1. **Write an Android program to demonstrate Android lifecycle.**

package com.arun;  
  
import androidx.appcompat.app.AppCompatActivity; import android.util.Log;  
import android.os.Bundle;  
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 onResume() { super.onResume(); Log.*d*("lifecycle","onResume invoked");  
 }  
 @Override  
 protected void onPause() { super.onPause(); Log.*d*("lifecycle","onPause invoked");  
 }  
 @Override  
 protected void 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");  
 }  
}

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:tools="http://schemas.android.com/tools" android:layout\_width="match\_parent" android:layout\_height="match\_parent" tools:context=".MainActivity">  
 <TextView android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Activity Lifecycle" />  
</RelativeLayout>

**Output :> log search “lifecycle”**

1. **Write an Android program to demonstrate Working with checkbox**

package com.arun;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
import android.view.Menu;  
import android.view.View;  
import android.widget.Button;  
import android.widget.CheckBox;  
import android.widget.Toast;  
import android.view.View.OnClickListener;  
  
public class MainActivity extends AppCompatActivity {  
 CheckBox Pizza, Coffee, Burger;  
 Button Button1;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 addListenerOnButtonClick();  
 }  
  
 public void addListenerOnButtonClick() {  
 Pizza = (CheckBox)  
 findViewById(R.id.*checkBox*);  
 Coffee = (CheckBox) findViewById(R.id.*checkBox2*);  
 Burger = (CheckBox) findViewById(R.id.*checkBox3*);  
 Button1 = (Button) findViewById(R.id.*button*);  
  
 Button1.setOnClickListener(new OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 int totalamount = 0;  
 StringBuilder result = new  
 StringBuilder();  
 result.append("Selected Items: ");  
 if (Pizza.isChecked()) {  
 result.append("\nPizza 10$");  
 totalamount += 10;  
 }  
 if (Coffee.isChecked()) {  
 result.append("\nCoffee 3$");  
 totalamount += 3;  
 }  
 if (Burger.isChecked()) {  
 result.append("\nBurger 6$");  
 totalamount += 6;  
 }  
 result.append("\nTotal amount: " + totalamount + "$");  
  
 Toast.*makeText*(getApplicationContext(), result.toString(), Toast.*LENGTH\_LONG*).show();  
 }  
 });  
 }  
}

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
  
 <CheckBox  
 android:id="@+id/checkBox"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Pizza" />  
  
 <CheckBox  
 android:id="@+id/checkBox2"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_toRightOf="@id/checkBox"  
 android:text="Coffee" />  
  
 <CheckBox  
 android:id="@+id/checkBox3"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_toRightOf="@id/checkBox2"  
 android:text="Burger" />  
  
 <Button  
 android:id="@+id/button"  
 android:layout\_width="108dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@id/checkBox3"  
 android:layout\_marginTop="73dp"  
 android:text="Order" />  
</RelativeLayout>

1. **Write an Android program to demonstrate Working with radio group and radio buttons. On click of Radio button Background color should get change and also Temperatures get converted into appropriate format.**

package com.arun;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.graphics.Color;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.EditText;  
import android.widget.LinearLayout;  
import android.widget.RadioButton;  
import android.widget.TextView;  
  
public class MainActivity extends AppCompatActivity {  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 }  
  
 public void add(View tv) {  
 LinearLayout l1 = (LinearLayout) findViewById(R.id.*l1*);  
 TextView result = (TextView) findViewById(R.id.*tv2*);  
 EditText et1 = (EditText) findViewById(R.id.*et1*);  
 double a = Double.*parseDouble*(String.*valueOf*(et1.getText()));  
  
 RadioButton cb = (RadioButton) findViewById(R.id.*rd*);  
 RadioButton fb = (RadioButton) findViewById(R.id.*rd1*);  
 if (cb.isChecked()) {  
 l1.setBackgroundColor(Color.*GREEN*);  
 result.setText(f2c(a) + " degree Celsius");  
 } else {  
 l1.setBackgroundColor(Color.*RED*);  
 result.setText(f2c(a) + " degree Fahrenheit");  
 }  
 }  
  
 private double c2f(double c) {  
 return (c \* 9) / 5 + 32;  
 }  
  
 private double f2c(double f) {  
 return (f - 32) \* 5 / 9;  
 }  
}

<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/tool s"  
 android:id="@+id/l1"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:orientation="vertical"  
 tools:context=".MainActivity">  
  
 <LinearLayout  
 android:id="@+id/l2"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal">  
  
 <TextView  
 android:id="@+id/tv"  
 android:layout\_width="99dp"  
 android:layout\_height="39dp"  
 android:text="Enter value"  
 tools:layout\_editor\_absoluteX="37dp"  
 tools:layout\_editor\_absoluteY="224dp"  
  
 />  
  
 <EditText  
 android:id="@+id/et1"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:inputType="textPersonName"  
 android:text=""  
 tools:layout\_editor\_absoluteX="158dp"  
 tools:layout\_editor\_absoluteY="219dp" />  
 </LinearLayout>  
  
 <RadioGroup  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 tools:layout\_editor\_absoluteX="71dp"  
 tools:layout\_editor\_absoluteY="316dp">  
  
 <RadioButton  
 android:id="@+id/rd"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Celcuis" />  
  
 <RadioButton  
 android:id="@+id/rd1"  
 android:layout\_width="114dp"  
 android:layout\_height="wrap\_content"  
 android:text="Fahrenheit" />  
  
 <Button  
 android:id="@+id/btn"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:onClick="add"  
 android:text="Button"  
 tools:layout\_editor\_absoluteX="158dp"  
 tools:layout\_editor\_absoluteY="457dp" />  
 </RadioGroup>  
  
 <TextView  
 android:id="@+id/tv2"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Answer"  
 tools:layout\_editor\_absoluteX="82dp"  
 tools:layout\_editor\_absoluteY="519dp" />  
</LinearLayout>

**Output:> enter number in field like 99 and select radio**

1. **Write an Android program to demonstrate Date and time picker.**

**DATE PICKER**

package com.arun;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
import android.widget.DatePicker;  
import android.widget.Toast;  
  
public class MainActivity extends AppCompatActivity {  
 DatePicker simpleDatePicker;  
 Button submit;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 simpleDatePicker = (DatePicker) findViewById(R.id.*simpleDatePicker*);  
 submit = (Button) findViewById(R.id.*submitButton*);  
 submit.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 String day = "Day = " + simpleDatePicker.getDayOfMonth();  
 String month = "Month = " + (simpleDatePicker.getMonth() + 1);  
 String year = "Year = " + simpleDatePicker.getYear();  
 Toast.*makeText*(getApplicationContext(), day + "\n" + month + "\n" + year, Toast.*LENGTH\_LONG*).show();  
 }  
 });  
 }  
}

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
  
 <DatePicker  
 android:id="@+id/simpleDatePicker"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:background="#AEDF68"  
 android:datePickerMode="spinner" />  
  
 <Button  
 android:id="@+id/submitButton"  
 android:layout\_width="200dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/simpleDatePicker"  
 android:layout\_centerHorizontal="true"  
 android:layout\_marginTop="50dp"  
 android:background="#138195"  
 android:text="SUBMIT"  
 android:textColor="#fff"  
 android:textSize="20sp"  
 android:textStyle="bold" />  
</RelativeLayout>

**TIME PICKER**

package com.arun;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
import android.widget.TextView;  
import android.widget.TimePicker;  
import android.widget.Toast;  
  
public class MainActivity extends AppCompatActivity {  
 TextView time;  
 TimePicker simpleTimePicker;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 time = (TextView) findViewById(R.id.*time*);  
 simpleTimePicker = (TimePicker) findViewById(R.id.*simpleTimePicker*);  
 simpleTimePicker.setIs24HourView(false);  
  
 simpleTimePicker.setOnTimeChangedListener(new TimePicker.OnTimeChangedListener() {  
 @Override  
 public void onTimeChanged(TimePicker view, int hourOfDay, int minute) {  
 Toast.*makeText*(getApplicationContext(), hourOfDay + " " + minute,  
  
 Toast.*LENGTH\_SHORT*).show();  
 time.setText("Time is :" + hourOfDay + " :" + minute);  
  
 }  
 });  
 }  
}

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
  
 <TimePicker  
 android:id="@+id/simpleTimePicker"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_centerHorizontal="true"  
 android:layout\_marginTop="50dp"  
 android:background="#090"  
 android:padding="20dp"  
 android:timePickerMode="spinner" />  
  
 <TextView  
 android:id="@+id/time"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_centerHorizontal="true"  
 android:text="Time Is ::"  
 android:textColor="#090"  
 android:textSize="20sp"  
 android:textStyle="bold" />  
</RelativeLayout>

1. **Write an Android program Using UI components to create feedback form.**

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
  
 <TableLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent">  
  
 <TableRow  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent">  
  
 <TextView  
 android:id="@+id/textView"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:fontFamily="sans-serif-black"  
 android:text="Name"  
 android:textAllCaps="false"  
 android:textColor="#42271F"  
 android:textSize="16sp"  
 android:textStyle="bold" />  
  
 <EditText  
 android:id="@+id/editText"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:inputType="textPersonName" />  
 </TableRow>  
  
 <TableRow  
  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent">  
  
 <TextView  
 android:id="@+id/textView1"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:fontFamily="sans-serif-black"  
 android:text="Address"  
 android:textAllCaps="false"  
 android:textColor="#42271F"  
 android:textSize="16sp"  
 android:textStyle="bold" />  
  
 <EditText  
  
 android:id="@+id/editTextTextMultiLine"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:gravity="start|top"  
 android:inputType="textMultiLine" />  
 </TableRow>  
  
 <TableRow  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent">  
  
 <TextView  
 android:id="@+id/textView3"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:fontFamily="sans-serif-black"  
 android:text="E-Mail ID"  
 android:textAllCaps="false"  
 android:textColor="#42271F"  
 android:textSize="16sp"  
 android:textStyle="bold" />  
  
 <EditText  
 android:id="@+id/editText3"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:inputType="textPersonName" />  
 </TableRow>  
  
 <TableRow>  
  
 <TextView  
 android:id="@+id/textView4"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:fontFamily="sans-serif-black"  
 android:text="Contact"  
 android:textAllCaps="false"  
 android:textColor="#42271F"  
 android:textSize="16sp"  
 android:textStyle="bold" />  
  
 <EditText  
 android:id="@+id/editText4"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:inputType="textPersonName" />  
 </TableRow>  
  
 <TableRow  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent">  
  
 <TextView  
 android:id="@+id/textView5"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_gravity="center\_vertical"  
 android:fontFamily="sans-serif-black"  
 android:gravity="center\_vertical"  
 android:text="Gender"  
 android:textAllCaps="false"  
 android:textColor="#42271F"  
 android:textSize="16sp"  
 android:textStyle="bold" />  
  
 <RadioGroup  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content">  
  
 <RadioButton  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Male" />  
  
 <RadioButton  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Female" />  
 </RadioGroup>  
 </TableRow>  
  
 <LinearLayout>  
  
 <TableRow  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent">  
  
 <TextView  
 android:id="@+id/textView6"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:fontFamily="sans-serif-black"  
 android:text="Hobbies"  
 android:textAllCaps="false"  
 android:textColor="#42271F"  
 android:textSize="16sp"  
 android:textStyle="bold" />  
  
 <CheckBox  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Playing" />  
  
 <CheckBox  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Dancing" />  
  
 <CheckBox  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Singing" />  
  
 <CheckBox  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Reading" />  
 </TableRow>  
 </LinearLayout>  
  
 <TableRow  
  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent">  
  
 <TextView  
 android:id="@+id/textView7"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:fontFamily="sans-serif-black"  
 android:text="Suggestion"  
 android:textAllCaps="false"  
 android:textColor="#42271F"  
 android:textSize="16sp"  
 android:textStyle="bold" />  
  
 <EditText  
 android:id="@+id/editText5"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content" />  
 </TableRow>  
  
