COURSE OUTCOME:2

PROGRAM:2

AIM: Design a simple Calculator using Grid Layout and Cascaded Linear Layout

SOURCE CODE:

Activity\_main.xml

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

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

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

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

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:background="#494949"

tools:context=".MainActivity">

<android.widget.GridLayout

android:id="@+id/gridLayout"

android:layout\_width="398dp"

android:layout\_height="496dp"

android:layout\_marginStart="1dp"

android:layout\_marginTop="45dp"

android:layout\_marginEnd="1dp"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toBottomOf="@+id/edt1">

<Button

android:id="@+id/button2"

android:layout\_width="100dp"

android:layout\_height="60dp"

android:text="C"

android:textSize="20sp"

app:layout\_column="0"

app:layout\_row="0" />

<Button

android:id="@+id/button3"

android:layout\_width="98dp"

android:layout\_height="60dp"

android:text="( )"

android:textSize="20sp"

app:layout\_column="1"

app:layout\_row="0" />

<Button

android:id="@+id/button4"

android:layout\_width="wrap\_content"

android:layout\_height="60dp"

android:text="%"

android:textSize="20sp"

app:layout\_column="2"

app:layout\_row="0" />

<Button

android:id="@+id/button5"

android:layout\_width="121dp"

android:layout\_height="64dp"

android:layout\_row="0"

android:layout\_column="3"

android:text="/"

android:textSize="20sp"

app:layout\_column="3"

app:layout\_row="0" />

<Button

android:id="@+id/button6"

android:layout\_width="91dp"

android:layout\_height="59dp"

android:layout\_row="1"

android:layout\_column="0"

android:text="7"

android:textSize="20sp"

app:layout\_column="0"

app:layout\_row="1" />

<Button

android:id="@+id/button7"

android:layout\_width="wrap\_content"

android:layout\_height="60dp"

android:layout\_row="2"

android:layout\_column="1"

android:text="4"

android:textSize="20sp"

app:layout\_column="0"

app:layout\_row="2" />

<Button

android:id="@+id/button8"

android:layout\_width="wrap\_content"

android:layout\_height="61dp"

android:layout\_row="1"

android:layout\_column="2"

android:text="1"

android:textSize="20sp"

app:layout\_column="0"

app:layout\_row="3" />

<Button

android:id="@+id/button9"

android:layout\_width="123dp"

android:layout\_height="65dp"

android:text="+/-"

android:textSize="20sp"

app:layout\_column="0"

app:layout\_row="4" />

<Button

android:id="@+id/button10"

android:layout\_width="wrap\_content"

android:layout\_height="61dp"

android:layout\_row="4"

android:layout\_column="0"

android:text="8"

android:textSize="20sp"

app:layout\_column="1"

app:layout\_row="1" />

<Button

android:id="@+id/button11"

android:layout\_width="wrap\_content"

android:layout\_height="59dp"

android:layout\_row="4"

android:layout\_column="1"

android:text="9"

android:textSize="20sp"

app:layout\_column="2"

app:layout\_row="1" />

<Button

android:id="@+id/button12"

android:layout\_width="113dp"

android:layout\_height="62dp"

android:layout\_row="2"

android:layout\_column="3"

android:text="\*"

android:textSize="20sp"

app:layout\_column="3"

app:layout\_row="1" />

<Button

android:id="@+id/button13"

android:layout\_width="wrap\_content"

android:layout\_height="61dp"

android:layout\_row="1"

android:layout\_column="1"

android:text="5"

android:textSize="20sp"

app:layout\_column="1"

app:layout\_row="2" />

<Button

android:id="@+id/button14"

android:layout\_width="wrap\_content"

android:layout\_height="64dp"

android:layout\_row="2"

android:layout\_column="2"

android:text="2"

android:textSize="20sp"

app:layout\_column="1"

app:layout\_row="3" />

<Button

android:id="@+id/button15"

android:layout\_width="wrap\_content"

android:layout\_height="60dp"

android:layout\_row="3"

android:layout\_column="2"

android:text="0"

android:textSize="20sp"

app:layout\_column="1"

app:layout\_row="4" />

<Button

android:id="@+id/button16"

android:layout\_width="wrap\_content"

android:layout\_height="60dp"

android:layout\_row="2"

android:layout\_column="0"

android:text="6"

android:textSize="20sp"

app:layout\_column="2"

app:layout\_row="2" />

<Button

android:id="@+id/button17"

android:layout\_width="wrap\_content"

android:layout\_height="61dp"

android:layout\_row="3"

android:layout\_column="0"

android:text="-"

android:textSize="20sp"

app:layout\_column="3"

app:layout\_row="2" />

<Button

android:id="@+id/button18"

android:layout\_width="wrap\_content"

android:layout\_height="59dp"

android:text="3"

android:textSize="20sp"

app:layout\_column="2"

app:layout\_row="3" />

<Button

android:id="@+id/button19"

android:layout\_width="wrap\_content"

android:layout\_height="61dp"

android:layout\_row="4"

android:layout\_column="2"

android:text="."

