1:Design a Login Form with username and password using LinearLayout and toast valid credentials

MainActivity:

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

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

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

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

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:background="#00FFFFFF"

android:onClick="click"

tools:context=".MainActivity">

<LinearLayout

android:layout\_width="316dp"

android:layout\_height="569dp"

android:gravity="center|center\_horizontal"

android:orientation="vertical"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

tools:layout\_editor\_absoluteY="0dp">

<TextView

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Welcome Back!"

android:textAppearance="@style/TextAppearance.AppCompat.Body1"

android:textSize="34sp"

android:textStyle="bold" />

<EditText

android:id="@+id/mail"

style="@style/Widget.AppCompat.AutoCompleteTextView"

android:layout\_width="match\_parent"

android:layout\_height="61dp"

android:ems="10"

android:inputType="textEmailAddress"

android:selectAllOnFocus="true"

android:singleLine="true"

android:textSize="20sp" />

<Space

android:layout\_width="match\_parent"

android:layout\_height="11dp" />

<EditText

android:id="@+id/pass"

style="@style/Widget.AppCompat.EditText"

android:layout\_width="match\_parent"

android:layout\_height="61dp"

android:ems="10"

android:hint="Password"

android:inputType="textPassword"

android:textSize="20sp" />

<Button

android:id="@+id/button"

style="@style/Widget.Material3.Button"

android:layout\_width="match\_parent"

android:layout\_height="58dp"

android:backgroundTint="@color/purple\_500"

android:onClick="click"

android:shadowRadius="2"

android:text="Login"

android:textSize="20sp" />

</LinearLayout>

</androidx.constraintlayout.widget.ConstraintLayout>

Java:

package com.example.state;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

EditText mail;

EditText pass;

Button login;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

Toast.makeText(this, "OnCreate", Toast.LENGTH\_LONG).show();

mail=findViewById(R.id.mail);

pass=findViewById(R.id.pass);

login=findViewById(R.id.button);

}

public void click(View view) {

String s1=mail.getText().toString();

String s2=pass.getText().toString();

if (s1.equals("sisira") && s2.equals("123"))

{

Toast.makeText(this, "Login Successfull",Toast.LENGTH\_SHORT).show();

}

else

{

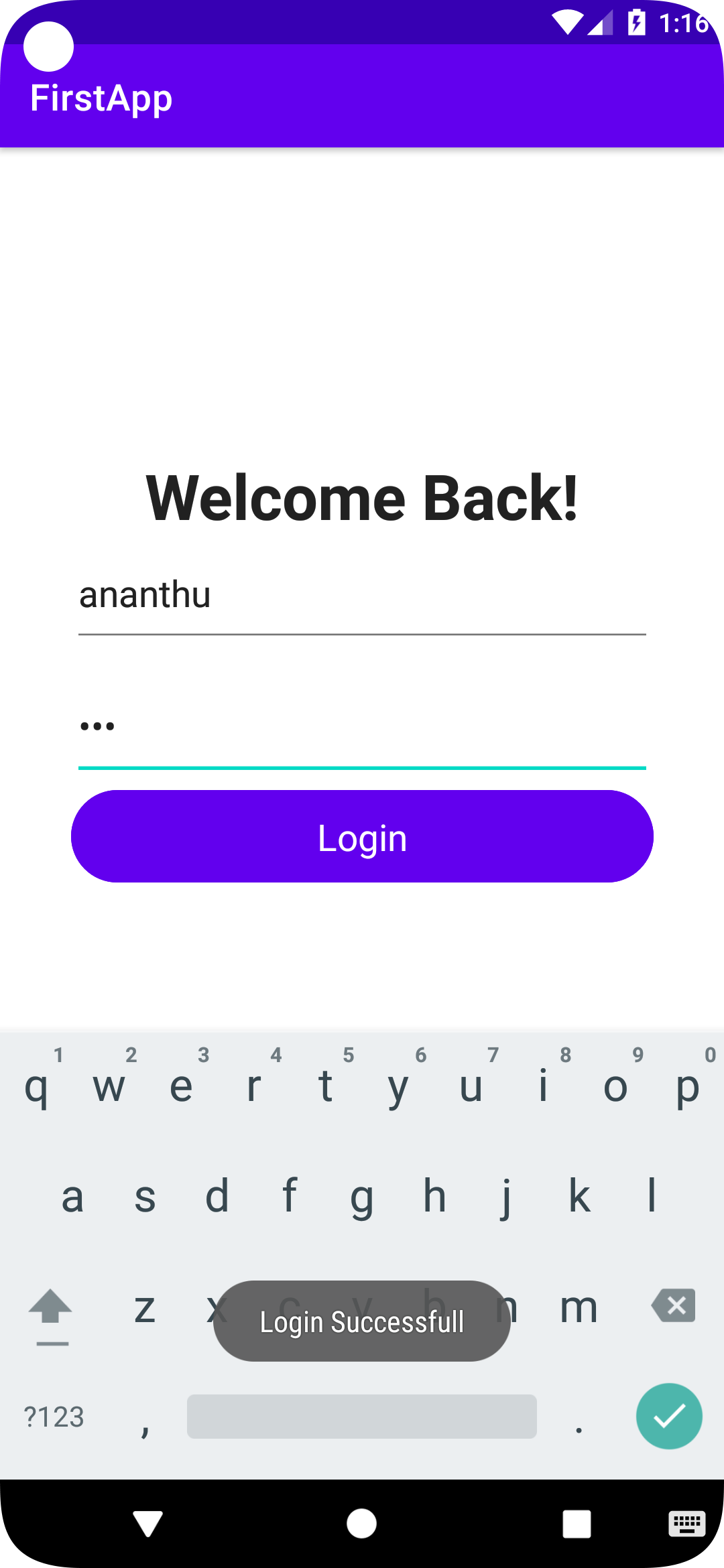
Toast.makeText(this,"Wrong Email or Password",Toast.LENGTH\_SHORT).show();

}

}

}

OUTPUT:



2. Write a program that demonstrates Activity Lifecycle.

MainActivity:

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

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

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

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

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:background="#00FFFFFF"

android:onClick="click"

tools:context=".MainActivity">

<LinearLayout

android:layout\_width="316dp"

android:layout\_height="569dp"

android:gravity="center|center\_horizontal"

android:orientation="vertical"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

tools:layout\_editor\_absoluteY="0dp">

<TextView

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Welcome Back!"

android:textAppearance="@style/TextAppearance.AppCompat.Body1"

android:textSize="34sp"

android:textStyle="bold" />

<EditText

android:id="@+id/mail"

style="@style/Widget.AppCompat.AutoCompleteTextView"

android:layout\_width="match\_parent"

android:layout\_height="61dp"

android:ems="10"

android:hint="Email"

android:inputType="textEmailAddress"

android:selectAllOnFocus="true"

android:singleLine="true"

android:textSize="20sp" />

<Space

android:layout\_width="match\_parent"

android:layout\_height="11dp" />

<EditText

android:id="@+id/pass"

style="@style/Widget.AppCompat.EditText"

android:layout\_width="match\_parent"

android:layout\_height="61dp"

android:ems="10"

android:hint="Password"

android:inputType="textPassword"

android:textSize="20sp" />

<Button

android:id="@+id/button"

style="@style/Widget.Material3.Button"

android:layout\_width="match\_parent"

android:layout\_height="58dp"

android:backgroundTint="@color/purple\_500"

android:onClick="click"

android:shadowRadius="2"

android:text="Login"

android:textSize="20sp" />

</LinearLayout>

</androidx.constraintlayout.widget.ConstraintLayout>

JAVA:

package com.example.state;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

EditText mail;

EditText pass;

Button login;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

Toast.makeText(this, "OnCreate", Toast.LENGTH\_LONG).show();

mail=findViewById(R.id.mail);

pass=findViewById(R.id.pass);

login=findViewById(R.id.button);

}

@Override

protected void onStart(){

super.onStart();

Toast.makeText(this, "OnStart", Toast.LENGTH\_LONG).show();

}

@Override

protected void onResume(){

super.onResume();

Toast.makeText(this, "OnResume", Toast.LENGTH\_LONG).show();

}

@Override

protected void onPause(){

super.onPause();

Toast.makeText(this, "OnPause", Toast.LENGTH\_LONG).show();

}

@Override

protected void onRestart(){

super.onRestart();

Toast.makeText(this, "onRestart", Toast.LENGTH\_LONG).show();

}

@Override

protected void onDestroy(){

super.onDestroy();

Toast.makeText(this, "onDestroy", Toast.LENGTH\_LONG).show();

}

@Override

protected void onStop(){

super.onStop();

Toast.makeText(this, "onStop", Toast.LENGTH\_LONG).show();

}

public void click(View view) {

String s1=mail.getText().toString();

String s2=pass.getText().toString();

if (s1.equals("ananthu") && s2.equals("123"))

{

Toast.makeText(this, "Login Successfull",Toast.LENGTH\_SHORT).show();

}

else

{

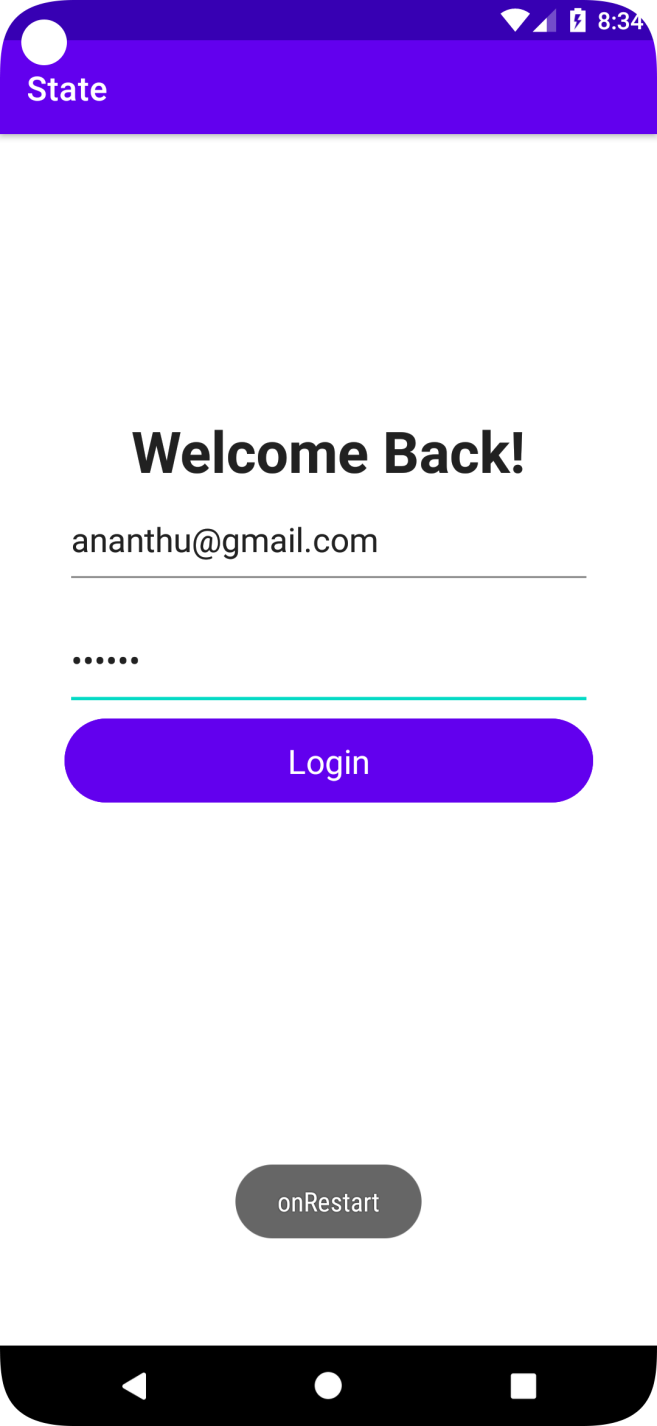
Toast.makeText(this,"Wrong Email or Password",Toast.LENGTH\_SHORT).show();

}

}

}

OUTPUT:



3. Implementing basic arithmetic operations of a simple calculator

MainActivity:

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

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

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

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

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:onClick="sum"

tools:context=".MainActivity">

<LinearLayout

android:layout\_width="359dp"

android:layout\_height="673dp"

android:gravity="center\_horizontal"

android:onClick="sub"

android:orientation="vertical"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

tools:layout\_editor\_absoluteY="0dp">

<Space

android:layout\_width="match\_parent"

android:layout\_height="84dp" />

<TextView

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Calculator"

android:textAppearance="@style/TextAppearance.AppCompat.Body1"

android:textSize="60sp"

android:textStyle="bold" />

<EditText

android:id="@+id/editTextNumber"

android:layout\_width="match\_parent"

android:layout\_height="62dp"

android:ems="10"

android:hint="Number 1:"

android:inputType="number"

android:textColorHint="#000000" />

<EditText

android:id="@+id/editTextNumber2"

android:layout\_width="match\_parent"

android:layout\_height="62dp"

android:ems="10"

android:hint="Number 2:"

android:inputType="number"

android:textColorHint="#000000" />

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="58dp"

android:gravity="clip\_horizontal|center|right|center\_horizontal"

android:orientation="horizontal">

<Button

android:id="@+id/button"

android:layout\_width="wrap\_content"

android:layout\_height="match\_parent"

android:onClick="sum"

android:text="+"

android:textSize="24sp" />

<Button

android:id="@+id/button2"

android:layout\_width="wrap\_content"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:onClick="sub"

android:text="-"

android:textSize="24sp" />

<Button

android:id="@+id/button3"

android:layout\_width="wrap\_content"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:onClick="mult"

android:text="\*"

android:textSize="24sp" />

<Button

android:id="@+id/button4"

android:layout\_width="wrap\_content"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:onClick="div"

android:text="/"

android:textSize="24sp" />

</LinearLayout>

<TextView

android:id="@+id/textView"

android:layout\_width="match\_parent"

android:layout\_height="55dp"

android:textAppearance="@style/TextAppearance.AppCompat.Body1"

android:textSize="34sp" />

</LinearLayout>

</androidx.constraintlayout.widget.ConstraintLayout>

Java:

package com.example.calculator;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.TextView;

import java.text.BreakIterator;

public class MainActivity extends AppCompatActivity {

EditText num1;

EditText num2;

Button b;

TextView answer;

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

num1=findViewById(R.id.editTextNumber);

num2=findViewById(R.id.editTextNumber2);

answer=findViewById(R.id.textView);

b=findViewById(R.id.button);

}

public void sum(View view){

int n1=Integer.parseInt(num1.getText().toString());

int n2=Integer.parseInt(num2.getText().toString());

int ans=n1+n2;

answer.setText("Answer is: "+ans);

}

public void sub(View view){

int n1=Integer.parseInt(num1.getText().toString());

int n2=Integer.parseInt(num2.getText().toString());

int ans=n1-n2;

answer.setText("Answer is: "+ans);

}

public void mult(View view){

int n1=Integer.parseInt(num1.getText().toString());

int n2=Integer.parseInt(num2.getText().toString());

int ans=n1\*n2;

answer.setText("Answer is: "+ans);

}

public void div(View view){

int n1=Integer.parseInt(num1.getText().toString());

int n2=Integer.parseInt(num2.getText().toString());

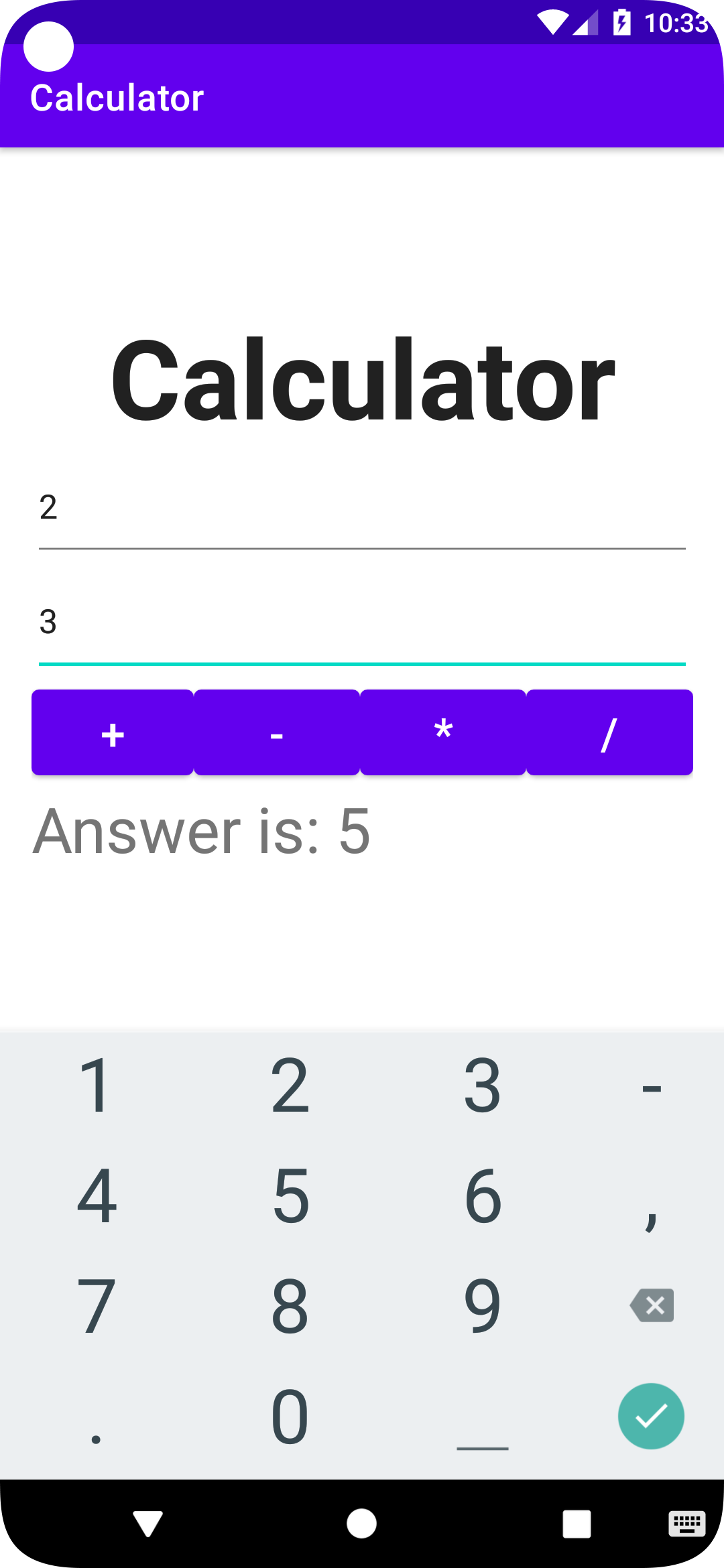
int ans=n1/n2;

answer.setText("Answer is: "+ans);

}

}

OUTPUT:



4. Implement validations on various UI controls

MainActivity:

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

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

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

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

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

tools:context=".MainActivity">

<LinearLayout

android:layout\_width="346dp"

android:layout\_height="725dp"

android:clipToPadding="true"

android:gravity="center\_horizontal"

android:orientation="vertical"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

tools:layout\_editor\_absoluteY="1dp">

<Space

android:layout\_width="match\_parent"

android:layout\_height="44dp" />

<TextView

android:id="@+id/textView"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:gravity="center"

android:text="Registration"

android:textAppearance="@style/TextAppearance.AppCompat.Large"

android:textSize="34sp" />

<Space

android:layout\_width="match\_parent"

android:layout\_height="44dp" />

<EditText

android:id="@+id/editTextTextPersonName"

android:layout\_width="match\_parent"

android:layout\_height="64dp"

android:ems="10"

android:hint="First Name"

android:inputType="textPersonName"

android:textAppearance="@style/TextAppearance.AppCompat.Large" />

<EditText

android:id="@+id/editTextTextPersonName4"

