img2); img1.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View view) { img1.setVisibility(View.GONE); img2.setVisibility(View.VISIBLE);

}

});

img2.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View view) { img2.setVisibility(View.GONE); img1.setVisibility(View.VISIBLE);

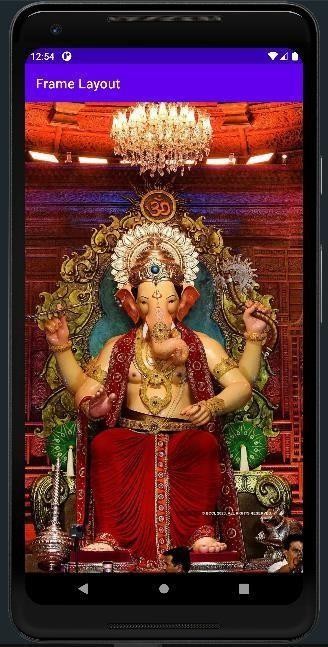
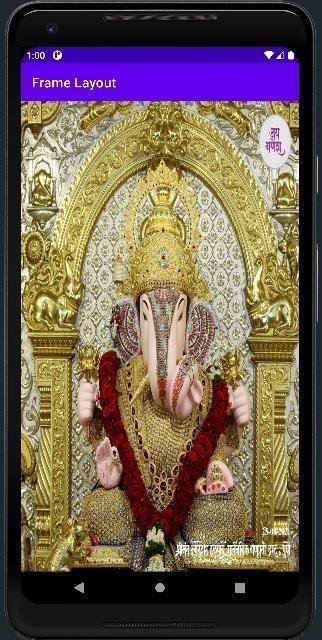
}

});

}

}

**Frame Layout**



1. **Create an android application to add two numbers and display result in Toast Message.**

**activity\_main.xml**

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

<LinearLayout xmlns:android=["http://schemas.android.com/](http://schemas.android.com/apk/res/android)a[pk/res/android"](http://schemas.android.com/apk/res/android) xmlns:app=["http://schemas.android.com/](http://schemas.android.com/apk/res-auto)a[pk/res-auto"](http://schemas.android.com/apk/res-auto) xmlns:t[ools="ht](http://schemas.android.com/tools)tp:/[/sch](http://schemas.android.com/tools)e[mas.android.com/tool](http://schemas.android.com/tools)s" android:layout\_width="match\_parent" android:layout\_height="match\_parent"

android:orientation="vertical" tools:context=".MainActivity">

<EditText android:id="@+id/editNumber1" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:hint="number 1"/>

<EditText android:id="@+id/editNumber2" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:hint="number 2"/>

<Button

android:id="@+id/btnAdd" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="ADD" android:layout\_gravity="center\_horizontal"/>

</LinearLayout>

**MainActivity.java**

package com.example.activitylifecycle1;

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 MainActivity extends AppCompatActivity { EditText num1,num2;

Button add; @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main); num1=findViewById(R.id.editNumber1); num2=findViewById(R.id.editNumber2); add=findViewById(R.id.btnAdd); add.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View view) {

double no1=Double.parseDouble(num1.getText().toString()); double no2=Double.parseDouble(num2.getText().toString()); double sum=no1+no2;

Toast.makeText(getApplicationContext(),"Addition:"+Double.toString(sum),Toast.

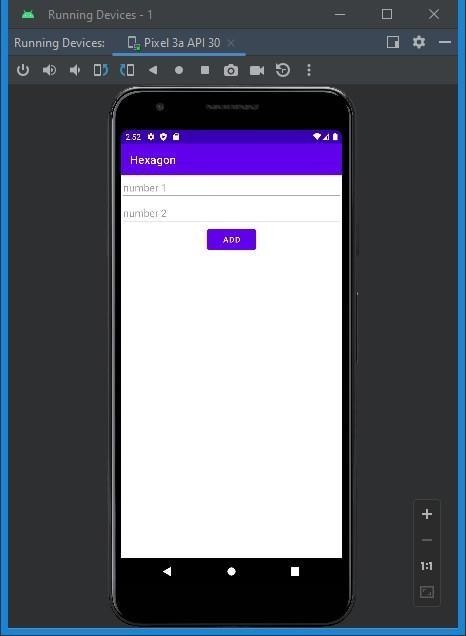
LENGTH\_LONG).show();

}

});

}

}

**Output:**

1. **Write a program to implement Intent to pass data from one activity to another activity (Explicit Intent).**

**activity\_main.xml**

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

<LinearLayout xmlns:android=["http://schemas.android.com/](http://schemas.android.com/apk/res/android)a[pk/res/android"](http://schemas.android.com/apk/res/android) xmlns:app=["http://schemas.android.com/](http://schemas.android.com/apk/res-auto)a[pk/res-auto"](http://schemas.android.com/apk/res-auto) xmlns:t[ools="ht](http://schemas.android.com/tools)tp:/[/sch](http://schemas.android.com/tools)e[mas.android.com/tool](http://schemas.android.com/tools)s" android:layout\_width="match\_parent" android:layout\_height="match\_parent"

android:orientation="vertical" tools:context=".MainActivity">

<EditText android:id="@+id/edT1"

android:layout\_width="match\_parent" android:layout\_gravity="center\_horizontal" android:layout\_height="wrap\_content" android:hint="Enter Name" />

<EditText android:id="@+id/edT2"

android:layout\_width="match\_parent" android:layout\_gravity="center\_horizontal" android:layout\_height="wrap\_content" android:hint="Enter Email" />

<EditText android:id="@+id/edT3"

android:layout\_width="match\_parent" android:layout\_gravity="center\_horizontal" android:layout\_height="wrap\_content" android:hint="Enter Phone Number" />

<Button

android:id="@+id/btnsend"

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_gravity="center" android:text="SEND"/>

</LinearLayout>

**MainActivity..java**

package com.example.intent\_explicit;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent; import android.os.Bundle; import android.view.View; import android.widget.EditText;

public class MainActivity extends AppCompatActivity { @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

EditText name,email,phone; name=findViewById(R.id.edT1); email=findViewById(R.id.edT2); phone=findViewById(R.id.edT3);

findViewById(R.id.btnsend).setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View view) {

Intent i=new Intent(MainActivity.this,MainActivity2.class); i.putExtra("uname",name.getText().toString()); i.putExtra("email",email.getText().toString());

* 1. putExtra("phoneno",phone.getText().toString()); startActivity(i);

}

});

}

}

**activity\_main2.xml**

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

<LinearLayout xmlns:android=["http://schemas.android.com/](http://schemas.android.com/apk/res/android)a[pk/res/android"](http://schemas.android.com/apk/res/android) xmlns:app=["http://schemas.android.com/](http://schemas.android.com/apk/res-auto)a[pk/res-auto"](http://schemas.android.com/apk/res-auto) xmlns:t[ools="ht](http://schemas.android.com/tools)tp:/[/sch](http://schemas.android.com/tools)e[mas.android.com/tool](http://schemas.android.com/tools)s" android:layout\_width="match\_parent" android:layout\_height="match\_parent"

tools:context=".MainActivity2">

<TextView android:id="@+id/displaydata" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:textSize="38dp"/>

</LinearLayout>

**MainActivity2.java**

package com.example.intent\_explicit;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity2 extends AppCompatActivity {

TextView display; @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main2); display=findViewById(R.id.displaydata);

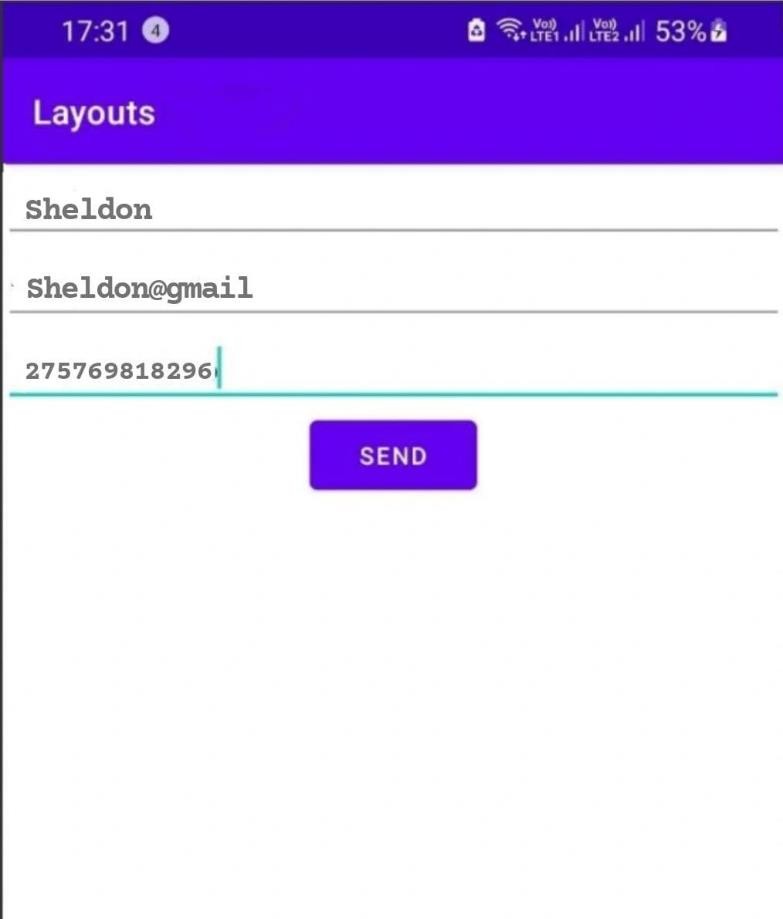
String name=getIntent().getStringExtra("uname"); String email=getIntent().getStringExtra("email"); String phone=getIntent().getStringExtra("phoneno");

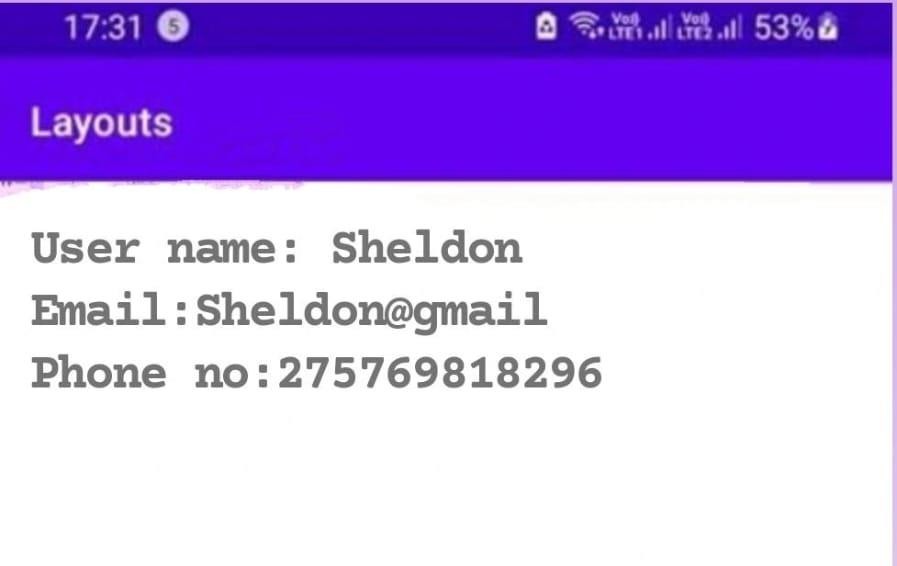
display.setText("User name:"+name+"\nEmail:"+email+"\nPhone no:"+phone);

}

}

**Output:**





#### Create an application to implement implicit intent with following functionality.

**activity\_main.xml**

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

<GridLayout xmlns:andr[oid="htt](http://schemas.android.com/apk/res/android)p:/[/schemas.android.com/](http://schemas.android.com/apk/res/android)a[pk/res/android"](http://schemas.android.com/apk/res/android) xmlns:app=["http://schemas.android.com/](http://schemas.android.com/apk/res-auto)a[pk/res-auto"](http://schemas.android.com/apk/res-auto) xmlns:t[ools="ht](http://schemas.android.com/tools)tp:/[/sch](http://schemas.android.com/tools)e[mas.android.com/tool](http://schemas.android.com/tools)s" android:layout\_width="match\_parent" android:layout\_height="match\_parent"

android:columnCount="2" android:padding="50dp" tools:context=".MainActivity">

<EditText android:id="@+id/editTextText" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:layout\_columnSpan="2" android:ems="10" android:inputType="text" android:text="Name" />

<Button

android:id="@+id/button1" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_column="0" android:text="Camera" />

<Button

android:id="@+id/button2" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_column="1" android:text="Gallery" />

<Button

android:id="@+id/button3" android:layout\_width="wrap\_content" android:layout\_column="0" android:layout\_height="wrap\_content" android:text="Contacts" />

<Button

android:id="@+id/button4" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_column="1" android:text="Dial" />

<Button

android:id="@+id/button5" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_gravity="center\_horizontal" android:layout\_columnSpan="2" android:text="Browser" />

</GridLayout>

**MainActivity.java**

package com.example.intentimplicit;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent; import android.net.Uri; import android.os.Bundle;

import android.provider.MediaStore; import android.view.View;

import android.widget.EditText;

public class MainActivity extends AppCompatActivity {

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

findViewById(R.id.button1).setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View view) {

Intent i=new Intent(MediaStore.ACTION\_IMAGE\_CAPTURE); startActivity(i);

}

});

findViewById(R.id.button2).setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View view) {

Intent i=new Intent(Intent.ACTION\_VIEW); i.setData(Uri.parse("content://media/external/images/media/")); startActivity(i);

}

});

findViewById(R.id.button3).setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View view) {

Intent i=new Intent(Intent.ACTION\_VIEW); i.setData(Uri.parse("content://contacts/people/")); startActivity(i);

}

});

EditText phone=findViewById(R.id.editTextText); findViewById(R.id.button4).setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View view) {

Intent i=new Intent(Intent.ACTION\_DIAL); i.setData(Uri.parse("tel:"+phone.getText())); startActivity(i);

}

});

findViewById(R.id.button5).setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View view) {

Intent i=new Intent(Intent.ACTION\_VIEW); i.setData(Uri.parse[("http://www.google.c](http://www.google.com/)om")); startActivity(i);

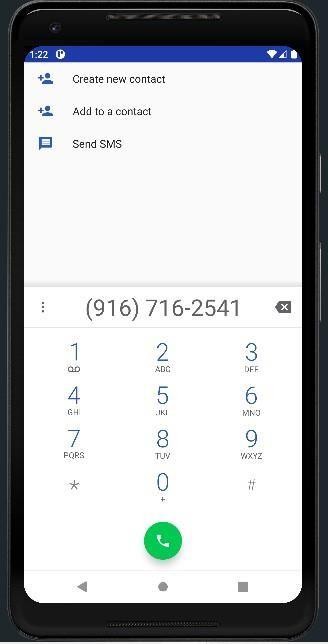
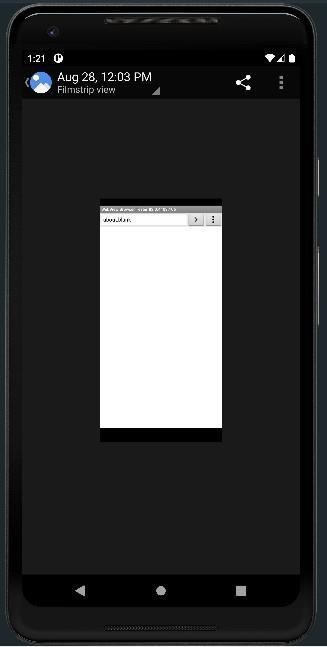
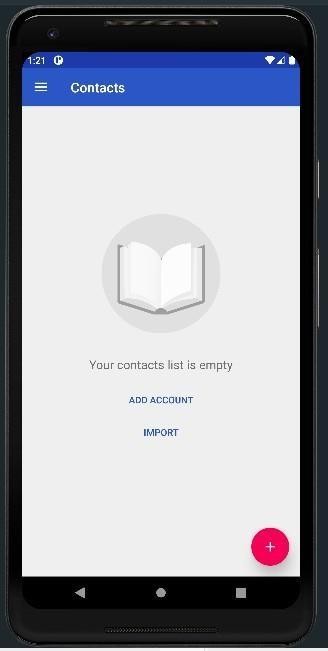
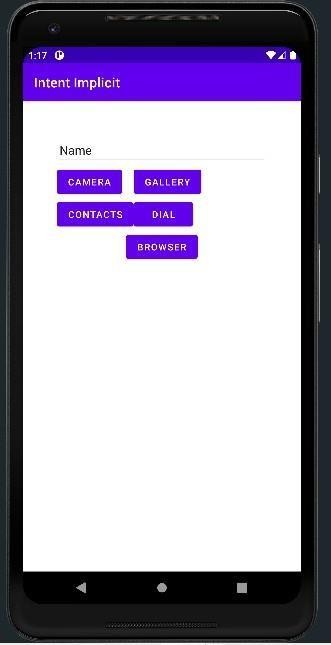
}

});

}

}

**Output:**



**2. Design a option menu (use WhatsApp option menu as reference).**

**option\_menu.xml**

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

<menu xmlns:android="<http://schemas.android.com/apk/res/android>" xmlns:app[="h](http://schemas.android.com/apk/res-auto)tt[p://schemas.android.com/apk/res-auto">](http://schemas.android.com/apk/res-auto)

<item

android:id="@+id/search" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:icon="@drawable/baseline\_search\_24" app:showAsAction="ifRoom" android:title="Search" />

<item

android:id="@+id/group" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:title="New Group" />

<item android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:title="Settings" >

<menu

android:layout\_width="match\_parent" android:layout\_height="match\_parent" >

<item

android:id="@+id/account" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content"

android:title="Account" />

<item

android:id="@+id/chats" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:title="Chats" />

<item

android:id="@+id/notifications" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:title="Notification" />

</menu>

</item>

</menu>

**MainActivity.java**

package com.example.optionmenudemo;

import androidx.annotation.NonNull;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle; import android.view.Menu;

import android.view.MenuInflater; import android.view.MenuItem; import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

}

@Override

public boolean onCreateOptionsMenu(Menu menu) { MenuInflater inflater=getMenuInflater(); inflater.inflate(R.menu.option\_menu,menu);

return true;

}

@Override

public boolean onOptionsItemSelected(@NonNull MenuItem item) { int id=item.getItemId();

if(id==R.id.search){

Toast.makeText(getApplicationContext(),"Search clicked",Toast.LENGTH\_LONG).show();

} else if(id==R.id.group){

Toast.makeText(getApplicationContext(),"New Group clicked",Toast.LENGTH\_LONG).show();

} else if(id==R.id.account){

Toast.makeText(getApplicationContext(),"Account clicked",Toast.LENGTH\_LONG).show();

}else if(id==R.id.chats){

Toast.makeText(getApplicationContext(),"Chats clicked",Toast.LENGTH\_LONG).show();

}else if(id==R.id.notifications){

Toast.makeText(getApplicationContext(),"Notifications clicked",Toast.LENGTH\_LONG).show();

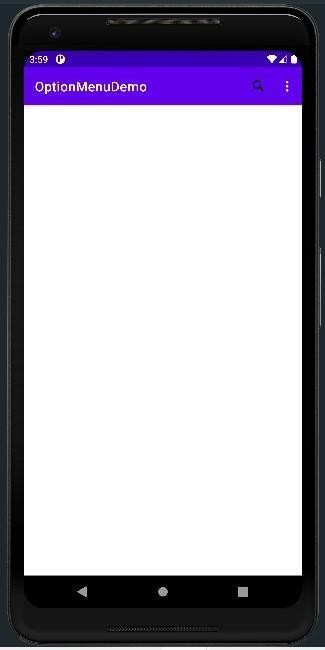
}

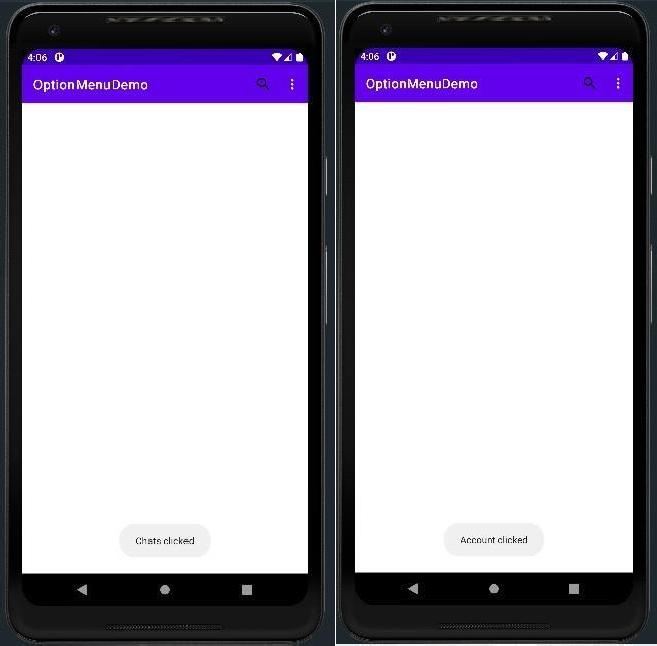
return super.onOptionsItemSelected(item);

}

}

**Output:**





**1. Create an application which has a button and displays a popup menu when the user clicks that button.**

#### PopUpMenuDemo

**activity\_main.xml**

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

<androidx.constraintlayout.widget.ConstraintLayout xmlns:andr[oid="htt](http://schemas.android.com/apk/res/android)p:/[/sc](http://schemas.android.com/apk/res/android)he[mas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android)

xmlns:app=["http://schemas.android.com/](http://schemas.android.com/apk/res-auto)a[pk/res-auto"](http://schemas.android.com/apk/res-auto) xmlns:t[ools="ht](http://schemas.android.com/tools)tp:/[/sch](http://schemas.android.com/tools)e[mas.android.com/tool](http://schemas.android.com/tools)s" android:layout\_width="match\_parent" android:layout\_height="match\_parent" tools:context=".MainActivity">

<Button

android:id="@+id/button1" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_marginStart="162dp" android:layout\_marginTop="318dp" android:layout\_marginEnd="162dp" android:layout\_marginBottom="365dp" android:text="Show" app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent" tools:text="Show" />

</androidx.constraintlayout.widget.ConstraintLayout>

**MainActivity.java**

package com.example.popupmenudemo;

import androidx.appcompat.app.AppCompatActivity

import android.os.Bundle; import android.view.MenuItem; import android.view.View;

import android.widget.PopupMenu; import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

findViewById(R.id.button1).setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View view) {

PopupMenu popupMenu = new PopupMenu(MainActivity.this,view); popupMenu.inflate(R.menu.popup\_menu);

popupMenu.show();

popupMenu.setOnMenuItemClickListener(new PopupMenu.OnMenuItemClickListener() {

@Override

public boolean onMenuItemClick(MenuItem menuItem) { Toast.makeText(getApplicationContext(),"Selected

Item:"+menuItem.getTitle(),Toast.LENGTH\_LONG).show(); return false;

}

});

}

});

}

}

**popup\_menu.xml**

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

<menu xmlns:android="[http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android)>

<item

android:id="@+id/mail" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:title="Mail" />

<item

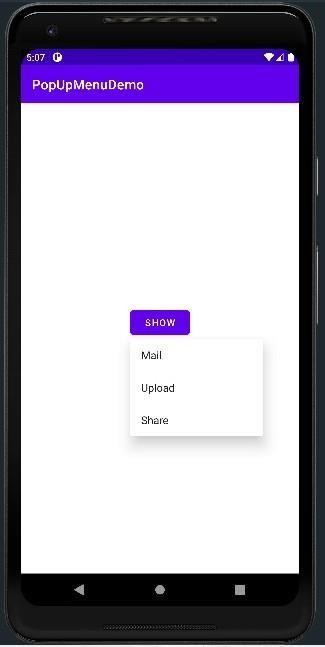
android:id="@+id/upload" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:title="Upload" />

<item

android:id="@+id/share" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:title="Share" />

</menu>

**Output:**





1. **Design an application which has an Image and display context menu on that image and also create and redirect to different activities.**

#### ContextMenuDemo

**MainActivity.java**

package com.example.contextmenudemo;

import androidx.annotation.NonNull;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent; import android.os.Bundle;

import android.view.ContextMenu; import android.view.MenuInflater; import android.view.MenuItem; import android.view.View;

import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main); registerForContextMenu(findViewById(R.id.imageView));

}

@Override

public void onCreateContextMenu(ContextMenu menu, View v, ContextMenu.ContextMenuInfo menuInfo) {

MenuInflater inflater = getMenuInflater();

inflater.inflate(R.menu.contextmenu,menu);

}

@Override

public boolean onContextItemSelected(@NonNull MenuItem item) { int id=item.getItemId();

if(id==R.id.open\_menu){

Intent i = new Intent(MainActivity.this,MainActivity2.class); startActivity(i);

}

else if (id==R.id.cancel){

Toast.makeText(getApplicationContext(),"Cancel clicked",Toast.LENGTH\_LONG).show();

}

return super.onContextItemSelected(item);

}

}

**activitymain.xml**

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

<androidx.constraintlayout.widget.ConstraintLayout xmlns:andr[oid="htt](http://schemas.android.com/apk/res/android)p:/[/sc](http://schemas.android.com/apk/res/android)he[mas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android)

xmlns:app=["http://schemas.android.com/](http://schemas.android.com/apk/res-auto)a[pk/res-auto"](http://schemas.android.com/apk/res-auto) xmlns:t[ools="ht](http://schemas.android.com/tools)tp:/[/sch](http://schemas.android.com/tools)e[mas.android.com/tool](http://schemas.android.com/tools)s" android:layout\_width="match\_parent" android:layout\_height="match\_parent" tools:context=".MainActivity">

<ImageView android:id="@+id/imageView" android:layout\_width="match\_parent" android:layout\_height="match\_parent"

android:src="@drawable/img2" tools:layout\_editor\_absoluteX="0dp"

tools:layout\_editor\_absoluteY="-16dp" />

</androidx.constraintlayout.widget.ConstraintLayout>

**contextmenu.xml**

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

<menu xmlns:android="[http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android)>

<item

android:id="@+id/open\_menu" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:title="Open in new window" />

<item

android:id="@+id/cancel" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:title="Cancel" />

</menu>

**activitymain2.xml**

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

<androidx.constraintlayout.widget.ConstraintLayout xmlns:andr[oid="htt](http://schemas.android.com/apk/res/android)p:/[/sc](http://schemas.android.com/apk/res/android)he[mas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android)

xmlns:app=["http://schemas.android.com/](http://schemas.android.com/apk/res-auto)a[pk/res-auto"](http://schemas.android.com/apk/res-auto) xmlns:t[ools="ht](http://schemas.android.com/tools)tp:/[/sch](http://schemas.android.com/tools)e[mas.android.com/tool](http://schemas.android.com/tools)s" android:layout\_width="match\_parent" android:layout\_height="match\_parent" tools:context=".MainActivity2">

<FrameLayout android:layout\_width="match\_parent" android:layout\_height="match\_parent"

app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent">

<ImageView android:id="@+id/imageView2" android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:src="@drawable/img2" />

<TextView android:id="@+id/textView" android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" android:layout\_gravity="center\_horizontal" android:text="Lalbaugcha Raja" android:textSize="30dp" />

</FrameLayout>

</androidx.constraintlayout.widget.ConstraintLayout>

**MainActivity2.java**

package com.example.contextmenudemo;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

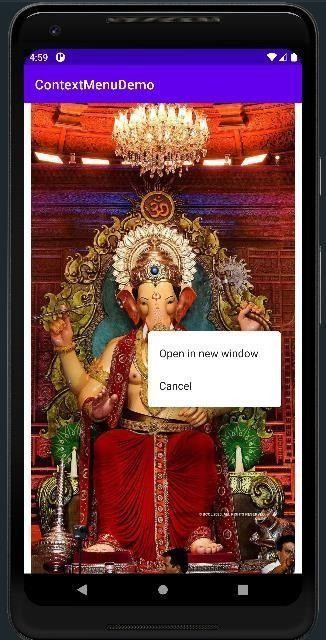
public class MainActivity2 extends AppCompatActivity {

@Override

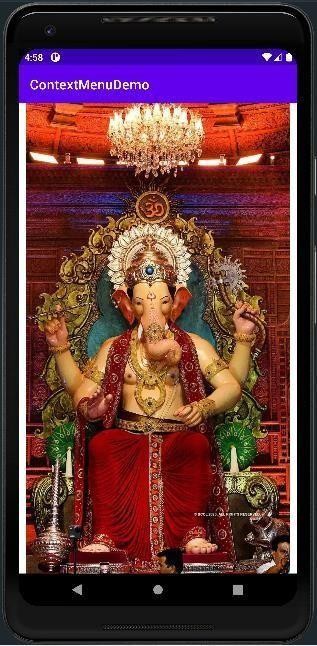
protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main2);

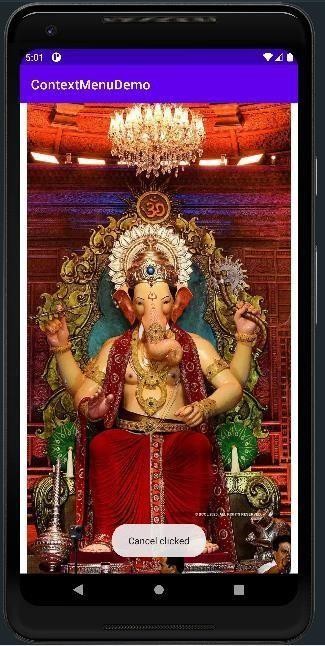
}

}



#### :





1. **Create an application which has two buttons. When the user clicks on the first button the first fragment will be displayed and when the user clicks on the second button the second fragment will be displayed.**

**colors.xml**

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

<resources>

<color name="purple\_200">#FFBB86FC</color>

<color name="purple\_500">#FF6200EE</color>

<color name="purple\_700">#FF3700B3</color>

<color name="teal\_200">#FF03DAC5</color>

<color name="teal\_700">#FF018786</color>

<color name="black">#FF000000</color>

<color name="white">#FFFFFFFF</color>

<color name="button1Color">#FFBC38</color>

<color name="buttton2Color">#BFA9A9</color>

<color name="fragmenttwocolor">#00BCD4</color>

</resources>

**activity\_main.xml**

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

<LinearLayout xmlns:android=["http://schemas.android.com/](http://schemas.android.com/apk/res/android)a[pk/res/android"](http://schemas.android.com/apk/res/android) xmlns:app=["http://schemas.android.com/](http://schemas.android.com/apk/res-auto)a[pk/res-auto"](http://schemas.android.com/apk/res-auto) xmlns:t[ools="ht](http://schemas.android.com/tools)tp:/[/sch](http://schemas.android.com/tools)e[mas.android.com/tool](http://schemas.android.com/tools)s" android:layout\_width="match\_parent" android:layout\_height="match\_parent"

android:background="#57A5A5" android:orientation="vertical" tools:context=".MainActivity">

<LinearLayout android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:orientation="horizontal">

<Button

android:id="@+id/button1" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:backgroundTint="@color/button1Color" android:layout\_weight="1"

android:text="First" />

<Button

android:id="@+id/button2" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_weight="1" android:text="Second"

android:backgroundTint="@color/buttton2Color"/>

</LinearLayout>

<FrameLayout android:id="@+id/fl"

android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:layout\_weight="1">

</FrameLayout>

</LinearLayo

**MainActivity.java**

package com.example.fragmentdemo;

import androidx.appcompat.app.AppCompatActivity; import androidx.fragment.app.FragmentTransaction;

import android.os.Bundle; import android.view.View;

public class MainActivity extends AppCompatActivity {

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

findViewById(R.id.button1).setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View view) {

FirstFragment firstFragment = new FirstFragment();

FragmentTransaction transaction=getSupportFragmentManager().beginTransaction();

transaction.replace(R.id.fl,firstFragment); transaction.commit();

}

});

findViewById(R.id.button2).setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View view) {

SecondFragment secondFragment = new SecondFragment();

FragmentTransaction transaction=getSupportFragmentManager().beginTransacti

ransaction.replace(R.id.fl,secondFragment); transaction.commit();

}

});

}

}

fragment\_first.xml

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

<FrameLayout xmlns:android="<http://schemas.android.com/apk/res/android>" xmlns:tools="<http://schemas.android.com/tools>"

android:layout\_width="match\_parent" android:layout\_height="match\_parent" tools:context=".FirstFragment">

<!-- TODO: Update blank fragment layout -->

<ImageView android:id="@+id/imageView" android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" android:scaleType="fitXY" android:src="@drawable/img2" />

<TextView android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:text="First Fragment" android:textSize="30dp" android:layout\_gravity="center\_horizontal" android:textColor="@color/black

</FrameLayout>

**fragment\_second.xml**

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

<FrameLayout xmlns:android=["http://schemas.android.com/](http://schemas.android.com/apk/res/android)a[pk/res/android"](http://schemas.android.com/apk/res/android) xmlns:t[ools="ht](http://schemas.android.com/tools)tp:/[/sch](http://schemas.android.com/tools)e[mas.android.com/tool](http://schemas.android.com/tools)s" android:layout\_width="match\_parent" android:layout\_height="match\_parent"

tools:context=".SecondFragment">

<!-- TODO: Update blank fragment layout -->

<ImageView android:id="@+id/imageView2" android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:scaleType="fitXY" android:src="@drawable/img4" />

<TextView android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:textSize="30dp" android:textColor="@color/teal\_200" android:layout\_gravity="center\_horizontal" android:text="Second Fragment" />

</FrameLayout>

**FirstFragmant.java**

package com.example.fragmentdemo;

import android.os.Bundle;

import androidx.fragment.app.Fragment;

import android.view.LayoutInflater; import android.view.View;

import android.view.ViewGroup;

/\*\*

* A simple {@link Fragment} subclass.
* Use the {@link FirstFragment#newInstance} factory method to
* create an instance of this fragment.

\*/

public class FirstFragment extends Fragment { public FirstFragment() {

// Required empty public constructor

}

@Override

public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState) {

// Inflate the layout for this fragment

return inflater.inflate(R.layout.fragment\_first, container, false);

}

}

**SecondFragmant.java**

package com.example.fragmentdemo; import android.os.Bundle;

import androidx.fragment.app.Fragment;

import android.view.LayoutInflater; import android.view.View;

import android.view.ViewGroup;

/\*\*

* A simple {@link Fragment} subclass.
* Use the {@link SecondFragment#newInstance} factory method to
* create an instance of this fragment.

\*/

public class SecondFragment extends Fragment { public SecondFragment() {

// Required empty public constructor

}

@Override

public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState) {

// Inflate the layout for this fragment

return inflater.inflate(R.layout.fragment\_second, container, false);

}

Output







#### Create an application to demonstrate Android Service (Playing music in background).

**activity\_main.xml**

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

<RelativeLayout xmlns:android=["http://schemas.android.com/](http://schemas.android.com/apk/res/android)a[pk/res/android"](http://schemas.android.com/apk/res/android) xmlns:app=["http://schemas.android.com/](http://schemas.android.com/apk/res-auto)a[pk/res-auto"](http://schemas.android.com/apk/res-auto) xmlns:t[ools="ht](http://schemas.android.com/tools)tp:/[/sch](http://schemas.android.com/tools)e[mas.android.com/tool](http://schemas.android.com/tools)s" android:layout\_width="match\_parent"

android:layout\_height="match\_parent" android:background="@drawable/img" tools:context=".MainActivity">

<LinearLayout android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:layout\_marginTop="100dp" android:padding="10dp" android:orientation="horizontal">

<Button

android:id="@+id/btnPlay" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_weight="1" android:backgroundTint="#8BC34A" android:layout\_marginRight="10dp" android:textColor="#000" android:text="PLAY" />

<Button

android:id="@+id/btnPause"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" android:layout\_marginRight="10dp" android:layout\_weight="1" android:textColor="#000" android:backgroundTint="#FFC107" android:text="PAUSE" />

<Button

android:id="@+id/btnStop" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_weight="1" android:textColor="#000" android:backgroundTint="#E8190A" android:text="STOP" />

</LinearLayout>

</RelativeLayout>

**MainActivity.java**

package com.example.myaudioapplication;

import androidx.appcompat.app.AppCompatActivity;

import android.media.MediaPlayer; import android.os.Bundle;

import android.provider.MediaStore; import android.view.View;

public class MainActivity extends AppCompatActivity { MediaPlayer mp;

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

findViewById(R.id.btnPlay).setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v) { if(mp==null){

mp= MediaPlayer.create(getApplicationContext(),R.raw.song);

}

mp.start();

}

});

findViewById(R.id.btnPause).setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v) {

if(mp!=null){

mp.pause();

}

}

});

findViewById(R.id.btnStop).setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v) { if (mp!=null){

mp.release();

}

}

});

}

}

**Output:**



14.. **Design a screen which displays the frame image and write a quote on that. activitymain.xml**

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

<FrameLayout xmlns:android=["http://schemas.android.com/](http://schemas.android.com/apk/res/android)a[pk/res/android"](http://schemas.android.com/apk/res/android) xmlns:app=["http://schemas.android.com/](http://schemas.android.com/apk/res-auto)a[pk/res-auto"](http://schemas.android.com/apk/res-auto) xmlns:t[ools="ht](http://schemas.android.com/tools)tp:/[/sch](http://schemas.android.com/tools)e[mas.android.com/tool](http://schemas.android.com/tools)s" android:layout\_width="match\_parent" android:layout\_height="match\_parent"

tools:context=".MainActivity">

<ImageView android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:src="@drawable/bg" android:scaleType="fitXY"/>

<TextView android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Login Details" android:textSize="20dp" android:background="@color/purple\_200" android:layout\_gravity="center\_horizontal"/>

<EditText android:layout\_width="match\_parent" android:paddingTop="100dp" android:layout\_height="wrap\_content" android:hint="Enter your Email" />

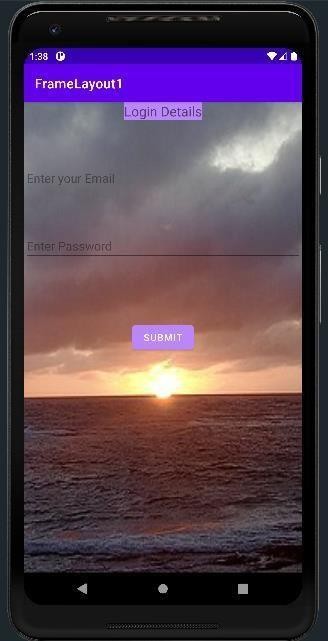
<EditText android:layout\_width="match\_parent" android:paddingTop="200dp" android:layout\_height="wrap\_content"

android:hint="Enter Password" android:layout\_gravity="left"/>

<Button

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_gravity="center" android:backgroundTint="@color/purple\_200" android:text="SUBMIT"/>

</FrameLayout>



# Basic Controls and UI components

#### Write an application to increase font size using seekbar.

**activity\_main.xml**

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

<LinearLayout xmlns:android=["http://schemas.android.com/](http://schemas.android.com/apk/res/android)a[pk/res/android"](http://schemas.android.com/apk/res/android) xmlns:app=["http://schemas.android.com/](http://schemas.android.com/apk/res-auto)a[pk/res-auto"](http://schemas.android.com/apk/res-auto) xmlns:t[ools="ht](http://schemas.android.com/tools)tp:/[/sch](http://schemas.android.com/tools)e[mas.android.com/tool](http://schemas.android.com/tools)s" android:layout\_width="match\_parent" android:layout\_height="match\_parent"

android:orientation="vertical" tools:context=".MainActivity">

<TextView android:id="@+id/textView" android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" android:text="TextView" />

<SeekBar android:id="@+id/seekBar"

android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:min="10" android:max="100"/>

</LinearLayout>

**MainActivity.java**

package com.example.seekbardemo;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle; import android.widget.SeekBar; importandroid.widget.TextView;

public class MainActivity extends AppCompatActivity { TextView txt;

SeekBar sb; @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

txt = findViewById(R.id.textView); sb = findViewById(R.id.seekBar);

sb.setOnSeekBarChangeListener(new SeekBar.OnSeekBarChangeListener() { @Override

public void onProgressChanged(SeekBar seekBar, int i, boolean b) { txt.setTextSize(i);

}

@Override

public void onStartTrackingTouch(SeekBar seekBar) {

}

@Override

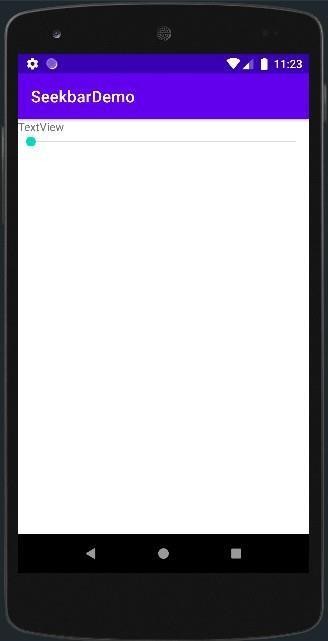
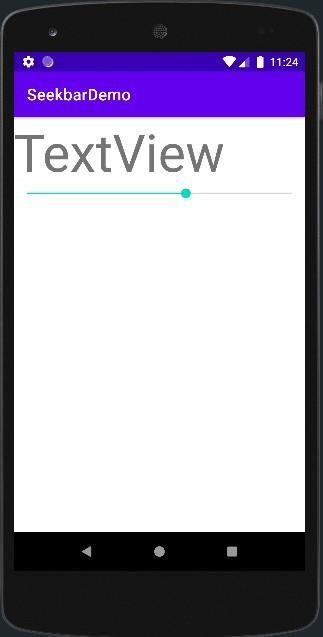
public void onStopTrackingTouch(SeekBar seekBar) {

}

});

}

}



**2. Demonstrate different shapes of control.**

**activity\_main.xml**

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

<LinearLayout xmlns:andr[oid="htt](http://schemas.android.com/apk/res/android)p:/[/schemas.android.com/](http://schemas.android.com/apk/res/android)a[pk/res/androi](http://schemas.android.com/apk/res/android)d" xmlns:app=["http://schemas.android.com/](http://schemas.android.com/apk/res-auto)a[pk/res-auto"](http://schemas.android.com/apk/res-auto) xmlns:t[ools="ht](http://schemas.android.com/tools)tp:/[/sch](http://schemas.android.com/tools)e[mas.android.com/tool](http://schemas.android.com/tools)s" android:layout\_width="match\_parent" android:layout\_height="match\_parent"

android:orientation="vertical" android:layout\_margin="10dp" android:gravity="center\_horizontal" android:padding="10dp" tools:context=".MainActivity">

<TextView android:id="@+id/textView" android:layout\_width="117dp" android:layout\_height="66dp"

android:layout\_marginBottom="10dp" android:background="@drawable/rect" android:text="Rectangle" android:textAlignment="center" android:textColor="@color/white" android:textSize="15dp" />

<TextView android:id="@+id/textView2" android:layout\_width="wrap\_content" android:layout\_height="62dp" android:layout\_marginBottom="10dp"

android:background="@drawable/square" android:text="Square" android:textAlignment="center" android:textColor="@color/black" android:textSize="15dp" />

<TextView android:id="@+id/textView3" android:layout\_width="110dp" android:layout\_height="67dp" android:layout\_marginBottom="10dp" android:background="@drawable/ring" android:text="Ring" android:textAlignment="center" android:textSize="20dp" />

<TextView android:id="@+id/textView4" android:layout\_width="wrap\_content" android:layout\_height="54dp" android:layout\_marginBottom="10dp"

android:background="@drawable/withgradient" android:text="With Gradient" android:textAlignment="center" android:textSize="20dp" />

<TextView android:id="@+id/textView5" android:layout\_width="132dp" android:layout\_height="55dp" android:layout\_marginBottom="10dp"

android:background="@drawable/withborder" android:text="With Border"

android:textAlignment="center" android:textSize="20dp" />

<Button

android:id="@+id/button" android:layout\_width="113dp" android:layout\_height="78dp" android:layout\_marginBottom="10dp" android:background="@drawable/circle" android:text="Circle" android:textAlignment="center" android:textSize="20dp" />

</LinearLayout>

**circle.xml**

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

<shape xmlns:android="[http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) android:shape="oval">

<size android:width="50dp" android:height="50dp"/>

</shape>

**withborder.xml**

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

<shape xmlns:android="[http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android)>

<stroke android:width="5dp" android:color="#FF5722"/>

<solid android:color="#F1EE38"/>

</shape>

**withgradient.xml**

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

<shape xmlns:android="[http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) android:shape="rectangle">

<gradient android:startColor="#FF5722" android:centerColor="#03A9F4" android:endColor="#4CAF50" android:angle="45"/>

<stroke android:width="2dp" android:color="#E80F88"/>

<corners android:topRightRadius="15dp" android:bottomLeftRadius="15dp"/>

</shape>

**ring.xml**

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

<shape xmlns:android="[http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) android:shape="ring" android:innerRadius="20dp" android:thickness="5dp" android:useLevel="false">

<stroke android:width="10dp" android:color="@color/purple\_200" />

<solid android:color="@color/purple\_200"/>

</shape>

**square.xml**

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

<shape xmlns:android="[http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) android:shape="rectangle">

<padding android:bottom="20dp" android:left="20dp" android:right="20dp" android:top="20dp"/>

<size android:width="100dp" android:height="100dp"/>

<solid android:color="#20BB7D"/>

<corners android:radius="15dp"/>

<stroke android:width="2dp" />

</shape>

**rect.xml**

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

<shape xmlns:android="[http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) android:shape="rectangle">

<solid android:color="#51C2D5"/>

<padding android:top="20dp" android:right="20dp" android:left="20dp" android:bottom="20dp"/>

<size android:height="100dp" android:width="150dp"/>

</shape>

**MainActivity.java**

package com.example.shapes;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

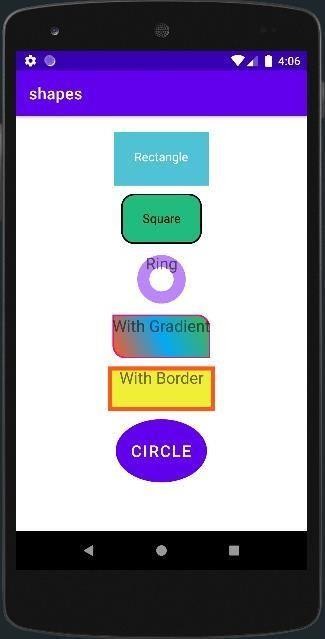
public class MainActivity extends AppCompatActivity { @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

}

}

**Output:**



* 1. **Create android Application that displays selected values from radio buttons and checkboxes.**

**activity\_main.xml**

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

<LinearLayout xmlns:android=["http://schemas.android.com/](http://schemas.android.com/apk/res/android)a[pk/res/android"](http://schemas.android.com/apk/res/android) xmlns:app=["http://schemas.android.com/](http://schemas.android.com/apk/res-auto)a[pk/res-auto"](http://schemas.android.com/apk/res-auto) xmlns:t[ools="ht](http://schemas.android.com/tools)tp:/[/sch](http://schemas.android.com/tools)e[mas.android.com/tool](http://schemas.android.com/tools)s" android:layout\_width="match\_parent" android:layout\_height="match\_parent"

android:orientation="vertical" tools:context=".MainActivity">

<TextView android:id="@+id/textView" android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" android:layout\_weight="1" android:textStyle="bold" android:text="Gender" />

<RadioGroup android:id="@+id/radioGrp" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:layout\_weight="1">

<RadioButton android:id="@+id/radioButton" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:text="Male" />

<RadioButton android:id="@+id/radioButton2" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:text="Female" />

</RadioGroup>

<TextView android:id="@+id/textView2" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:text="Hobbies" android:textStyle="bold"/>

<CheckBox android:id="@+id/checkBox1" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:layout\_weight="1" android:text="Cricket" />

<CheckBox android:id="@+id/checkBox2" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:layout\_weight="1" android:text="Football" />

<CheckBox android:id="@+id/checkBox3" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:layout\_weight="1" android:text="Dance" />

<Button

android:id="@+id/button" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:layout\_weight="1" android:text="Submit" />

<TextView android:id="@+id/textView3" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:layout\_weight="1" android:text="" />

</LinearLayout>

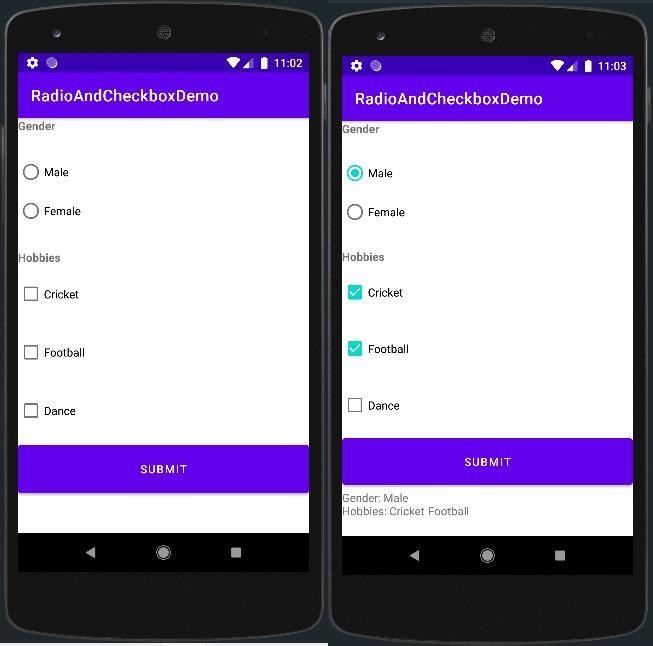
**MainActivity.java**

package com.example.radioandcheckboxdemo;

import androidx.appcompat.app.AppCompatActivity;

import android.annotation.SuppressLint; import android.os.Bundle;

import android.view.View; import android.widget.CheckBox;



# Practical 3

## Database Connectivity:

* + 1. Create an Android application to read and write content in internal storage

**Activity\_main.xml**

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

<RelativeLayout xmlns:android="[http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) xmlns:tools="[http://schemas.android.com/tools"](http://schemas.android.com/tools) android:layout\_width="match\_parent" android:layout\_height="match\_parent"

tools:context=".MainActivity">

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

android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:hint="Enter text"/>

<Button

android:id="@+id/saveButton" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_below="@id/editText" android:layout\_marginTop="16dp" android:text="Save"/>

<Button

android:id="@+id/readButton" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_below="@id/saveButton" android:layout\_marginTop="16dp" android:text="Read"/>

<TextView android:id="@+id/resultTextView" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:layout\_below="@id/readButton" android:layout\_marginTop="16dp"/>

</RelativeLayout>

**MainActivity.java**

package com.example.myapplication;// MainActivity.java import android.content.Context;

import android.os.Bundle; import android.view.View; import android.widget.Button; import android.widget.EditText;

import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity; import java.io.BufferedReader;

import java.io.FileOutputStream;

import java.io.IOException;

import java.io.InputStreamReader;

public class MainActivity extends AppCompatActivity { private EditText editText;

private Button saveButton, readButton;

private TextView resultTextView;

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

editText = findViewById(R.id.editText); saveButton = findViewById(R.id.saveButton); readButton = findViewById(R.id.readButton);

resultTextView = findViewById(R.id.resultTextView);

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

public void onClick(View v) { saveData();

}

});

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

public void onClick(View v) { readData();

}

});

}

private void saveData() {

String data = editText.getText().toString(); try {

FileOutputStream fos = openFileOutput("data.txt", Context.MODE\_PRIVATE); fos.write(data.getBytes());

fos.close(); editText.getText().clear();

resultTextView.setText("Data saved successfully.");

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

resultTextView.setText("Error saving data.");

}

}

private void readData() { try {

BufferedReader bufferedReader = new BufferedReader(new InputStreamReader( openFileInput("data.txt")));

StringBuilder stringBuilder = new StringBuilder(); String line;

while ((line = bufferedReader.readLine()) != null) { stringBuilder.append(line).append("\n");

}

bufferedReader.close(); resultTextView.setText(stringBuilder.toString());

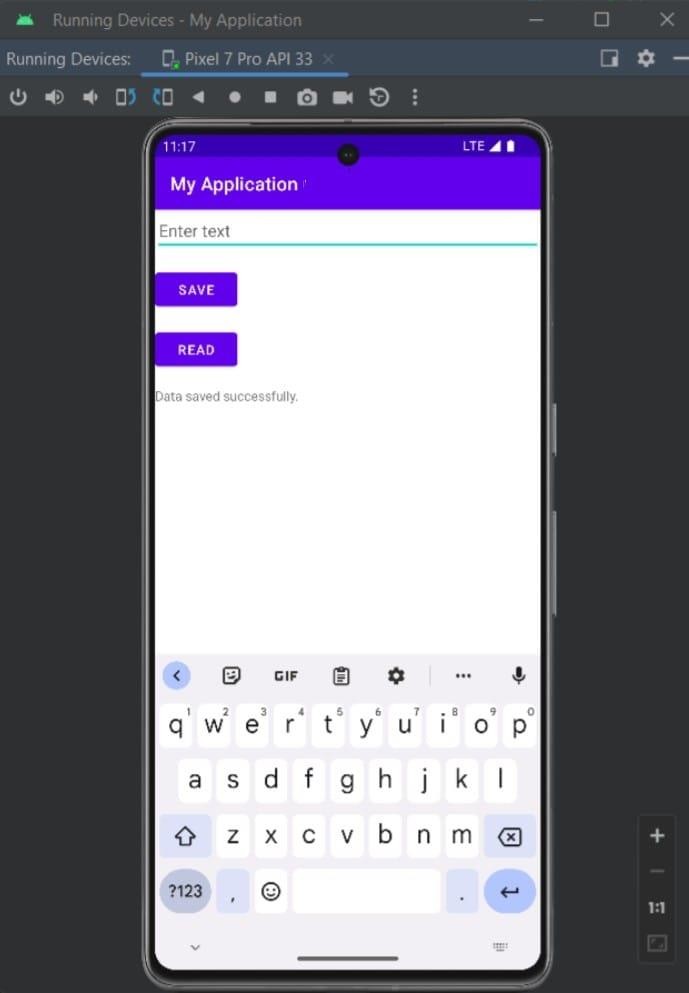
} catch (IOException e) { e.printStackTrace();

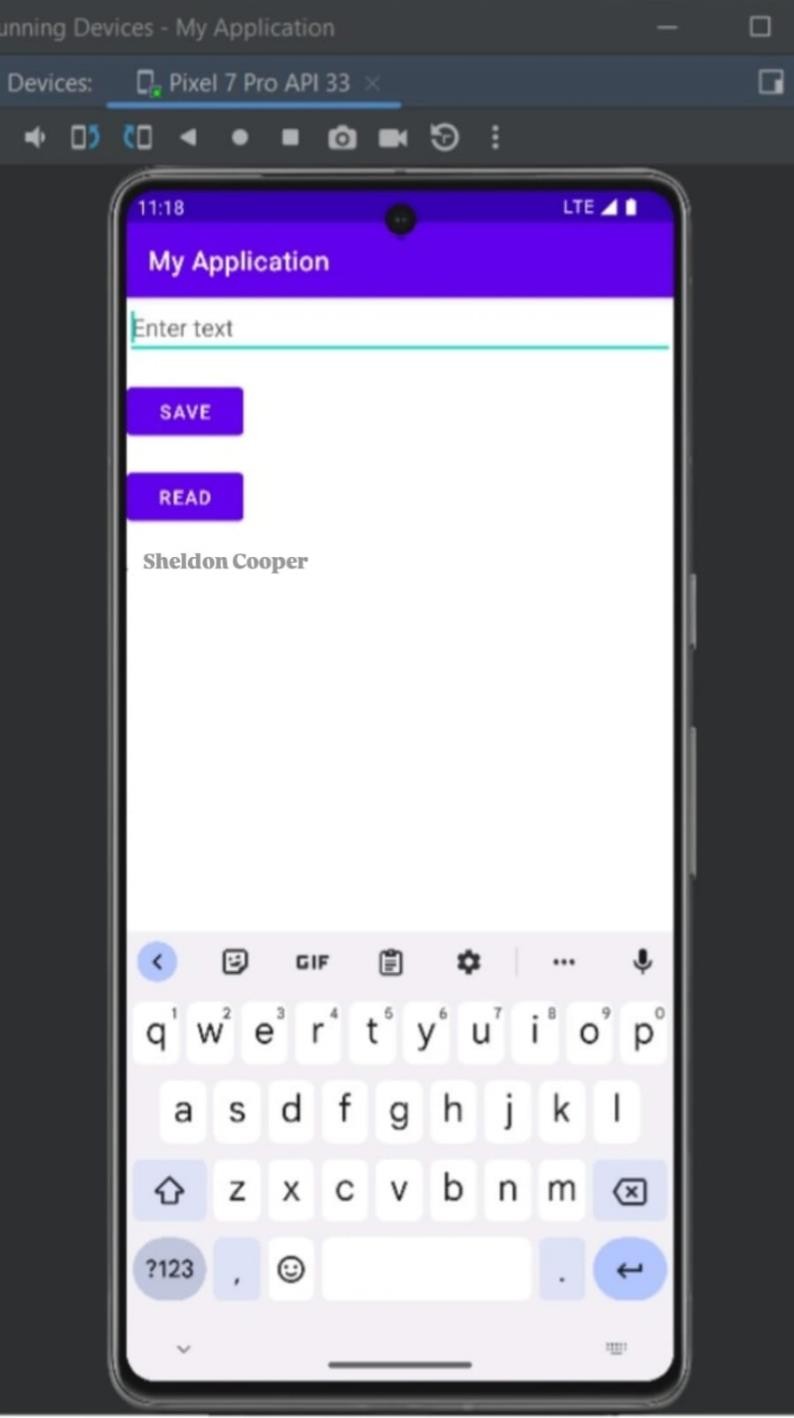
resultTextView.setText("Error reading data.");

}

}

}





* + 1. **Create an Android application to read and write content in external storage**

**MyApplication7 activity\_main.xml**

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

<LinearLayout xmlns:android="[http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) xmlns:app="[http://schemas.android.com/apk/res-auto"](http://schemas.android.com/apk/res-auto)

xmlns:tools="[http://schemas.android.com/tools"](http://schemas.android.com/tools) android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:orientation="vertical" android:gravity="center" android:padding="16dp" tools:context=".MainActivity">

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

android:layout\_width="wrap\_content" android:layout\_height="wrap\_content"/>

<EditText android:id="@+id/input\_text"

android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:layout\_margin="16dp" android:hint="Enter text" android:lineHeight="25sp" android:textColor="@color/black"/>

<Button

android:id="@+id/btn\_write" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Write"/>

<Button

android:id="@+id/btn\_load" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Load"/>

</LinearLayout>

**MainActivity.java**

package com.example.myapplication;

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

import android.os.Environment; import android.view.View; import android.widget.Button; import android.widget.EditText; import android.widget.TextView; import android.widget.Toast; import org.w3c.dom.Text;

import java.io.BufferedReader; import java.io.File;

import java.io.FileInputStream;

import java.io.FileNotFoundException; import java.io.FileOutputStream; import java.io.IOException;

import java.io.InputStreamReader;

public class MainActivity extends AppCompatActivity { private EditText inputText;

private Button btnWrite,btnLoad; private TextView dir;

private String filename="hello.txt"; private String filepath="MyFileStorage"; private File extFile;

private String data="";

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main); inputText=findViewById(R.id.input\_text); btnWrite=findViewById(R.id.btn\_write); btnLoad=findViewById(R.id.btn\_load); dir=findViewById(R.id.dir);

if (!isExternalStorageAvailable() || isExternalStorageReadOnly()){ btnWrite.setEnabled(false);

}

else {

extFile=new File(getExternalFilesDir(filepath), filename);

}

getDir();

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

public void onClick(View v) { data=inputText.getText().toString(); try{

FileOutputStream fos=new FileOutputStream(extFile); fos.write(data.getBytes());

inputText.getText().clear(); Toast.makeText(getApplicationContext(),filename+" saved to External

Storage...!",Toast.LENGTH\_LONG).show(); fos.close();

}

catch (IOException e) { e.printStackTrace();

}

}

});

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

public void onClick(View v) { try {

FileInputStream fis = new FileInputStream(extFile); InputStreamReader isr = new InputStreamReader(fis); BufferedReader br = new BufferedReader(isr); StringBuilder data = new StringBuilder();

String line;

while ((line=br.readLine())!=null){ data.append("\n").append(line);

}

inputText.setText(data);

Toast.makeText(getApplicationContext(),"Data retrieved from External File Successfully...!",Toast.LENGTH\_LONG).show();

fis.close();

}

catch (IOException e) { e.printStackTrace();

}

}

});

}

private boolean isExternalStorageReadOnly() {

String extStorageState = Environment.getExternalStorageState();

return Environment.MEDIA\_MOUNTED\_READ\_ONLY.equals(extStorageState);

}

private boolean isExternalStorageAvailable() {

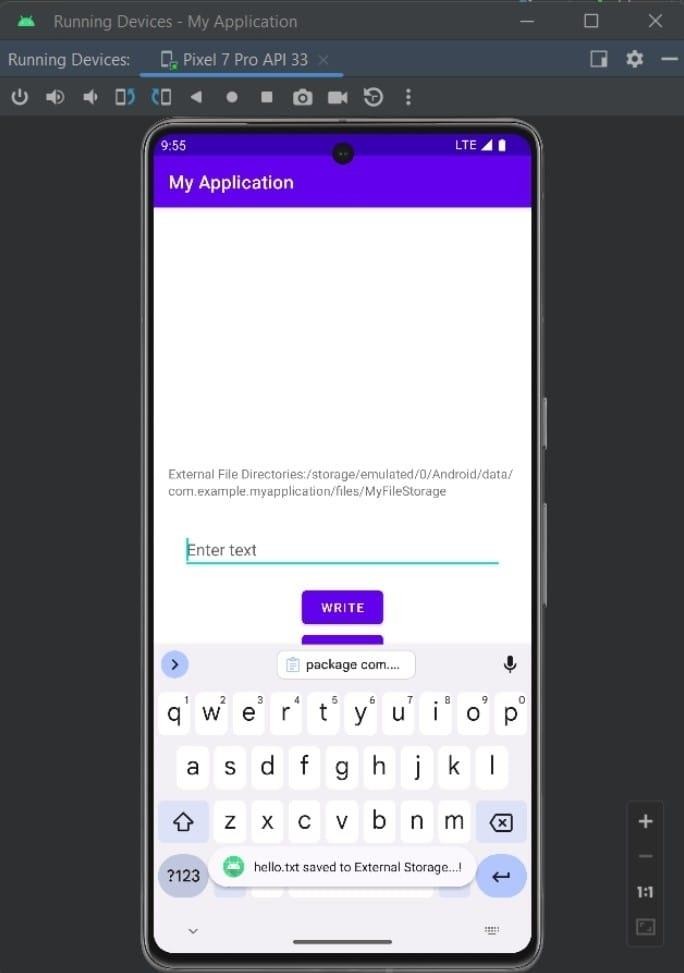
String extStorageState = Environment.getExternalStorageState(); return Environment.MEDIA\_MOUNTED.equals(extStorageState);

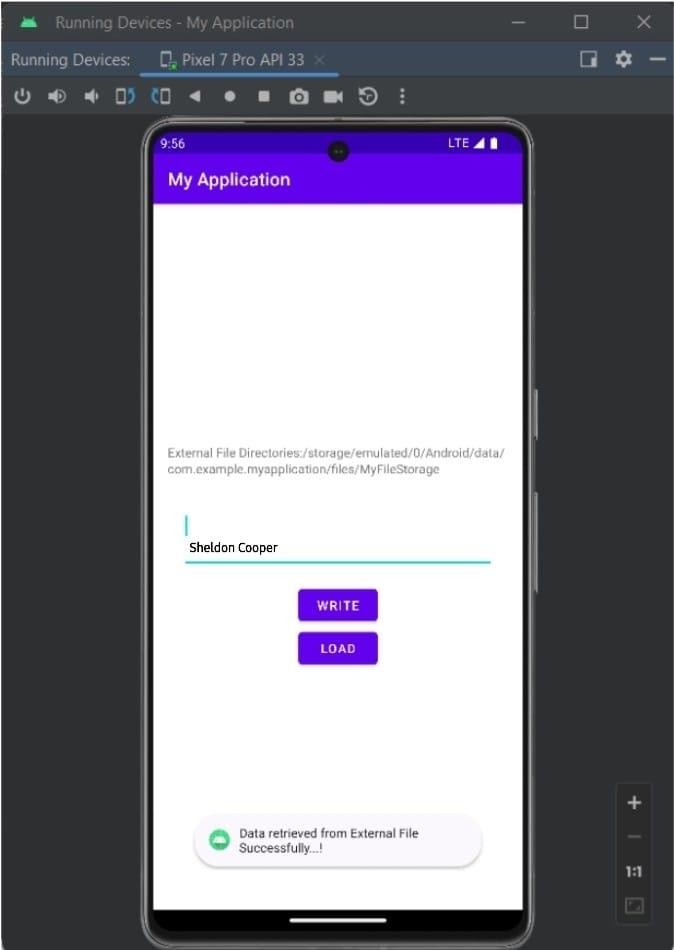
}

private void getDir(){

StringBuilder builder=new StringBuilder(); builder.append("External File

Directories:").append(getExternalFilesDir(filepath).getAbsolutePath()).append("\n"); dir.setText(builder.toString());





#### Write an android program for shared preference to store value in name-value pairs.

**Activity\_main.xml**

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

<LinearLayout xmlns:android="[http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android)

xmlns:tools="[http://schemas.android.com/tools"](http://schemas.android.com/tools) android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:orientation="vertical" android:padding="16dp" tools:context=".MainActivity">

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

android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:hint="Enter a value"/>

<Button

android:id="@+id/saveButton" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Save"/>

<Button

android:id="@+id/loadButton" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Load"/>

<TextView android:id="@+id/textView" android:layout\_width="match\_parent"

android:layout\_height="wrap\_content" android:paddingTop="16dp"/>

</LinearLayout>

**MainActivity.java**

package com.example.myapplication; import android.content.Context;

import android.content.SharedPreferences; import android.os.Bundle;

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

import androidx.appcompat.app.AppCompatActivity; public class MainActivity extends AppCompatActivity {

private EditText editText; private TextView textView;

private static final String PREF\_NAME = "MyPreferences"; private static final String KEY\_VALUE = "storedValue";

@Override

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

setContentView(R.layout.activity\_main);

editText = findViewById(R.id.editText); textView = findViewById(R.id.textView);

Button saveButton = findViewById(R.id.saveButton); Button loadButton = findViewById(R.id.loadButton);

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

public void onClick(View v) { saveValue();

}

});

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

public void onClick(View v) { loadValue();

}

});

}

private void saveValue() {

SharedPreferences sharedPreferences = getSharedPreferences(PREF\_NAME, Context.MODE\_PRIVATE);

SharedPreferences.Editor editor = sharedPreferences.edit();

String valueToStore = editText.getText().toString(); editor.putString(KEY\_VALUE, valueToStore); editor.apply();

textView.setText("Value saved: " + valueToStore);

}

private void loadValue() {

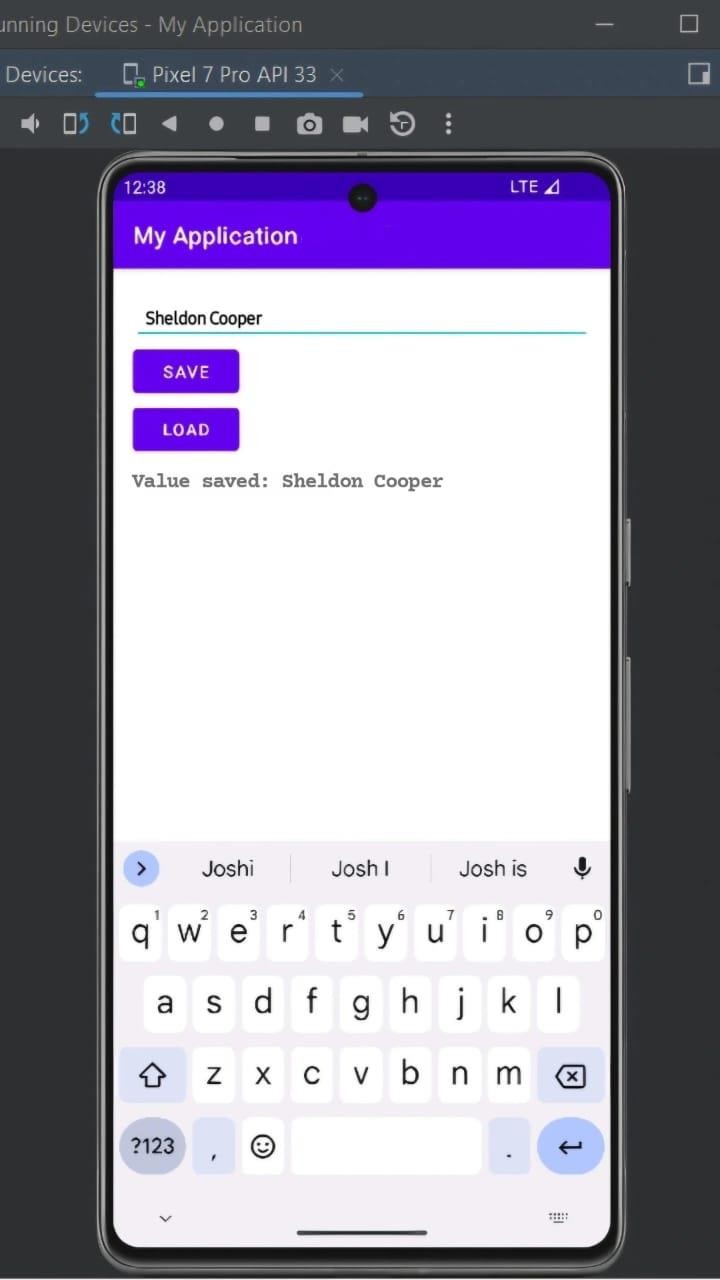
SharedPreferences sharedPreferences = getSharedPreferences(PREF\_NAME, Context.MODE\_PRIVATE);

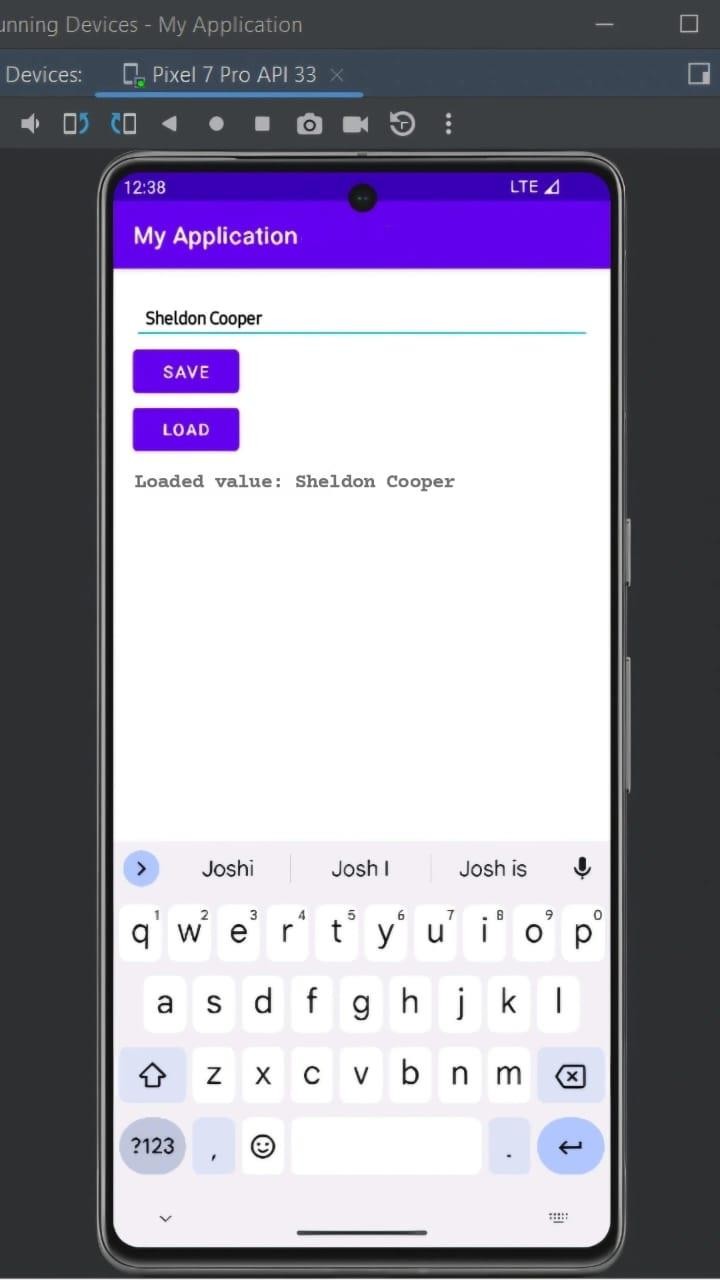
String loadedValue = sharedPreferences.getString(KEY\_VALUE, "Default Value");

textView.setText("Loaded value: " + loadedValue);

}

}





#### Create a login form with a remember me checkbox. Save the username and password if the checkbox is checked using shared preference and show the welcome page when the login button is clicked.

**Activity\_login.xml**

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

<LinearLayout xmlns:android="[http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) xmlns:tools="[http://schemas.android.com/tools"](http://schemas.android.com/tools) android:layout\_width="match\_parent"

android:layout\_height="match\_parent" android:orientation="vertical" android:padding="16dp" tools:context=".LoginActivity">

<EditText android:id="@+id/usernameEditText" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:hint="Username"/>

<EditText android:id="@+id/passwordEditText" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:hint="Password" android:inputType="textPassword"/>

<CheckBox android:id="@+id/rememberMeCheckBox" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Remember Me"/>

<Button

android:id="@+id/loginButton" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Login"/>

</LinearLayout>

**LoginActivity.java**

package com.example.myapplication; import android.content.Context;

import android.content.SharedPreferences; import android.os.Bundle;

import android.view.View; import android.widget.Button; import android.widget.CheckBox; import android.widget.EditText; import android.widget.Toast;

import androidx.appcompat.app.AppCompatActivity; public class LoginActivity extends AppCompatActivity

{private static final String PREF\_NAME = "LoginPreferences"; private static final String KEY\_USERNAME = "username"; private static final String KEY\_PASSWORD = "password";

private static final String KEY\_REMEMBER\_ME = "rememberMe";

private EditText usernameEditText; private EditText passwordEditText;

private CheckBox rememberMeCheckBox;

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_login);

usernameEditText = findViewById(R.id.usernameEditText); passwordEditText = findViewById(R.id.passwordEditText); rememberMeCheckBox = findViewById(R.id.rememberMeCheckBox); Button loginButton = findViewById(R.id.loginButton);

// Check if user credentials are saved if (getRememberMeStatus()) {

usernameEditText.setText(getSavedUsername()); passwordEditText.setText(getSavedPassword()); rememberMeCheckBox.setChecked(true);

}

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

public void onClick(View v) { login();

}

});

}

private void login() {

String enteredUsername = usernameEditText.getText().toString(); String enteredPassword = passwordEditText.getText().toString();

// You should perform actual authentication here (e.g., check against a server or local database)

// This is just a simple example.

if (isValidUser(enteredUsername, enteredPassword)) { if (rememberMeCheckBox.isChecked()) {

saveCredentials(enteredUsername, enteredPassword, true);

} else {

clearSavedCredentials();

}

// Navigate to the welcome page or perform any other actions on successful login Toast.makeText(this, "Welcome, " + enteredUsername + "!", Toast.LENGTH\_SHORT).show();

// Add your code to open the welcome page or perform other actions.

} else {

// Display an error message if authentication fails

Toast.makeText(this, "Invalid username or password", Toast.LENGTH\_SHORT).show();

}

}

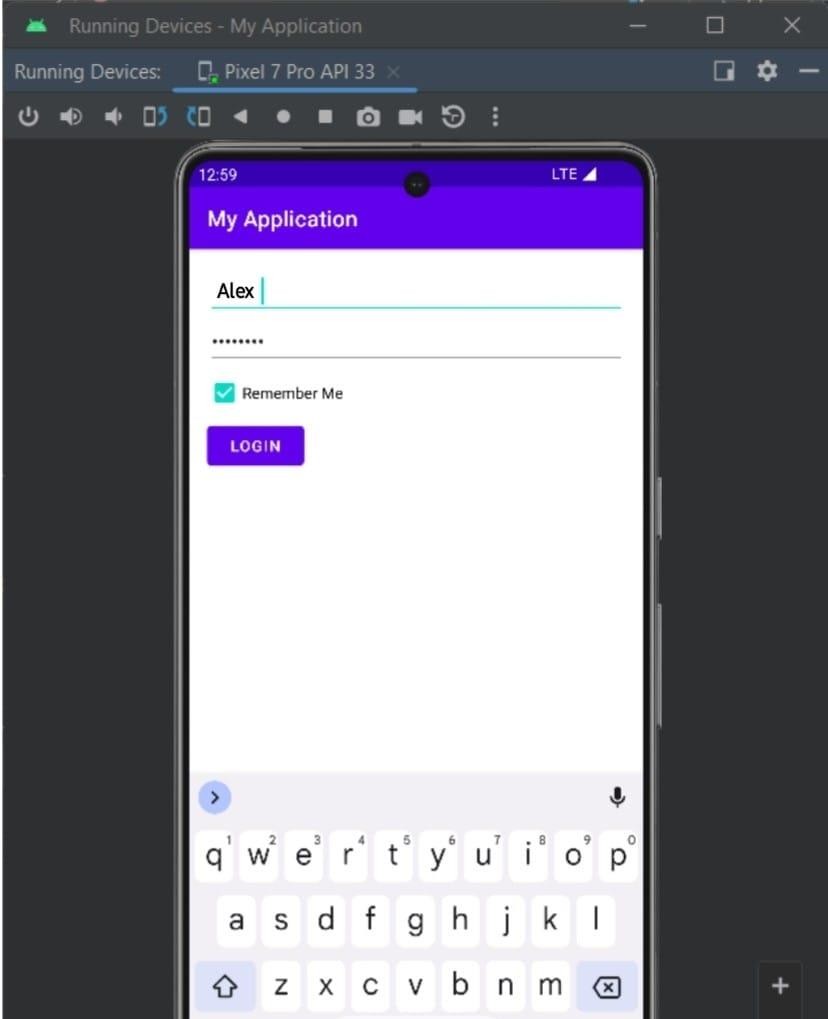
private boolean isValidUser(String username, String password) {

// In a real application, you would perform actual authentication logic here

// For the sake of this example, let's assume a simple validation return username.equals("Sayali") && password.equals("password");

}

private void saveCredentials(String username, String password, boolean rememberMe) { SharedPreferences sharedPreferences = getSharedPreferences(PREF\_NAME,



* + 1. **Create an Android application to insert, update, select, and delete records from the Student table using SQLite Database.**

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

<RelativeLayout xmlns:android="[http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) xmlns:tools="[http://schemas.android.com/tools"](http://schemas.android.com/tools) android:layout\_width="match\_parent" android:layout\_height="match\_parent"

tools:context=".MainActivity">

<EditText

android:id="@+id/nameEditText" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:hint="Name" />

<EditText android:id="@+id/ageEditText" android:layout\_width="match\_parent" android:layout\_height="wrap\_content"

android:layout\_below="@id/nameEditText" android:layout\_marginTop="16dp" android:hint="Age" />

<EditText android:id="@+id/idEditText" android:layout\_width="match\_parent"

android:layout\_height="wrap\_content" android:layout\_below="@id/ageEditText" android:layout\_marginTop="16dp" android:hint="Enter ID"/>

<Button

android:id="@+id/addButton" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_below="@id/idEditText" android:layout\_marginTop="16dp" android:text="Add Student" />

<Button

android:id="@+id/updateButton" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_below="@id/addButton"

android:layout\_marginTop="16dp" android:text="Update Student" />

<Button

android:id="@+id/deleteButton" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_below="@id/updateButton" android:layout\_marginTop="16dp" android:text="Delete Student" />

<Button

android:id="@+id/displayButton" android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" android:layout\_below="@id/deleteButton" android:layout\_marginTop="16dp" android:text="Display Students" />

<TextView android:id="@+id/resultTextView" android:layout\_width="match\_parent"

android:layout\_height="wrap\_content" android:layout\_below="@id/displayButton" android:layout\_marginTop="16dp" android:text=""

/>

</RelativeLayout>

**MainActivity.java**

package com.example.myapplication;// MainActivity.java import android.os.Bundle;

import android.view.View; import android.widget.Button; import android.widget.EditText; import android.widget.TextView; import android.widget.Toast;

import androidx.appcompat.app.AppCompatActivity; import java.util.List;

public class MainActivity extends AppCompatActivity {

private EditText nameEditText, ageEditText, idEditText;

private Button addButton, updateButton, deleteButton, displayButton; private TextView resultTextView;

private StudentDataSource dataSource; @Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

|  |  |  |
| --- | --- | --- |
| nameEditText | = | findViewById(R.id.nameEditText); |
| ageEditText | = | findViewById(R.id.ageEditText); |
| idEditText | = | findViewById(R.id.idEditText); |
| addButton | = | findViewById(R.id.addButton); |
| updateButton | = | findViewById(R.id.updateButton); |
| deleteButton | = | findViewById(R.id.deleteButton); |
| displayButton | = | findViewById(R.id.displayButton); |

resultTextView = findViewById(R.id.resultTextView);

dataSource = new StudentDataSource(this); dataSource.open();

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

public void onClick(View v) { addStudent();

}

});

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

public void onClick(View v) { updateStudent();

}

});

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

public void onClick(View v) { deleteStudent();

}

});

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

public void onClick(View v) { displayStudents();

}

});

}

private void addStudent() {

String name = nameEditText.getText().toString().trim(); String ageStr = ageEditText.getText().toString().trim();

if (!name.isEmpty() && !ageStr.isEmpty()) { int age = Integer.parseInt(ageStr);

Student student = new Student(name, age); long id = dataSource.insertStudent(student);

if (id != -1) {

Toast.makeText(this, "Student added with ID: " + id, Toast.LENGTH\_SHORT).show();

} else {

Toast.makeText(this, "Failed to add student", Toast.LENGTH\_SHORT).show();

}

} else {

Toast.makeText(this, "Please enter name and age", Toast.LENGTH\_SHORT).show();

}

}

}

private void updateStudent() {

String name = nameEditText.getText().toString().trim(); String ageStr = ageEditText.getText().toString().trim(); String idStr = idEditText.getText().toString().trim();

if (!idStr.isEmpty() && !name.isEmpty() && !ageStr.isEmpty()) { long studentId = Long.parseLong(idStr);

int age = Integer.parseInt(ageStr);

Student student = new Student(name, age); student.setId((int) studentId);

int rowsAffected = dataSource.updateStudent(student); if (rowsAffected > 0) {

Toast.makeText(this, "Student updated successfully", Toast.LENGTH\_SHORT).show();

} else {

Toast.makeText(this, "Failed to update student", Toast.LENGTH\_SHORT).show();

}

} else {

Toast.makeText(this, "Please enter ID, name, and age", Toast.LENGTH\_SHORT).show();

}

}

private void deleteStudent() {

String idStr = idEditText.getText().toString().trim(); if (!idStr.isEmpty()) {

long studentId = Long.parseLong(idStr);

dataSource.deleteStudent(studentId);

Toast.makeText(this, "Student deleted successfully", Toast.LENGTH\_SHORT).show();

} else {

Toast.makeText(this, "Please enter a valid student ID", Toast.LENGTH\_SHORT).show();

}

}

private void displayStudents() {

List<Student> students = dataSource.getAllStudents();

if (students.size() > 0) {

StringBuilder studentList = new StringBuilder("Students:\n"); for (Student student : students) {

studentList.append("ID: ").append(student.getId()).append(", ")

.append("Name: ").append(student.getName()).append(", ")

.append("Age: ").append(student.getAge()).append("\n");

}

// Display students in a TextView resultTextView.setText(studentList.toString());

} else {

resultTextView.setText("No students found");

}

}

@Override

}

protected void onDestroy() { super.onDestroy(); dataSource.close();

}

}

**Student.java**

package com.example.myapplication;

// Student.java

public class Student { private int id; private String name; private int age;

public Student() {

// Default constructor

}

public Student(String name, int age) {

this.name = name; this.age = age;

}

// Getters and setters public int getId() {

return id;

}

public void setId(int id) { this.id = id;

}

public String getName() { return name;

}

public void setName(String name) { this.name = name;

}

public int getAge() { return age;

}

public void setAge(int age) { this.age = age;

}

}

**DatabaseHelper.java**

package com.example.myapplication;// DatabaseHelper.java import android.content.Context;

import android.database.sqlite.SQLiteDatabase; import android.database.sqlite.SQLiteOpenHelper;

public class DatabaseHelper extends SQLiteOpenHelper {

public static final String DATABASE\_NAME = "StudentDB"; public static final int DATABASE\_VERSION = 1;

// Define the Student table

public static final String TABLE\_STUDENT = "student"; public static final String COLUMN\_ID = "id";

public static final String COLUMN\_NAME = "name"; public static final String COLUMN\_AGE = "age";

// SQL statements to create and upgrade the database private static final String CREATE\_TABLE\_STUDENT =

"CREATE TABLE " + TABLE\_STUDENT + "(" +

COLUMN\_ID + " INTEGER PRIMARY KEY AUTOINCREMENT," + COLUMN\_NAME + " TEXT," +

COLUMN\_AGE + " INTEGER" + ")";

public DatabaseHelper(Context context) {

super(context, DATABASE\_NAME, null, DATABASE\_VERSION);

@Override

public void onCreate(SQLiteDatabase db) {

// Create the Student table db.execSQL(CREATE\_TABLE\_STUDENT);

}

@Override

public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {

// Upgrade the database if needed

// This method is called when the database version is increased

}

}

**StudentDataSource.java**

package com.example.myapplication;// StudentDataSource.java import android.content.ContentValues;

import android.content.Context; import android.database.Cursor;

import android.database.SQLException;

import android.database.sqlite.SQLiteDatabase;

import java.util.ArrayList; import java.util.List;

public class StudentDataSource {

private SQLiteDatabase database; private DatabaseHelper dbHelper;

public StudentDataSource(Context context) { dbHelper = new DatabaseHelper(context);

}

public void open() throws SQLException { database = dbHelper.getWritableDatabase();

}

public void close() { dbHelper.close();

// Insert a new student record

public long insertStudent(Student student) { ContentValues values = new ContentValues();

values.put(DatabaseHelper.COLUMN\_NAME, student.getName()); values.put(DatabaseHelper.COLUMN\_AGE, student.getAge());

return database.insert(DatabaseHelper.TABLE\_STUDENT, null, values);

}

// Update an existing student record

public int updateStudent(Student student) { ContentValues values = new ContentValues();

values.put(DatabaseHelper.COLUMN\_NAME, student.getName()); values.put(DatabaseHelper.COLUMN\_AGE, student.getAge());

return database.update(

DatabaseHelper.TABLE\_STUDENT, values,

DatabaseHelper.COLUMN\_ID + " = ?",

new String[]{String.valueOf(student.getId())}

);

}

// Delete a student record

public void deleteStudent(long studentId) { database.delete(

DatabaseHelper.TABLE\_STUDENT, DatabaseHelper.COLUMN\_ID + " = ?", new String[]{String.valueOf(studentId)}

);

}

// Get all students

public List<Student> getAllStudents() { List<Student> students = new ArrayList<>(); Cursor cursor = database.query(

DatabaseHelper.TABLE\_STUDENT, null,

null, null, null, null, null

);

if (cursor != null) { cursor.moveToFirst();

while (!cursor.isAfterLast()) {

Student student = cursorToStudent(cursor); students.add(student); cursor.moveToNext();

}

cursor.close();

}

return students;

}

private Student cursorToStudent(Cursor cursor) { Student student = new Student();

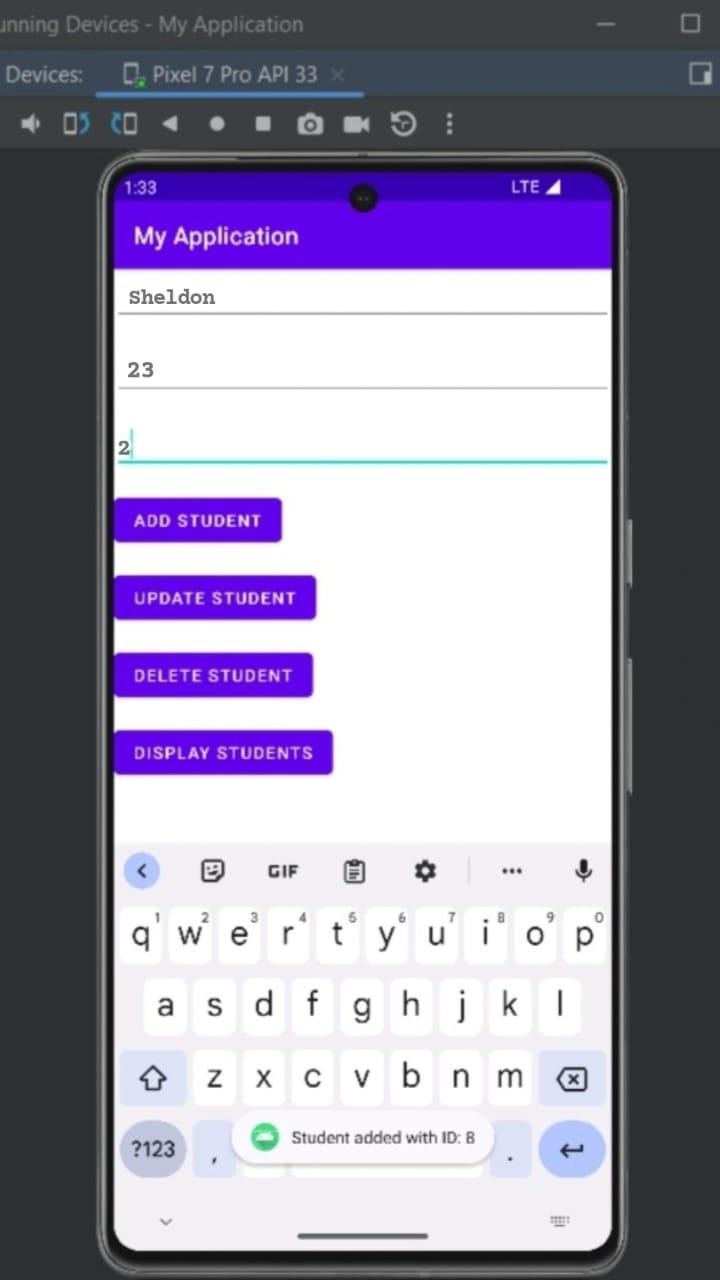
student.setId(cursor.getInt(cursor.getColumnIndex(DatabaseHelper.COLUMN\_ID))); student.setName(cursor.getString(cursor.getColumnIndex(DatabaseHelper.COLUMN\_NAME))); student.setAge(cursor.getInt(cursor.getColumnIndex(DatabaseHelper.COLUMN\_AGE)));

return student;

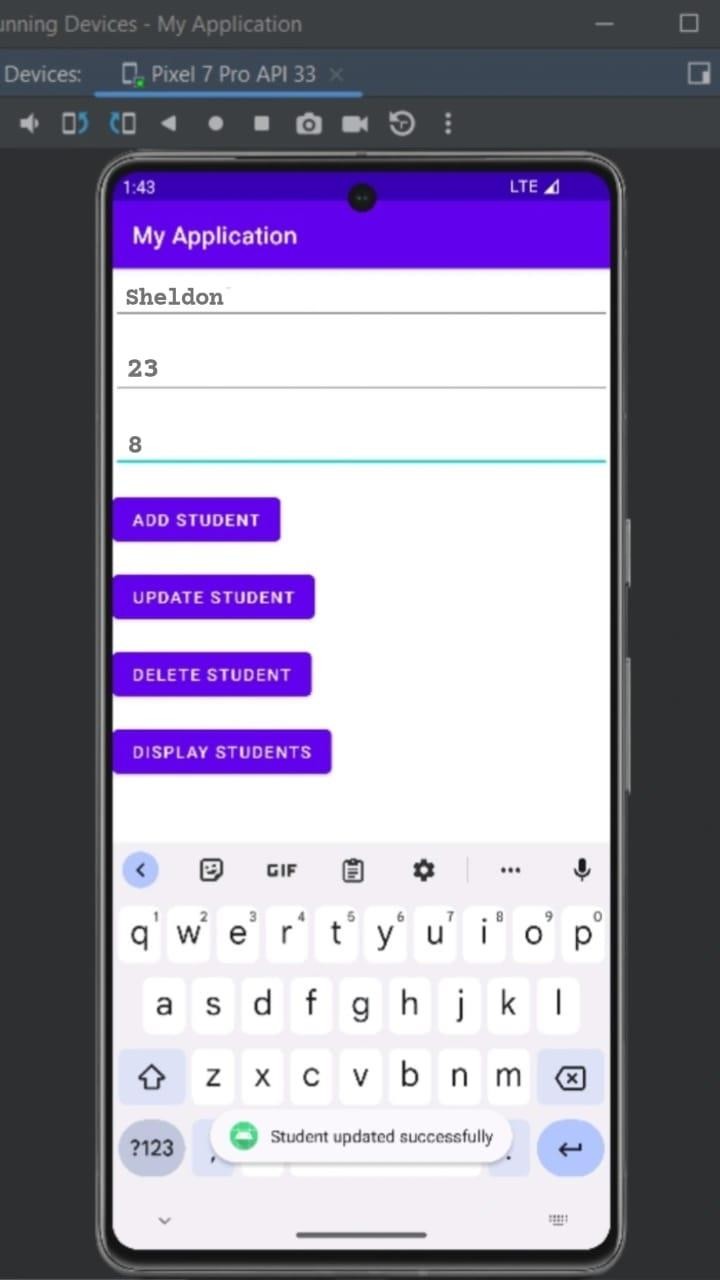
}

}

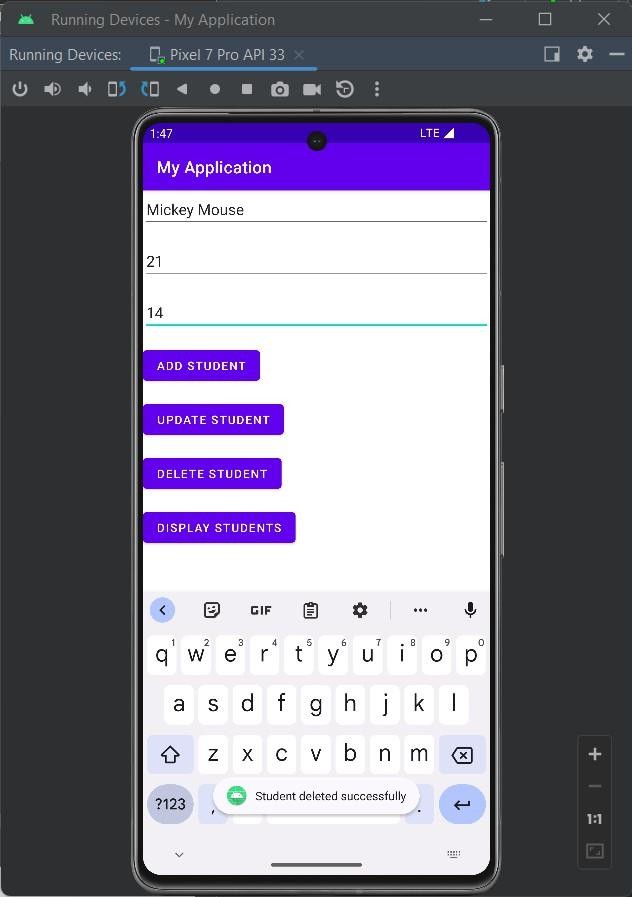
#### Add



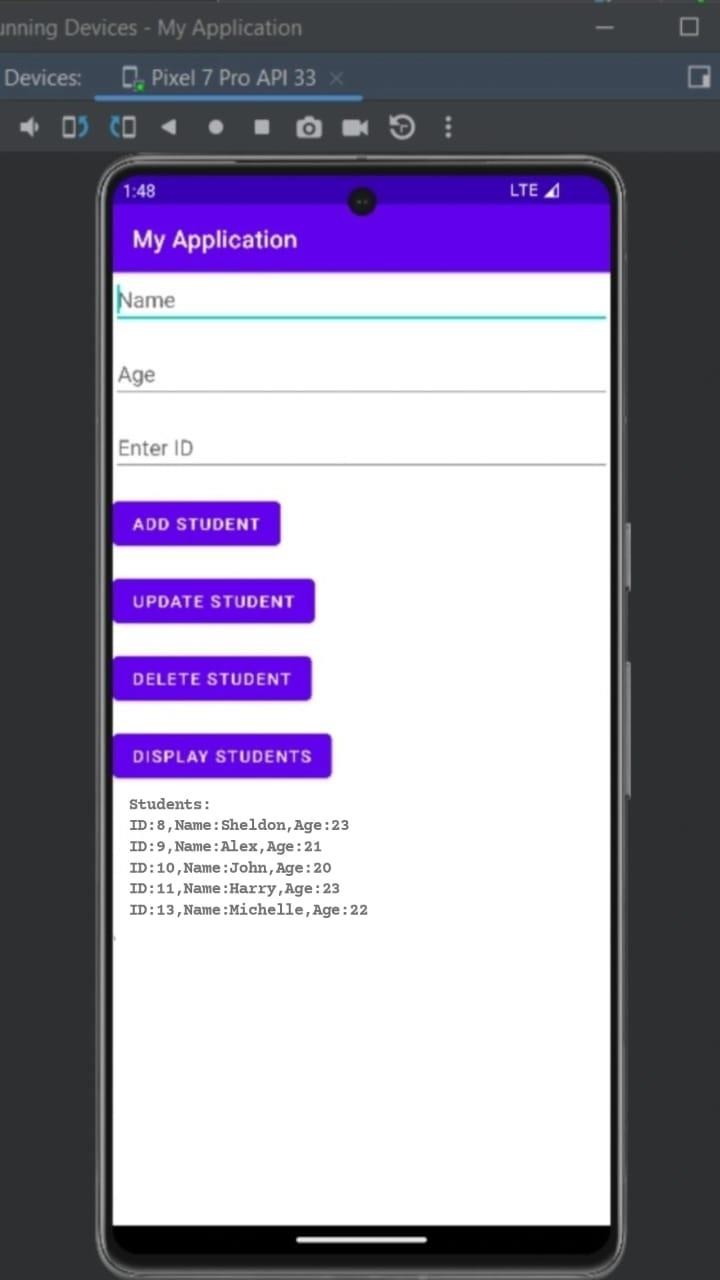
**Update**



**Delete**



### Display



* + 1. **Write a program to create a user registration form, after registration data will be inserted in the SQLite database, and design an activity that displays that information.**

#### activity\_display.xml

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

<TextView xmlns:android=["http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) android:id="@+id/tvDisplay"

android:layout\_width="match\_parent" android:layout\_height="match\_parent"

android:gravity="center" android:textSize="18sp"/>

#### DisplayActivity.java

package com.example.registration\_form\_using\_sqlite; import android.database.Cursor;

import android.database.sqlite.SQLiteDatabase; import android.os.Bundle;

import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity; public class DisplayActivity extends AppCompatActivity {

private TextView tvDisplay; @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_display); tvDisplay = findViewById(R.id.tvDisplay); displayUserData();

}

private void displayUserData() {

SQLiteDatabase db = new DatabaseHelper(this).getReadableDatabase(); String[] projection = {

DatabaseContract.UserEntry.COLUMN\_USERNAME, DatabaseContract.UserEntry.COLUMN\_EMAIL

};

Cursor cursor = db.query( DatabaseContract.UserEntry.TABLE\_NAME, projection,

null, null, null, null, null

);

StringBuilder userData = new StringBuilder();

while (cursor.moveToNext()) {

String username = cursor.getString(cursor.getColumnIndexOrThrow(DatabaseContract.UserEntry.COLUMN\_US ERNAME));

String email = cursor.getString(cursor.getColumnIndexOrThrow(DatabaseContract.UserEntry.COLUMN\_EM AIL));

userData.append("Username: ").append(username).append("\nEmail: ").append(email).append("\n\n");

}

cursor.close(); tvDisplay.setText(userData.toString());

}

#### DatabaseContract.java

package com.example.registration\_form\_using\_sqlite; import android.provider.BaseColumns;

public final class DatabaseContract { private DatabaseContract() {

}

public static class UserEntry implements BaseColumns { public static final String TABLE\_NAME = "users";

public static final String COLUMN\_USERNAME = "username"; public static final String COLUMN\_EMAIL = "email";

public static final String COLUMN\_PASSWORD = "password";

}

}

#### DatabaseHelper.java

package com.example.registration\_form\_using\_sqlite; import android.content.Context;

import android.database.sqlite.SQLiteDatabase; import android.database.sqlite.SQLiteOpenHelper;

public class DatabaseHelper extends SQLiteOpenHelper { private static final String DATABASE\_NAME = "user.db"; private static final int DATABASE\_VERSION = 1;

public DatabaseHelper(Context context) {

super(context, DATABASE\_NAME, null, DATABASE\_VERSION);

}

@Override

public void onCreate(SQLiteDatabase db) {

final String SQL\_CREATE\_USER\_TABLE = "CREATE TABLE " +

DatabaseContract.UserEntry.TABLE\_NAME + " (" + DatabaseContract.UserEntry.\_ID + " INTEGER PRIMARY KEY

AUTOINCREMENT, " +

DatabaseContract.UserEntry.COLUMN\_USERNAME + " TEXT NOT NULL, " + DatabaseContract.UserEntry.COLUMN\_EMAIL + " TEXT NOT NULL, " + DatabaseContract.UserEntry.COLUMN\_PASSWORD + " TEXT NOT NULL);";

db.execSQL(SQL\_CREATE\_USER\_TABLE);

}

@Override

public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) { db.execSQL("DROP TABLE IF EXISTS " +

DatabaseContract.UserEntry.TABLE\_NAME); onCreate(db);

}

}

#### activity\_main.xml

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

<RelativeLayout xmlns:android=["http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) xmlns:t[ools="http://schemas.android.com/tools"](http://schemas.android.com/tools) android:layout\_width="match\_parent"

}

android:layout\_height="match\_parent" android:gravity="center\_horizontal" tools:context=".MainActivity">

<EditText android:id="@+id/etUsername" android:layout\_width="match\_parent"

android:layout\_height="wrap\_content" android:layout\_marginTop="16dp" android:hint="Username"/>

<EditText android:id="@+id/etEmail"

android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:layout\_below="@id/etUsername" android:layout\_marginTop="16dp" android:hint="Email"/>

<EditText android:id="@+id/etPassword" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:layout\_below="@id/etEmail" android:layout\_marginTop="16dp" android:inputType="textPassword" android:hint="Password"/>

<Button

android:id="@+id/btnRegister" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_below="@id/etPassword" android:layout\_marginTop="16dp" android:layout\_marginLeft="150dp" android:text="Register"/>

</RelativeLayout>

#### MainActivity.java

package com.example.registration\_form\_using\_sqlite; import android.content.ContentValues;

import android.content.Intent;

import android.database.sqlite.SQLiteDatabase; import android.os.Bundle;

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

import androidx.appcompat.app.AppCompatActivity; public class MainActivity extends AppCompatActivity {

private EditText etUsername, etEmail, etPassword; private Button btnRegister;

private DatabaseHelper dbHelper;

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main); etUsername = findViewById(R.id.etUsername); etEmail = findViewById(R.id.etEmail); etPassword = findViewById(R.id.etPassword); btnRegister = findViewById(R.id.btnRegister); dbHelper = new DatabaseHelper(this);

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

public void onClick(View view) { registerUser();

}

});

}

private void registerUser() {

String username = etUsername.getText().toString().trim(); String email = etEmail.getText().toString().trim();

String password = etPassword.getText().toString().trim();

if (username.isEmpty() || email.isEmpty() || password.isEmpty()) { Toast.makeText(this, "Please fill in all fields", Toast.LENGTH\_SHORT).show(); return;

}

SQLiteDatabase db = dbHelper.getWritableDatabase(); ContentValues values = new ContentValues();

values.put(DatabaseContract.UserEntry.COLUMN\_USERNAME, username); values.put(DatabaseContract.UserEntry.COLUMN\_EMAIL, email); values.put(DatabaseContract.UserEntry.COLUMN\_PASSWORD, password);

long newRowId = db.insert(DatabaseContract.UserEntry.TABLE\_NAME, null, values); if (newRowId != -1) {

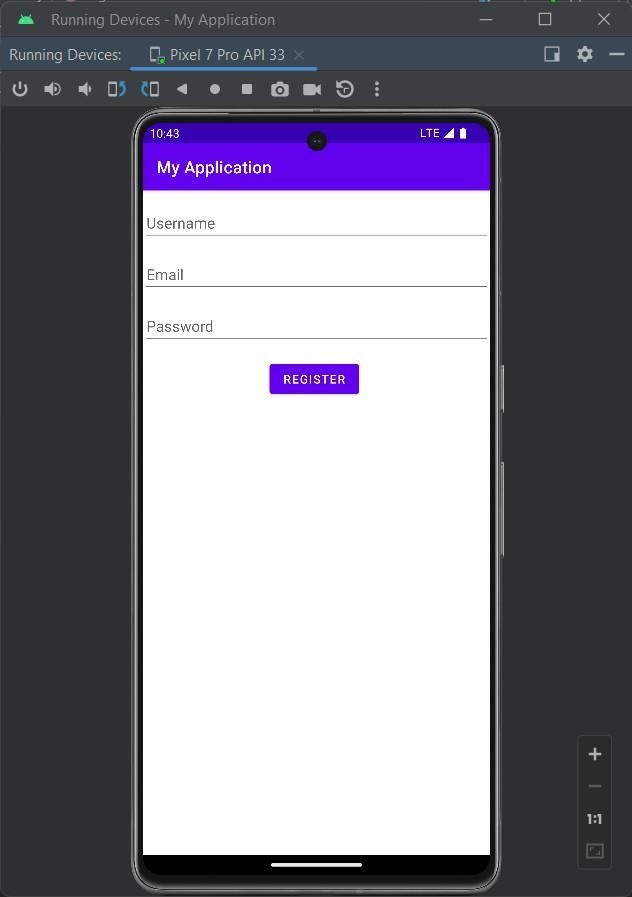
Toast.makeText(this, "Registration successful!", Toast.LENGTH\_SHORT).show(); Intent intent=new Intent(getApplicationContext(),DisplayActivity.class); startActivity(intent);

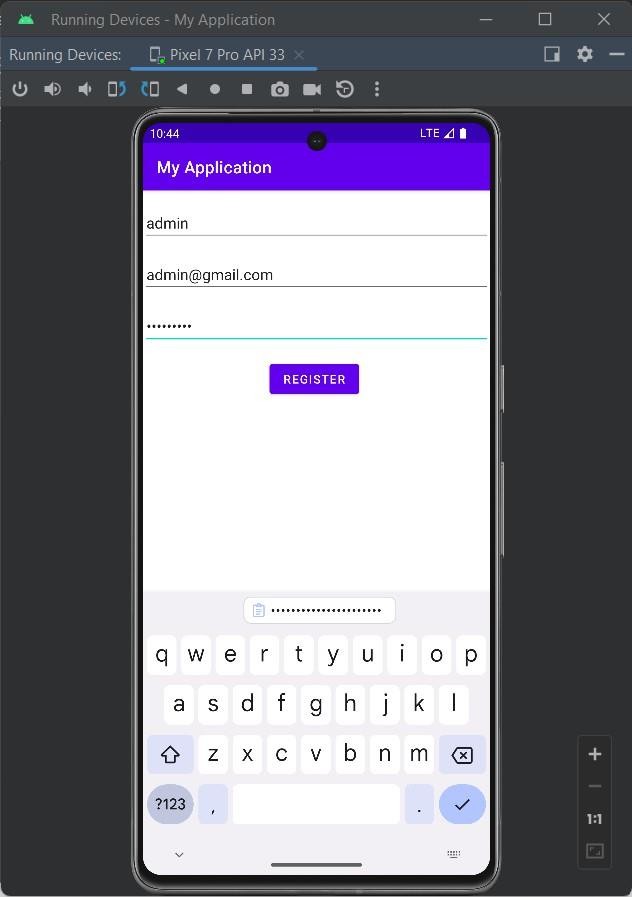
} else {

Toast.makeText(this, "Registration failed", Toast.LENGTH\_SHORT).show();

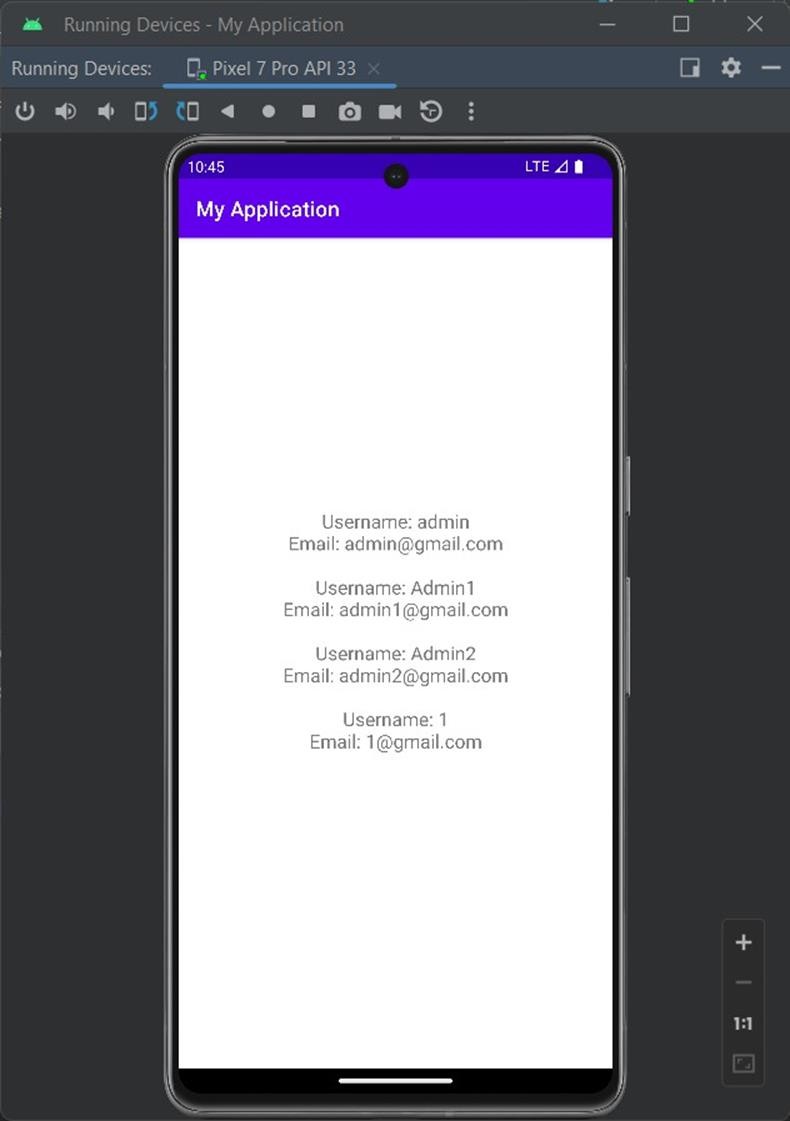
}

}





}



## Create an Android application that reads all contacts stored in the device using a content provider.

**Activity\_main.xml**

<!-- activity\_main.xml -->

<RelativeLayout xmlns:android="[http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) xmlns:tools="[http://schemas.android.com/tools"](http://schemas.android.com/tools) android:layout\_width="match\_parent"

android:layout\_height="match\_parent" tools:context=".MainActivity">

<ListView android:id="@+id/contactListView" android:layout\_width="match\_parent" android:layout\_height="match\_parent" />

</RelativeLayout>

**MainActiviy.java**

package com.example.myapplication;// MainActivity.java import android.Manifest;

import android.content.pm.PackageManager; import android.database.Cursor;

import android.os.Build; import android.os.Bundle;

import android.provider.ContactsContract; import android.widget.ListView;

import androidx.annotation.NonNull;

import androidx.appcompat.app.AppCompatActivity; import androidx.core.app.ActivityCompat;

import androidx.core.content.ContextCompat;

public class MainActivity extends AppCompatActivity {

private static final int READ\_CONTACTS\_PERMISSION\_REQUEST = 1; @Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

// Check and request permission at runtime

if (Build.VERSION.SDK\_INT >= Build.VERSION\_CODES.M) {

if (ContextCompat.checkSelfPermission(this, Manifest.permission.READ\_CONTACTS)

!= PackageManager.PERMISSION\_GRANTED) { ActivityCompat.requestPermissions(this,

new String[]{Manifest.permission.READ\_CONTACTS}, READ\_CONTACTS\_PERMISSION\_REQUEST);

} else {

displayContacts();

}

} else {

displayContacts();

}

}

private void displayContacts() {

// Query the contacts

Cursor cursor = getContentResolver().query( ContactsContract.CommonDataKinds.Phone.CONTENT\_URI, null,

null, null,

ContactsContract.CommonDataKinds.Phone.DISPLAY\_NAME + " ASC"

);

// Set up the custom adapter

ContactAdapter contactAdapter = new ContactAdapter(this, cursor); ListView contactListView = findViewById(R.id.contactListView); contactListView.setAdapter(contactAdapter);

}

// Handle permission request result @Override

public void onRequestPermissionsResult(int requestCode, @NonNull String[] permissions, @NonNull int[] grantResults) {

super.onRequestPermissionsResult(requestCode, permissions, grantResults);

if (requestCode == READ\_CONTACTS\_PERMISSION\_REQUEST) { if (grantResults.length > 0 && grantResults[0] ==

PackageManager.PERMISSION\_GRANTED) {

// Permission granted, display contacts displayContacts();

} else {

// Permission denied, handle accordingly

// For example, show a message or disable features that require the permission

}

}

}

}

**ContactAdaptor.java**

package com.example.myapplication;// ContactAdapter.java import android.content.Context;

import android.database.Cursor;

import android.provider.ContactsContract; import android.view.LayoutInflater; import android.view.View;

import android.view.ViewGroup; import android.widget.CursorAdapter; import android.widget.TextView;

public class ContactAdapter extends CursorAdapter { public ContactAdapter(Context context, Cursor cursor) {

super(context, cursor, 0);

}

@Override

public View newView(Context context, Cursor cursor, ViewGroup parent) {

return LayoutInflater.from(context).inflate(android.R.layout.simple\_list\_item\_2, parent, false);

}

@Override

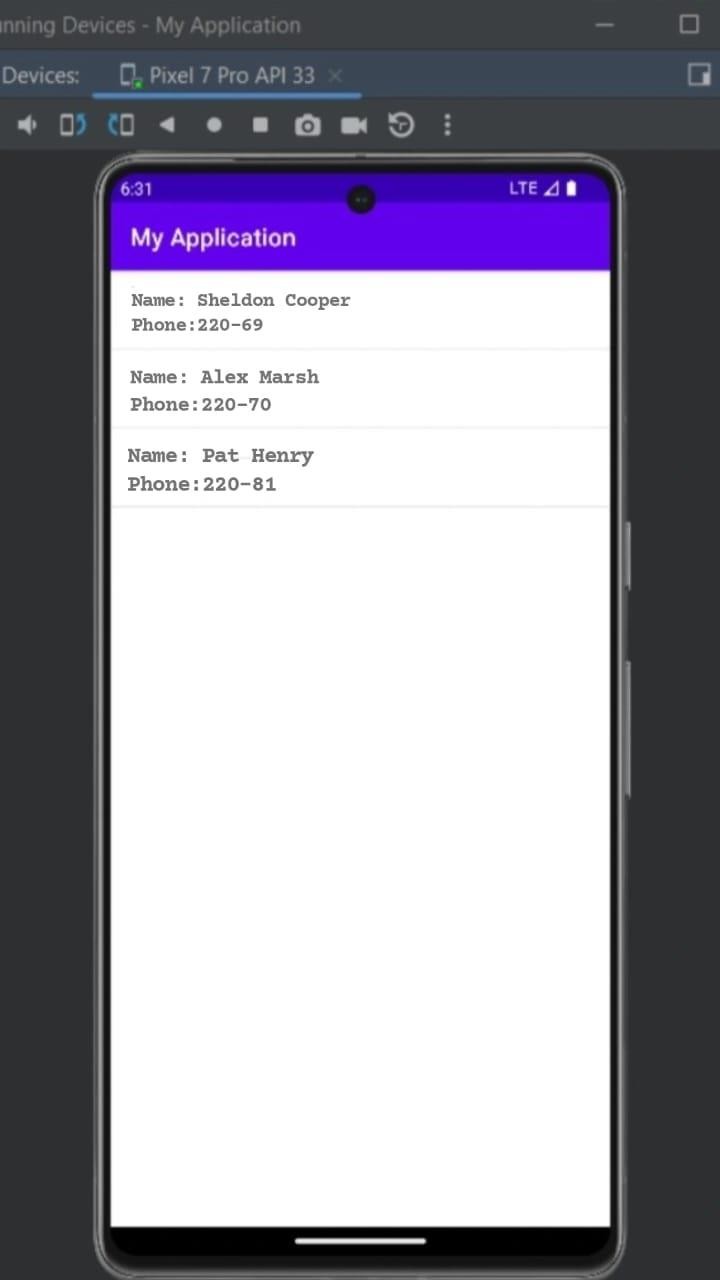
public void bindView(View view, Context context, Cursor cursor) { TextView nameTextView = view.findViewById(android.R.id.text1); TextView phoneTextView = view.findViewById(android.R.id.text2);

String name = cursor.getString(cursor.getColumnIndex(ContactsContract.CommonDataKinds.Phone.DISPLAY\_NAM E));

String phone = cursor.getString(cursor.getColumnIndex(ContactsContract.CommonDataKinds.Phone.NUMBER));

nameTextView.setText("Name: " + name); phoneTextView.setText("Phone: " + phone);

}



### Graphics and animation, Multimedia:

#### Write an android application to play, pause and stop an audio file.

**activity\_main.xml**

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

<RelativeLayout xmlns:android=["http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) xmlns:app=["http://schemas.android.com/apk/res-auto"](http://schemas.android.com/apk/res-auto) xmlns:tools=["http://schemas.android.com/tools"](http://schemas.android.com/tools) android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:background="@drawable/music\_img2" tools:context=".MainActivity">

<LinearLayout android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:gravity="center\_horizontal" android:orientation="horizontal">

<Button

android:id="@+id/button\_play" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_margin="10dp" android:backgroundTint="#C6A8A8" android:text="Play" android:textColor="#01579B"/>

<Button

android:id="@+id/button\_pause" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_margin="10dp" android:backgroundTint="#C6A8A8" android:text="Pause" android:textColor="#01579B" />

<Button

android:id="@+id/button\_stop" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_margin="10dp" android:backgroundTint="#C6A8A8" android:text="Stop" android:textColor="#01579B" />

</LinearLayout>

</RelativeLayout>

#### MainActivity.java

package com.example.myapplication\_play\_pause; import androidx.appcompat.app.AppCompatActivity;

import android.media.MediaPlayer; import android.os.Bundle;

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

public class MainActivity extends AppCompatActivity { Button play,pause,stop;

MediaPlayer mp;

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

play = findViewById(R.id.button\_play); pause = findViewById(R.id.button\_pause); stop = findViewById(R.id.button\_stop);

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

public void onClick(View v) { if(mp == null){

mp=MediaPlayer.create(getApplicationContext(),R.id.button\_pause);

}mp.start();

}

});

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

public void onClick(View v) { if(mp!=null){

mp.pause();

}

}

});

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

public void onClick(View v) { if(mp!=null){

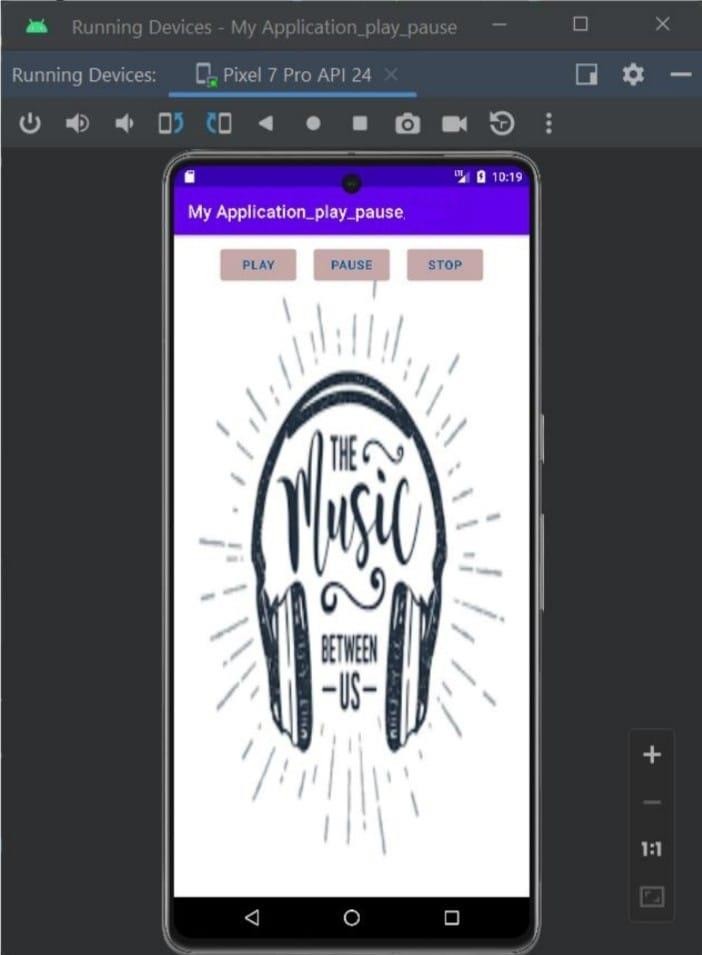
mp.release(); mp=null;

}

}

});

}

}

#### Write an android application to play a video with media controller activity\_main.xml

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

<FrameLayout xmlns:android=["http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) xmlns:app=["http://schemas.android.com/apk/res-auto"](http://schemas.android.com/apk/res-auto) xmlns:t[ools="http://schemas.android.com/tools"](http://schemas.android.com/tools) android:layout\_width="match\_parent" android:layout\_height="match\_parent"

tools:context=".MainActivity">

<VideoView android:id="@+id/videoView" android:layout\_width="match\_parent"

android:layout\_height="match\_parent" />

</FrameLayout>

#### MainActivity.java

package com.example.myapplication;

import androidx.appcompat.app.AppCompatActivity;

import android.net.Uri; import android.os.Bundle;

import android.widget.MediaController; import android.widget.VideoView;

public class MainActivity extends AppCompatActivity { @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

VideoView videoView = findViewById(R.id.videoView);

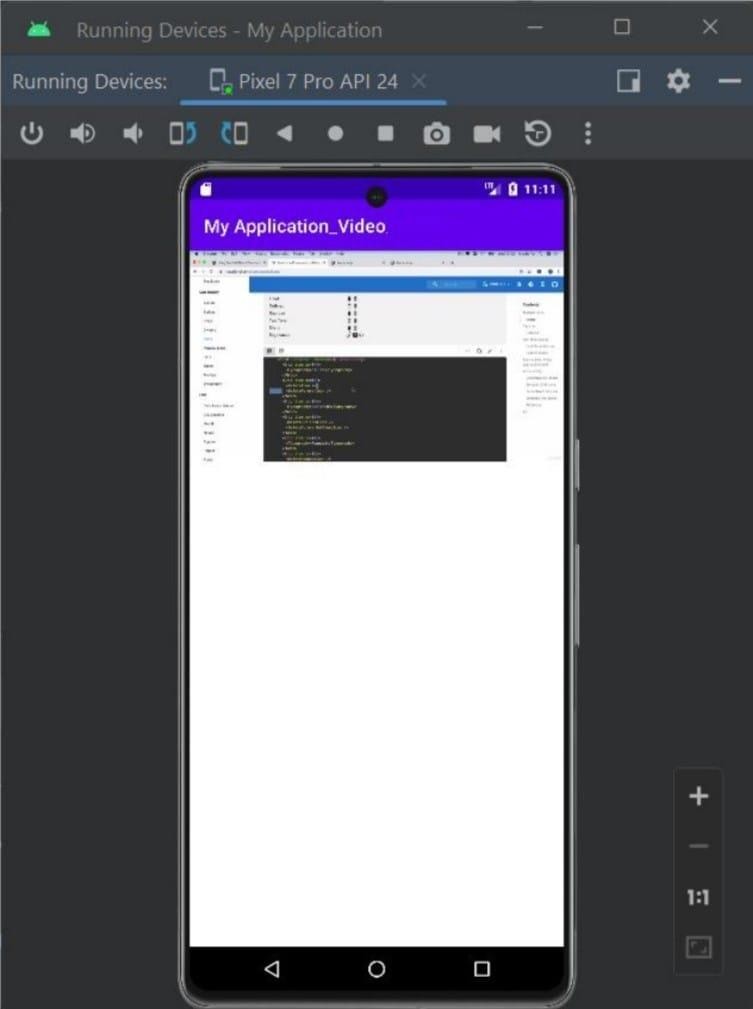
String videopath = "android.resource://" + getPackageName() + "/" + R.raw.video; Uri uri = Uri.parse(videopath);

videoView.setVideoURI(uri);

MediaController mediaController = new MediaController(this); videoView.setMediaController(mediaController); mediaController.setAnchorView(videoView);

}

}



#### Create an android application to draw graphics (different shapes) on canvas. Include an option menu to display various graphics options.

**Program**:

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

<androidx.constraintlayout.widget.ConstraintLayout xmlns:andr[oid="http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android)

xmlns:app=["http://schemas.android.com/apk/res-auto"](http://schemas.android.com/apk/res-auto) xmlns:t[ools="http://schemas.android.com/tools"](http://schemas.android.com/tools) android:layout\_width="match\_parent" android:layout\_height="match\_parent" tools:context=".MainActivity">

</androidx.constraintlayout.widget.ConstraintLayout>

#### Main.xml

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

<menu xmlns:android="[http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android)>

<item

android:id="@+id/draw\_item1" android:title="Draw Item 1" />

<item

android:id="@+id/draw\_item2"

android:title="Draw Item 2" />

<item

android:id="@+id/draw\_item3" android:title="Draw Item 3" />

<item

android:id="@+id/draw\_item4" android:title="Draw Item 4" />

<item

android:id="@+id/draw\_item5" android:title="Draw Item 5" />

</menu>

#### MainActivity.java

package com.example.android\_graphics;

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

import android.view.Menu;

import android.view.MenuInflater; import android.view.MenuItem;

public class MainActivity extends AppCompatActivity

{ @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

}

@Override

public boolean onCreateOptionsMenu(Menu menu) { MenuInflater inflater = getMenuInflater(); inflater.inflate(R.menu.main, menu);

return super.onCreateOptionsMenu(menu);

}

@Override

public boolean onOptionsItemSelected(MenuItem item) { if (item.getItemId() == R.id.draw\_item1) {

DrawLine drawLine = new DrawLine(this); setContentView(drawLine);

} else if (item.getItemId() == R.id.draw\_item2) { DrawRectangle drawRectangle = new DrawRectangle(this); setContentView(drawRectangle);

} else if (item.getItemId() == R.id.draw\_item3) { setContentView(new DrawCircle(this));

} else if (item.getItemId() == R.id.draw\_item4) { setContentView(new DrawArc(this));

} else if (item.getItemId() == R.id.draw\_item5) { setContentView(new DrawImage(this));

}

return super.onOptionsItemSelected(item);

}

}

#### DrawLine.java

package com.example.android\_graphics;

import android.content.Context; import android.graphics.Canvas; import android.graphics.Color; import android.graphics.Paint; import android.view.View;

public class DrawLine extends View { private Paint paint;

public DrawLine(Context context) {

super(context); init();

}

private void init() {

// Initialize Paint paint = new Paint();

paint.setColor(Color.BLACK); paint.setStrokeWidth(20);

}

@Override

protected void onDraw(Canvas canvas) { super.onDraw(canvas);

// Draw Line

//canvas.drawLine(50, 100, 900, 600, paint);

canvas.drawLine(50, 550, 770, 0, paint);

}

}

#### DrawRectangle.java

package com.example.android\_graphics;

import android.content.Context; import android.graphics.Canvas; import android.graphics.Color; import android.graphics.Paint; import android.view.View;

public class DrawRectangle extends View { private Paint paint;

public DrawRectangle(Context context) { super(context);

init();

}

private void init() {

// Initialize Paint paint = new Paint();

paint.setColor(Color.MAGENTA); paint.setStrokeWidth(25);

paint.setStyle(Paint.Style.STROKE); // Set the style to Stroke for drawing the outline of the rectangle

}

@Override

protected void onDraw(Canvas canvas) { super.onDraw(canvas);

// Draw Rectangle

canvas.drawRect(60, 60, 600, 1000, paint);

}

}

#### DrawCircle.java

package com.example.android\_graphics;

import android.content.Context; import android.graphics.Canvas; import android.graphics.Color; import android.graphics.Paint; import android.view.View;

public class DrawCircle extends View { private Paint paint;

public DrawCircle(Context context) { super(context);

init();

}

private void init() {

// Initialize Paint paint = new Paint();

paint.setColor(Color.BLUE); paint.setStrokeWidth(35);

paint.setStyle(Paint.Style.STROKE); // Set the style to Stroke for drawing the circle outline

}

@Override

protected void onDraw(Canvas canvas) { super.onDraw(canvas);

// Draw Circle

canvas.drawCircle(400, 400, 300, paint);

}

}

#### DrawArc.java

package com.example.android\_graphics;

import android.content.Context; import android.graphics.Canvas; import android.graphics.Color; import android.graphics.Paint; import android.view.View;

public class DrawArc extends View { private Paint paint;

public DrawArc(Context context) { super(context);

init();

}

private void init() {

// Initialize Paint paint = new Paint();

paint.setColor(Color.RED);

paint.setStyle(Paint.Style.STROKE); // Set the style to Stroke for drawing the arc outline paint.setStrokeWidth(15);

}

@Override

protected void onDraw(Canvas canvas) { super.onDraw(canvas);

// Draw Arc paint.setColor(Color.RED);

canvas.drawArc(50, 200, 400, 400, 30, 100, true, paint);

//paint.setColor(Color.CYAN); // Setting a different color for the second arc

//canvas.drawArc(50, 450, 900, 900, 30, 100, false, paint);

}

}

#### DrawImage.java

package com.example.android\_graphics;

import android.content.Context; import android.graphics.Bitmap;

import android.graphics.BitmapFactory; import android.graphics.Canvas;

import android.graphics.Paint; import android.view.View;

public class DrawImage extends View { private Paint paint;

public DrawImage(Context context) { super(context);

init();

}

private void init() {

// Initialize Paint paint = new Paint();

}

@Override

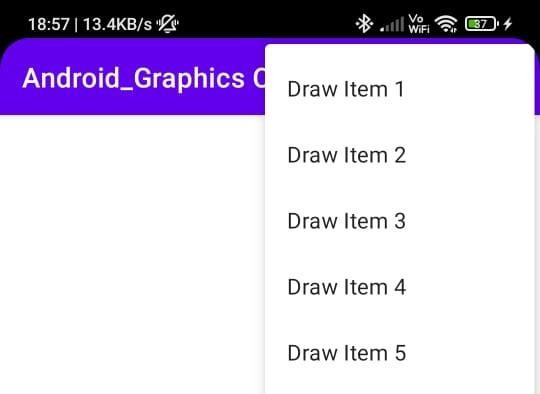
protected void onDraw(Canvas canvas) { super.onDraw(canvas);

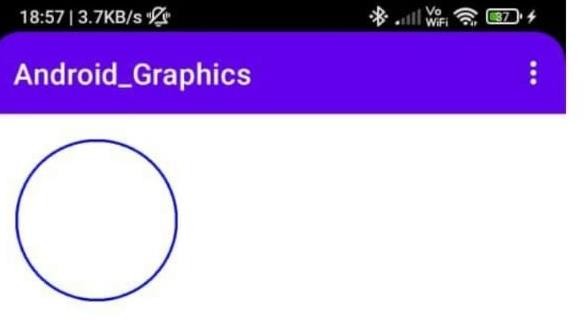
// Draw Image

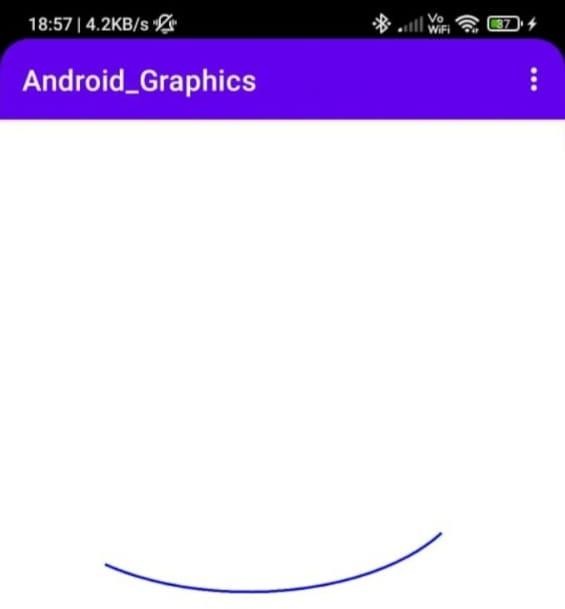
Bitmap bitmap = BitmapFactory.decodeResource(getResources(), R.drawable.img); canvas.drawBitmap(bitmap, -450, 75, paint);

}

}













#### Create an android application that applies different animations on an image.

**Program**:

#### activity\_main.xml

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

<RelativeLayout xmlns:android=["http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) xmlns:app=["http://schemas.android.com/apk/res-auto"](http://schemas.android.com/apk/res-auto) xmlns:t[ools="http://schemas.android.com/tools"](http://schemas.android.com/tools) android:layout\_width="match\_parent" android:layout\_height="match\_parent"

tools:context=".MainActivity">

<ImageView android:id="@+id/imageView" android:layout\_width="350dp" android:layout\_height="350dp" android:layout\_alignParentEnd="true" android:layout\_marginStart="20dp" android:layout\_marginEnd="25dp" android:layout\_marginBottom="20dp" android:src="@drawable/img" />

<Button

android:id="@+id/animStart" android:layout\_width="150dp" android:layout\_height="wrap\_content" android:layout\_marginTop="25dp" android:layout\_below="@id/imageView" android:layout\_marginLeft="25dp" android:text="Start Animation" />

<Button

android:id="@+id/animStop" android:layout\_width="150dp" android:layout\_marginLeft="5dp" android:layout\_height="wrap\_content" android:layout\_marginRight="25dp" android:layout\_below="@+id/imageView" android:layout\_toRightOf="@+id/animStart" android:layout\_marginTop="25dp" android:text="Clear Animation" />

<LinearLayout android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:orientation="vertical" android:gravity="bottom|center\_horizontal" android:layout\_marginBottom="90dp">

<Button

android:id="@+id/button5" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content"

android:text="Fade In" />

<Button

android:id="@+id/button6" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Blink" />

<Button

android:id="@+id/button7" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Expand" />

<Button

android:id="@+id/button8" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Expand with Rotation" />

</LinearLayout>

</RelativeLayout>

#### MainActivity.java

package com.example.myanimation;

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

import android.view.View;

import android.view.animation.Animation; import android.view.animation.AnimationUtils; import android.widget.ImageView;

public class MainActivity extends AppCompatActivity { ImageView img;

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main); img=findViewById(R.id.imageView);

findViewById(R.id.animStart).setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View view) {Animation

animation = AnimationUtils.loadAnimation(MainActivity.this,R.anim.fade\_in);img.startAnimation(animati on);

}

});

findViewById(R.id.animStop).setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View view) {

img.clearAnimation();}

findViewById(R.id.button5).setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View view) {Animation animation = AnimationUtils.loadAnimation(MainActivity.this,R.anim.fade\_in);img.startAnimation(animati on);

}

});

findViewById(R.id.button6).setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View view) {Animation animation = AnimationUtils.loadAnimation(MainActivity.this,R.anim.blink);img.startAnimation(animation)

;

}

});

findViewById(R.id.button7).setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View view) {Animation animation = AnimationUtils.loadAnimation(MainActivity.this,R.anim.expand);img.startAnimation(animatio n);

}

});

findViewById(R.id.button8).setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View view) {Animation animation = AnimationUtils.loadAnimation(MainActivity.this,R.anim.expand\_with\_rotation);img.startAnim ation(animation);

}

});

}

}

#### fade\_in.xml

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

<set xmlns:android=["http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) android:fillAfter="true">

<alpha android:fromAlpha="0.0" android:toAlpha="1.0"

android:interpolator="@android:anim/accelerate\_interpolator" android:duration="5000"/>

</set>

#### blink.xml

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

<set xmlns:android=["http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android)>

<alpha android:fromAlpha="0.0" android:toAlpha="1.0"

android:interpolator="@android:anim/accelerate\_interpolator" android:duration="600"

android:repeatMode="reverse" android:repeatCount="infinite"/>

</set>

#### expand.xml

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

<set xmlns:android=["http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android)>

<scale android:fromXScale="0" android:toXScale="2" android:fromYScale="0" android:toYScale="2" android:pivotX="70%" android:pivotY="70%" android:repeatCount="infinite" android:duration="2000"/>

</set>

#### expand\_with\_rotation.xml

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

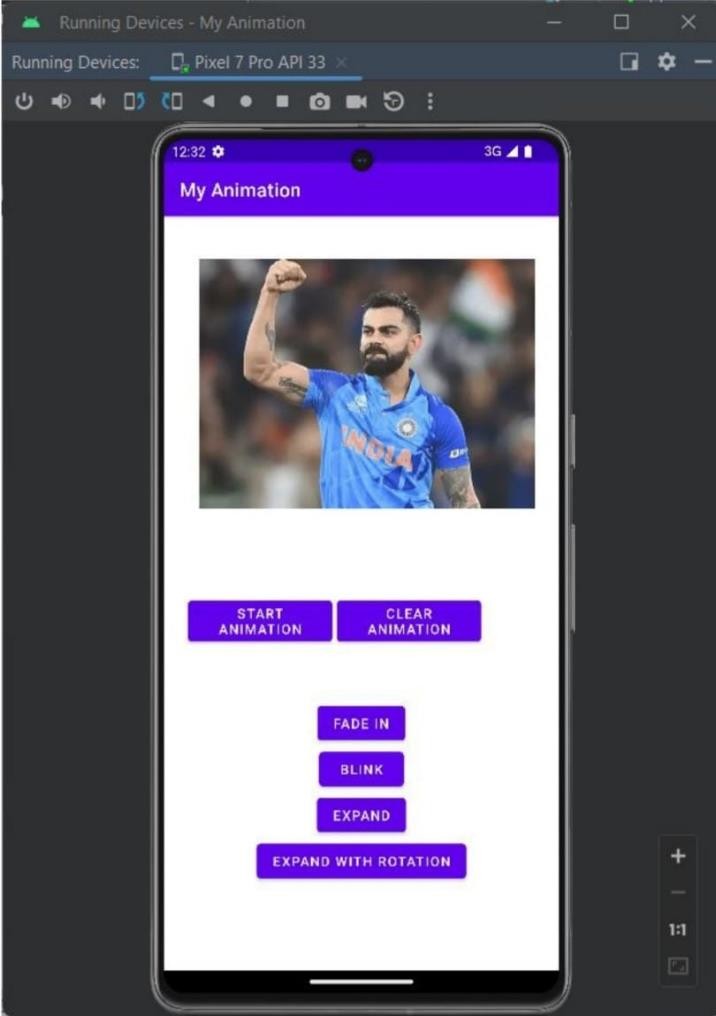
<set xmlns:android=["http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android)>

<scale android:fromXScale="0" android:toXScale="1" android:fromYScale="0" android:toYScale="1" android:pivotX="50%" android:pivotY="50%" android:duration="2000"/>

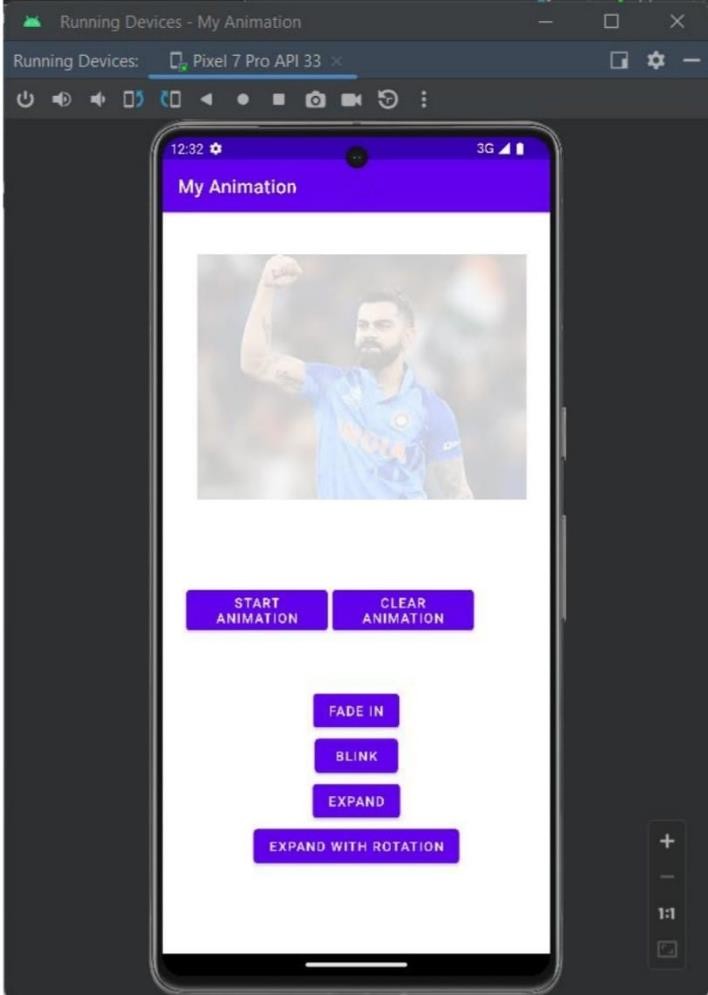
<rotate

android:fromDegrees="0" android:toDegrees="360" android:pivotX="50%" android:pivotY="50%" android:repeatCount="0" android:duration="25000"/>

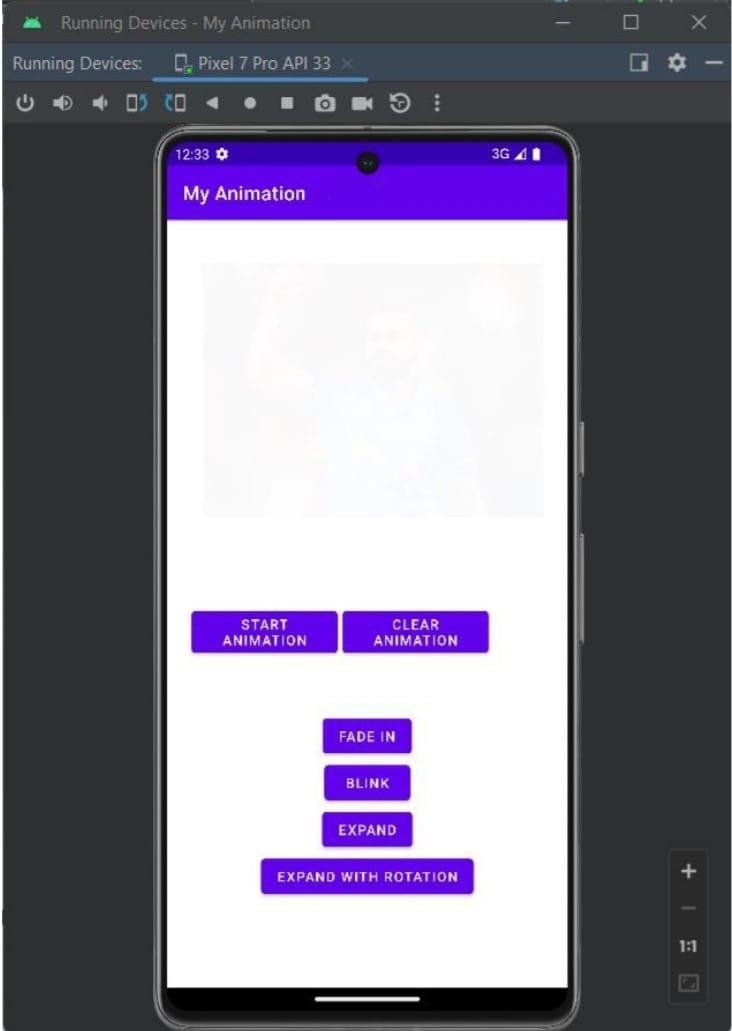
</set>

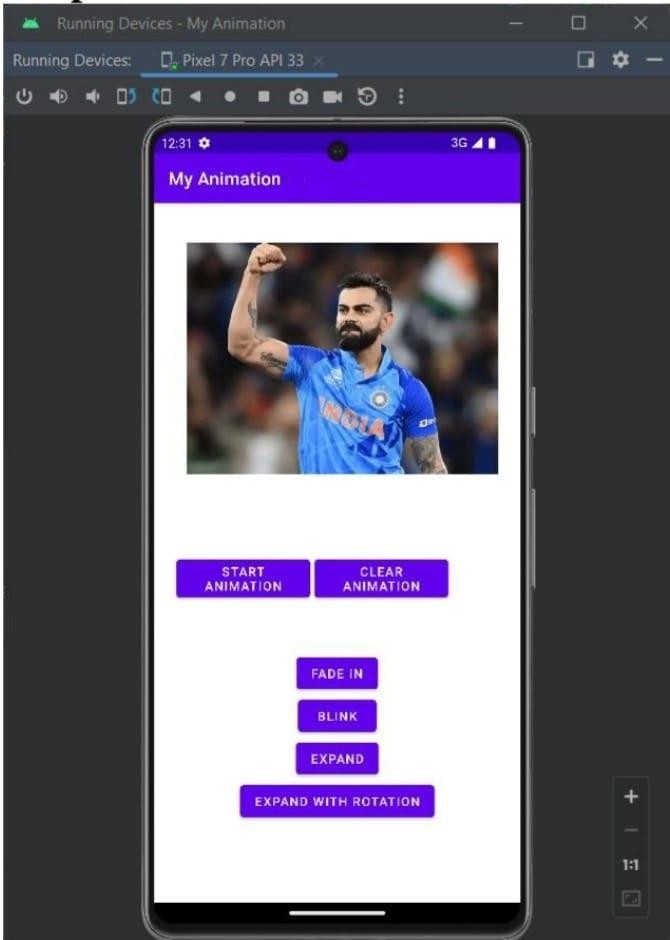


# Fade in

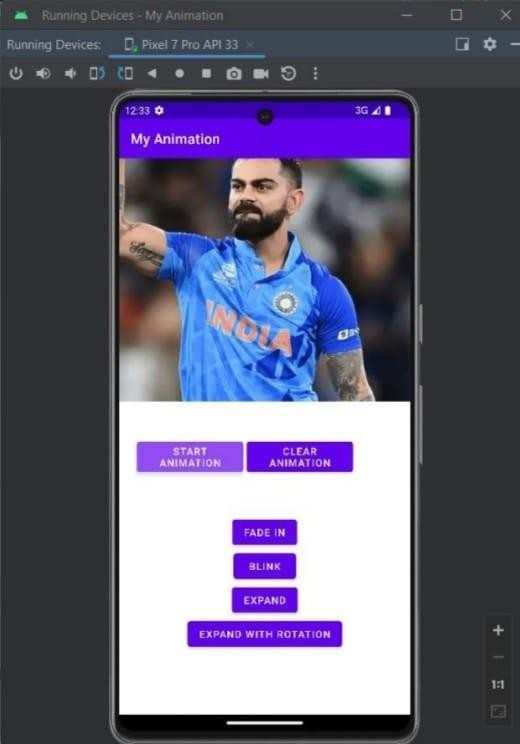


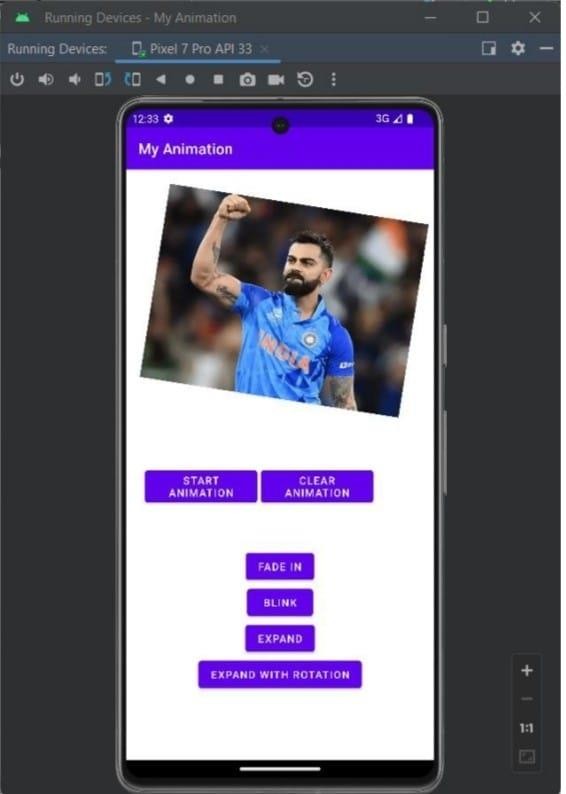
**Blink**





# Expand



**Expand with rotation**

**5. Create an android application to implement frame animation.**

# activity\_main.xml:

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

<LinearLayout xmlns:android[="http://sch](http://schemas.android.com/apk/res/android)em[as.android.com/apk/res/android](http://schemas.android.com/apk/res/android)"

xmlns:app[="http://sch](http://schemas.android.com/apk/res-auto)em[as.android.com/apk/res-auto](http://schemas.android.com/apk/res-auto)" xmlns:too[ls="h](http://schemas.android.com/tools)ttp:[//schemas.android.com/tools"](http://schemas.android.com/tools) android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:orientation="vertical" android:gravity="center" tools:context=".MainActivity">

<ImageView android:id="@+id/imageView" android:layout\_width="match\_parent" android:layout\_height="200dp" android:src="@drawable/running"/>

<Button

android:id="@+id/btn" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:backgroundTint="#8BC34A" android:textColor="#000" android:text="Start" />

</LinearLayout> running.xml:

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

<animation-list xmlns:android[="http://sch](http://schemas.android.com/apk/res/android)em[as.android.com/apk/res/android](http://schemas.android.com/apk/res/android)">

<item android:drawable="@drawable/one" android:duration="100"/>

<item android:drawable="@drawable/two" android:duration="100"/>

<item android:drawable="@drawable/three" android:duration="100"/>

<item android:drawable="@drawable/four" android:duration="100"/>

</animation-list> MainActivity.java:

package com.example.framebyframeanimation; import androidx.appcompat.app.AppCompatActivity;

import android.graphics.drawable.AnimationDrawable; import android.os.Bundle;

import android.view.View;

import android.view.animation.Animation; import android.widget.Button; import android.widget.ImageView;

public class MainActivity extends AppCompatActivity { ImageView img; Button btnStartStop; AnimationDrawable animation; @Override protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main); img=findViewById(R.id.imageView); btnStartStop=findViewById(R.id.btn); animation=(AnimationDrawable) img.getDrawable(); btnStartStop.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View view) {

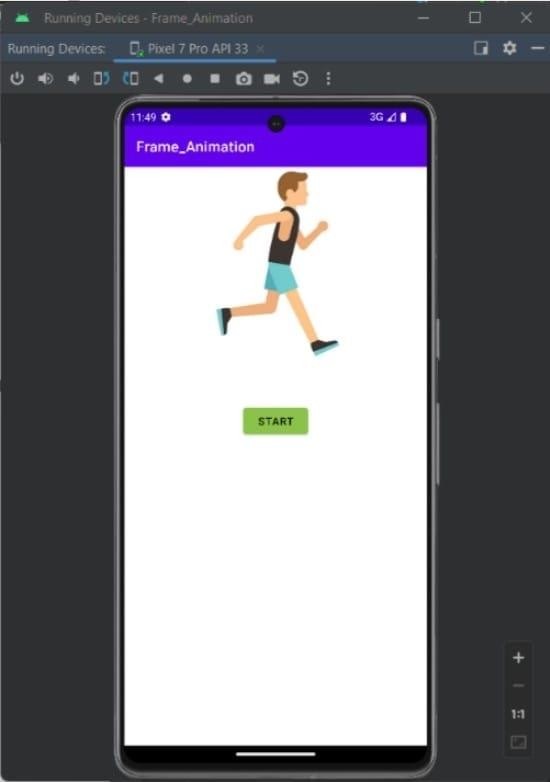
if(animation.isRunning()){ animation.stop(); btnStartStop.setText("Start"); return;

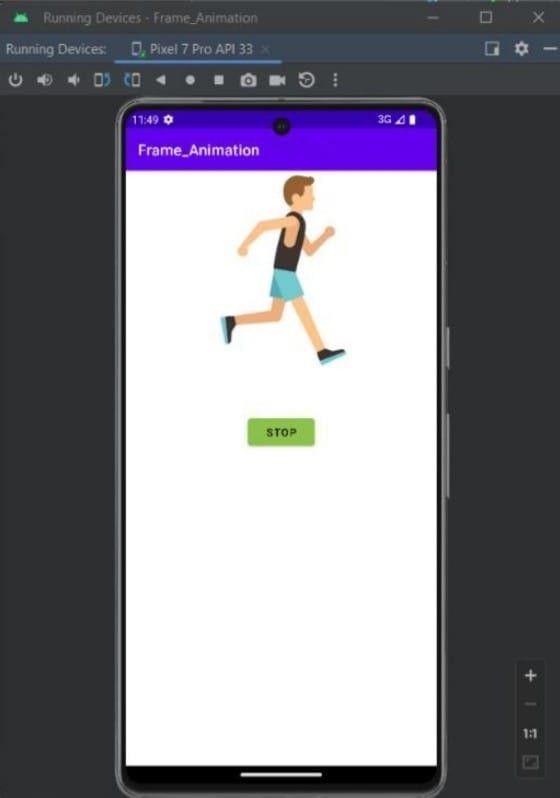
}

});

}

}





# Practical 5

**Location Based Services**

#### Create an android application to display the current location of your device (display longitude & latitude values).

**AndroidManifest.xml**

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

<manifest xmlns:android=["http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) xmlns:t[ools="http://schemas.android.com/tools"](http://schemas.android.com/tools) >

<application android:allowBackup="true"

android:dataExtractionRules="@xml/data\_extraction\_rules" android:fullBackupContent="@xml/backup\_rules" android:icon="@mipmap/ic\_launcher" android:label="@string/app\_name" android:roundIcon="@mipmap/ic\_launcher\_round" android:supportsRtl="true" android:theme="@style/Theme.GoogleMaps" tools:targetApi="31" >

<!--

TODO: Before you run your application, you need a Google Maps API key. To get one, follow the directions here:

https://developers.google.com/maps/documentation/android-sdk/get-api-key

Once you have your API key (it starts with "AIza"), define a new property in your project's local.properties file (e.g. MAPS\_API\_KEY=Aiza...), and replace the "YOUR\_API\_KEY" string in this file with "${MAPS\_API\_KEY}".

-->

<meta-data android:name="com.google.android.geo.API\_KEY" android:value="@string/map\_api" />

<activity android:name=".MapsActivity" android:exported="true"

android:label="@string/title\_activity\_maps" >

<intent-filter>

<action android:name="android.intent.action.MAIN" />

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

</intent-filter>

</activity>

</application>

</manifest>

#### MapsActivity.java

package com.example.googlemaps;

import androidx.fragment.app.FragmentActivity; import android.os.Bundle;

import com.google.android.gms.maps.CameraUpdateFactory; import com.google.android.gms.maps.GoogleMap;

import com.google.android.gms.maps.OnMapReadyCallback; import com.google.android.gms.maps.SupportMapFragment; import com.google.android.gms.maps.model.LatLng;

import com.google.android.gms.maps.model.MarkerOptions;

import com.example.googlemaps.databinding.ActivityMapsBinding;

public class MapsActivity extends FragmentActivity implements OnMapReadyCallback { private GoogleMap mMap;

private ActivityMapsBinding binding;

@Override

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

binding = ActivityMapsBinding.inflate(getLayoutInflater()); setContentView(binding.getRoot());

// Obtain the SupportMapFragment and get notified when the map is ready to be used. SupportMapFragment mapFragment = (SupportMapFragment)

getSupportFragmentManager()

.findFragmentById(R.id.map); mapFragment.getMapAsync(this);

}

/\*\*

* Manipulates the map once available.
* This callback is triggered when the map is ready to be used.
* This is where we can add markers or lines, add listeners or move the camera. In this case,
* we just add a marker near Sydney, Australia.
* If Google Play services is not installed on the device, the user will be prompted to install
* it inside the SupportMapFragment. This method will only be triggered once the user has
* installed Google Play services and returned to the app.

\*/ @Override

public void onMapReady(GoogleMap googleMap) { mMap = googleMap;

// Add a marker in Sydney and move the camera LatLng sydney = new LatLng(19.017750, 72.835820);

mMap.addMarker(new MarkerOptions().position(sydney).title("Marker in Dadar")); mMap.moveCamera(CameraUpdateFactory.newLatLng(sydney));

}

}

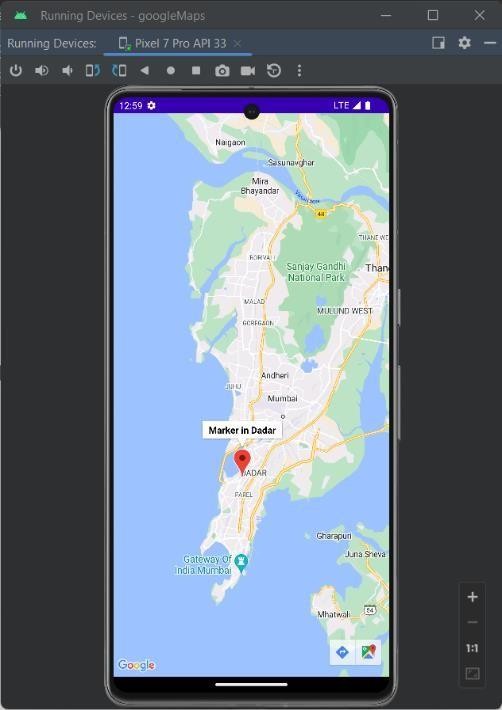
#### activity\_maps.xml

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

<fragment xmlns:android=["http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) xmlns:t[ools="http://schemas.android.com/tools"](http://schemas.android.com/tools) xmlns:map=["http://schemas.android.com/apk/res-auto"](http://schemas.android.com/apk/res-auto) android:layout\_width="match\_parent" android:layout\_height="match\_parent"

android:id="@+id/map" tools:context=".MapsActivity"

android:name="com.google.android.gms.maps.SupportMapFragment"/>



#### Create an android application that displays the current location of your device from longitude and latitude values (Reverse Geocoding).

MainActivity.java

package com.example.locationtracking;

import androidx.annotation.NonNull;

import androidx.appcompat.app.AppCompatActivity; import androidx.core.app.ActivityCompat; import androidx.core.content.ContextCompat;

import android.Manifest;

import android.annotation.SuppressLint; import android.content.pm.PackageManager; import android.location.Location;

import android.location.LocationListener; import android.location.LocationManager; import android.os.Bundle;

import android.view.View; import android.widget.Button; import android.widget.TextView;

public class MainActivity extends AppCompatActivity implements LocationListener { Button button; TextView textview; LocationManager locationManager;

@SuppressLint("MissingInflatedId") @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

textview=findViewById(R.id.textView); button=findViewById(R.id.button);

if(ContextCompat.checkSelfPermission(MainActivity.this, Manifest.permission.ACCESS\_FINE\_LOCATION)!=

PackageManager.PERMISSION\_GRANTED)

{

ActivityCompat.requestPermissions(MainActivity.this, new String[]{ Manifest.permission.ACCESS\_FINE\_LOCATION, Manifest.permission.ACCESS\_COARSE\_LOCATION,

},100);

}

button.setOnClickListener(new View.OnClickListener() { @Override public void onClick(View view) { getLocation();

}

});

}

@SuppressLint("MissingPermission") private void getLocation()

{

try { locationManager=(LocationManager)

getApplicationContext().getSystemService(LOCATION\_SERVICE);

locationManager.requestLocationUpdates(LocationManager.NETWORK\_PROVIDER, 5000, 5, (LocationListener) this);

}

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

}

}

@SuppressLint("SetTextI18n") @Override

public void onLocationChanged(@NonNull Location location) { textview.setText("Latitude:" + location.getLatitude()+"\n Longitude:

"+location.getLongitude());

}

}

Activity\_ main.xml

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

<RelativeLayout xmlns:android=["http://sc](http://schemas.android.com/apk/res/android)h[emas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) xmlns:app=["http://sche](http://schemas.android.com/apk/res-auto)m[as.android.com/apk/res-auto"](http://schemas.android.com/apk/res-auto) xmlns:t[ools="ht](http://schemas.android.com/tools)tp:/[/schemas.android.com/tool](http://schemas.android.com/tools)s" android:layout\_width="match\_parent" android:layout\_height="match\_parent"

tools:context=".MainActivity">

<TextView android:id="@+id/textView" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:height="50dp" android:text="TextView" />

<Button

android:id="@+id/button" android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" android:layout\_marginTop="100dp" android:layout\_marginLeft="150dp" android:layout\_weight="1" android:text="Button" />

</RelativeLayout> AndroidManifest.xml

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

<manifest xmlns:andr[oid="htt](http://schemas.android.com/apk/res/android)p:/[/sc](http://schemas.android.com/apk/res/android)he[mas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) xmlns:t[ools="ht](http://schemas.android.com/tools)tp:/[/schemas.android.com/tool](http://schemas.android.com/tools)s">

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

<uses-permission android:name="android.permission.ACCESS\_FINE\_LOCATION"/>

<uses-permission android:name="android.permission.ACCESS\_COARSE\_LOCATION"/>

<application android:allowBackup="true"

android:dataExtractionRules="@xml/data\_extraction\_rules" android:fullBackupContent="@xml/backup\_rules" android:icon="@mipmap/ic\_launcher" android:label="@string/app\_name" android:roundIcon="@mipmap/ic\_launcher\_round" android:supportsRtl="true" android:theme="@style/Theme.LocationTracking" tools:targetApi="31">

<activity android:name=".MainActivity" android:exported="true">

<intent-filter>

<action android:name="android.intent.action.MAIN" />

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

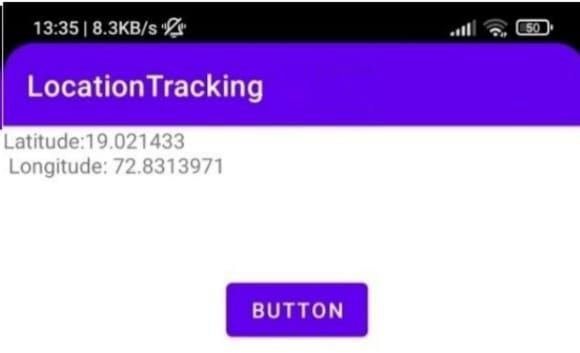
</intent-filter>

</activity>

</application>

</manifest>





#### Create an android application that accepts longitude and latitude from the user and mark that location on google map.

**activity\_main.xml**

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

<RelativeLayout xmlns:android=["http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) xmlns:t[ools="http://schemas.android.com/tools"](http://schemas.android.com/tools) android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:paddingLeft="16dp"

android:paddingTop="16dp" android:paddingRight="16dp"

android:paddingBottom="16dp" tools:context=".MainActivity">

<EditText android:id="@+id/latitudeEditText" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:hint="Latitude"/>

<EditText android:id="@+id/longitudeEditText" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:layout\_below="@id/latitudeEditText" android:layout\_marginTop="16dp" android:hint="Longitude"/>

<Button android:id="@+id/showLocationButton" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:layout\_below="@id/longitudeEditText" android:layout\_marginTop="16dp" android:text="Show Location on Map"/>

</RelativeLayout>

#### MainActivity.java

package com.example.map\_location; import android.content.Intent; import android.net.Uri; import android.os.Bundle; import android.view.View; import android.widget.Button; import android.widget.EditText;

import androidx.appcompat.app.AppCompatActivity; public class MainActivity extends AppCompatActivity

{

private EditText latitudeEditText; private EditText longitudeEditText; private Button showLocationButton; @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main); latitudeEditText = findViewById(R.id.latitudeEditText);

longitudeEditText = findViewById(R.id.longitudeEditText); showLocationButton = findViewById(R.id.showLocationButton); showLocationButton.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View view) { showLocationOnMap();

}

});

}

private void showLocationOnMap() {

String latitudeStr = latitudeEditText.getText().toString();

String longitudeStr = longitudeEditText.getText().toString(); if (!latitudeStr.isEmpty() && !longitudeStr.isEmpty()) {

double latitude = Double.parseDouble(latitudeStr); double longitude = Double.parseDouble(longitudeStr);

// Create a Uri to open Google Maps at the specified location

Uri gmmIntentUri = Uri.parse("geo:" + latitude + "," + longitude + "?q=" + latitude + "," + longitude);

// Create an Intent to open Google Maps

Intent mapIntent = new Intent(Intent.ACTION\_VIEW, gmmIntentUri); mapIntent.setPackage("com.google.android.apps.maps");

// Check if there is an app to handle the intent

if (mapIntent.resolveActivity(getPackageManager()) != null) { startActivity(mapIntent);

} else {

// Handle the case where Google Maps is not installed

// You may choose to open the location in a web browser or inform the user

}

}

}

}

#### google\_maps\_api.xml

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

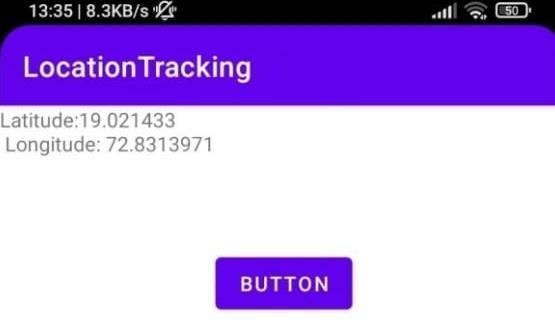
<resources>

<string name="google\_maps\_key" templateMergeStrategy="preserve"

translatable="false">AIzaSyAJc-QYRmwJ83HDtbRvAG9V7nfFjJogJ9A</string>

</resources>





1. **Create an android application that enables and disables Wi-fi of the phone.**

#### activity\_main.xml

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

<LinearLayout xmlns:android=["http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) xmlns:app=["http://schemas.android.com/apk/res-auto"](http://schemas.android.com/apk/res-auto) xmlns:tools=["http://schemas.android.com/tools"](http://schemas.android.com/tools) android:layout\_width="match\_parent" android:layout\_height="match\_parent"

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

<Button

android:id="@+id/button" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Enable Wifi" />

</LinearLayout>

#### MainActivity.java

package com.example.wifi\_nine;

import androidx.appcompat.app.AppCompatActivity; import android.net.wifi.WifiManager;

import android.os.Bundle; import android.view.View; import android.widget.Button; import android.widget.Toast;

public class MainActivity extends AppCompatActivity { Button btn;

WifiManager wifiManager; @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

wifiManager=(WifiManager)getApplicationContext().getSystemService(WIFI\_SERVICE); btn=findViewById(R.id.button);

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

public void onClick(View v) {

if (wifiManager.isWifiEnabled()){ wifiManager.setWifiEnabled(false);

Toast.makeText(MainActivity.this,"Wifi isDisabled",Toast.LENGTH\_LONG).show();

btn.setText("Enable Wifi");

}

else {

wifiManager.setWifiEnabled(true);

Toast.makeText(MainActivity.this,"Wifi isEnabled",Toast.LENGTH\_LONG).show();

btn.setText("Disable Wifi");

});

}

}

#### AndroidManifest.xml

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

<manifest xmlns:android=["http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) xmlns:t[ools="http://schemas.android.com/tools">](http://schemas.android.com/tools)

<uses-permission android:name="android.permission.ACCESS\_WIFI\_STATE"/>

<uses-permission android:name="android.permission.CHANGE\_WIFI\_STATE"/>

<application android:allowBackup="true"

android:dataExtractionRules="@xml/data\_extraction\_rules" android:fullBackupContent="@xml/backup\_rules" android:icon="@mipmap/ic\_launcher" android:label="@string/app\_name" android:roundIcon="@mipmap/ic\_launcher\_round" android:supportsRtl="true" android:theme="@style/Theme.Wifi\_Nine" tools:targetApi="31">

<activity android:name=".MainActivity" android:exported="true">

<intent-filter>

<action android:name="android.intent.action.MAIN" />

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

</intent-filter>

</activity>

</application>

</manifest>

#### Create an android application that enables and disables Bluetooth of the phone.

**Program**:

**Activity\_main.xml:**

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

<LinearLayout xmlns:android="[http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) xmlns:app="[http://schemas.android.com/apk/res-auto"](http://schemas.android.com/apk/res-auto) xmlns:tools="[http://schemas.android.com/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:id="@+id/Enable\_BT" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Enable Bluetooth" />

</LinearLayout>

**MainActivity.java:**

package com.example.myapplication\_bluetoothapp; import androidx.appcompat.app.AppCompatActivity; import android.annotation.SuppressLint;

import android.bluetooth.BluetoothAdapter; import android.os.Bundle;

import android.view.View; import android.widget.Button; import android.widget.Toast;

public class MainActivity extends AppCompatActivity { Button btn;

BluetoothAdapter bluetoothAdapter; @Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main); btn=findViewById(R.id.Enable\_BT); bluetoothAdapter=BluetoothAdapter.getDefaultAdapter(); if (bluetoothAdapter==null){

Toast.makeText(getApplicationContext(), "Bluetooth Not Supported", Toast.LENGTH\_LONG).show();

btn.setEnabled(false); return;

}

btn.setOnClickListener(new View.OnClickListener() { @SuppressLint("MissingPermission")

@Override

public void onClick(View view) { if(bluetoothAdapter.isEnabled()){

bluetoothAdapter.disable(); btn.setText("Enable Bluetooth");

Toast.makeText(getApplicationContext(), "Bluetooth Disabled", Toast.LENGTH\_LONG).show();

}

else {

bluetoothAdapter.enable();

**Android\_Manifest.xml:**

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

<uses-permission android:name="android.permission.BLUETOOTH\_ADMIN"></uses-permission>

<uses-permission android:name="android.permission.BLUETOOTH\_CONNECT"></uses-permission>



# Practical 6

**REST API integration:**

# 1.Create an Android application to demonstrate JSON data parsing using HTTPSUrlConnection (you can use https://api.github.com/users JSON data)

**Activity\_main.xml**

<ScrollView xmlns:android="<http://schemas.android.com/apk/res/android>" xmlns:tools="[http://schemas.android.com/tools"](http://schemas.android.com/tools) android:layout\_width="match\_parent" android:layout\_height="match\_parent" tools:context=".MainActivity">

<LinearLayout android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:paddingHorizontal="16dp" android:orientation="vertical">

<Button

android:id="@+id/btn\_fetch\_data" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_gravity="center" android:text="Fetch Data" />

<TextView android:id="@+id/result\_text" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:text="Result" />

</LinearLayout>

</ScrollView>

**MainActivity.java**

package com.example.myapplication;

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

import android.os.Bundle; import android.widget.Button;

import android.widget.TextView; import android.widget.Toast;

import java.io.BufferedReader; import java.io.IOException;

import java.io.InputStream; import java.io.InputStreamReader;

import java.net.HttpURLConnection; import java.net.URL;

public class MainActivity extends AppCompatActivity { Button btnFetchData;

TextView resultView;

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

btnFetchData = findViewById(R.id.btn\_fetch\_data); btnFetchData.setOnClickListener(view -> {

Users users = new Users(); users.execute();

});

resultView = findViewById(R.id.result\_text);

}

// AsyncTask class to fetch data from API in a separate thread class Users extends AsyncTask<String, String, String> {

@Override

protected String doInBackground(String... strings) { try {

URL url = new URL("https://api.github.com/");

HttpURLConnection connection = (HttpURLConnection) url.openConnection(); connection.connect();

InputStream stream = connection.getInputStream();

BufferedReader reader = new BufferedReader(new InputStreamReader(stream)); StringBuffer buffer = new StringBuffer();

String line;

while ((line = reader.readLine()) != null) { buffer.append(line).append("\n");

}

return buffer.toString();

} catch (IOException ex) { Toast.makeText(getApplicationContext(), ex.getMessage(),

Toast.LENGTH\_SHORT).show(); return "";

}

}

@Override

protected void onPreExecute() { super.onPreExecute(); btnFetchData.setEnabled(false);

}

@Override

protected void onProgressUpdate(String... values) { super.onProgressUpdate(values); resultView.setText("Loading..." + values[0] + "%");

}

@Override

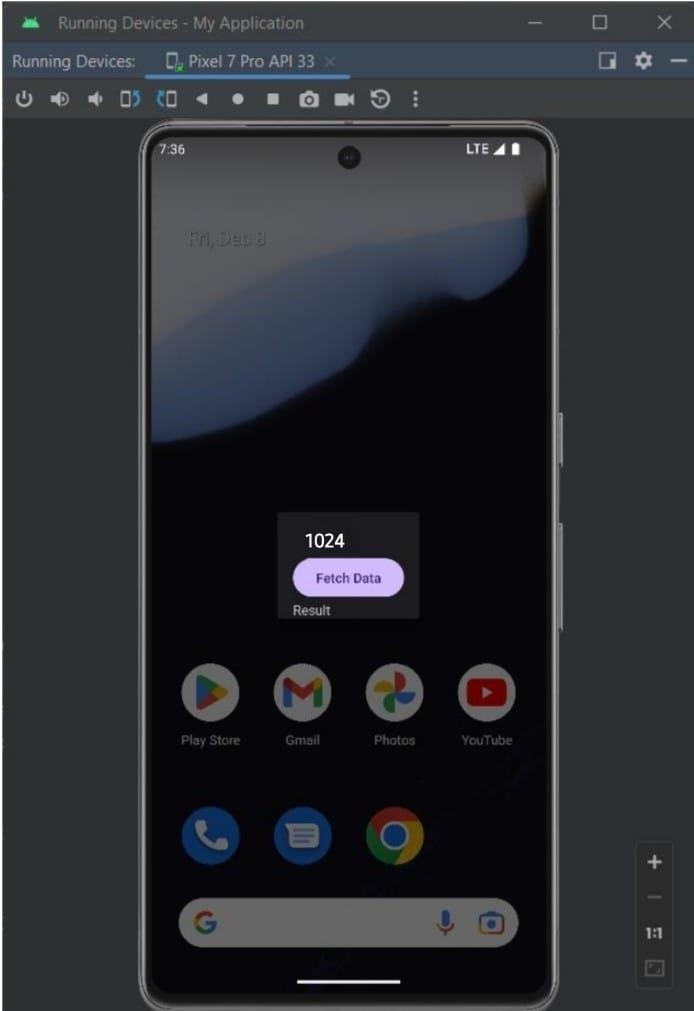
protected void onPostExecute(String s) { super.onPostExecute(s);

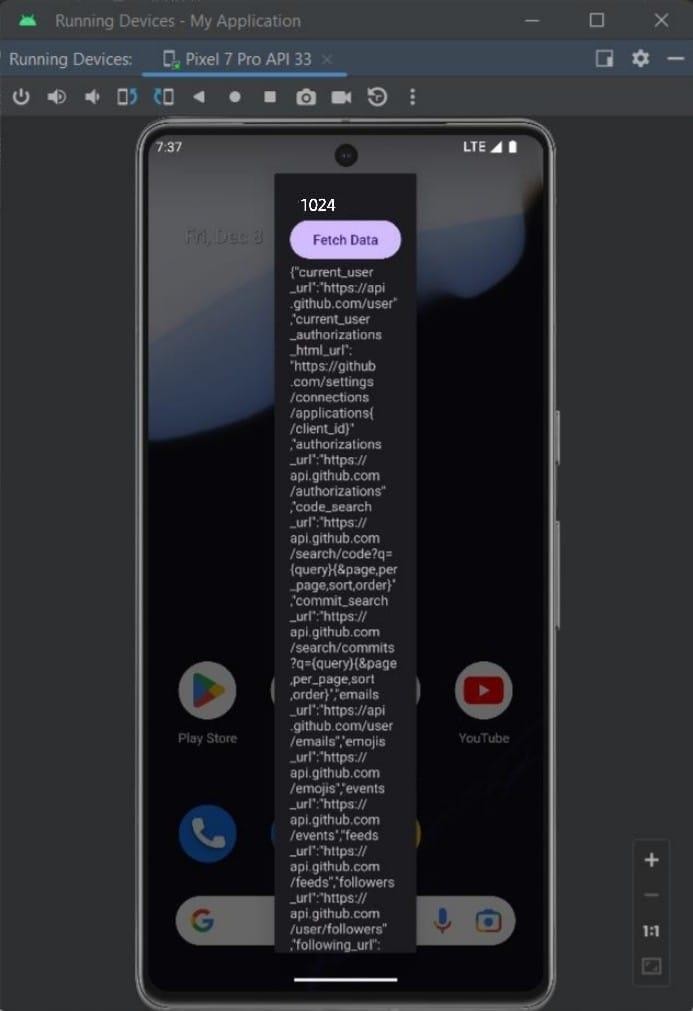
resultView.setText(s); btnFetchData.setEnabled(true);

}

}

}





## Create an Android application to demonstrate JSON data parsing using OkHttp (you can use https://api.github.com/users JSON data)

**activity\_main.xml**

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

<ScrollView xmlns:android="<http://schemas.android.com/apk/res/android>"

xmlns:tools="[http://schemas.android.com/tools"](http://schemas.android.com/tools) android:layout\_width="match\_parent" android:layout\_height="match\_parent" tools:context=".MainActivity">

<LinearLayout android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:orientation="vertical">

<Button

android:id="@+id/btn\_fetch" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_marginTop="16dp" android:layout\_gravity="center\_horizontal" android:text="Fetch Data" />

<TextView android:id="@+id/result\_view" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:paddingHorizontal="16dp" android:text="Result" />

</LinearLayout>

</ScrollView>

**MainActivity.java**

package com.example.myapplication;

import android.os.Bundle; import android.widget.Button;

import android.widget.TextView; import android.widget.Toast;

import androidx.annotation.NonNull;

import androidx.appcompat.app.AppCompatActivity; import java.io.IOException;

import okhttp3.Call; import okhttp3.Callback;

import okhttp3.OkHttpClient; import okhttp3.Request; import okhttp3.Response;

public class MainActivity extends AppCompatActivity { TextView resultView;

Button fetch; OkHttpClient client;

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

resultView = findViewById(R.id.result\_view); fetch = findViewById(R.id.btn\_fetch);

client = new OkHttpClient();

fetch.setOnClickListener(view -> getWebService());

}

private void getWebService() {

// Example URL: "https://reqres.in/api/users/" String url = "https://reqres.in/api/users/";

Request request = new Request.Builder().url(url).build(); client.newCall(request).enqueue(new Callback() {

@Override

public void onResponse(@NonNull Call call, @NonNull Response response) throws IOException {

if (response.isSuccessful()) {

final String result = response.body().string(); MainActivity.this.runOnUiThread(() -> resultView.setText(result));

}

}

@Override

public void onFailure(@NonNull Call call, @NonNull IOException e) { Toast.makeText(getApplicationContext(), e.getMessage(), Toast.LENGTH\_SHORT).show();

}

});

}

}

**build.gradle.kts**

plugins {

id("com.android.application")

}

android {

namespace = "com.example.myapplication" compileSdk = 34

defaultConfig {

applicationId = "com.example.myapplication" minSdk = 24

targetSdk = 34

versionCode = 1

versionName = "1.0"

testInstrumentationRunner = "androidx.test.runner.AndroidJUnitRunner"

}

buildTypes { release {

isMinifyEnabled = false

proguardFiles(getDefaultProguardFile("proguard-android-optimize.txt"), "proguard-rules.pro")

}

}

compileOptions {

sourceCompatibility = JavaVersion.VERSION\_1\_8 targetCompatibility = JavaVersion.VERSION\_1\_8

}

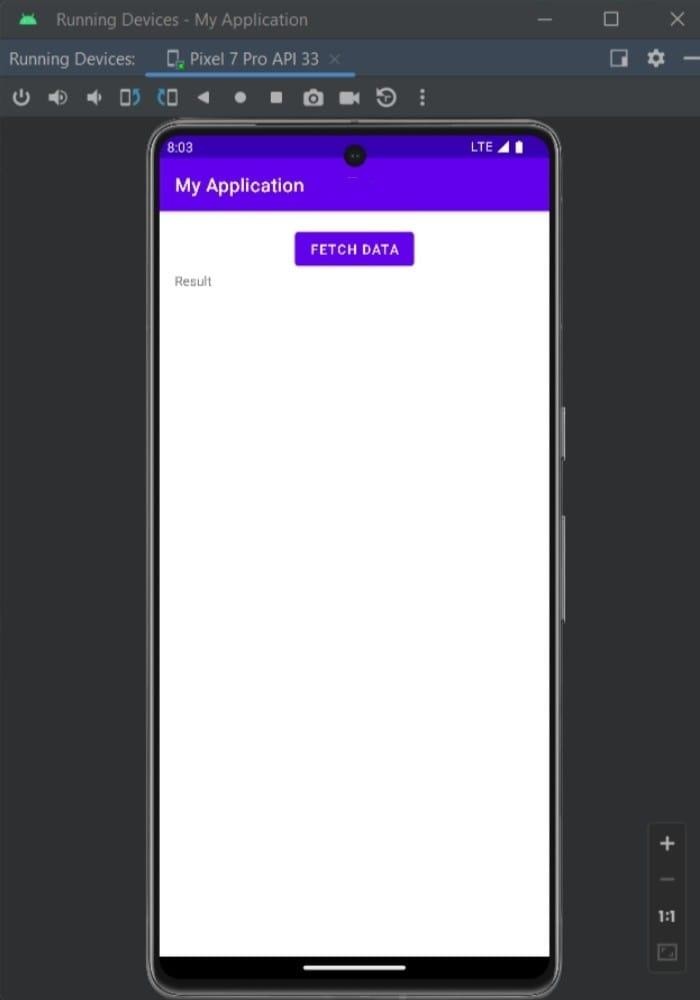
}

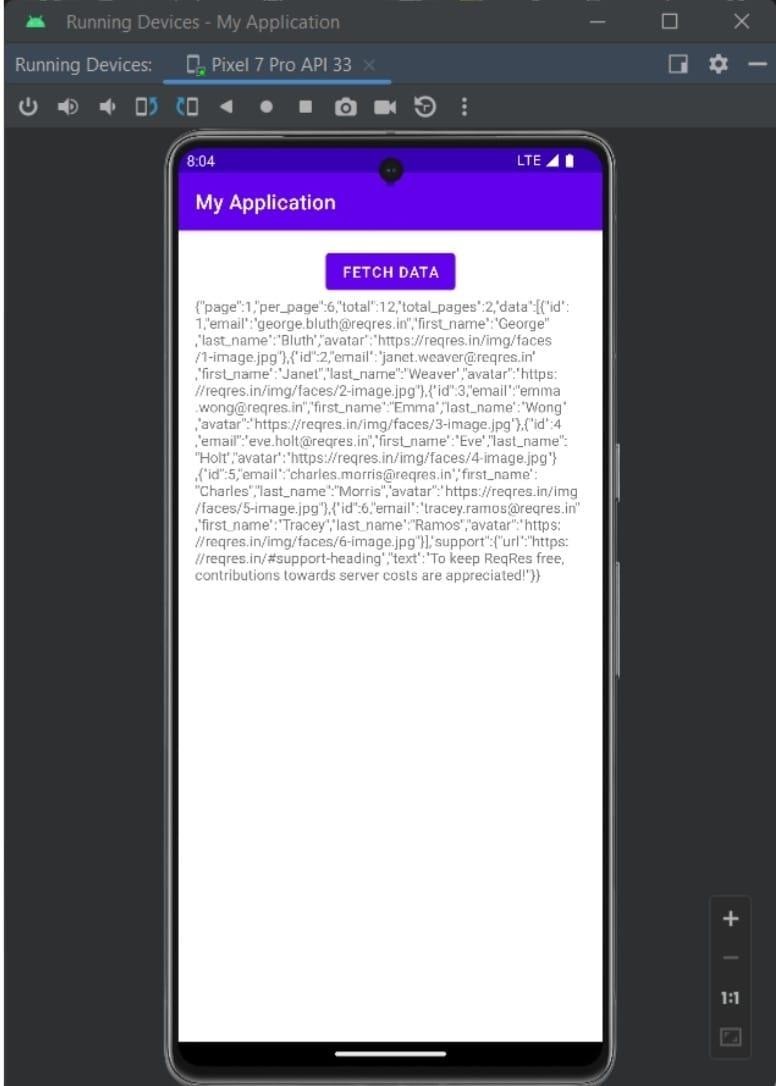
dependencies {

implementation ("com.squareup.okhttp3:okhttp:4.9.1")

implementation("androidx.appcompat:appcompat:1.6.1") implementation("com.google.android.material:material:1.10.0") implementation("androidx.constraintlayout:constraintlayout:2.1.4") testImplementation("junit:junit:4.13.2") androidTestImplementation("androidx.test.ext:junit:1.1.5") androidTestImplementation("androidx.test.espresso:espresso-core:3.5.1")

}





#### Create an Android application to demonstrate JSON data parsing using Volley(you can use https://api.github.com/users JSON data).

**activity\_main.xml**

<ScrollView xmlns:android="<http://schemas.android.com/apk/res/android>" xmlns:tools="[http://schemas.android.com/tools"](http://schemas.android.com/tools) android:layout\_width="match\_parent" android:layout\_height="match\_parent" tools:context=".MainActivity">

<LinearLayout android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:orientation="vertical" android:paddingHorizontal="16dp">

<EditText android:id="@+id/user\_input" android:layout\_width="match\_parent"

android:layout\_height="wrap\_content" android:layout\_gravity="center" android:hint="Enter user name" />

<Button

android:id="@+id/btn\_fetch\_data" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_gravity="center" android:text="Fetch Data" />

<TextView android:id="@+id/result\_view" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:text="result" />

<ImageView android:id="@+id/image\_view" android:layout\_width="match\_parent" android:layout\_height="match\_parent" />

</LinearLayout>

</ScrollView>

**MainActivity.java**

package com.example.myapplication;

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

import android.widget.Button; import android.widget.EditText; import android.widget.ImageView; import android.widget.TextView; import android.widget.Toast;

import com.android.volley.Request; import com.android.volley.RequestQueue; import com.android.volley.Response; import com.android.volley.VolleyError;

import com.android.volley.toolbox.JsonObjectRequest; import com.android.volley.toolbox.Volley;

import com.squareup.picasso.Picasso;

import org.json.JSONException; import org.json.JSONObject;

public class MainActivity extends AppCompatActivity { private RequestQueue queue;

private EditText userInput; private Button btnFetchData; private TextView resultView; private ImageView imageView;

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

queue = Volley.newRequestQueue(this); userInput = findViewById(R.id.user\_input);

btnFetchData = findViewById(R.id.btn\_fetch\_data); resultView = findViewById(R.id.result\_view); imageView = findViewById(R.id.image\_view);

btnFetchData.setOnClickListener(view -> fetchData());

}

private void fetchData() {

String url = "https://api.github.com/users/" + userInput.getText();

JsonObjectRequest request = new JsonObjectRequest(Request.Method.GET, url, null, response -> {

try {

String login = response.getString("login"); String id = response.getString("id");

String nodeId = response.getString("node\_id"); String avatarUrl = response.getString("avatar\_url");

resultView.setText("Login: " + login + "\nID: " + id + "\nNode ID: " + nodeId); Picasso.get().load(avatarUrl).into(imageView);

} catch (JSONException e) {

e.printStackTrace();

Toast.makeText(this, "Something went wrong!", Toast.LENGTH\_SHORT).show();

}

},

error -> {

Toast.makeText(this, "User not found!", Toast.LENGTH\_SHORT).show(); resultView.setText("");

imageView.setImageDrawable(null);

});

queue.add(request);

}

}

**build.gradle.kts**

plugins {

id("com.android.application")

}

android {

namespace = "com.example.myapplication" compileSdk = 34

defaultConfig {

applicationId = "com.example.myapplication" minSdk = 24

targetSdk = 34

versionCode = 1

versionName = "1.0"

testInstrumentationRunner = "androidx.test.runner.AndroidJUnitRunner"

}

isMinifyEnabled = false

proguardFiles(getDefaultProguardFile("proguard-android-optimize.txt"), "proguard-rules.pro")

}

}

compileOptions {

sourceCompatibility = JavaVersion.VERSION\_1\_8 targetCompatibility = JavaVersion.VERSION\_1\_8

}

}

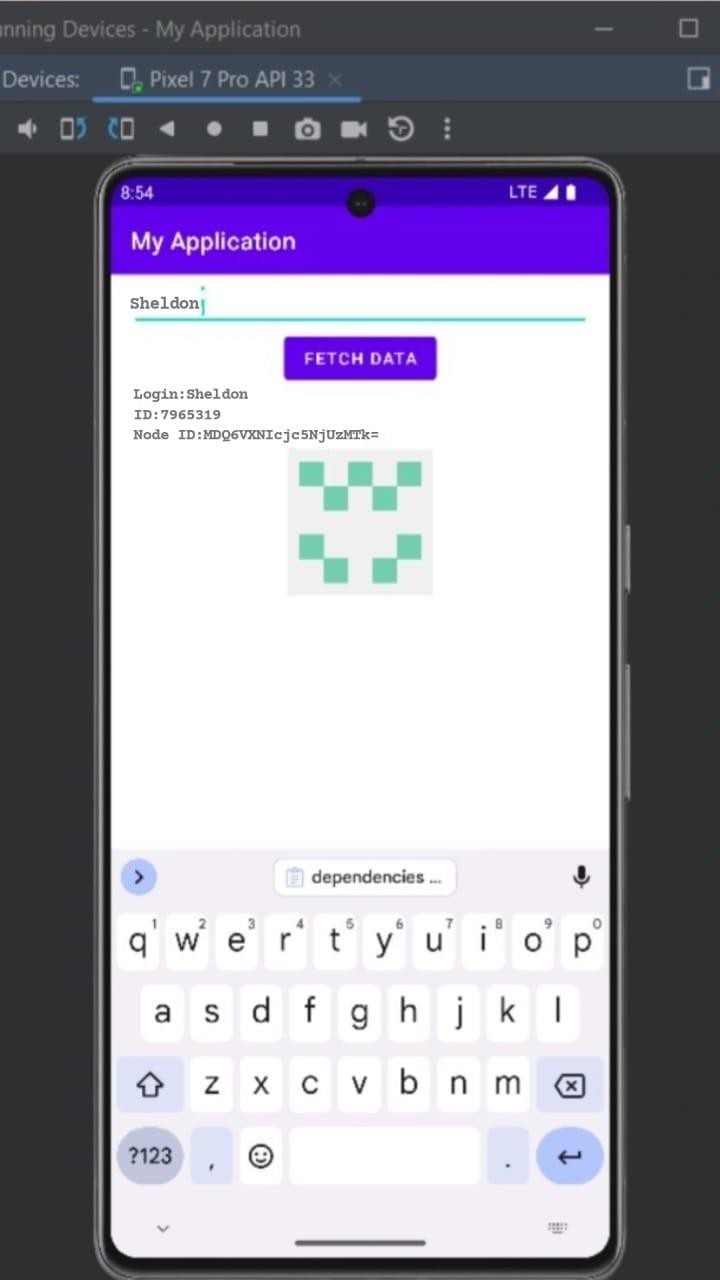
dependencies {

implementation ("com.android.volley:volley:1.2.1")

implementation ("com.squareup.picasso:picasso:2.71828")

implementation("androidx.appcompat:appcompat:1.6.1") implementation("com.google.android.material:material:1.10.0") implementation("androidx.constraintlayout:constraintlayout:2.1.4") testImplementation("junit:junit:4.13.2") androidTestImplementation("androidx.test.ext:junit:1.1.5") androidTestImplementation("androidx.test.espresso:espresso-core:3.5.1")

}



#### Create an Android application to demonstrate JSON data parsing using Retrofit(you can use https://api.github.com/users JSON data).

**11**

**activity\_main.xml**

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

<LinearLayout xmlns:android="<http://schemas.android.com/apk/res/android>" xmlns:tools="[http://schemas.android.com/tools"](http://schemas.android.com/tools) android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:orientation="vertical" tools:context=".MainActivity">

<TextView

android:id="@+id/text\_view" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:text="Hello, World!" />

</LinearLayout>

**MainActivity.java**

package com.example.myapplication;

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

import android.widget.TextView; import android.widget.Toast;

import java.util.List;

import retrofit2.Call; import retrofit2.Callback; import retrofit2.Response; import retrofit2.Retrofit;

import retrofit2.converter.gson.GsonConverterFactory;

public class MainActivity extends AppCompatActivity { TextView textView;

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.activity\_main);

textView = findViewById(R.id.text\_view); Retrofit retrofit = new Retrofit.Builder()

.baseUrl(API.BASE\_URL)

.addConverterFactory(GsonConverterFactory.create())

.build();

API api = retrofit.create(API.class);

Call<List<User>> call = api.getRecords(); call.enqueue(new Callback<List<User>>() {

@Override

"\n");

public void onResponse(Call<List<User>> call, Response<List<User>> response) { if (response.isSuccessful()) {

List<User> userList = response.body(); if (userList != null) {

for (int i = 0; i < userList.size(); i++) {

textView.append(userList.get(i).getLogin() + ", " + userList.get(i).getNode\_id() +

}

}

}

}

@Override

public void onFailure(Call<List<User>> call, Throwable t) {

Toast.makeText(getApplicationContext(), "Error | Failed to fetch data!!!", Toast.LENGTH\_SHORT).show();

}

});

}

}

**build.gradle.kts**

plugins {

id("com.android.application")

}

android {

namespace = "com.example.myapplication" compileSdk = 34

defaultConfig {

applicationId = "com.example.myapplication" minSdk = 24

targetSdk = 34

versionCode = 1

versionName = "1.0"

testInstrumentationRunner = "androidx.test.runner.AndroidJUnitRunner"

}

build

isMinifyEnabled = false

proguardFiles(getDefaultProguardFile("proguard-android-optimize.txt"), "proguard-rules.pro")

}

}

compileOptions {

sourceCompatibility = JavaVersion.VERSION\_1\_8 targetCompatibility = JavaVersion.VERSION\_1\_8

}

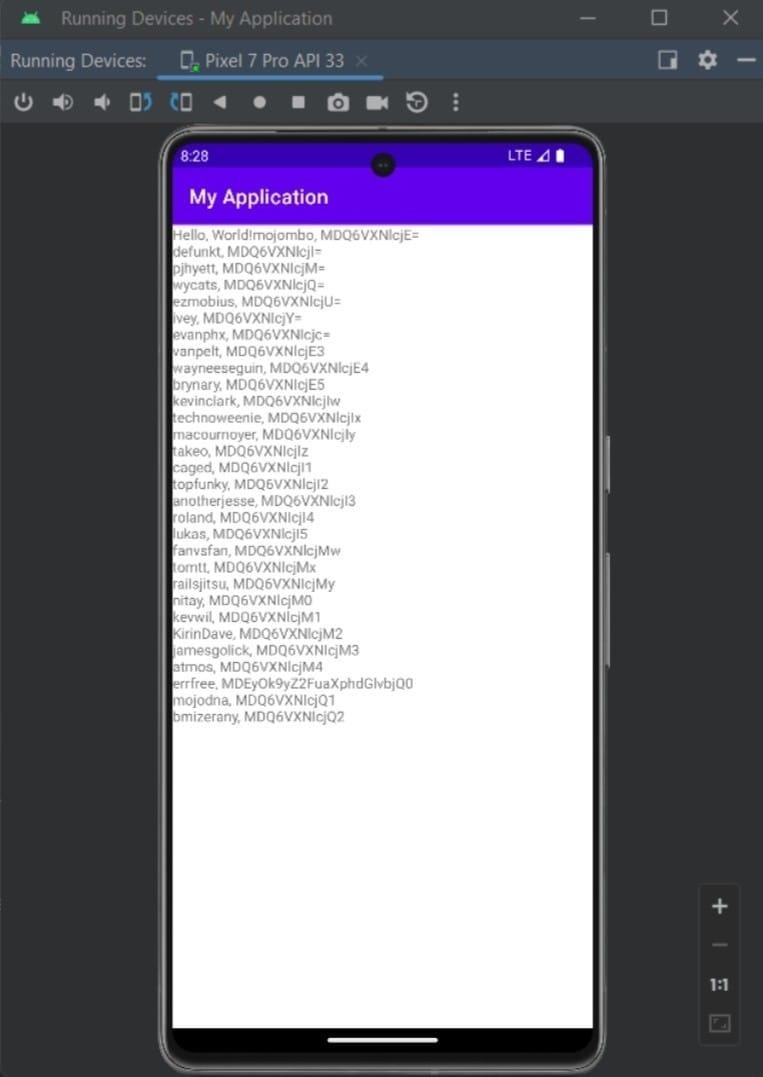
}

dependencies {

implementation ("com.squareup.retrofit2:retrofit:2.9.0")

implementation ("com.squareup.retrofit2:converter-gson:2.9.0") implementation("androidx.appcompat:appcompat:1.6.1") implementation("com.google.android.material:material:1.10.0") implementation("androidx.constraintlayout:constraintlayout:2.1.4") testImplementation("junit:junit:4.13.2") androidTestImplementation("androidx.test.ext:junit:1.1.5") androidTestImplementation("androidx.test.espresso:espresso-core:3.5.1")

}



**Practical 7**

# Introduction to Dart and Flutter:

#### Write a Flutter program to demonstrate Text widget and its properties.

**Main.dart**

import 'package:flutter/material.dart';

void main() { runApp(TextDemoApp());

}

class TextDemoApp extends StatelessWidget { @override

Widget build(BuildContext context) { return MaterialApp(

title: 'Text Widget Demo', home: Scaffold(

appBar: AppBar(

title: Text('Text Widget Demo'),

),

body: Center( child: Column(

mainAxisAlignment: MainAxisAlignment.center, children: [

Text(

'Hello, Flutter!', style: TextStyle( fontSize: 24.0, color: Colors.blue,

fontWeight: FontWeight.bold,

),

),

SizedBox(height: 20.0), Text(

'My First Flutter Widget', style: TextStyle( fontSize: 18.0,

color: Colors.green, fontStyle: FontStyle.italic,

),

textAlign: TextAlign.center,

),

SizedBox(height: 20.0), Text(

'DESs NMITD' ,

style: TextStyle( fontSize: 20.0, color: Colors.red,

fontFamily: 'Courier New',

),

),

],

),

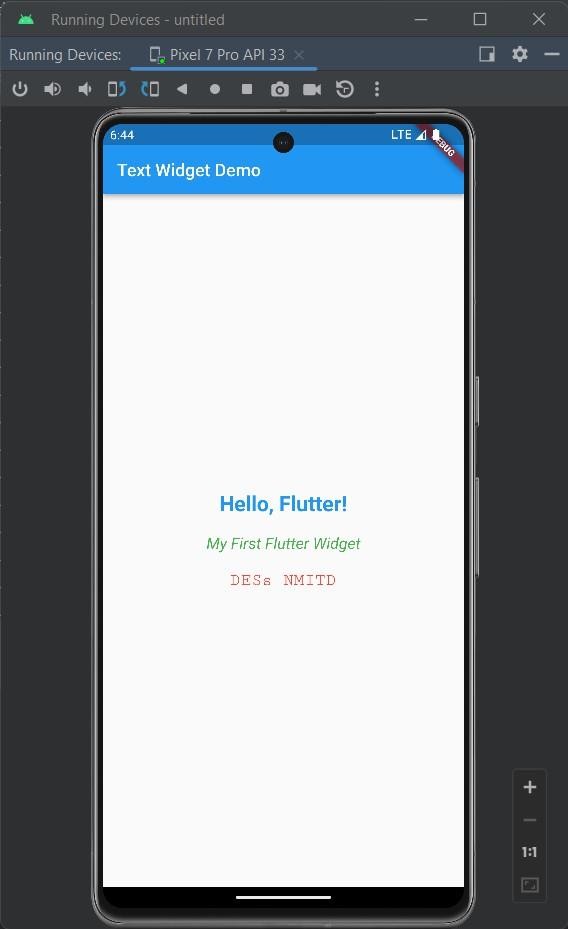
),

),

);

}

}



1. **Write a Flutter program to display dog names(demonstrate stateless widget and column widgets)**

#### Main.dart

import 'package:flutter/material.dart';

void main() { runApp(DogApp());

}

class DogApp extends StatelessWidget { @override

Widget build(BuildContext context) { return MaterialApp(

title: 'Dog Names App', home: Scaffold(

backgroundColor: Colors.tealAccent, // Change the background color appBar: AppBar(

backgroundColor: Colors.deepOrange, // Change the app bar color title: Text(

'Dog Names', style: TextStyle(

color: Colors.white, // Change the text color fontSize: 24.0,

),

),

),

body: Center( child: Column(

mainAxisAlignment: MainAxisAlignment.center, children: [

DogName('Rocky', Colors.amber), // Pass a custom color SizedBox(height: 10.0),

DogName('Max', Colors.lightBlue), SizedBox(height: 10.0), DogName('Charlie', Colors.pink),

],),),),); }

}

class DogName extends StatelessWidget { final String name;

final Color boxColor;

const DogName(this.name, this.boxColor); @override

Widget build(BuildContext context) { return DecoratedBox(

decoration: BoxDecoration( color: boxColor,

borderRadius: BorderRadius.circular(8.0), // Add rounded corners

),

child: Padding(

padding: const EdgeInsets.all(20.0), child: Text(

name,

style: TextStyle(

fontSize: 20.0,

fontWeight: FontWeight.bold,

color: Colors.white, // Change the text color

),

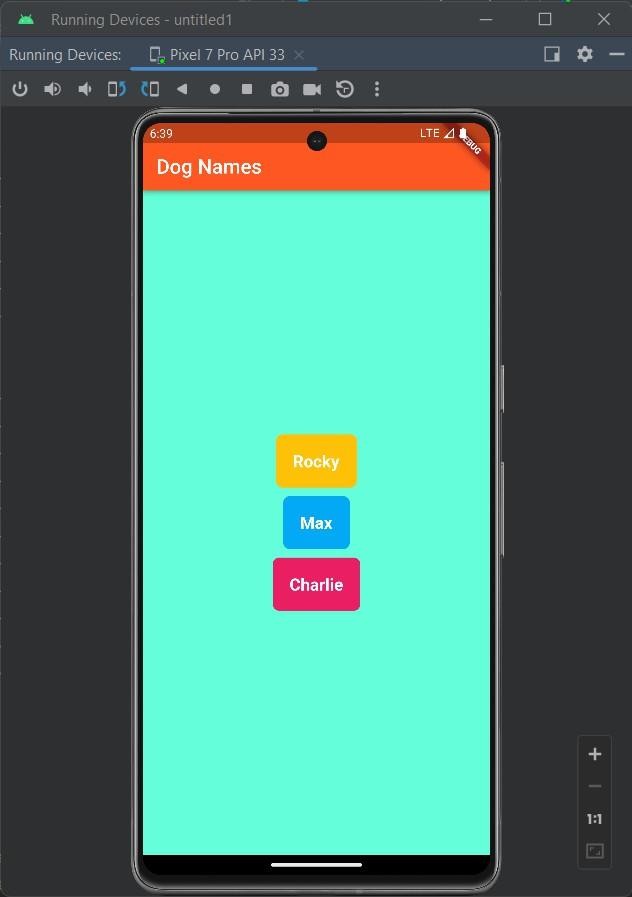
),

),

);

}

}



1. **Write a Flutter program that allows the user to enter a city In a text field and displays city name(demonstrate stateful widget).**

# Main.dart

import 'package:flutter/material.dart';

void main() { runApp(CityNameApp());

}

class CityNameApp extends StatelessWidget { @override

Widget build(BuildContext context) { return MaterialApp(

title: 'City Name App', home: CityNameScreen(),

); }

}

class CityNameScreen extends StatefulWidget { @override

\_CityNameScreenState createState() => \_CityNameScreenState();

}

class \_CityNameScreenState extends State<CityNameScreen> { TextEditingController \_cityController = TextEditingController(); String cityName = '';

@override

Widget build(BuildContext context) { return Scaffold(

appBar: AppBar(

title: Text('City Name'),

),

body: Padding(

padding: const EdgeInsets.all(16.0), child: Column(

mainAxisAlignment: MainAxisAlignment.center, children: [

TextField(

controller: \_cityController, decoration: InputDecoration( labelText: 'Enter City Name',

),

),

SizedBox(height: 20.0),

ElevatedButton( onPressed: () {

setState(() {

cityName = \_cityController.text;

});

},

child: Text('Show City Name'),

),

SizedBox(height: 20.0), Text(

'City Name: $cityName',

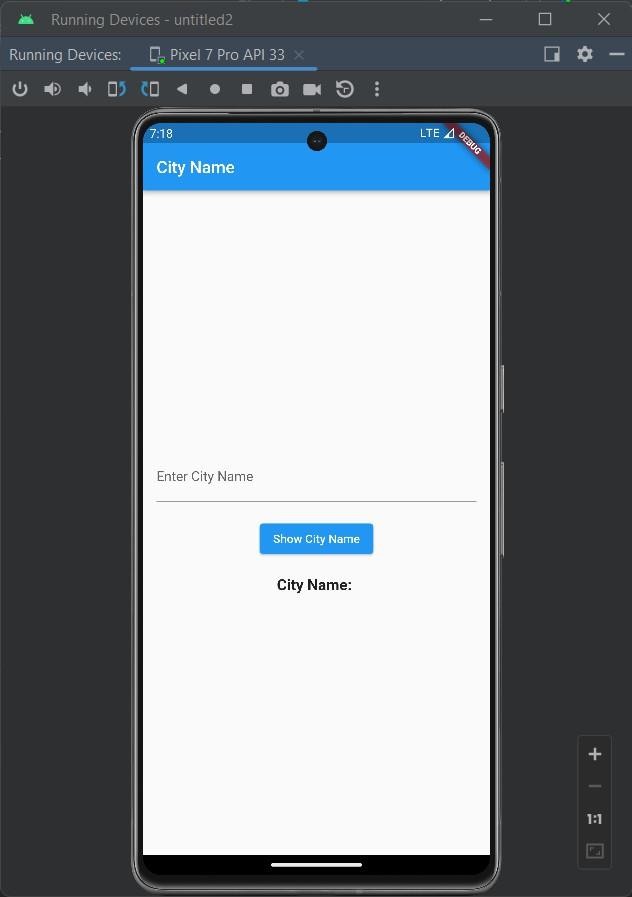
style: TextStyle(fontSize: 18.0, fontWeight: FontWeight.bold),

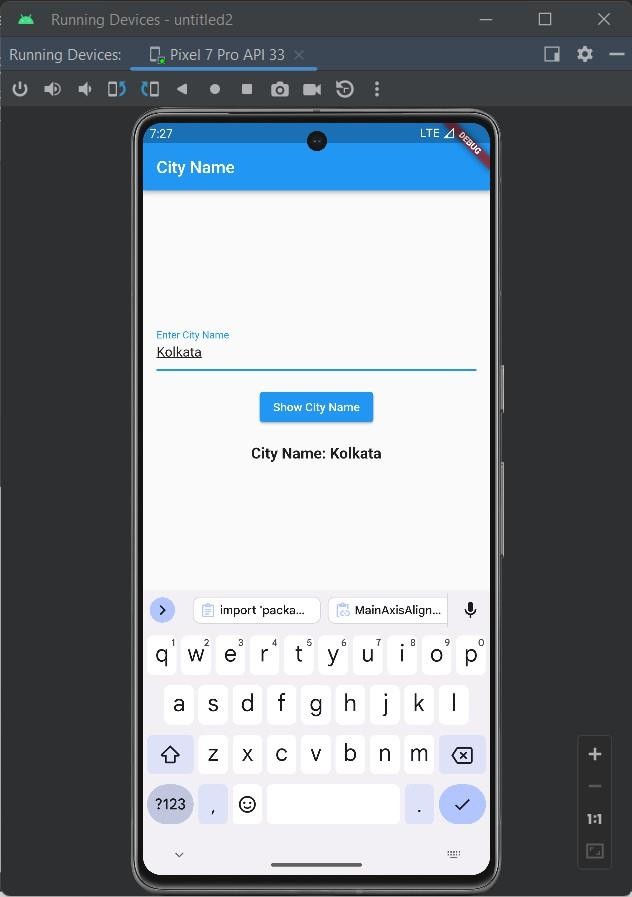
),

],

),),); }

}





# Write a Flutter program to change the background color(demonstrate stateful widget)

**Main.dart**

import 'package:flutter/material.dart import 'dart:math';

void main() { runApp(BackgroundColorApp());

}

class BackgroundColorApp extends StatelessWidget { @override

Widget build(BuildContext context) { return MaterialApp(

title: 'Background Color App', home: BackgroundColorScreen(),

);

}

}

class BackgroundColorScreen extends StatefulWidget { @override

\_BackgroundColorScreenState createState() => \_BackgroundColorScreenState();

}

class \_BackgroundColorScreenState extends State<BackgroundColorScreen> {

Color \_backgroundColor = Colors.white; // Set default color to white

void \_changeBackgroundColor() { setState(() {

\_backgroundColor = \_generateRandomColor();

});

}

Color \_generateRandomColor() { Random random = Random(); return Color.fromRGBO( random.nextInt(256), random.nextInt(256), random.nextInt(256),

1.0,

);

}

@override

Widget build(BuildContext context) { return Scaffold(

appBar: AppBar(

title: Text('Background Color'),

),

body: Container(

color: \_backgroundColor, child: Center(

child: Column(

mainAxisAlignment: MainAxisAlignment.center,

children: [ Text(

'Tap the button to change the background color!',

style: TextStyle(color: Colors.black), // Change text color for better visibility

),

SizedBox(height: 20.0), ElevatedButton(

onPressed: \_changeBackgroundColor, child: Text('Change Color'),

),

],

),

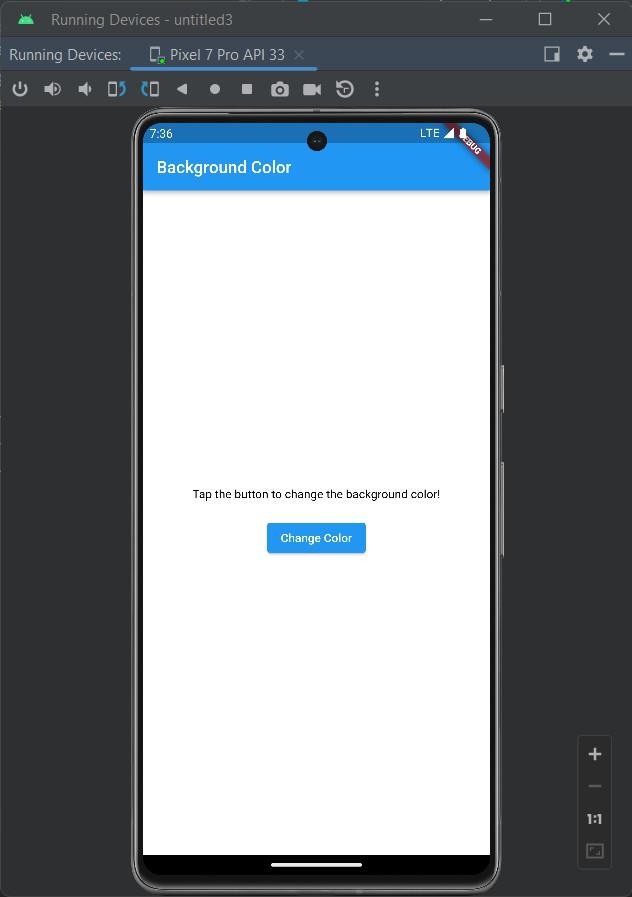
),

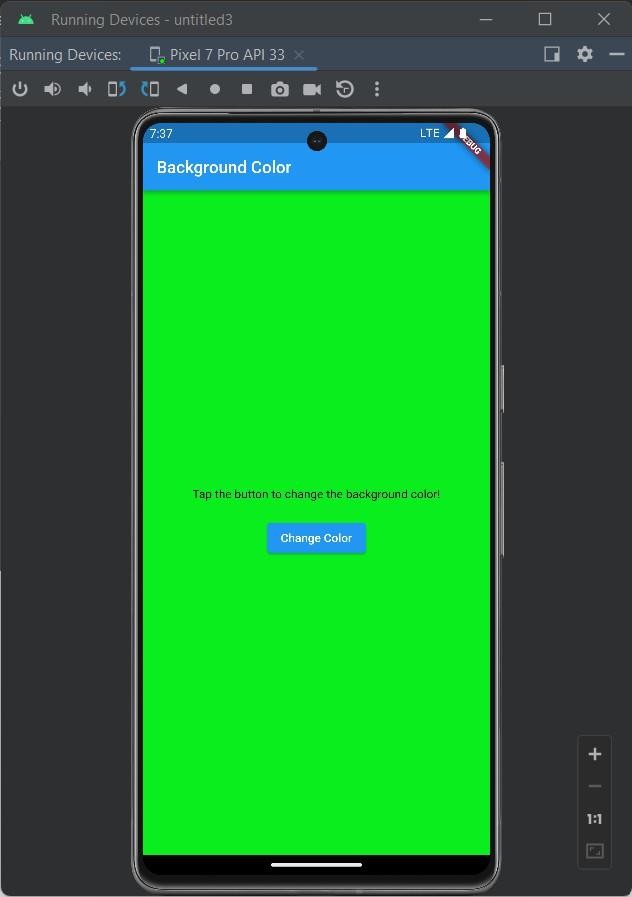
),

);

}

}





1. Write a Flutter program to demonstrate navigation(user should be navigated from first screen to second screen)

# Main.dart

import 'package:flutter/material.dart'; void main() {

runApp(NavigationApp());

}

class NavigationApp extends StatelessWidget { @override

Widget build(BuildContext context) { return MaterialApp(

title: 'Navigation Demo', initialRoute: '/',

routes: {

'/': (context) => FirstScreen(), '/second': (context) => SecondScreen(),

},

);

}

}

class FirstScreen extends StatelessWidget { @override

Widget build(BuildContext context) { return Scaffold(

appBar: AppBar(

title: Text('First Screen'),

),

body: Center(

child: ElevatedButton( onPressed: () {

Navigator.pushNamed(context, '/second');

},

child: Text('Go to Second Screen'),

),

),

);

}

}

TextField(

controller: \_passwordController, obscureText: true,

decoration: InputDecoration( labelText: 'Password',

),

),

SizedBox(height: 20.0), ElevatedButton( onPressed: \_login, child: Text('Login'),

), ],),),); }

}

class SecondScreen extends StatelessWidget { @override

Widget build(BuildContext context) { return Scaffold(

appBar: AppBar(

title: Text('Second Screen'),

),

body: Center(

child: ElevatedButton( onPressed: () {

Navigator.pop(context); // Go back to the first screen

},

child: Text('Go back to First Screen'),

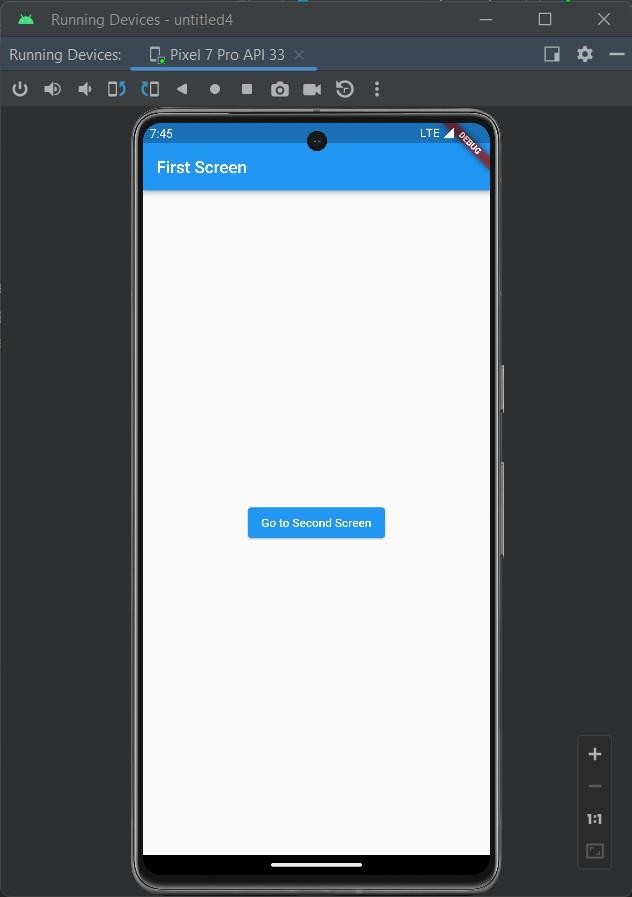
),

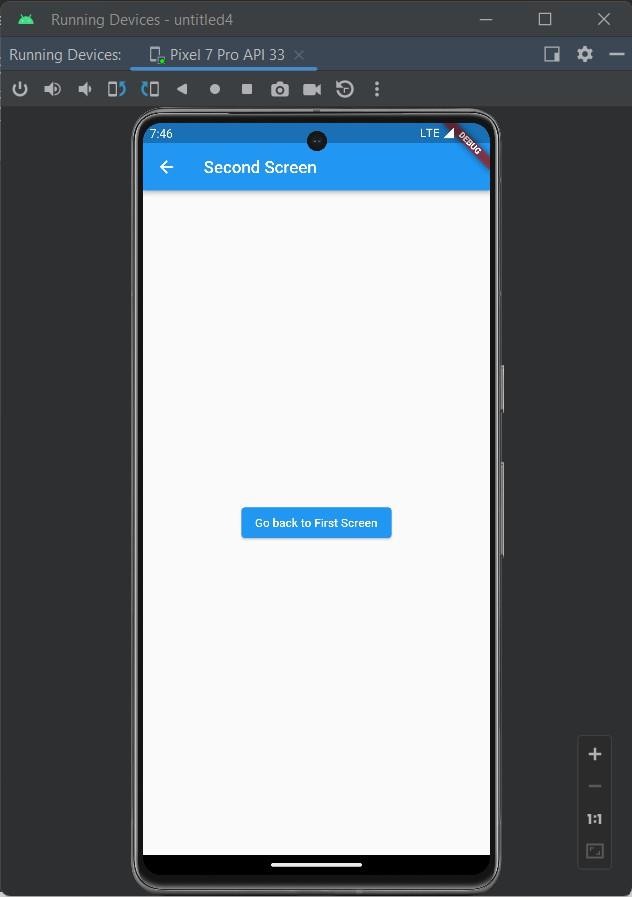
),

);

}

}





# Main.dart

import 'package:flutter/material.dart';

void main() { runApp(LoginApp());

}

class LoginApp extends StatelessWidget { @override

Widget build(BuildContext context) { return MaterialApp(

title: 'Login Form', home: LoginForm(),

);

}

}

class LoginForm extends StatefulWidget { @override

\_LoginFormState createState() => \_LoginFormState();

}

class \_LoginFormState extends State<LoginForm> { TextEditingController \_usernameController = TextEditingController(); TextEditingController \_passwordController = TextEditingController();

void \_login() {

String username = \_usernameController.text; String password = \_passwordController.text;

// Perform login authentication here

// For demonstration purposes, just print the credentials print('Username: $username');

print('Password: $password');

}

@override

Widget build(BuildContext context) { return Scaffold(

appBar: AppBar(

title: Text('Login Form C22096'),

),

body: Padding(

padding: const EdgeInsets.all(16.0), child: Column(

mainAxisAlignment: MainAxisAlignment.center, children: [

TextField(

controller: \_usernameController, decoration: InputDecoration( labelText: 'Username',

),

),

SizedBox(height: 20.0), TextField(

controller: \_passwordController, obscureText: true,

decoration: InputDecoration( labelText: 'Password',

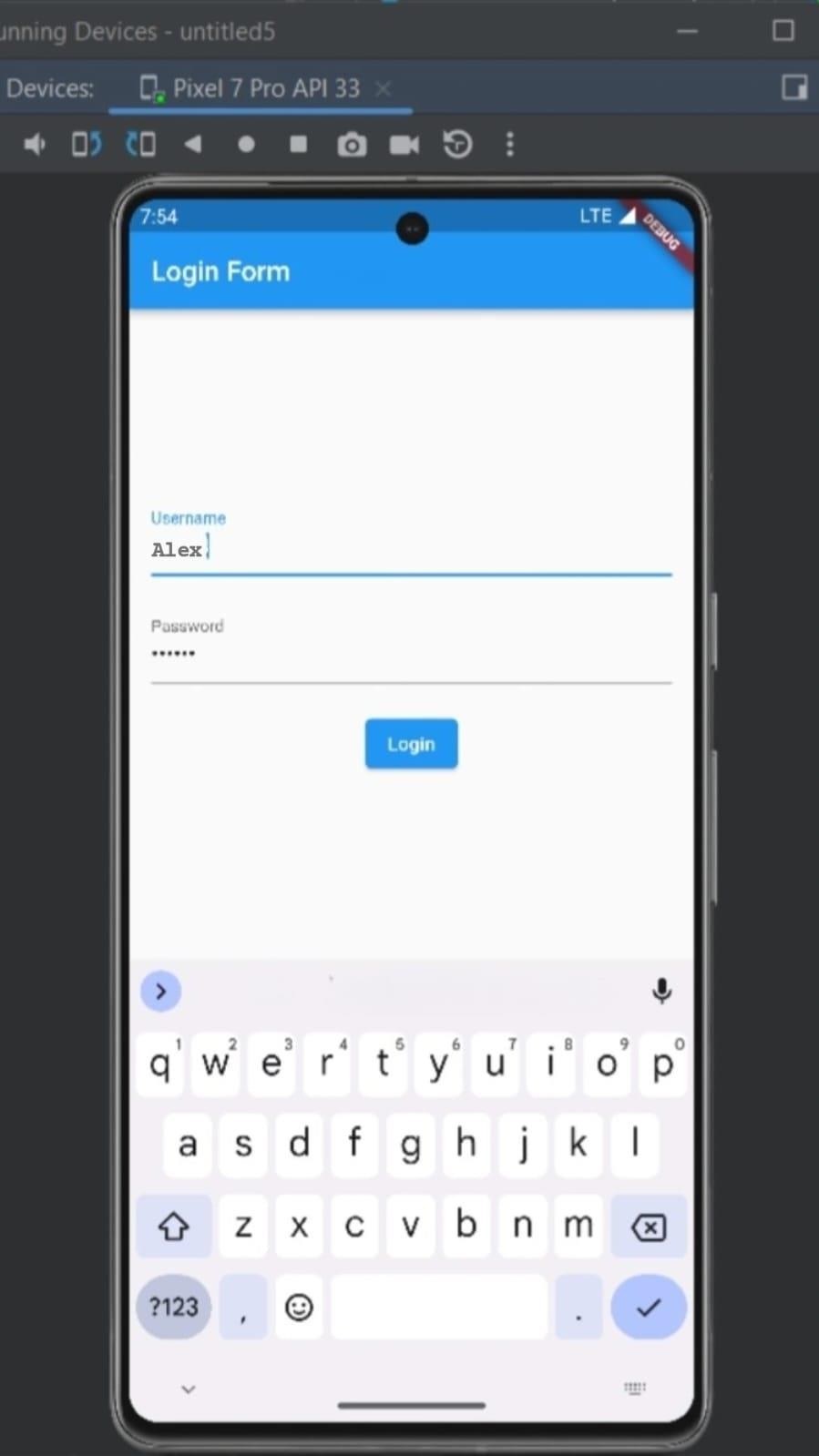
),

),

SizedBox(height: 20.0), ElevatedButton( onPressed: \_login, child: Text('Login'),

), ],),),); }

}



# Write a Flutter program based on RestAPI to fetch data.

**Main.dart**

import 'dart:convert';

import 'package:flutter/material.dart'; import 'package:http/http.dart' as http;

void main() { runApp(RestApiApp());

}

class RestApiApp extends StatelessWidget { @override

Widget build(BuildContext context) { return MaterialApp(

title: 'REST API Demo', home: RestApiScreen(),

);

}

}

class RestApiScreen extends StatefulWidget { @override

\_RestApiScreenState createState() => \_RestApiScreenState();

}

class \_RestApiScreenState extends State<RestApiScreen> { List<Post> posts = [];

Future<void> fetchData() async {

final response = await http.get(Uri.parse('https://jsonplaceholder.typicode.com/posts'));

if (response.statusCode == 200) {

// If the server returns a 200 OK response, parse the data List<dynamic> data = json.decode(response.body); setState(() {

posts = data.map((item) => Post.fromJson(item)).toList();

});

} else {

// If the server did not return a 200 OK response, throw an exception. throw Exception('Failed to load data');

}

}

@override void

initState() { super.initState(); fetchData();

}

@override

Widget build(BuildContext context) { return Scaffold(

appBar: AppBar(

title: Text('REST API Demo'),

),

body: ListView.builder( itemCount: posts.length, itemBuilder: (context, index) { return ListTile(

title: Text(posts[index].title), subtitle: Text(posts[index].body),

);

},

),

);

}

}

class Post { final int id;

final String title; final String body;

Post({required this.id, required this.title, required this.body}); factory Post.fromJson(Map<String, dynamic> json) {

return Post( id: json['id'],

title: json['title'], body: json['body'],

);

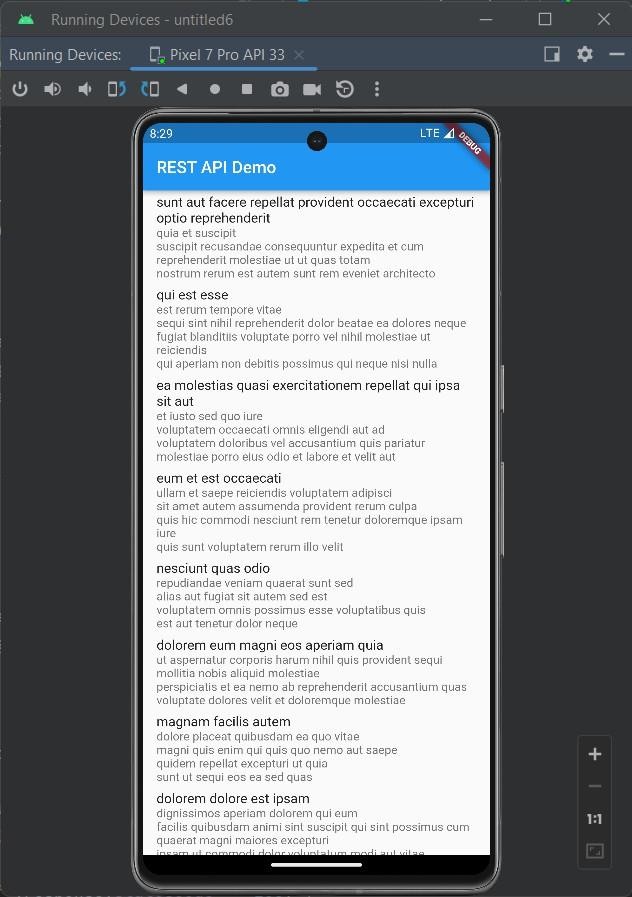
}

}

Pubsec.yaml

dependencies: flutter:

sdk: flutter http: ^0.13.3 Common Output



# Write a flutter program to demonstrate JSON serialization and Deserialization

**Main.dart**

import 'package:flutter/material.dart'; import 'dart:convert';

void main() { runApp(JsonSerializationApp());

}

class JsonSerializationApp extends StatelessWidget { @override

Widget build(BuildContext context) { return MaterialApp(

title: 'JSON Serialization Demo', home: JsonSerializationScreen(),

);

}

}

class JsonSerializationScreen extends StatefulWidget { @override

\_JsonSerializationScreenState createState() => \_JsonSerializationScreenState();

}

class \_JsonSerializationScreenState extends State<JsonSerializationScreen> { User user = User(id: 1, name: 'John Doe', email: ['john@example.com');](mailto:%27john@example.com) String jsonUser = '';

void serializeUser() { setState(() {

jsonUser = jsonEncode(user);

});

}

void deserializeUser() { setState(() {

user = User.fromJson(jsonDecode(jsonUser));

});

}

@override

Widget build(BuildContext context) {

return Scaffold( appBar: AppBar(

title: Text('JSON Serialization Demo'),

),

body: Padding

padding: const EdgeInsets.all(16.0), child: Column(

mainAxisAlignment: MainAxisAlignment.center, children: [

Text('User Details: ${user.toString()}'), SizedBox(height: 20.0), ElevatedButton(

onPressed: serializeUser,

child: Text('Serialize User to JSON'),

),

SizedBox(height: 20.0), ElevatedButton(

onPressed: deserializeUser,

child: Text('Deserialize JSON to User'),

),

SizedBox(height: 20.0), Text('Serialized User: $jsonUser'),

],

),

),

);

}

}

class User { final int id;

final String name; final String email;

User({required this.id, required this.name, required this.email}); Map<String, dynamic> toJson() {

,

'name': name, 'email': email,

};

}

factory User.fromJson(Map<String, dynamic> json) { return User(

id: json['id'],

name: json['name'], email: json['email'],

);

}

@override

String toString() {

return 'User{id: $id, name: $name, email: $email}';

}

}