android:textSize="24sp"

app:layout\_column="2"

app:layout\_row="4" />

<Button

android:id="@+id/button20"

android:layout\_width="121dp"

android:layout\_height="59dp"

android:layout\_row="3"

android:layout\_column="3"

android:text="+"

android:textSize="20sp"

app:layout\_column="3"

app:layout\_row="3" />

<Button

android:id="@+id/button21"

android:layout\_width="111dp"

android:layout\_height="62dp"

android:layout\_row="4"

android:layout\_column="3"

android:text="="

android:textSize="20sp"

app:layout\_column="3"

app:layout\_row="4" />

</android.widget.GridLayout>

<EditText

android:id="@+id/edt1"

android:layout\_width="419dp"

android:layout\_height="109dp"

android:layout\_marginTop="140dp"

android:layout\_marginBottom="95dp"

android:background="#7c7a7a"

android:backgroundTint="#7c7a7a"

android:textSize="34sp"

app:layout\_constraintBottom\_toTopOf="@+id/gridLayout"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintHorizontal\_bias="0.0"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toTopOf="parent"

app:layout\_constraintVertical\_bias="1.0"

tools:ignore="MissingConstraints" />

<EditText

android:id="@+id/editTextTextPersonName2"

android:layout\_width="406dp"

android:layout\_height="61dp"

android:layout\_marginStart="1dp"

android:layout\_marginTop="15dp"

android:layout\_marginBottom="42dp"

android:background="#494949"

android:ems="10"

android:foregroundGravity="center"

android:gravity="center"

android:inputType="textPersonName"

android:text="Calculator"

android:textColor="#ffffff"

android:textSize="50sp"

android:textStyle="bold"

app:layout\_constraintBottom\_toTopOf="@+id/edt1"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

MainActivity.java

package com.example.gridlayout;

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 button0, button1, button2, button3, button4, button5, button6,

button7, button8, button9, buttonAdd, buttonSub, buttonDivision,

buttonMul, buttond, buttonC, buttonEqual,buttonperc;

EditText cEditText;

float mValueOne, mValueTwo;

boolean cAddition, mSubtract, cMultiplication, cDivision,cperc;

@Override

protected void onCreate(Bundle savedInstanceState)

{

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

button0 = (Button) findViewById(R.id.button15);

button1 = (Button) findViewById(R.id.button8);

button2 = (Button) findViewById(R.id.button14);

button3 = (Button) findViewById(R.id.button18);

button4 = (Button) findViewById(R.id.button7);

button5 = (Button) findViewById(R.id.button13);

button6 = (Button) findViewById(R.id.button16);

button7 = (Button) findViewById(R.id.button6);

button8 = (Button) findViewById(R.id.button10);

button9 = (Button) findViewById(R.id.button11);

buttond = (Button) findViewById(R.id.button19);

buttonAdd = (Button) findViewById(R.id.button20);

buttonSub = (Button) findViewById(R.id.button17);

buttonMul = (Button) findViewById(R.id.button12);

buttonDivision = (Button) findViewById(R.id.button5);

buttonC = (Button) findViewById(R.id.button2);

buttonperc = (Button) findViewById(R.id.button4);

buttonEqual = (Button) findViewById(R.id.button21);

cEditText = (EditText) findViewById(R.id.edt1);

button1.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

cEditText.setText(cEditText.getText() + "1");

}

});

button2.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

cEditText.setText(cEditText.getText() + "2");

}

});

button3.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

cEditText.setText(cEditText.getText() + "3");

}

});

button4.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

cEditText.setText(cEditText.getText() + "4");

}

});

button5.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

cEditText.setText(cEditText.getText() + "5");

}

});

button6.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

cEditText.setText(cEditText.getText() + "6");

}

});

button7.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

cEditText.setText(cEditText.getText() + "7");

}

});

button8.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

cEditText.setText(cEditText.getText() + "8");

}

});

button9.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

cEditText.setText(cEditText.getText() + "9");

}

});

button0.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

cEditText.setText(cEditText.getText() + "0");

}

});

buttonAdd.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

if (cEditText == null) {

cEditText.setText("");

} else {

mValueOne = Float.parseFloat(cEditText.getText() + "");

cAddition = true;

cEditText.setText(null);

}

}

});

buttonSub.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

mValueOne = Float.parseFloat(cEditText.getText() + "");

mSubtract = true;

cEditText.setText(null);

}

});

buttonMul.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

mValueOne = Float.parseFloat(cEditText.getText() + "");

cMultiplication = true;

cEditText.setText(null);

}

});

buttonDivision.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

mValueOne = Float.parseFloat(cEditText.getText() + "");

cDivision = true;

cEditText.setText(null);

}

});

buttonperc.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

mValueOne = Float.parseFloat(cEditText.getText() + "");

cperc = true;

cEditText.setText(null);

}

});

buttonEqual.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

mValueTwo = Float.parseFloat(cEditText.getText() + "");

if (cAddition == true) {

cEditText.setText(mValueOne + mValueTwo + "");

cAddition = false;

}

if (mSubtract == true) {

cEditText.setText(mValueOne - mValueTwo + "");

mSubtract = false;

}

if (cMultiplication == true) {

cEditText.setText(mValueOne \* mValueTwo + "");

cMultiplication = false;

}

if (cDivision == true) {

cEditText.setText(mValueOne / mValueTwo + "");

cDivision = false;

}

if (cperc == true) {

cEditText.setText((mValueOne / mValueTwo)\*100 + "");

cperc = false;

}

}

});

buttonC.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

cEditText.setText("");

}

});

buttond.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

cEditText.setText(cEditText.getText() + ".");

}

});

}

}

OUTPUT:

