**Practical - 1**

**Code:-**

**MainActivity.java:-**

package com.example.calculator23;

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 {

TextView inputText, outputText;

private String input, output, newOutput;

private Button button0, button1, button2, button3, button4, button5, button6, button7,

button8, button9, buttonAdd, buttonMultiply, buttonSubs, buttonDivision, buttonPoint, buttonPercent,

buttonPower, buttonEqual, buttonClear;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.*activity\_main*);

inputText = findViewById(R.id.*input\_text*);

outputText = findViewById(R.id.*output\_text*);

button0 = findViewById(R.id.*btn0*);

button1 = findViewById(R.id.*btn1*);

button2 = findViewById(R.id.*btn2*);

button3 = findViewById(R.id.*btn3*);

button4 = findViewById(R.id.*btn4*);

button5 = findViewById(R.id.*btn5*);

button6 = findViewById(R.id.*btn6*);

button7 = findViewById(R.id.*btn7*);

button8 = findViewById(R.id.*btn8*);

button9 = findViewById(R.id.*btn9*);

buttonAdd = findViewById(R.id.*addition\_btn*);

buttonMultiply = findViewById(R.id.*multiply\_btn*);

buttonDivision = findViewById(R.id.*division\_btn*);

buttonSubs = findViewById(R.id.*substraction\_btn*);

buttonPoint = findViewById(R.id.*btnpoint*);

buttonPower = findViewById(R.id.*power\_btn*);

buttonEqual = findViewById(R.id.*equal\_btn*);

buttonPercent = findViewById(R.id.*percent\_btn*);

buttonClear = findViewById(R.id.*clear\_btn*);

}

public void onButtonClicked(View view) {

Button button = (Button) view;

String data = button.getText().toString();

switch (data) {

case "C":

input = null;

output=null;

newOutput=null;

outputText.setText("");

break;

case "^":

solve();

input += "^";

break;

case "\*":

solve();

input += "\*";

break;

case "=":

solve();

break;

case "%":

input += "%";

double d = Double.*parseDouble*(inputText.getText().toString()) / 100;

outputText.setText(String.*valueOf*(d));

break;

default:

if (input == null) {

input = "";

}

if (data.equals("+") || data.equals("/") || data.equals("-")) {

solve();

}

input += data;

}

inputText.setText(input);

}

private void solve() {

if (input.split("\\+").length == 2) {

String numbers[] = input.split("\\+");

try {

double d = Double.*parseDouble*(numbers[0]) + Double.*parseDouble*(numbers[1]);

output = Double.*toString*(d);

newOutput = cutDecimal(output);

outputText.setText(newOutput);

input = d +"";

}catch (Exception e) {

outputText.setText(e.getMessage().toString());

}

}

if (input.split("\\\*").length == 2) {

String numbers[] = input.split("\\\*");

try {

double d = Double.*parseDouble*(numbers[0]) \* Double.*parseDouble*(numbers[1]);

output = Double.*toString*(d);

newOutput = cutDecimal(output);

outputText.setText(newOutput);

input = d +"";

}catch (Exception e){

outputText.setText(e.getMessage().toString());

}

}

if (input.split("\\/").length == 2) {

String numbers[] = input.split("\\/");

try {

double d = Double.*parseDouble*(numbers[0]) / Double.*parseDouble*(numbers[1]);

output = Double.*toString*(d);

newOutput = cutDecimal(output);

outputText.setText(newOutput);

input = d +"";

}catch (Exception e){

outputText.setText(e.getMessage().toString());

}

}

if (input.split("\\^").length == 2) {

String numbers[] = input.split("\\^");

try {

double d = Math.*pow*(Double.*parseDouble*(numbers[0]), Double.*parseDouble*(numbers[1]));

output = Double.*toString*(d);

newOutput = cutDecimal(output);

outputText.setText(newOutput);

input = d +"";

}catch (Exception e){

outputText.setText(e.getMessage().toString());

}

}

if (input.split("\\-").length == 2) {

String numbers[] = input.split("\\-");

try {

if (Double.*parseDouble*(numbers[0]) < Double.*parseDouble*(numbers[1])){

double d = Double.*parseDouble*(numbers[1]) - Double.*parseDouble*(numbers[0]);

output = Double.*toString*(d);

newOutput = cutDecimal(output);

outputText.setText("-" + newOutput);

input = d +"";

}

else {

double d = Double.*parseDouble*(numbers[0]) - Double.*parseDouble*(numbers[1]);

output = Double.*toString*(d);

newOutput = cutDecimal(output);

outputText.setText(newOutput);

input = d + "";

}

}catch (Exception e){

outputText.setText(e.getMessage().toString());

}

}

}

private String cutDecimal(String number){

String n [] = number.split("\\.");

if (n.length >1){

if (n[1].equals("0")){

number = n[0];

}

}

return number;

}

}

**Activity\_main.xml:-**

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

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"

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

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

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:orientation="vertical"

tools:context=".MainActivity">

<include

layout="@layout/item"

android:layout\_width="match\_parent"

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

<RelativeLayout

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:background="@color/colorPrimaryDark"

android:gravity="bottom">

<include

layout="@layout/buttons\_layout"

android:layout\_width="match\_parent"

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

</RelativeLayout>

</LinearLayout>

**Buttons\_layout.xml:-**

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

**<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"**

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

**android:layout\_height="wrap\_content">**

**<GridLayout**

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

**android:layout\_height="wrap\_content"**

**android:rowCount="5"**

**android:columnCount="4">**

**<Button**

**android:id="@+id/clear\_btn"**

**android:layout\_width="wrap\_content"**

**android:layout\_height="100dp"**

**android:text="C"**

**android:textColor="@color/colorWhite"**

**android:background="@color/colorPrimaryDark"**

**android:textSize="25sp"**

**android:layout\_row="0"**

**android:layout\_column="0"**

**android:layout\_columnWeight="1"**

**android:onClick="onButtonClicked"/>**

**<Button**

**android:id="@+id/power\_btn"**

**android:layout\_width="wrap\_content"**

**android:layout\_height="100dp"**

**android:text="^"**

**android:textColor="@color/colorWhite"**

**android:background="@color/colorPrimaryDark"**

**android:textSize="25sp"**

**android:layout\_row="0"**

**android:layout\_column="1"**

**android:layout\_columnWeight="1"**

**android:onClick="onButtonClicked"/>**

**<Button**

**android:id="@+id/percent\_btn"**

**android:layout\_width="wrap\_content"**

**android:layout\_height="100dp"**

**android:text="%"**

**android:textColor="@color/colorWhite"**

**android:background="@color/colorPrimaryDark"**

**android:textSize="25sp"**

**android:layout\_row="0"**

**android:layout\_column="2"**

**android:layout\_columnWeight="1"**

**android:onClick="onButtonClicked"/>**

**<Button**

**android:id="@+id/division\_btn"**

**android:layout\_width="wrap\_content"**

**android:layout\_height="100dp"**

**android:text="/"**

**android:textColor="@color/colorWhite"**

**android:background="@color/colorPrimaryDark"**

**android:textSize="25sp"**

**android:layout\_row="0"**

**android:layout\_column="3"**

**android:layout\_columnWeight="1"**

**android:onClick="onButtonClicked"/>**

**<Button**

**android:id="@+id/btn7"**

**android:layout\_width="wrap\_content"**

**android:layout\_height="100dp"**

**android:text="7"**

**android:textColor="@color/colorWhite"**

**android:background="@color/colorPrimaryDark"**

**android:textSize="25sp"**

**android:layout\_row="1"**

**android:layout\_column="0"**

**android:layout\_columnWeight="1"**

**android:onClick="onButtonClicked"/>**

**<Button**

**android:id="@+id/btn8"**

**android:layout\_width="wrap\_content"**

**android:layout\_height="100dp"**

**android:text="8"**

**android:textColor="@color/colorWhite"**

**android:background="@color/colorPrimaryDark"**

**android:textSize="25sp"**

**android:layout\_row="1"**

**android:layout\_column="1"**

**android:layout\_columnWeight="1"**

**android:onClick="onButtonClicked"/>**

**<Button**

**android:id="@+id/btn9"**

**android:layout\_width="wrap\_content"**

**android:layout\_height="100dp"**

**android:text="9"**

**android:textColor="@color/colorWhite"**

**android:background="@color/colorPrimaryDark"**

**android:textSize="25sp"**

**android:layout\_row="1"**

**android:layout\_column="2"**

**android:layout\_columnWeight="1"**

**android:onClick="onButtonClicked"/>**

**<Button**

**android:id="@+id/multiply\_btn"**

**android:layout\_width="wrap\_content"**

**android:layout\_height="100dp"**

**android:text="\*"**

**android:textColor="@color/colorWhite"**

**android:background="@color/colorPrimaryDark"**

**android:textSize="25sp"**

**android:layout\_row="1"**

**android:layout\_column="3"**

**android:layout\_columnWeight="1"**

**android:onClick="onButtonClicked"/>**

**<Button**

**android:id="@+id/btn4"**

**android:layout\_width="wrap\_content"**

**android:layout\_height="100dp"**

**android:text="4"**

**android:textColor="@color/colorWhite"**

**android:background="@color/colorPrimaryDark"**

**android:textSize="25sp"**

**android:layout\_row="2"**

**android:layout\_column="0"**

**android:layout\_columnWeight="1"**

**android:onClick="onButtonClicked"/>**

**<Button**

**android:id="@+id/btn5"**

**android:layout\_width="wrap\_content"**

**android:layout\_height="100dp"**

**android:text="5"**

**android:textColor="@color/colorWhite"**

**android:background="@color/colorPrimaryDark"**

**android:textSize="25sp"**

**android:layout\_row="2"**

**android:layout\_column="1"**

**android:layout\_columnWeight="1"**

**android:onClick="onButtonClicked"/>**

**<Button**

**android:id="@+id/btn6"**

**android:layout\_width="wrap\_content"**

**android:layout\_height="100dp"**

**android:text="6"**

**android:textColor="@color/colorWhite"**

**android:background="@color/colorPrimaryDark"**

**android:textSize="25sp"**

**android:layout\_row="2"**

**android:layout\_column="2"**

**android:layout\_columnWeight="1"**

**android:onClick="onButtonClicked"/>**

**<Button**

**android:id="@+id/substraction\_btn"**

**android:layout\_width="wrap\_content"**

**android:layout\_height="100dp"**

**android:text="-"**

**android:textColor="@color/colorWhite"**

**android:background="@color/colorPrimaryDark"**

**android:textSize="25sp"**

**android:layout\_row="2"**

**android:layout\_column="3"**

**android:layout\_columnWeight="1"**

**android:onClick="onButtonClicked"/>**

**<Button**

**android:id="@+id/btn1"**

**android:layout\_width="wrap\_content"**

**android:layout\_height="100dp"**

**android:text="1"**

**android:textColor="@color/colorWhite"**

**android:background="@color/colorPrimaryDark"**

**android:textSize="25sp"**

**android:layout\_row="3"**

**android:layout\_column="0"**

**android:layout\_columnWeight="1"**

**android:onClick="onButtonClicked"/>**

**<Button**

**android:id="@+id/btn2"**

**android:layout\_width="wrap\_content"**

**android:layout\_height="100dp"**

**android:text="2"**

**android:textColor="@color/colorWhite"**

**android:background="@color/colorPrimaryDark"**

**android:textSize="25sp"**

**android:layout\_row="3"**

**android:layout\_column="1"**

**android:layout\_columnWeight="1"**

**android:onClick="onButtonClicked"/>**

**<Button**

**android:id="@+id/btn3"**

**android:layout\_width="wrap\_content"**

**android:layout\_height="100dp"**

**android:text="3"**

**android:textColor="@color/colorWhite"**

**android:background="@color/colorPrimaryDark"**

**android:textSize="25sp"**

**android:layout\_row="3"**

**android:layout\_column="2"**

**android:layout\_columnWeight="1"**

**android:onClick="onButtonClicked"/>**

**<Button**

**android:id="@+id/addition\_btn"**

**android:layout\_width="wrap\_content"**

**android:layout\_height="100dp"**

**android:text="+"**

**android:textColor="@color/colorWhite"**

**android:background="@color/colorPrimaryDark"**

**android:textSize="25sp"**

**android:layout\_row="3"**

**android:layout\_column="3"**

**android:layout\_columnWeight="1"**

**android:onClick="onButtonClicked"/>**

**<Button**

**android:id="@+id/btn0"**

**android:layout\_width="wrap\_content"**

**android:layout\_height="100dp"**

**android:text="0"**

**android:textColor="@color/colorWhite"**

**android:background="@color/colorPrimaryDark"**

**android:textSize="25sp"**

**android:layout\_row="4"**

**android:layout\_column="0"**

**android:layout\_columnWeight="1"**

**android:onClick="onButtonClicked"/>**

**<Button**

**android:id="@+id/btnpoint"**

**android:layout\_width="wrap\_content"**

**android:layout\_height="100dp"**

**android:text="."**

**android:textColor="@color/colorWhite"**

**android:background="@color/colorPrimaryDark"**

**android:textSize="25sp"**

**android:layout\_row="4"**

**android:layout\_column="1"**

**android:layout\_columnWeight="1"**

**android:onClick="onButtonClicked"/>**

**<Button**

**android:id="@+id/equal\_btn"**

**android:layout\_width="wrap\_content"**

**android:layout\_height="100dp"**

**android:text="="**

**android:textColor="@color/colorWhite"**

**android:background="@color/colorPrimary"**

**android:textSize="25sp"**

**android:layout\_row="4"**

**android:layout\_column="2"**

**android:layout\_columnWeight="1"**

**android:onClick="onButtonClicked"**

**android:layout\_columnSpan="2"/>**

**</GridLayout>**

**</RelativeLayout>**

**Item.xml:-**

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

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"

android:orientation="vertical"

android:layout\_width="match\_parent"

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

<TextView

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

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="1234"

android:textSize="40sp"

android:textColor="@color/colorWhite"

android:padding="10dp"

android:layout\_gravity="end"/>

<TextView

android:id="@+id/output\_text"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="1234"

android:textSize="60sp"

android:textColor="@color/colorWhite"

android:padding="10dp"

android:layout\_gravity="end"/>

</LinearLayout>

**Color.xml:-**

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

<resources>

<color name="colorPrimary">#FF7F50</color>

<color name="colorPrimaryDark">#373331</color>

<color name="colorAccent">#03DAC5</color>

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

</resources>

**Output:-**