 <TableRow  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent">  
  
 <TextView  
 android:id="@+id/textView8"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:fontFamily="sans-serif-black"  
 android:text="Rating"  
 android:textAllCaps="false"  
 android:textColor="#42271F"  
 android:textSize="16sp"  
 android:textStyle="bold" />  
  
 <RatingBar  
 android:id="@+id/ratingBar"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content" />  
 </TableRow>  
  
 <TableRow  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:layout\_gravity="center\_horizontal"  
 android:gravity="center\_horizontal">  
  
 <Button  
 android:id="@+id/button"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
  
 android:layout\_gravity="center\_horizontal"  
 android:backgroundTint="#A4F842"  
 android:text="Submit" />  
 </TableRow>  
 </TableLayout>  
</RelativeLayout>

1. **Write an Android program to create login form using Intent. For successful login, display welcome page and attempts made. Disable the submit button after 3 wrong attempts. (Use image view to display image logo).**

**MainActivity**

package com.arun;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.content.Intent;  
import android.view.View;  
import android.widget.Button;  
import android.widget.EditText;  
import android.widget.TextView;  
import android.os.Bundle;  
  
public class MainActivity extends AppCompatActivity {  
 EditText user, pass;  
 TextView counter;  
 int count = 0;  
 Button login;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 counter = (TextView) findViewById(R.id.*txtcounter*)  
 ;  
 user = (EditText) findViewById(R.id.*usr*);  
 pass = (EditText) findViewById(R.id.*pass*);  
 login = (Button) findViewById(R.id.*btn*);  
 login.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 if (user.getText().toString().equals("admin") && pass.getText().toString().equals("admin")) {  
 startActivity(new Intent(MainActivity.this, Welcome.class));  
 } else {  
 count++;  
 counter.setText(String.*valueOf*(count));  
 if (count == 3) {  
 login.setEnabled(false);  
 }  
 }  
 }  
 });  
 }  
}

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_height="match\_parent"  
 android:layout\_width="match\_parent"  
 tools:context=".MainActivity">  
  
 <TableRow  
 android:id="@+id/r1"  
 android:layout\_centerHorizontal="true"  
 android:layout\_height="103dp"  
 android:layout\_marginTop="50dp"  
 android:layout\_width="match\_parent"  
 android:padding="10dp">  
  
 <ImageView  
 android:id="@+id/imageView"  
 android:layout\_height="77dp"  
 android:layout\_width="wrap\_content"  
 android:src="@drawable/image" />  
  
 <TextView  
 android:id="@+id/textView"  
 android:layout\_gravity="center"  
 android:layout\_height="wrap\_content"  
 android:layout\_width="wrap\_content"  
 android:text="Login Page"  
 android:textAlignment="center"  
 android:textColor="@color/teal\_200"  
 android:textSize="48sp" />  
 </TableRow>  
  
 <TableRow  
 android:id="@+id/r2"  
 android:layout\_below="@id/r1"  
 android:layout\_centerHorizontal="true"  
 android:layout\_height="wrap\_content"  
 android:layout\_width="wrap\_content"  
 android:padding="10dp">  
  
 <TextView  
 android:id="@+id/textView2"  
 android:layout\_height="wrap\_content"  
 android:layout\_width="wrap\_content"  
 android:text="UserName"  
 android:textSize="16sp" />  
  
 <EditText  
 android:ems="10"  
 android:id="@+id/usr"  
 android:inputType="textPersonName"  
 android:layout\_height="wrap\_content"  
 android:layout\_width="wrap\_content" />  
 </TableRow>  
  
 <TableRow  
 android:id="@+id/r3"  
 android:layout\_below="@id/r2"  
 android:layout\_centerHorizontal="true"  
 android:layout\_height="wrap\_content"  
 android:layout\_width="wrap\_content"  
  
 android:padding="10dp">  
  
 <TextView  
 android:id="@+id/textView3"  
 android:layout\_height="wrap\_content"  
 android:layout\_width="wrap\_content"  
 android:text="Password"  
 android:textSize="16sp" />  
  
 <EditText  
 android:ems="10"  
 android:id="@+id/pass"  
 android:inputType="textPersonName|textPassword"  
 android:layout\_height="wrap\_content"  
 android:layout\_width="wrap\_content" />  
 </TableRow>  
  
 <TableRow  
 android:id="@+id/r4"  
 android:layout\_below="@id/r3"  
 android:layout\_centerHorizontal="true"  
 android:layout\_height="wrap\_content"  
 android:layout\_width="wrap\_content"  
 android:padding="10dp">  
  
 <Button  
 android:background="#0D24A3"  
 android:backgroundTint="#E91E63"  
 android:id="@+id/btn"  
 android:layout\_height="wrap\_content"  
 android:layout\_width="298dp"  
 android:text="Login"  
 android:textSize="16sp" />  
 </TableRow>  
  
 <TableRow  
 android:id="@+id/r5"  
 android:layout\_below="@id/r4"  
 android:layout\_centerHorizontal="true"  
 android:layout\_height="wrap\_content"  
 android:layout\_width="wrap\_content"  
 android:padding="10dp">  
  
 <TextView  
 android:id="@+id/textView4"  
 android:layout\_height="wrap\_content"  
 android:layout\_width="wrap\_content"  
 android:text="Invalid Attempt"  
 android:textSize="16sp" />  
  
 <TextView  
 android:id="@+id/txtcounter"  
 android:layout\_height="wrap\_content"  
 android:layout\_width="59dp"  
 android:textSize="16sp" />  
 </TableRow>  
</RelativeLayout>

**Welcome**

package com.arun;  
  
import android.os.Bundle;  
import android.widget.Toast;  
  
public class Welcome extends MainActivity {  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_welcome*);  
 Toast.*makeText*(this, "This is New Activity", Toast.*LENGTH\_SHORT*).show();  
 }  
}

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout 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">  
  
 <TextView  
 android:id="@+id/textView5"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Welcome to new activity"  
 android:textSize="20sp"  
 tools:layout\_editor\_absoluteX="125dp"  
 tools:layout\_editor\_absoluteY="203dp" />  
</RelativeLayout>

1. **Write an Android program to create Registration form with all the details displayed on next page on click of submit button using intent.**

**MainActivity**

package com.arun;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.content.Intent;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.ArrayAdapter;  
import android.widget.Button;  
import android.widget.CheckBox;  
import android.widget.EditText;  
import android.widget.RadioButton;  
import android.widget.Spinner;  
  
public class MainActivity extends AppCompatActivity {  
 EditText name, addr, email, contact;  
 CheckBox playing, singing, dancing, reading;  
 Button submit;  
 RadioButton male, female;  
 Spinner city;  
 String name1, addr1, email1, contact1, gender1, city1, hobbies1;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 name = (EditText) findViewById(R.id.*name*);  
 addr = (EditText) findViewById(R.id.*addr*);  
 email = (EditText) findViewById(R.id.*email*);  
 contact = (EditText) findViewById(R.id.*contact*);  
 male = (RadioButton) findViewById(R.id.*Male*);  
 female = (RadioButton) findViewById(R.id.*Female*);  
 playing = (CheckBox) findViewById(R.id.*Playing*);  
 singing = (CheckBox) findViewById(R.id.*Singing*);  
 dancing = (CheckBox) findViewById(R.id.*Dancing*);  
 submit = (Button) findViewById(R.id.*submit*);  
 city = (Spinner) findViewById(R.id.*city*);  
 Spinner spinner = (Spinner) findViewById(R.id.*city*);  
  
 ArrayAdapter<CharSequence> adapter = ArrayAdapter.*createFromResource*(this, R.array.*city*, android.R.layout.*simple\_spinner\_item*);  
  
 adapter.setDropDownViewResource(android.R.layout.*simple\_spinner\_dropdown\_item*);  
 spinner.setAdapter(adapter);  
 submit.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 name1 = name.getText().toString();  
 email1 = email.getText().toString();  
 contact1 = contact.getText().toString();  
 addr1 = addr.getText().toString();  
 if (male.isChecked())  
 gender1 = male.getText().toString();  
 else if (female.isChecked())  
 gender1 = female.getText().toString();  
  
 playing.setOnClickListener((View.OnClickListener) this);  
 singing.setOnClickListener((View.OnClickListener) this);  
 dancing.setOnClickListener((View.OnClickListener) this);  
 StringBuilder hobby = new StringBuilder();  
 if (playing.isChecked()) {  
 hobby.append(playing.getText().toString());  
 }  
 if (singing.isChecked()) {  
 hobby.append(singing.getText().toString());  
 }  
 if (dancing.isChecked()) {  
 hobby.append(dancing.getText().toString());  
 }  
 city1 = city.getSelectedItem().toString();  
 Intent it = new Intent(MainActivity.this, Data.class);  
 it.putExtra("name", name1);  
 it.putExtra("email", email1);  
 it.putExtra("address", addr1);  
 it.putExtra("contact", contact1);  
 it.putExtra("gender", gender1);  
 it.putExtra("Hobbies", hobby.toString());  
 it.putExtra("city", city1);  
 startActivity(it);  
 }  
 });  
 }  
}

<?xml version="1.0" encoding="utf-8"?>  
<TableLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:layout\_centerHorizontal="true"  
 android:background="#FFFF2F"  
 android:backgroundTint="#2FFFFF"  
 android:orientation="vertical"  
 android:paddingLeft="10dp"  
 tools:context=".MainActivity">  
  
 <TableRow  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent">  
  
 <TextView  
 android:id="@+id/textView"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Registration Form" />  
 </TableRow>  
  
 <TableRow  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent">  
  
 <TextView  
 android:id="@+id/textView1"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Name" />  
  
 <EditText  
 android:id="@+id/name"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:inputType="textPersonName" />  
 </TableRow>  
  
 <TableRow  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent">  
  
 <TextView  
 android:id="@+id/textView2"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Email" />  
  
 <EditText  
 android:id="@+id/email"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:inputType="textPersonName" />  
 </TableRow>  
  
 <TableRow  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent">  
  
 <TextView  
  
 android:id="@+id/textView3"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Address" />  
  
 <EditText  
 android:id="@+id/addr"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:inputType="textPersonName" />  
 </TableRow>  
  
 <TableRow  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent">  
  
 <TextView  
 android:id="@+id/textView4"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Contact" />  
  
 <EditText  
 android:id="@+id/contact"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:inputType="textPersonName" />  
 </TableRow>  
  
 <TableRow  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginBottom="10dp">  
  
 <TextView  
 android:id="@+id/textView5"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_gravity="center\_vertical"  
 android:text="Gender"  
 android:textColor="@color/black"  
 android:textSize="16sp"  
 android:textStyle="bold" />  
  
 <RadioGroup  
 android:id="@+id/gender"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content">  
  
 <RadioButton  
 android:id="@+id/Male"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:backgroundTint="#F8A9A9"  
 android:text="Male"  
 android:textColor="@color/black" />  
  
 <RadioButton  
 android:id="@+id/Female"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Female"  
 android:textColor="@color/black" />  
 </RadioGroup>  
 </TableRow>  
  
 <TableRow  
 android:layout\_width="wrap\_content"  
  
 android:layout\_height="match\_parent"  
 android:layout\_marginBottom="20dp">  
  
 <TextView  
 android:id="@+id/textView6"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Hobbies"  
 android:textColor="@color/black"  
 android:textSize="16sp"  
 android:textStyle="bold" />  
  
 <TableRow  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent">  
  
 <CheckBox  
 android:id="@+id/Playing"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Playing"  
 android:textColor="@color/black" />  
  
 <CheckBox  
 android:id="@+id/Dancing"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Dancing"  
 android:textColor="@color/black" />  
  
 <CheckBox  
 android:id="@+id/Singing"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Sigining"  
 android:textColor="@color/black" />  
 </TableRow>  
 </TableRow>  
  
 <TableRow  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:layout\_marginBottom="10dp">  
  
 <TextView  
 android:id="@+id/textView7"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="City"  
 android:textColor="@color/black"  
 android:textSize="16sp"  
 android:textStyle="bold" />  
  
 <Spinner  
 android:id="@+id/city"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content" />  
 </TableRow>  
  
 <TableRow  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:gravity="center\_horizontal">  
  
 <Button  
 android:id="@+id/submit"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:backgroundTint="#CE6ADF"  
 android:text="Submit"  
 android:textColor="@color/black" />  
 </TableRow>  
</TableLayout>

**Data**

package com.arun;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
import android.widget.TextView;  
  
public class Data extends AppCompatActivity {  
 TextView name, addr, email, contact, gender, city, hobbies;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_data*);  
 name = (TextView) findViewById(R.id.*dname*);  
 email = (TextView) findViewById(R.id.*demail*);  
 addr = (TextView) findViewById(R.id.*daddr*);  
 contact = (TextView) findViewById(R.id.*dcontact*);  
 gender = (TextView) findViewById(R.id.*dgender*);  
 hobbies = (TextView) findViewById(R.id.*dhobbies*);  
 city = (TextView) findViewById(R.id.*dcity*);  
 String name1 = getIntent().getStringExtra("name");  
 String email1 = getIntent().getStringExtra("email");  
 String addr1 = getIntent().getStringExtra("address");  
 String contact1 = getIntent().getStringExtra("contact");  
 String gender1 = getIntent().getStringExtra("gender");  
 String city1 = getIntent().getStringExtra("city");  
 name.setText("Name: " + name1);  
 addr.setText("Address: " + addr1);  
 contact.setText("Contact: " + contact1);  
 email.setText("Email: " + email1);  
 gender.setText("Gender: " + gender1);  
 hobbies.setText("Hobbies: " + getIntent().getStringExtra(" Hobbies"));  
 city.setText(" City:" + city1);  
 }  
}

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_height="match\_parent"  
 android:layout\_width="match\_parent"  
 android:padding="30dp"  
 tools:context=".Data">  
  
 <TextView  
 android:id="@+id/dname"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="10dp"  
 android:layout\_width="wrap\_content" />  
  
 <TextView  
 android:id="@+id/demail"  
 android:layout\_below="@id/dname"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="10dp"  
 android:layout\_width="wrap\_content" />  
  
 <TextView  
 android:id="@+id/daddr"  
 android:layout\_below="@id/demail"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="10dp"  
 android:layout\_width="wrap\_content" />  
  
 <TextView  
 android:id="@+id/dcontact"  
 android:layout\_below="@id/daddr"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="10dp"  
 android:layout\_width="wrap\_content" />  
  
 <TextView  
 android:id="@+id/dgender"  
 android:layout\_below="@id/dcontact"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="10dp"  
 android:layout\_width="wrap\_content" />  
  
 <TextView  
 android:id="@+id/dhobbies"  
 android:layout\_below="@id/dgender"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="10dp"  
 android:layout\_width="wrap\_content" />  
  
 <TextView  
 android:id="@+id/dcity"  
 android:layout\_below="@id/dhobbies"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="10dp"  
 android:layout\_width="wrap\_content" />  
</RelativeLayout>

**String.xml**

<resources>  
 <string name="app\_name">1) Android lifecycle</string>  
 <string-array name="city">  
 <item>Mumbai</item>  
 <item>Chennai</item>  
 <item>Delhi</item>  
 <item>Bangalore</item>  
 </string-array>  
</resources>

1. **Write an Android program to demonstrate web view.**

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

package com.arun;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
import android.view.View;  
import android.webkit.WebView;  
import android.webkit.WebViewClient;  
import android.widget.Button;  
  
public class MainActivity extends AppCompatActivity implements View.OnClickListener {  
 WebView simpleWebView;  
 Button loadWebPage, loadFromStaticHtml;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 //initiate buttons and a web view  
 loadFromStaticHtml = (Button) findViewById(R.id.*loadFromStaticHtml*);  
 loadFromStaticHtml.setOnClickListener(this);  
 loadWebPage = (Button) findViewById(R.id.*loadWebPage*);  
 loadWebPage.setOnClickListener(this);  
 simpleWebView = (WebView) findViewById(R.id.*simpleWebView*);  
 }  
  
 public void onClick(View v) {  
 switch (v.getId()) {  
 case R.id.*loadFromStaticHtml*:  
 // define static html text  
 String customHtml = "<html><body><h1>My Name is Riya</h1>" +  
 "<h1>Riya Suvarna</h1><h2>Riya Suvarna</h2><h3>Riya Suvarna</h3>" + "<p>Hello Riya Suvarna</p>" + "</body></html>";  
 simpleWebView.loadData(customHtml, "text/html", "UTF-8");  
 break;  
 case R.id.*loadWebPage*:  
 simpleWebView.setWebViewClient(new MyWebViewClient());  
 String url = "https://www.google.com/";  
 simpleWebView.getSettings().setJavaScriptEnabled(true);  
 simpleWebView.loadUrl(url); // load a web page in a web view  
 break;  
 }  
 }  
  
 private class MyWebViewClient extends WebViewClient {  
 @Override  
 public boolean shouldOverrideUrlLoading(WebView view, String url) {  
 view.loadUrl(url);  
 return true;  
 }  
 }  
}

<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:orientation="vertical"  
 tools:context=".MainActivity">  
  
 <LinearLayout  
 android:layout\_width="fill\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal"  
 android:weightSum="2">  
  
 <Button  
 android:id="@+id/loadWebPage"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginRight="10dp"  
 android:layout\_weight="1"  
 android:background="#444"  
 android:text="Load Web Page"  
 android:textColor="#fff"  
 android:textSize="14sp"  
 android:textStyle="bold" />  
  
 <Button  
 android:id="@+id/loadFromStaticHtml"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginLeft="10dp"  
 android:layout\_weight="1"  
 android:background="#444"  
 android:text="Load Static HTML"  
 android:textColor="#fff"  
 android:textSize="14sp"  
 android:textStyle="bold" />  
 </LinearLayout>  
  
 <WebView  
 android:id="@+id/simpleWebView"  
 android:layout\_width="fill\_parent"  
 android:layout\_height="fill\_parent"  
 android:layout\_marginTop="20dp"  
 android:scrollbars="none" />  
</LinearLayout>

1. **Write an Android program to demonstrate calculator.**

package com.arun;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
import android.widget.EditText;  
import android.widget.TextView;  
import android.widget.Toast;  
  
public class MainActivity extends AppCompatActivity {  
 EditText num1, num2;  
 Button add, sub, mul, div;  
 TextView tvresult;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 num1 = (EditText) findViewById(R.id.*txt\_num1*);  
 num2 = (EditText) findViewById(R.id.*txt\_num2*);  
 add = (Button) findViewById(R.id.*btn\_add*);  
 sub = (Button) findViewById(R.id.*btn\_sub*);  
 mul = (Button) findViewById(R.id.*btn\_mul*);  
 div = (Button) findViewById(R.id.*btn\_div*);  
 tvresult = (TextView) findViewById(R.id.*result*);  
 add.setOnClickListener(view -> {  
 int n1, n2, result;  
 n1 = Integer.*parseInt*(num1.getText().toString());  
 n2 = Integer.*parseInt*(num2.getText().toString());  
 result = n1 + n2;  
 Toast.*makeText*(getApplicationContext(), String.*valueOf*(result), Toast.*LENGTH\_LONG*).show();  
 tvresult.setText(String.*valueOf*(result));  
 });  
 sub.setOnClickListener(view -> {  
 int n1, n2, result;  
 n1 = Integer.*parseInt*(num1.getText().toString());  
 n2 = Integer.*parseInt*(num2.getText().toString());  
 result = n1 - n2;  
 Toast.*makeText*(getApplicationContext(), String.*valueOf*(result), Toast.*LENGTH\_LONG*).show();  
 tvresult.setText(String.*valueOf*(result));  
 });  
 mul.setOnClickListener(view -> {  
 int n1, n2, result;  
 n1 = Integer.*parseInt*(num1.getText().toString());  
 n2 = Integer.*parseInt*(num2.getText().toString());  
 result = n1 \* n2;  
 Toast.*makeText*(getApplicationContext(), String.*valueOf*(result), Toast.*LENGTH\_LONG*).show();  
 tvresult.setText(String.*valueOf*(result));  
 });  
 div.setOnClickListener(view -> {  
 int n1, n2, result = 0;  
 try {  
 n1 = Integer.*parseInt*(num1.getText().toString());  
 n2 = Integer.*parseInt*(num2.getText().toString());  
 result = n1 / n2;  
 } catch (ArithmeticException e) {  
 Toast.*makeText*(getApplicationContext(), e.getMessage(), Toast.*LENGTH\_LONG*).show();  
 }  
 tvresult.setText(String.*valueOf*(result));  
 });  
 }  
}

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
 <LinearLayout  
 android:id="@+id/l1"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="vertical">  
 <EditText  
 android:id="@+id/txt\_num1"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:background="#FFBB86FC"  
 android:ems="18"  
 android:hint="Enter Number 1"  
 android:inputType="numberDecimal"  
 android:textSize="25dp"/>  
 <EditText  
 android:id="@+id/txt\_num2"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:background="#FF03DAC5"  
 android:ems="18"  
 android:hint="Enter Number 2"  
 android:inputType="numberDecimal"  
 android:textSize="25dp"/>  
 </LinearLayout>  
 <LinearLayout  
 android:id="@+id/l2"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@id/l1"  
 android:orientation="horizontal">  
 <Button  
 android:id="@+id/btn\_add"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="match\_parent"  
 android:backgroundTint="#A52A2A"  
 android:layout\_weight="1"  
 android:text="Add"/>  
 <Button  
 android:id="@+id/btn\_sub"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="match\_parent"  
 android:backgroundTint="#A52A2A"  
 android:layout\_weight="1"  
 android:text="Sub"/>  
 </LinearLayout>  
 <LinearLayout  
 android:id="@+id/l3"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@id/l2"  
 android:orientation="horizontal">  
 <Button  
 android:id="@+id/btn\_mul"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="match\_parent"  
 android:backgroundTint="#FFC0CB"  
 android:layout\_weight="1"  
 android:text="Mul"/>  
 <Button  
 android:id="@+id/btn\_div"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="match\_parent"  
 android:backgroundTint="#FFC0CB"  
 android:layout\_weight="1"  
 android:text="Div"/>  
 </LinearLayout>  
 <LinearLayout  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@id/l3"  
 android:id="@+id/l4">  
 <TextView  
 android:id="@+id/result"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:ems="18"  
 android:inputType="numberDecimal"  
 android:textSize="25dp"/>  
 </LinearLayout>  
</RelativeLayout>

1. **Advance Calculator:**

package com.arun;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
import android.widget.EditText;  
  
public class MainActivity extends AppCompatActivity {  
 Button b0, b1, b2, b3, b4, b5, b6, b7, b8, b9, badd, bsub, bmul, bdiv, bequal, bdot, bC, bAC;  
 EditText et1;  
 Double mvalOne, mValTwo;  
 boolean mAdd, mSub, mMul, mDiv;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 b0 = (Button) findViewById(R.id.*button0*);  
 b1 = (Button) findViewById(R.id.*button1*);  
 b2 = (Button) findViewById(R.id.*button2*);  
 b3 = (Button) findViewById(R.id.*button3*);  
 b4 = (Button) findViewById(R.id.*button4*);  
 b5 = (Button) findViewById(R.id.*button5*);  
 b6 = (Button) findViewById(R.id.*button6*);  
 b7 = (Button) findViewById(R.id.*button7*);  
 b8 = (Button) findViewById(R.id.*button8*);  
 b9 = (Button) findViewById(R.id.*button9*);  
 badd = (Button) findViewById(R.id.*sum*);  
 bsub = (Button) findViewById(R.id.*sub*);  
 bmul = (Button) findViewById(R.id.*mul*);  
 bdiv = (Button) findViewById(R.id.*div*);  
 bequal = (Button) findViewById(R.id.*cal*);  
 bdot = (Button) findViewById(R.id.*point*);  
 bC = (Button) findViewById(R.id.*c*);  
 bAC = (Button) findViewById(R.id.*ac*);  
 et1 = (EditText) findViewById(R.id.*editText1*);  
 b0.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 et1.setText(et1.getText() + "0");  
 }  
 });  
 b1.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 et1.setText(et1.getText() + "1");  
 }  
 });  
 b2.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 et1.setText(et1.getText() + "2");  
 }  
 });  
 b3.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 et1.setText(et1.getText() + "3");  
 }  
 });  
 b4.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 et1.setText(et1.getText() + "4");  
 }  
 });  
 b5.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 et1.setText(et1.getText() + "5");  
 }  
 });  
 b6.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 et1.setText(et1.getText() + "6");  
 }  
 });  
 b7.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 et1.setText(et1.getText() + "7");  
 }  
 });  
 b8.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 et1.setText(et1.getText() + "8");  
 }  
 });  
 b9.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 et1.setText(et1.getText() + "9");  
 }  
 });  
 badd.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 if (et1 == null) {  
 et1.setText("");  
 } else {  
 mvalOne = Double.*parseDouble*(et1.getText() + "");  
 mAdd = true;  
 et1.setText(null);  
 }  
 }  
 });  
 bsub.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 if (et1 == null) {  
 et1.setText("");  
 } else {  
 mvalOne = Double.*parseDouble*(et1.getText() + "");  
 mSub = true;  
 et1.setText(null);  
 }  
 }  
 });  
 bmul.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 if (et1 == null) {  
 et1.setText("");  
 } else {  
 mvalOne = Double.*parseDouble*(et1.getText() + "");  
 mMul = true;  
 et1.setText(null);  
 }  
 }  
 });  
 bdiv.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 if (et1 == null) {  
 et1.setText("");  
 } else {  
 mvalOne = Double.*parseDouble*(et1.getText() + "");  
 mDiv = true;  
 et1.setText(null);  
 }  
 }  
 });  
 bequal.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 mValTwo = Double.*parseDouble*(et1.getText() + "");  
 if (mAdd == true) {  
 et1.setText(mvalOne + mValTwo + "");  
 mAdd = false;  
 }  
 if (mSub == true) {  
 et1.setText(mvalOne - mValTwo + "");  
 mSub = false;  
 }  
 if (mMul == true) {  
 et1.setText(mvalOne \* mValTwo + "");  
 mMul = false;  
 }  
 if (mDiv == true) {  
 et1.setText(mvalOne / mValTwo + "");  
 mDiv = false;  
 }  
 }  
 });  
 bdot.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 et1.setText(et1.getText() + ".");  
 }  
 });  
 bC.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 et1.setText("");  
 }  
 });  
 bAC.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 et1.setText("");  
 mvalOne = 0.0;  
 mAdd = false;  
 mSub = false;  
 mMul = false;  
 mDiv = false;  
 }  
 });  
 }  
}

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
 <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="vertical">  
 <TextView  
 android:id="@+id/textView"  
 android:layout\_width="match\_parent"  
 android:layout\_height="27dp"  
 android:layout\_marginTop="10dp"  
 android:layout\_marginBottom="40dp"  
 android:layout\_weight="1"  
 android:gravity="center"  
 android:text="Calculator"  
 android:textSize="34sp"  
 android:textStyle="bold" />  
 <EditText  
 android:id="@+id/editText1"  
 android:layout\_width="match\_parent"  
 android:layout\_height="100dp"  
 android:layout\_gravity="right"  
 android:layout\_weight="1"  
 android:ems="10"  
 android:gravity="right"  
 android:inputType="textPersonName"  
 android:textSize="34sp" />  
 <LinearLayout  
 android:id="@+id/lh1"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal">  
 <Button  
 android:id="@+id/button7" style="@style/Widget.AppCompat.Button.Colored"  
 android:layout\_width="100dp"  
 android:layout\_height="100dp"  
 android:layout\_weight="1"  
 android:text="7"  
 android:textSize="34sp"  
 android:textStyle="bold" />  
 <Button  
 android:id="@+id/button8"  
 style="@style/Widget.AppCompat.Button.Colored"  
 android:layout\_width="100dp"  
 android:layout\_height="100dp"  
 android:layout\_weight="1"  
 android:text="8"  
 android:textSize="34sp"  
 android:textStyle="bold" />  
 <Button  
 android:id="@+id/button9" style="@style/Widget.AppCompat.Button.Colored"  
 android:layout\_width="100dp"  
 android:layout\_height="100dp"  
 android:layout\_weight="1"  
 android:text="9"  
 android:textSize="34sp"  
 android:textStyle="bold" />  
 <Button  
 android:id="@+id/div" style="@style/Widget.AppCompat.Button.Colored"  
 android:layout\_width="100dp"  
 android:layout\_height="100dp"  
 android:layout\_weight="1"  
 android:text="/"  
 android:textSize="34sp"  
 android:textStyle="bold" />  
 </LinearLayout>  
 <LinearLayout  
 android:id="@+id/lh2"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:layout\_weight="1"  
 android:orientation="horizontal">  
 <Button  
 android:id="@+id/button4" style="@style/Widget.AppCompat.Button.Colored"  
 android:layout\_width="100dp"  
 android:layout\_height="100dp"  
 android:layout\_weight="1"  
 android:text="4"  
 android:textSize="34sp"  
 android:textStyle="bold" />  
 <Button  
 android:id="@+id/button5" style="@style/Widget.AppCompat.Button.Colored"  
 android:layout\_width="100dp"  
 android:layout\_height="100dp"  
 android:layout\_weight="1"  
 android:text="5"  
 android:textSize="34sp"  
 android:textStyle="bold" />  
 <Button  
 android:id="@+id/button6" style="@style/Widget.AppCompat.Button.Colored"  
 android:layout\_width="100dp"  
 android:layout\_height="100dp"  
 android:layout\_weight="1"  
 android:text="6"  
 android:textSize="34sp"  
 android:textStyle="bold" />  
 <Button  
 android:id="@+id/mul" style="@style/Widget.AppCompat.Button.Colored"  
 android:layout\_width="100dp"  
 android:layout\_height="100dp"  
 android:layout\_weight="1"  
 android:text="\*"  
 android:textSize="34sp"  
 android:textStyle="bold" />  
 </LinearLayout>  
 <LinearLayout  
 android:id="@+id/lh3"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal">  
 <Button  
 android:id="@+id/button1" style="@style/Widget.AppCompat.Button.Colored"  
 android:layout\_width="100dp"  
 android:layout\_height="100dp"  
 android:layout\_weight="1"  
 android:text="1"  
 android:textSize="34sp"  
 android:textStyle="bold" />  
 <Button  
 android:id="@+id/button2" style="@style/Widget.AppCompat.Button.Colored"  
 android:layout\_width="100dp"  
 android:layout\_height="100dp"  
 android:layout\_weight="1"  
 android:text="2"  
 android:textSize="34sp"  
 android:textStyle="bold" />  
 <Button  
 android:id="@+id/button3" style="@style/Widget.AppCompat.Button.Colored"  
 android:layout\_width="100dp"  
 android:layout\_height="100dp"  
 android:layout\_weight="1"  
 android:text="3"  
 android:textSize="34sp"  
 android:textStyle="bold" />  
 <Button  
 android:id="@+id/sub" style="@style/Widget.AppCompat.Button.Colored"  
 android:layout\_width="100dp"  
 android:layout\_height="100dp"  
 android:layout\_weight="1"  
 android:text="-"  
 android:textSize="34sp"  
 android:textStyle="bold" />  
 </LinearLayout>  
 <LinearLayout  
 android:id="@+id/lh4"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal">  
 <Button  
 android:id="@+id/equal" style="@style/Widget.AppCompat.Button.Colored"  
 android:layout\_width="100dp"  
 android:layout\_height="100dp"  
 android:layout\_weight="1"  
 android:text="="  
 android:textSize="34sp"  
 android:textStyle="bold" />  
 <Button  
 android:id="@+id/button0" style="@style/Widget.AppCompat.Button.Colored"  
 android:layout\_width="100dp"  
 android:layout\_height="100dp"  
 android:layout\_weight="1"  
 android:text="0"  
 android:textSize="34sp"  
 android:textStyle="bold" />  
 <Button  
 android:id="@+id/point" style="@style/Widget.AppCompat.Button.Colored"  
 android:layout\_width="100dp"  
 android:layout\_height="100dp"  
 android:layout\_weight="1"  
 android:text="."  
 android:textSize="34sp"  
 android:textStyle="bold" />  
 <Button  
 android:id="@+id/sum" style="@style/Widget.AppCompat.Button.Colored"  
 android:layout\_width="100dp"  
 android:layout\_height="100dp"  
 android:layout\_weight="1"  
 android:text="+"  
 android:textSize="34sp"  
 android:textStyle="bold" />  
 </LinearLayout>  
 <LinearLayout  
 android:id="@+id/lh5"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal">  
 <Button  
 android:id="@+id/c" style="@style/Widget.AppCompat.Button.Colored"  
 android:layout\_width="100dp"  
 android:layout\_height="100dp"  
 android:layout\_weight="1"  
 android:text="C"  
 android:textSize="34sp"  
 android:textStyle="bold" />  
 <Button  
 android:id="@+id/ac" style="@style/Widget.AppCompat.Button.Colored"  
 android:layout\_width="100dp"  
 android:layout\_height="100dp"  
 android:layout\_weight="1"  
 android:text="AC"  
 android:textSize="34sp"  
 android:textStyle="bold" />  
 <Button  
 android:id="@+id/cal" style="@style/Widget.AppCompat.Button.Colored"  
 android:layout\_width="200dp"  
 android:layout\_height="100dp"  
 android:layout\_weight="1"  
 android:text="Enter"  
 android:textSize="34sp"  
 android:textStyle="bold" />  
 </LinearLayout>  
 </LinearLayout>  
</RelativeLayout>

1. **Write an Android program to demonstrate use of internal memory for data storage (store data in file and retrieve data from file).**

package com.arun;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
import android.widget.EditText;  
import android.widget.TextView;  
import android.widget.Toast;  
  
import java.io.FileInputStream;  
import java.io.FileOutputStream;  
import java.nio.charset.StandardCharsets;  
  
public class MainActivity extends AppCompatActivity {  
 TextView input, output;  
 EditText data;  
 Button read, write, delete;  
 public static final String *file* = "hello.txt";  
 String s;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 input = (TextView) findViewById(R.id.*textView*);  
 output = (TextView) findViewById(R.id.*textView1*);  
 data = (EditText) findViewById(R.id.*editText1*);  
 read = (Button) findViewById(R.id.*b1*);  
 write = (Button) findViewById(R.id.*b2*);  
 delete = (Button) findViewById(R.id.*b3*);  
 write.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 s = data.getText().toString();  
 try {  
 FileOutputStream fout = openFileOutput(*file*, *MODE\_PRIVATE*);  
 fout.write(s.getBytes());  
 Toast.*makeText*(MainActivity.this, "saved to" + getFilesDir() + "/" + *file*, Toast.*LENGTH\_SHORT*).show();  
 } catch (Exception e) {  
 e.printStackTrace();  
 }  
 }  
 });  
 read.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 s = data.getText().toString();  
 try {  
 FileInputStream fin = openFileInput(*file*);  
 int c;  
 String temp = "";  
 while ((c = fin.read()) != -1) {  
 temp = temp + Character.*toString*((char) c);  
 }  
 output.setText(temp);  
 } catch (Exception e) {  
 e.printStackTrace();  
 }  
 }  
 });  
 delete.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 deleteFile(*file*);  
 Toast.*makeText*(MainActivity.this, "File deleted successfully", Toast.*LENGTH\_SHORT*).show();  
 }  
 });  
 }  
}

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
  
 <LinearLayout  
 android:id="@+id/l1"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal">  
  
 <TextView  
 android:id="@+id/textView"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Enter Text:-"  
 android:textSize="25dp"  
 android:textStyle="bold"  
 tools:layout\_editor\_absoluteX="28dp"  
 tools:layout\_editor\_absoluteY="16dp" />  
  
 <EditText  
 android:id="@+id/editText1"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:inputType="textPersonName"  
 android:text=""  
 android:textSize="25dp"  
 tools:layout\_editor\_absoluteX="108dp"  
 tools:layout\_editor\_absoluteY="7dp" />  
 </LinearLayout>  
  
 <LinearLayout  
 android:id="@+id/l2"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@id/l1"  
 android:orientation="horizontal">  
  
 <Button  
 android:id="@+id/b1"  
 style="@style/Widget.AppCompat.Button.Colored"  
 android:layout\_width="90dp"  
 android:layout\_height="90dp"  
 android:layout\_weight="1"  
 android:text="Write"  
 android:textSize="30sp"  
 android:textStyle="bold" />  
  
 <Button  
 android:id="@+id/b2"  
 style="@style/Widget.AppCompat.Button.Colored"  
 android:layout\_width="90dp"  
 android:layout\_height="90dp"  
 android:layout\_weight="1"  
 android:text="Read"  
 android:textSize="30sp"  
 android:textStyle="bold" />  
  
 <Button  
 android:id="@+id/b3"  
 style="@style/Widget.AppCompat.Button.Colored"  
 android:layout\_width="90dp"  
 android:layout\_height="90dp"  
 android:layout\_weight="1"  
 android:text="Delete"  
 android:textSize="25sp"  
 android:textStyle="bold" />  
 </LinearLayout>  
  
 <LinearLayout  
 android:id="@+id/l3"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@id/l2"  
 android:orientation="vertical">  
  
 <TextView  
 android:id="@+id/textView1"  
 android:layout\_width="match\_parent"  
 android:layout\_height="56dp"  
 android:layout\_marginTop="10dp"  
 android:layout\_marginBottom="40dp"  
 android:layout\_weight="1"  
 android:gravity="center"  
 android:text=""  
 android:textSize="25dp"  
 android:textStyle="bold" />  
 </LinearLayout>  
</RelativeLayout>

1. **Write an Android program to demonstrate Use of shared preferences for data storage.**

package com.arun;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.content.Intent;  
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.TextView;  
import android.widget.Toast;  
  
public class MainActivity extends AppCompatActivity {  
 EditText uname, pwd;  
 Button login;  
 CheckBox rem;  
 String str\_usr, str\_pass;  
 SharedPreferences sharepref;  
 Boolean savelogin;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 uname = (EditText) findViewById(R.id.*usr*);  
 pwd = (EditText) findViewById(R.id.*pass*);  
 login = (Button) findViewById(R.id.*log*);  
 rem = (CheckBox) findViewById(R.id.*remme*);  
 sharepref = getSharedPreferences("LoginRef", *MODE\_PRIVATE*);  
 final SharedPreferences.Editor editor = sharepref.edit();  
 login.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 str\_usr = uname.getText().toString();  
 str\_pass = pwd.getText().toString();  
 if (str\_usr.equals("admin") && str\_pass.equals("admin")) {  
 Toast.*makeText*(MainActivity.this, "Login successful", Toast.*LENGTH\_SHORT*).show();  
 if (rem.isChecked()) {  
 editor.putBoolean("savelogin", true);  
 editor.putString("username", str\_usr);  
 editor.putString("password", str\_pass);  
 editor.commit();  
 }  
 } else {  
 Toast.*makeText*(MainActivity.this, "Login unsuccessful", Toast.*LENGTH\_SHORT*).show();  
 }  
 }  
 });  
 savelogin = sharepref.getBoolean("savelogin", true);  
 if (savelogin == true) {  
 uname.setText(sharepref.getString("username", null));  
 pwd.setText(sharepref.getString("password", null));  
 }  
 }  
}

<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android" xmlns:app="http://schemas.android.com/apk/res-auto" xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_margin="30dp"  
 android:orientation="vertical"  
 tools:context=".MainActivity">  
 <LinearLayout  
 android:id="@+id/t1"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_centerHorizontal="true"  
 android:layout\_centerVertical="false"  
 android:orientation="horizontal">  
 <ImageView  
 android:id="@+id/imageView2"  
 android:layout\_width="339dp"  
 android:layout\_height="340dp"  
 android:src="@drawable/image" />  
  
 <TextView  
 android:id="@+id/textView1"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Login" />  
 </LinearLayout>  
 <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal">  
 <TextView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Username:" app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintLeft\_toLeftOf="parent" app:layout\_constraintRight\_toRightOf="parent" app:layout\_constraintTop\_toTopOf="parent" />  
 <EditText  
 android:id="@+id/usr"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:ems="10"  
 android:inputType="textPersonName" />  
 </LinearLayout>  
 <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:orientation="horizontal">  
 <TextView  
 android:id="@+id/textView"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Password:" app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintLeft\_toLeftOf="parent" app:layout\_constraintRight\_toRightOf="parent" app:layout\_constraintTop\_toTopOf="parent" />  
 <EditText  
 android:id="@+id/pass"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:ems="10"  
 android:inputType="textPassword" />  
 </LinearLayout>  
 <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="20dp"  
 android:orientation="horizontal">  
 <CheckBox  
 android:id="@+id/remme"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Remember me" />  
 </LinearLayout>  
 <Button  
 android:id="@+id/log"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_margin="5dp"  
 android:layout\_weight="1"  
 android:text="Login" />  
</LinearLayout>

1. **Write a program to capture an image and perform the following animation on the image.**

**a. Expand**

**b. Rotate**

**c. Move**

**d. Blink**

**e. Fade**

package com.arun;  
  
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.Button;  
import android.widget.ImageView;  
  
public class MainActivity extends AppCompatActivity {  
 Button blink,expand,fade,move,rotate;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 blink=(Button) findViewById(R.id.*button*);  
 expand=(Button) findViewById(R.id.*button2*);  
 fade=(Button) findViewById(R.id.*button3*);  
 move=(Button) findViewById(R.id.*button4*);  
 rotate=(Button) findViewById(R.id.*button5*);  
 }  
 public void expand(View view){  
 ImageView image=(ImageView) findViewById(R.id.*imageView*);  
 Animation animation= AnimationUtils.*loadAnimation*(getApplicationContext(),R.anim.*expand*);  
 image.startAnimation(animation);  
 }  
 public void move(View view){  
 ImageView image=(ImageView) findViewById(R.id.*imageView*);  
 Animation animation1= AnimationUtils.*loadAnimation*(getApplicationContext(),R.anim.*move*);  
 image.startAnimation(animation1);  
 }  
 public void blink(View view){  
 ImageView image=(ImageView) findViewById(R.id.*imageView*);  
 Animation animation2= AnimationUtils.*loadAnimation*(getApplicationContext(),R.anim.*blink*);  
 image.startAnimation(animation2);  
 }  
 public void fade(View view){  
 ImageView image=(ImageView) findViewById(R.id.*imageView*);  
 Animation animation3= AnimationUtils.*loadAnimation*(getApplicationContext(),R.anim.*fade*);  
 image.startAnimation(animation3);  
 }  
 public void rotate(View view){  
 ImageView image=(ImageView) findViewById(R.id.*imageView*);  
 Animation animation4= AnimationUtils.*loadAnimation*(getApplicationContext(),R.anim.*rotate*);  
 image.startAnimation(animation4);  
 }  
}

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android" xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
 <ImageView  
 android:id="@+id/imageView"  
 android:layout\_width="181dp"  
 android:layout\_height="128dp"  
 android:layout\_marginStart="6dp"  
 android:src="@drawable/image"  
 tools:layout\_editor\_absoluteX="-6dp"  
 tools:layout\_editor\_absoluteY="3dp" />  
 <Button  
 android:id="@+id/button"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/imageView"  
 android:layout\_marginStart="6dp"  
 android:layout\_marginTop="63dp"  
 android:onClick="blink"  
 android:text="Blink"  
 tools:layout\_editor\_absoluteX="18dp"  
 tools:layout\_editor\_absoluteY="197dp"/>  
 <Button  
 android:id="@+id/button2"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/button"  
 android:layout\_marginStart="6dp"  
 android:layout\_marginTop="25dp"  
 android:onClick="expand"  
 android:text="Expand"  
 tools:layout\_editor\_absoluteX="15dp"  
 tools:layout\_editor\_absoluteY="270dp"/>  
 <Button  
 android:id="@+id/button3"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/button2"  
 android:layout\_marginStart="6dp"  
 android:layout\_marginTop="31dp"  
 android:onClick="fade"  
 android:text="Fade"  
 tools:layout\_editor\_absoluteX="13dp"  
 tools:layout\_editor\_absoluteY="340dp"/>  
 <Button  
 android:id="@+id/button4"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/button3"  
 android:layout\_marginStart="6dp"  
 android:layout\_marginTop="25dp"  
 android:onClick="move"  
 android:text="Move"  
 tools:layout\_editor\_absoluteX="11dp"  
 tools:layout\_editor\_absoluteY="413dp"/>  
 <Button  
 android:id="@+id/button5"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/button4"  
 android:layout\_marginStart="6dp"  
 android:layout\_marginTop="43dp"  
 android:onClick="rotate"  
 android:text="Rotate"  
 tools:layout\_editor\_absoluteX="13dp"  
 tools:layout\_editor\_absoluteY="487dp"/>  
</RelativeLayout>

**Anim/blink.xml**

<?xml version="1.0" encoding="utf-8"?>  
<set xmlns:android="http://schemas.android.com/apk/res/android">  
 <alpha  
 android:duration="600"  
 android:fromAlpha="0.0"  
 android:interpolator="@android:anim/accelerate\_decelerate\_interpolator"  
 android:repeatCount="infinite"  
 android:repeatMode="reverse"  
 android:toAlpha="1.0" />  
</set>

**expand**

<?xml version="1.0" encoding="utf-8"?>  
<set xmlns:android="http://schemas.android.com/apk/res/android">  
 <scale xmlns:android="http://schemas.android.com/apk/res/android"  
 android:duration="5000"  
 android:fromXScale="0.5"  
 android:fromYScale="0.5"  
 android:pivotX="50%"  
 android:pivotY="50%"  
 android:toXScale="3.0"  
 android:toYScale="3.0"></scale>  
 <scale xmlns:android="http://schemas.android.com/apk/res/android"  
 android:duration="5000"  
 android:fromXScale="3.0"  
 android:fromYScale="3.0"  
 android:pivotX="50%"  
 android:pivotY="50%"  
 android:startOffset="5000"  
 android:toXScale="0.5"  
 android:toYScale="0.5"></scale>  
</set>

**fade**

<?xml version="1.0" encoding="utf-8"?>  
<set xmlns:android="http://schemas.android.com/apk/res/android"  
 android:interpolator="@android:anim/accelerate\_interpolator">  
 <alpha  
 android:duration="2000"  
 android:fromAlpha="0"  
 android:toAlpha="1"></alpha>  
 <alpha  
 android:duration="2000"  
 android:fromAlpha="1"  
 android:startOffset="2000"  
 android:toAlpha="0"></alpha>  
</set>

**move**

<?xml version="1.0" encoding="utf-8"?>  
<set xmlns:android="http://schemas.android.com/apk/res/android"  
 android:fillAfter="true"  
 android:interpolator="@android:anim/linear\_interpolator">  
 <translate  
 android:duration="800"  
 android:fromXDelta="0%p"  
 android:toXDelta="75%p" />  
</set>

**rotate**

<?xml version="1.0" encoding="utf-8"?>  
<set xmlns:android="http://schemas.android.com/apk/res/android">  
 <rotate xmlns:android="http://schemas.android.com/apk/res/android"  
 android:duration="5000"  
 android:fromDegrees="0"  
 android:pivotX="50%"  
 android:pivotY="50%"  
 android:toDegrees="360"></rotate>  
 <rotate xmlns:android="http://schemas.android.com/apk/res/android"  
 android:duration="5000"  
 android:fromDegrees="360"  
 android:pivotX="50%"  
 android:pivotY="50%"  
 android:startOffset="5000"  
 android:toDegrees="0"></rotate>  
</set>

1. **Write a program to create a basic Mobile application that allows you to navigate through Google Maps and place marker on Virar.**

**AIzaSyAMpk2f-wiSYYdCN424XPjpSoJ\_d8wNzXA**

1. **Create map activity application on android**
2. **Add key on manifest**
3. **Change MapActivity.onMapRedey()**

LatLng virar = new LatLng(19.456360, 72.792458);  
mMap.addMarker(new MarkerOptions().position(virar).title("Marker in Virar"));  
mMap.moveCamera(CameraUpdateFactory.*newLatLng*(virar));

1. **Write a program to create an application to display the current location of your device (Latitude and Longitude value).**

<uses-permission android:name="android.permission.ACCESS\_COARSE\_LOCATION" />  
<uses-permission android:name="android.permission.ACCESS\_FINE\_LOCATION" />  
<uses-permission android:name="android.permission.INTERNET" />

**//===========================Online Code=============**

package com.arun;  
  
import android.Manifest;  
import android.content.pm.PackageManager;  
import android.os.Bundle;  
import android.app.Activity;  
import android.content.Context;  
import android.location.Location;  
import android.location.LocationListener;  
import android.location.LocationManager;  
import android.widget.TextView;  
  
import android.util.Log;  
  
import androidx.core.app.ActivityCompat;  
  
public class MainActivity extends Activity implements LocationListener {  
 protected LocationManager locationManager;  
 TextView txtLat;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 txtLat = (TextView) findViewById(R.id.*textview1*);  
  
 locationManager = (LocationManager) getSystemService(Context.*LOCATION\_SERVICE*);  
 if (ActivityCompat.*checkSelfPermission*(this, Manifest.permission.*ACCESS\_FINE\_LOCATION*) != PackageManager.*PERMISSION\_GRANTED* && ActivityCompat.*checkSelfPermission*(this, Manifest.permission.*ACCESS\_COARSE\_LOCATION*) != PackageManager.*PERMISSION\_GRANTED*) {  
 return;  
 }  
 locationManager.requestLocationUpdates(LocationManager.*GPS\_PROVIDER*, 0, 0, this);  
 }  
 @Override  
 public void onLocationChanged(Location location) {  
 txtLat = (TextView) findViewById(R.id.*textview1*);  
 txtLat.setText("Latitude:" + location.getLatitude() + ", Longitude:" + location.getLongitude());  
 }  
  
 @Override  
 public void onProviderDisabled(String provider) {  
 Log.*d*("Latitude","disable");  
 }  
  
 @Override  
 public void onProviderEnabled(String provider) {  
 Log.*d*("Latitude","enable");  
 }  
  
 @Override  
 public void onStatusChanged(String provider, int status, Bundle extras) {  
 Log.*d*("Latitude","status");  
 }  
}

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity" >  
  
 <TextView  
 android:id="@+id/textview1"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_centerHorizontal="true"  
 android:layout\_centerVertical="true"  
 android:text="Hello\_word" />  
  
</RelativeLayout>

**//=========================COLLEGE============================**

package com.arun;  
  
import androidx.annotation.NonNull;  
import androidx.annotation.RequiresApi;  
import androidx.appcompat.app.AppCompatActivity;  
import androidx.core.app.ActivityCompat;  
  
import android.Manifest;  
import android.content.pm.PackageManager;  
import android.location.Location;  
import android.location.LocationListener;  
import android.location.LocationManager;  
import android.os.Build;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
import android.widget.TextView;  
  
public class MainActivity extends AppCompatActivity {  
  
 private Button b1;  
 private TextView tv1;  
 private LocationManager lm;  
 private LocationListener lls;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 tv1 = (TextView) findViewById(R.id.*ll*);  
 b1 = (Button) findViewById(R.id.*loc*);  
 lm = (LocationManager) getSystemService(*LOCATION\_SERVICE*);  
 lls = new LocationListener() {  
 @Override  
 public void onLocationChanged(Location location) {  
 tv1.append("\n" + location.getLongitude() + ", " + location.getLatitude());  
 }  
  
 @Override  
 public void onStatusChanged(String s, int i, Bundle bundle) {  
 }  
  
 @Override  
 public void onProviderEnabled(String s) {  
 }  
  
 @Override  
 public void onProviderDisabled(String s) {  
 }  
 };  
 configure\_button();  
 }  
  
 @Override  
 public void onRequestPermissionsResult(int requestCode, @NonNull String[] permissions, @NonNull int[] grantResults) {  
 super.onRequestPermissionsResult(requestCode, permissions, grantResults);  
 switch (requestCode) {  
 case 10:  
 configure\_button();  
 break;  
 default:  
 break;  
 }  
 }  
  
 void configure\_button() {  
 if (ActivityCompat.*checkSelfPermission*(this, Manifest.permission.*ACCESS\_FINE\_LOCATION*) != PackageManager.*PERMISSION\_GRANTED* && ActivityCompat.*checkSelfPermission*(this, Manifest.permission.*ACCESS\_COARSE\_LOCATION*) != PackageManager.*PERMISSION\_GRANTED*) {  
 if (Build.VERSION.*SDK\_INT* >= Build.VERSION\_CODES.*M*) {  
 requestPermissions(new String[]{Manifest.permission.*ACCESS\_COARSE\_LOCATION*, Manifest.permission.*ACCESS\_FINE\_LOCATION*, Manifest.permission.*INTERNET*}, 10);  
 }  
 return;  
 }  
 b1.setOnClickListener(new View.OnClickListener() {  
 @RequiresApi(api = Build.VERSION\_CODES.*M*)  
 @Override  
 public void onClick(View view) {  
 if (checkSelfPermission(Manifest.permission.*ACCESS\_FINE\_LOCATION*) != PackageManager.*PERMISSION\_GRANTED* && checkSelfPermission(Manifest.permission.*ACCESS\_COARSE\_LOCATION*) != PackageManager.*PERMISSION\_GRANTED*) {  
 onRequestPermissionsResult(10, new String[]{Manifest.permission.*ACCESS\_FINE\_LOCATION*}, new int[]{});  
 return;  
 }  
 lm.requestLocationUpdates("gps", 5000, 0, lls);  
 }  
 });  
 }  
}

<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_centerHorizontal="false"  
 android:orientation="vertical"  
 android:padding="30dp"  
 tools:context=".MainActivity">  
  
 <Button  
 android:id="@+id/loc"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="Location" />  
  
 <TextView  
 android:id="@+id/ll"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:gravity="center\_horizontal"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintLeft\_toLeftOf="parent"  
 app:layout\_constraintRight\_toRightOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent" />  
</LinearLayout>

1. **Write a program to Play an Audio.**

package com.arun;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.media.MediaPlayer;  
import android.os.Bundle;  
import android.os.Handler;  
import android.view.View;  
import android.widget.Button;  
import android.widget.SeekBar;  
import android.widget.TextView;  
import android.widget.Toast;  
  
import java.util.concurrent.TimeUnit;  
  
public class MainActivity extends AppCompatActivity {  
 TextView song\_name, start\_time, end\_Time;  
 Button pause, play, forward, reverse;  
 SeekBar playTime;  
 private MediaPlayer mediaPlayer;  
 private double startTime = 0;  
 private double endTime = 0;  
 private Handler myHandler = new Handler();  
 private int forwardTime = 5000;  
 private int backwardTime = 5000;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 reverse = (Button) findViewById(R.id.*button*);  
 pause = (Button) findViewById(R.id.*button1*);  
 play = (Button) findViewById(R.id.*button2*);  
 forward = (Button) findViewById(R.id.*button3*);  
 playTime = (SeekBar) findViewById(R.id.*seekBar*);  
 song\_name = (TextView) findViewById(R.id.*textView*);  
 start\_time = (TextView) findViewById(R.id.*textview1*);  
 end\_Time = (TextView) findViewById(R.id.*textview2*);  
 song\_name.setText("Sample.mp3");  
 mediaPlayer = MediaPlayer.*create*(this, R.raw.*audio*);  
 playTime = (SeekBar) findViewById(R.id.*seekBar*);  
 playTime.setClickable(false);  
 pause.setEnabled(false);  
 play.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 Toast.*makeText*(getApplicationContext(), "Playing sound", Toast.*LENGTH\_SHORT*).show();  
 mediaPlayer.start();  
 endTime = mediaPlayer.getDuration();  
 //This method returns the total time duration of song in milliseconds startTime = mediaPlayer.getCurrentPosition();  
 //This method returns the current position of song in millisecondsplayTime.setProgress((int)startTime); myHandler.postDelayed(UpdateSongTime,100);  
 pause.setEnabled(true);  
 play.setEnabled(false);  
 }  
 });  
 pause.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 Toast.*makeText*(getApplicationContext(), "Pausing sound", Toast.*LENGTH\_SHORT*).show();  
 mediaPlayer.pause();  
 pause.setEnabled(false);  
 play.setEnabled(true);  
 }  
 });  
 forward.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 int temp = (int) startTime;  
 if ((temp + forwardTime) <= endTime) {  
 startTime = startTime + forwardTime;  
 mediaPlayer.seekTo((int) startTime);  
//This method takes an integer, and move song to that particular position millisecond  
 Toast.*makeText*(getApplicationContext(), "You have Jumped forward 5 seconds", Toast.*LENGTH\_SHORT*).show();  
 } else {  
 Toast.*makeText*(getApplicationContext(), "Cannot jump forward 5 seconds", Toast.*LENGTH\_SHORT*).show();  
 }  
 }  
 });  
 reverse.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 int temp = (int) startTime;  
 if ((temp - backwardTime) > 0) {  
 startTime = startTime - backwardTime;  
 mediaPlayer.seekTo((int) startTime);  
 Toast.*makeText*(getApplicationContext(), "You have Jumped backward 5 seconds", Toast.*LENGTH\_SHORT*).show();  
 } else {  
 Toast.*makeText*(getApplicationContext(), "Cannot jump backward 5 seconds", Toast.*LENGTH\_SHORT*).show();  
 }  
 }  
 });  
 }  
  
 private Runnable UpdateSongTime = new Runnable() {  
 public void run() {  
 startTime = mediaPlayer.getCurrentPosition();  
 start\_time.setText(String.*format*("%d min, %d sec", TimeUnit.*MILLISECONDS*.toMinutes((long) startTime), TimeUnit.*MILLISECONDS*.toSeconds((long) startTime) - TimeUnit.*MINUTES*.toSeconds(TimeUnit.*MILLISECONDS*.toMinutes((long) startTime)))  
 );  
 end\_Time.setText(String.*format*("%d min, %d sec", TimeUnit.*MILLISECONDS*.toMinutes((long) endTime), TimeUnit.*MILLISECONDS*.toSeconds((long) endTime) - TimeUnit.*MINUTES*.toSeconds(TimeUnit.*MILLISECONDS*.toMinutes((long) endTime)))  
 );  
 playTime.setProgress((int) startTime);  
 myHandler.postDelayed(this, 100);  
 }  
 };  
}

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:background="@color/purple\_200"  
 tools:context=".MainActivity">  
  
 <TextView  
 android:id="@+id/textview"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentTop="true"  
 android:layout\_centerHorizontal="true"  
 android:text="Music Player"  
 android:textSize="35dp" />  
  
 <TextView  
 android:id="@+id/textview1"  
 android:layout\_width="82dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentTop="true"  
 android:layout\_centerHorizontal="true"  
 android:layout\_marginTop="153dp"  
 android:layout\_marginRight="21dp"  
 android:layout\_toLeftOf="@id/seekBar"  
 android:text="00.00"  
 android:textAlignment="center" />  
  
 <SeekBar  
 android:id="@+id/seekBar"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="30dp"  
 android:layout\_below="@+id/textview"  
 android:layout\_alignStart="@+id/textview"  
 android:layout\_alignLeft="@+id/textview"  
 android:layout\_alignEnd="@+id/textview"  
 android:layout\_alignRight="@+id/textview"  
 android:layout\_marginStart="3dp"  
 android:layout\_marginLeft="3dp"  
 android:layout\_marginTop="100dp"  
 android:layout\_marginEnd="5dp"  
 android:layout\_marginRight="5dp"  
 android:outlineSpotShadowColor="@color/purple\_200" />  
  
 <TextView  
 android:id="@+id/textview2"  
 android:layout\_width="70dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentTop="true"  
 android:layout\_centerHorizontal="true"  
 android:layout\_marginLeft="24dp"  
 android:layout\_marginTop="154dp"  
 android:layout\_marginRight="3dp"  
 android:layout\_toRightOf="@id/seekBar"  
 android:text="00.00"  
 android:textAlignment="center" />  
  
 <TextView  
 android:id="@+id/textView"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@id/seekBar"  
 android:layout\_alignParentTop="true"  
 android:layout\_centerHorizontal="true"  
 android:layout\_marginTop="204dp"  
 android:layout\_marginRight="18dp"  
 android:text="Song.mp3"  
 android:textSize="20dp" />  
  
 <Button  
 android:id="@+id/button"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@id/seekBar"  
 android:layout\_marginTop="102dp"  
 android:layout\_marginRight="18dp"  
 android:text="@string/rewind" />  
  
 <Button  
 android:id="@+id/button1"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@id/seekBar"  
 android:layout\_alignParentTop="true"  
 android:layout\_centerHorizontal="true"  
 android:layout\_marginTop="279dp"  
 android:layout\_marginRight="18dp"  
 android:layout\_toRightOf="@id/button"  
 android:text="@string/pause" />  
  
 <Button  
 android:id="@+id/button2"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@id/seekBar"  
 android:layout\_alignParentTop="true"  
 android:layout\_centerHorizontal="true"  
 android:layout\_marginTop="279dp"  
 android:layout\_marginRight="18dp"  
 android:layout\_toRightOf="@id/button1"  
 android:text="@string/back" />  
  
 <Button  
 android:id="@+id/button3"  
 android:layout\_width="89dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@id/seekBar"  
 android:layout\_alignParentTop="true"  
 android:layout\_alignParentEnd="true"  
 android:layout\_marginTop="279dp"  
 android:layout\_marginEnd="4dp"  
 android:layout\_marginRight="18dp"  
 android:layout\_toRightOf="@id/button2"  
 android:text="@string/forward" />  
</RelativeLayout>

<resources>  
 <string name="app\_name">1) Android lifecycle</string>  
 <string name="back"><![CDATA[<]]></string>  
 <string name="rewind"><![CDATA[<<]]></string>  
 <string name="forward"><![CDATA[>>]]></string>  
 <string name="pause">||</string>  
</resources>

1. **Write a program to Play a Video in video view.**

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android" xmlns:app="http://schemas.android.com/apk/res-auto" xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
 <VideoView  
 android:id="@+id/videoView"  
 android:layout\_width="match\_parent"  
 android:layout\_height="318dp"  
 tools:layout\_editor\_absoluteX="0dp"  
 tools:layout\_editor\_absoluteY="0dp" />  
 <Button  
 android:id="@+id/button"  
 android:layout\_width="197dp"  
 android:layout\_height="65dp"  
 android:layout\_below="@id/videoView"  
 android:layout\_marginTop="73dp"  
 android:gravity="center"  
 android:onClick="play"  
 android:layout\_centerInParent="true"  
 android:text="Play" />  
</RelativeLayout>

package com.arun;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.net.Uri;  
import android.os.Bundle;  
import android.util.Log;  
import android.view.View;  
import android.widget.Button;  
import android.widget.MediaController;  
import android.widget.VideoView;  
  
public class MainActivity extends AppCompatActivity {  
  
 Button play;  
 VideoView videov;  
 MediaController mediaC;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 play=(Button) findViewById(R.id.*button*);  
 videov=(VideoView) findViewById(R.id.*videoView*);  
 mediaC = new MediaController(this);  
 }  
 public void play(View view){  
 String videopath="android.resource://"+getPackageName()+"/"+R.raw.*video*;  
 Uri uri= Uri.*parse*(videopath);  
 Log.*e*("error", "play: "+uri );  
 videov.setVideoURI(uri);  
 videov.setMediaController(mediaC);  
 mediaC.setAnchorView(videov);  
 videov.start();  
 }  
}

1. **Create an android application to parse the data using JSON Object methods and set it in the Text view(Employee name and Salary stored in JSON format)**

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout  
 xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto" xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
 <Button  
 android:id="@+id/button"  
 android:layout\_width="match\_parent"  
 android:layout\_height="68dp"  
 android:text="Fetch Data" />  
 <ScrollView  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:layout\_below="@+id/button">  
 <TextView  
 android:id="@+id/textView5"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentStart="true"  
 android:hint="displays JSON object"  
 android:scrollbarStyle="insideInset"  
 android:textAlignment="center"  
 android:textAppearance="@style/TextAppearance.AppCompat.Medium"  
 android:textSize="24sp" />  
 </ScrollView>  
</RelativeLayout>

package com.arun;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
import android.widget.TextView;  
  
public class MainActivity extends AppCompatActivity {  
 public static TextView *data*;  
 Button click;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 *data* = (TextView) findViewById(R.id.*textView5*);  
 click = (Button) findViewById(R.id.*button*);  
 click.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 FetchData process = new FetchData();  
 process.execute();  
 }  
 });  
 }  
}

package com.arun;  
  
import android.os.AsyncTask;  
import org.json.JSONArray;  
import org.json.JSONException;  
import org.json.JSONObject;  
import java.io.BufferedReader;  
import java.io.IOException;  
import java.io.InputStream;  
import java.io.InputStreamReader;  
import java.net.HttpURLConnection;  
import java.net.MalformedURLException;  
import java.net.URL;  
public class FetchData extends AsyncTask {  
 String data = " ";  
 String dataParsed=" ";  
 String singleParsed=" ";  
 @Override  
 protected Object doInBackground(Object[] objects) {  
 try {  
 URL url = new URL("\n" + "\n" + "https://api.npoint.io/fd582b7b55d587c224f7");  
 HttpURLConnection httpURLConnection = (HttpURLConnection) url.openConnection();  
 InputStream inputStream = httpURLConnection.getInputStream();  
 BufferedReader bufferedReader = new BufferedReader(new InputStreamReader(inputStream));  
 String line = " ";  
 while (line != null) {  
 line = bufferedReader.readLine();  
 data = data + line;  
 }  
 JSONArray JA=new JSONArray(data);  
 for(int i=0;i<JA.length();i++) {  
 JSONObject JO= (JSONObject) JA.get(i);  
 singleParsed="Name: "+JO.get("name")+" Salary: "+JO.get("salary");  
 dataParsed=dataParsed+singleParsed+"\n";  
 }  
 } catch (MalformedURLException e) {  
 e.printStackTrace();  
 } catch (IOException e) {  
 e.printStackTrace();  
 } catch (JSONException e) {  
 e.printStackTrace();  
 }  
 return null;  
 }  
 @Override  
 protected void onPostExecute (Object o){  
 MainActivity.*data*.setText(this.dataParsed);  
 }  
  
}

1. **Write an android application to retrieve the JSON object using Volley library and display it in the text view.**

implementation 'com.android.volley:volley:1.2.1'

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
 <Button  
 android:id="@+id/button"  
 android:layout\_width="288dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentStart="true"  
 android:layout\_alignParentTop="true"  
 android:layout\_marginStart="50dp"  
 android:layout\_marginTop="159dp"  
 android:text="Get HTTP Request" />  
</RelativeLayout>

package com.arun;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
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.StringRequest;  
import com.android.volley.toolbox.Volley;  
  
public class MainActivity extends AppCompatActivity {  
 Button click;  
 private RequestQueue requestQueue; //Volley is a networking library managed by the RequestQueue  
 private StringRequest stringRequest;  
 String url = "https://api.npoint.io/fd582b7b55d587c224f7";  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 click = (Button) findViewById(R.id.*button*);  
 click.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 sendRequestAndPrintResponse();  
 }  
 });  
 }  
  
 private void sendRequestAndPrintResponse() {  
 requestQueue = Volley.*newRequestQueue*(this);  
 //To use it, first you need to instantiate the RequestQueue  
 // Request a string response from the provided URL  
 stringRequest = new StringRequest(Request.Method.*GET*, url, new Response.Listener<String>() {  
 @Override  
 public void onResponse(String response) {  
 Toast.*makeText*(MainActivity.this, response.toString(), Toast.*LENGTH\_SHORT*).show();  
 }  
 }, new Response.ErrorListener() {  
 @Override  
 public void onErrorResponse(VolleyError error) {  
 Toast.*makeText*(MainActivity.this, error.toString(), Toast.*LENGTH\_SHORT*).show();  
 }  
 });  
 requestQueue.add(stringRequest);  
 }  
}

**1) Introduction to Variable, Array, Control Flow**

void main() {

var fname = 'First';

var lname = 'Last';

var fruits = ['Mango', 'Apple', 'Jack-fruit', 'Pineapple'];

var assoArray = {'friend': 'Rudra', 'url': 'https://vivaSchoolofmca.com'};

print("Hello world");

print(fname + ' ' + lname);

print(fruits);

print(fruits[3]);

print(assoArray);

print(assoArray['friend']);

for (var fruit in fruits) {

print(fruit);

}

for (int i = 1; i <= 10; i++) {

print(i);

}

}

**20.2) Introduction to Function**

void main() {

int result = squareit(6);

print('Square of number is = $result');

}

int squareit(int number) {

return number \* number;

}

**20.3) Introduction to Class, Constructor,Name Constructor, Getter and Setter methods.**

class Student {

String name;

int age = 0;

Student(this.name, this.age);

Student.construtor1(this.name); //named constructor with single parameter

Student.construtor2(this.name,this.age);//named constructor with TWO parameter

String get studName {

return name;

}

set studName(String name) {

this.name = name;

}

set studAge(int age) {

if (age <= 0) {

print("Age should be greater than 5");

} else {

this.age = age;

}

}

int get studAge {

return age;

}

}

void main() {

Student s1 = Student("Ronil Patil", 50);

Student s2 = Student.construtor1("Vivcky Tandel");

Student s3 = Student.construtor2("Seema", 22);

print(s1.studName);

print(s1.studAge);

print(s2.studName);

print(s3.studName);

print(s3.studAge);

}

**20.4) Single Inheritance**

class PersonInfo {

String name;

int age = 0;

PersonInfo(this.name, this.age);

String get personName {

return name;

}

set personName(String name) {

this.name = name;

}

int get personAge {

return age;

}

set personAge(int age) {

this.age = age;

}

void printData() {

print("Name=$personName");

print("Age=$personAge");

}

}

class StudentInfo extends PersonInfo {

int rollno = 0;

double marks = 0;

StudentInfo(this.rollno, this.marks, name, age) : super(name, age);

int get studentRollno {

return rollno;

}

set studentRollno(int rollno) {

this.rollno = rollno;

}

double get studentMarks {

return marks;

}

set studentMarks(double marks) {

this.marks = marks;

}

void printData() {

super.printData();

print("Rollno=$studentRollno");

print("Marks=$studentMarks");

}

}

void main() {

StudentInfo s = StudentInfo(1, 99.95, "Bhavesh", 23);

s.printData();

}

**20.5) Abstract class and Interfaces**

abstract class shape {

void draw() {}

}

class line extends shape { void draw() { print('Line is drawing'); } }

class circle extends shape { void draw() { print('Circle is drawing'); }

void main() {

shape s = new line();

s.draw();

s = new circle();

s.draw();

}

1. **Write a program to understand the Basic structure of Flutter framework**

Flutter create app\_name

Flutter run -d chrome

1. **Directionality**

import 'package:flutter/material.dart';

void main() {

  runApp(const MyApp());

}

class MyApp extends StatelessWidget {

  const MyApp({super.key});

  @override

  Widget build(BuildContext context) {

    return Directionality(textDirection: TextDirection.ltr, child: Center(child: Text("Hello Flutter")  ));

  }

}

1. **Material Design**

import 'package:flutter/material.dart';

void main() {

  runApp(const MyApp());

}

class MyApp extends StatelessWidget {

  const MyApp({super.key});

  @override

  Widget build(BuildContext context) {

    return MaterialApp(

      title: "Demo2-Material Design",

      home: Scaffold(

        appBar: AppBar(

          title: Text('Demo 2-Material  Design'),

        ),

        body: Center(

          child: Text('Hello World'),

        ),

      ),

    );

  }

}

1. **Row widget**

import 'package:flutter/material.dart';

void main() {

  runApp(const MyApp());

}

class MyApp extends StatelessWidget {

  const MyApp({super.key});

  @override

  Widget build(BuildContext context) {

    return MaterialApp(

      title: "Demo2-Material  Design",

      home: Scaffold(

          appBar: AppBar(

            title: Text('Demo 3- Row Widget'),

          ),

          body: Center(

              child: Row(

            mainAxisAlignment: MainAxisAlignment.center,

            children: <Widget>[

              Text('Child1'),

              Text('Child2'),

            ],

          ))),

    );

  }

}

1. **Write a program to understand the use of basic Widget**
2. **Text**
3. **Row, Column**
4. **Stack**
5. **Container**

import 'package:flutter/material.dart';

void main() {

  runApp(

    const MaterialApp(

      title: 'Flutter Tutorial',

      home: MyApp(),

    ),

  );

}

class MyApp extends StatelessWidget {

  const MyApp({Key? key}) : super(key: key);

// This widget is the root of your application.

  @override

  Widget build(BuildContext context) {

    return Scaffold(

      appBar: AppBar(

        leading: const IconButton(

          icon: Icon(Icons.menu),

          tooltip: 'Navigation menu',

          onPressed: null,

        ),

        title: const Text('Example title'),

        actions: const [

          IconButton(

            icon: Icon(Icons.search),

            tooltip: 'Search',

            onPressed: null,

          ),

        ],

      ),

// body is the majority of the screen.

      body: const Center(

        child: Text('Hello, world!'),

      ),

      floatingActionButton: const FloatingActionButton(

        tooltip:

            'Add', // used by assistive technologies

            child: Icon(Icons.add),

        onPressed: null,

      ),

    );

  }

}

1. **Write a program to understand the working of checkboxes.**

import 'package:flutter/material.dart';

void main() {

  runApp(MyApp(

    TextInput: Text("Paid/Unpaid"),

  ));

}

class MyApp extends StatefulWidget {

  MyApp({required this.TextInput});

  final Widget TextInput;

  MyAppState createState() => new MyAppState();

}

class MyAppState extends State<MyApp> {

  bool checkBoxValue = false;

  String actionText = "Default";

  @override

  Widget build(BuildContext ctxt) {

    return MaterialApp(

      title: "MySampleApplication",

      home: Scaffold(

          appBar: AppBar(

            title: Text("Hello  Flutter App"),

          ),

          body: Center(

            child: Column(

              children: <Widget>[

                widget.TextInput,

                Text(actionText),

                Checkbox(

                    value: checkBoxValue,

                    onChanged: (bool? newValue) {

                      setState(() {

                        checkBoxValue = newValue!;

                        if (newValue == true) {

                          actionText = "Checked";

                        } else {

                          actionText = "unChecked";

                        }

                      });

                    })

              ],

            ),

          )),

    );

  }

}

1. **Write a program to understand the working of buttons.**

**New vierson**

import 'package:flutter/material.dart';

void main() {

  runApp(const MyApp());

  TextInput:

  Text("Default Text");

}

class MyApp extends StatelessWidget {

  const MyApp({Key? key}) : super(key: key);

// This widget is the root of your application.

  @override

  Widget build(BuildContext context) {

    return MaterialApp(

      title: 'Flutter Demo',

      theme: ThemeData(

        primarySwatch: Colors.blue,

      ),

      home: const MyHomePage(title: 'Demo-5 StateFul Example'),

    );

  }

}

class MyHomePage extends StatefulWidget {

  const MyHomePage({Key? key, required this.title}) : super(key: key);

  final String title;

  @override

  State<MyHomePage> createState() => \_MyHomePageState();

}

class \_MyHomePageState extends State<MyHomePage> {

  int \_counter = 0;

  void \_incrementCounter() {

    setState(() {

      \_counter++;

    });

  }

  void \_decrementCounter() {

    setState(() {

      \_counter--;

    });

  }

  @override

  Widget build(BuildContext context) {

    return Scaffold(

      appBar: AppBar(

        title: Text(widget.title),

      ),

      body: Center(

        child: Column(

          mainAxisAlignment: MainAxisAlignment.center,

          children: <Widget>[

            Text(

              '$\_counter',

              style: Theme.of(context).textTheme.headline1,

            ),

            Row(

              mainAxisAlignment: MainAxisAlignment.center,

              children: [

                Padding(

                  padding: const EdgeInsets.all(8),

                  child: TextButton(

                    onPressed: \_incrementCounter,

                    child: Text('Add', style: TextStyle(fontSize: 30)),

                    style: TextButton.styleFrom(

                      padding: EdgeInsets.all(20),

                      foregroundColor: Colors.white,

                      backgroundColor: Colors.red,

                    )

                  ),

                ),

                Padding(

                    padding: const EdgeInsets.all(8),

                    child: TextButton(

                      onPressed: \_decrementCounter,

                      child: Text('Sub', style: TextStyle(fontSize: 30)),

                      style: TextButton.styleFrom(

                      padding: EdgeInsets.all(20),

                      foregroundColor: Colors.white,

                      backgroundColor: Colors.blue,

                    )

                    )),

              ],

            ),

          ],

        ),

      ),

    );

  }

}

**Old version**

import 'package:flutter/material.dart';

void main() { runApp(const MyApp());

TextInput:Text("Default Text");

}

class MyApp extends StatelessWidget {

const MyApp({Key? key}) : super(key: key);

*// This widget is the root of your application.*

@override

Widget build(BuildContext context) { return MaterialApp(

title: 'Flutter Demo', theme: ThemeData(

primarySwatch: Colors.*blue*,

),

home: const MyHomePage(title: 'Demo-5 StateFul Example'),

);

}

}

class MyHomePage extends StatefulWidget {

const MyHomePage({Key? key, required this.title}) : super(key: key);

final String title;

@override

State<MyHomePage> createState() => \_MyHomePageState();

}

class \_MyHomePageState extends State<MyHomePage> { int \_counter = 0;

void \_incrementCounter() { setState(() {

\_counter++;

});

}

void \_decrementCounter() { setState(() {

\_counter--;

});

}

@override

Widget build(BuildContext context) { return Scaffold(

appBar: AppBar(

title: Text(widget.title),

),

body: Center( child: Column(

mainAxisAlignment: MainAxisAlignment.center, children: <Widget>[

Text(

'$\_counter',

style: Theme.*of*(context).textTheme.headline1,

),

Row(

mainAxisAlignment: MainAxisAlignment.center, children: [ Padding(

padding: const EdgeInsets.all(8), child:

FlatButton (

onPressed: \_incrementCounter, child: Text('Add', style: TextStyle(fontSize: 30)), padding:

EdgeInsets.all(20), textColor: Colors.*white*,

color: Colors.*red*,),

),

Padding(

padding: const EdgeInsets.all(8), child: FlatButton

(

onPressed: \_decrementCounter, child: Text('Sub', style: TextStyle(fontSize: 30)), padding:

EdgeInsets.all(20), textColor: Colors.*white*, color: Colors.*blue*,)

),

],

),

],

),

),

);

}

}

1. **Write a program to show the working of the counter.**

import 'package:flutter/material.dart';

void main() {

  runApp(const MyApp());

}

class MyApp extends StatelessWidget {

  const MyApp({Key? key}) : super(key: key);

  @override

  Widget build(BuildContext context) {

    return MaterialApp(

      title: 'Flutter Demo',

      theme: ThemeData(

        primarySwatch: Colors.blue,

      ),

      home: const MyHomePage(title: 'Flutter Demo Home Page'),

    );

  }

}

class MyHomePage extends StatefulWidget {

  const MyHomePage({Key? key, required this.title}) : super(key: key);

  final String title;

  @override

  State<MyHomePage> createState() => \_MyHomePageState();

}

class \_MyHomePageState extends State<MyHomePage> {

  int \_counter = 0;

  void \_incrementCounter() {

    setState(() {

      \_counter++;

    });

  }

  @override

  Widget build(BuildContext context) {

    return Scaffold(

      appBar: AppBar(

        title: Text(widget.title),

      ),

      body: Center(

        child: Column(

          mainAxisAlignment: MainAxisAlignment.center,

          children: <Widget>[

            const Text(

              'You have pushed the button this many times:',

            ),

            Text(

              '$\_counter',

              style: Theme.of(context).textTheme.headline4,

            ),

          ],

        ),

      ),

      floatingActionButton: FloatingActionButton(

        onPressed: \_incrementCounter,

        tooltip: 'Increment',

        child: const Icon(Icons.add),

      ),

    );

  }

}

1. **Write a flutter program using android studio: Flutter Navigation**

import 'package:flutter/material.dart';

import 'navigation/Home.dart';

import 'navigation/Dashboard.dart';

void main() {

  runApp(const MyApp());

}

class MyApp extends StatelessWidget {

  const MyApp({Key? key}) : super(key: key);

  @override

  Widget build(BuildContext context) {

    return MaterialApp(

        initialRoute: '/Home.dart',

        routes: {

          '/home': (context) => Home(),

          '/Dashboard': (context) => Dashboard(),

        },

        home: Home());

  }

}

class MyHomePage extends StatefulWidget {

  const MyHomePage({Key? key, required this.title}) : super(key: key);

  final String title;

  @override

  State<MyHomePage> createState() => \_MyHomePageState();

}

class \_MyHomePageState extends State<MyHomePage> {

  int \_counter = 0;

  void \_incrementCounter() {

    setState(() {

      \_counter++;

    });

  }

  @override

  Widget build(BuildContext context) {

    return Scaffold(

      appBar: AppBar(

        title: Text(widget.title),

      ),

      body: Center(

        child: Column(

          mainAxisAlignment: MainAxisAlignment.center,

          children: <Widget>[

            const Text(

              'You have pushed the button this many times:',

            ),

            Text(

              '$\_counter',

              style: Theme.of(context).textTheme.headline4,

            ),

          ],

        ),

      ),

      floatingActionButton: FloatingActionButton(

        onPressed: \_incrementCounter,

        tooltip: 'Increment',

        child: const Icon(Icons.add),

      ), // This trailing comma makes auto-formatting nicer for build methods.

    );

  }

}

## Dashboard.dart

import 'package:flutter/material.dart';

import 'Home.dart';

class Dashboard extends StatefulWidget {

  \_DashboardState createState() => \_DashboardState();

}

class \_DashboardState extends State<Dashboard> {

  @override

  Widget build(BuildContext context) {

    return Scaffold(

        appBar: AppBar(

          title: Text("Dashboard Screen"),

        ),

        body: Column(

          mainAxisAlignment: MainAxisAlignment.center,

          children: <Widget>[

            Text(

              "Welcome to Dashboard Screen",

              style: TextStyle(fontSize: 20),

            ),

            SizedBox(

              height: 10,

            ),

            Center(

                child: ElevatedButton(

                    onPressed: () {

                      Navigator.push(context,

                          MaterialPageRoute(builder: (context) => Home()));

                    },

                    child: Text(

                      'Move to Home Screen',

                      style:

                          TextStyle(fontSize: 20, fontWeight: FontWeight.bold),

                    )))

          ],

        ));

    throw UnimplementedError();

  }

}

**Home.dart**

import 'package:flutter/material.dart';

import 'Dashboard.dart';

class Home extends StatefulWidget {

  \_HomeState createState() => \_HomeState();

}

class \_HomeState extends State<Home> {

  @override

  Widget build(BuildContext context) {

    return Scaffold(

        appBar: AppBar(

          title: Text("Home Screen"),

        ),

        body: Column(

          mainAxisAlignment: MainAxisAlignment.center,

          children: <Widget>[

            Text(

              "Welcome to Home Screen",

              style: TextStyle(fontSize: 20),

            ),

            SizedBox(

              height: 10,

            ),

            Center(

                child: ElevatedButton(

                    onPressed: () {

                      Navigator.push(context,

                          MaterialPageRoute(builder: (context) => Dashboard()));

                    },

                    child: Text(

                      'Move to Dashboard Screen',

                      style:

                          TextStyle(fontSize: 20, fontWeight: FontWeight.bold),

                    )))

          ],

        ));

    throw UnimplementedError();

  }

}