android:layout\_width="match\_parent"

android:layout\_height="64dp"

android:ems="10"

android:hint="Last Name"

android:inputType="textPersonName"

android:textAppearance="@style/TextAppearance.AppCompat.Large" />

<EditText

android:id="@+id/editTextTextPersonName2"

android:layout\_width="match\_parent"

android:layout\_height="67dp"

android:ems="10"

android:hint="Email"

android:inputType="textPersonName"

android:textAppearance="@style/TextAppearance.AppCompat.Large" />

<RadioGroup

android:id="@+id/grp"

android:layout\_width="match\_parent"

android:layout\_height="60dp"

android:orientation="horizontal">

<RadioButton

android:id="@+id/radioButton2"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Male"

android:textAppearance="@style/TextAppearance.AppCompat.Large" />

<RadioButton

android:id="@+id/radioButton3"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Female"

android:textAppearance="@style/TextAppearance.AppCompat.Large" />

<RadioButton

android:id="@+id/radioButton4"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Others"

android:textAppearance="@style/TextAppearance.AppCompat.Large" />

</RadioGroup>

<EditText

android:id="@+id/editTextDate"

android:layout\_width="match\_parent"

android:layout\_height="60dp"

android:ems="10"

android:hint="Date of Birth"

android:inputType="date"

android:textAppearance="@style/TextAppearance.AppCompat.Large" />

<EditText

android:id="@+id/editTextTextPassword"

android:layout\_width="match\_parent"

android:layout\_height="65dp"

android:ems="10"

android:hint="Password"

android:inputType="textPassword"

android:textAppearance="@style/TextAppearance.AppCompat.Large" />

<CheckBox

android:id="@+id/checkBox"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Agree? Privacy % Policy" />

<Button

android:id="@+id/button"

android:layout\_width="match\_parent"

android:layout\_height="62dp"

android:onClick="submit"

android:text="Sign Up" />

</LinearLayout>

</androidx.constraintlayout.widget.ConstraintLayout>

JAVA:

package com.example.registration;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.CheckBox;

import android.widget.EditText;

import android.widget.RadioButton;

import android.widget.RadioGroup;

import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

EditText fname,lname,email,dob,pass;

RadioGroup sex;

Button bt;

CheckBox ch;

RadioButton b1,b2,b3;

boolean isAll=false;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

fname=findViewById(R.id.editTextTextPersonName);

lname=findViewById(R.id.editTextTextPersonName4);

email=findViewById(R.id.editTextTextPersonName2);

sex=findViewById(R.id.grp);

b1=findViewById(R.id.radioButton2);

b2=findViewById(R.id.radioButton3);

b3=findViewById(R.id.radioButton4);

dob=findViewById(R.id.editTextDate);

pass=findViewById(R.id.editTextTextPassword);

ch=findViewById(R.id.checkBox);

bt=findViewById(R.id.button);

}

public void submit(View view) {

isAll=check();

if(isAll){

Toast.makeText(this, "Succesfully Registered", Toast.LENGTH\_SHORT).show();

}

}

private boolean check(){

if(fname.length()==0){

fname.setError("Enter First Name");

return false;

}

if(lname.length()==0){

lname.setError("Enter Last Name");

return false;

}

if(email.length()==0){

email.setError("Enter Email");

return false;

}

else{

String em=email.getText().toString();

String checkem="[a-zA-Z0-9.-\_]+@[a-z]+.+[a-z]";

if(!em.matches(checkem)){

email.setError("Invalid Email");

return false;

}

}

if(dob.length()==0){

dob.setError("Enter Date of Birth");

return false;

}

if(pass.length()==0){

pass.setError("Enter Password");

return false;

}

else if(pass.length()<8){

pass.setError("Password must have size of 8!");

return false;

}

if(sex.getCheckedRadioButtonId()==-1){

b3.setError("Enter Gender");

b3.requestFocus();

return false;

}

if(!ch.isChecked()){

ch.setError("Accept Privacy and Policy!");

ch.requestFocus();

return false;

}

return true;

}

}

OUTPUT:

