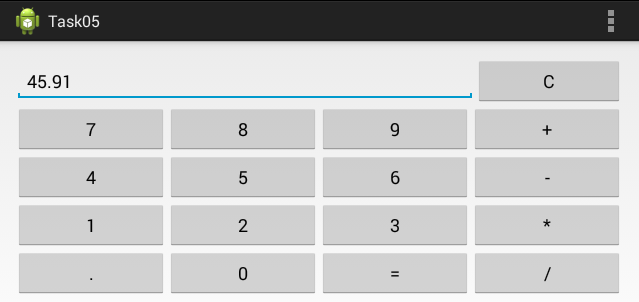
1. Implement a full functional calculator using appropriate layout and event handling technique.



XML CODE  
*<?***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:id="@+id/relative1"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity"**>  
  
 <**EditText  
 android:id="@+id/edt1"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginHorizontal="20dp"  
 android:layout\_marginTop="20dp"**/>  
  
  
 <**Button  
 android:id="@+id/button1"  
 style="?android:attr/buttonStyleSmall"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignEnd="@+id/button4"  
 android:layout\_alignRight="@+id/button4"  
 android:layout\_below="@+id/edt1"  
 android:layout\_marginTop="94dp"  
 android:text="1"** />  
  
 <**Button  
 android:id="@+id/button2"  
 style="?android:attr/buttonStyleSmall"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignTop="@+id/button1"  
 android:layout\_toLeftOf="@+id/button3"  
 android:layout\_toStartOf="@+id/button3"  
 android:text="2"** />  
  
 <**Button  
 android:id="@+id/button3"  
 style="?android:attr/buttonStyleSmall"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignTop="@+id/button2"  
 android:layout\_centerHorizontal="true"  
 android:text="3"** />  
  
 <**Button  
 android:id="@+id/button4"  
 style="?android:attr/buttonStyleSmall"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/button1"  
 android:layout\_toLeftOf="@+id/button2"  
 android:text="4"** />  
  
 <**Button  
 android:id="@+id/button5"  
 style="?android:attr/buttonStyleSmall"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignBottom="@+id/button4"  
 android:layout\_alignLeft="@+id/button2"  
 android:layout\_alignStart="@+id/button2"  
 android:text="5"** />  
  
 <**Button  
 android:id="@+id/button6"  
 style="?android:attr/buttonStyleSmall"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignLeft="@+id/button3"  
 android:layout\_alignStart="@+id/button3"  
 android:layout\_below="@+id/button3"  
 android:text="6"** />  
  
 <**Button  
 android:id="@+id/button7"  
 style="?android:attr/buttonStyleSmall"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/button4"  
 android:layout\_toLeftOf="@+id/button2"  
 android:text="7"** />  
  
 <**Button  
 android:id="@+id/button8"  
 style="?android:attr/buttonStyleSmall"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignLeft="@+id/button5"  
 android:layout\_alignStart="@+id/button5"  
 android:layout\_below="@+id/button5"  
 android:text="8"** />  
  
 <**Button  
 android:id="@+id/button9"  
 style="?android:attr/buttonStyleSmall"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignLeft="@+id/button6"  
 android:layout\_alignStart="@+id/button6"  
 android:layout\_below="@+id/button6"  
 android:text="9"** />  
  
 <**Button  
 android:id="@+id/buttonadd"  
 style="?android:attr/buttonStyleSmall"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignTop="@+id/button3"  
 android:layout\_alignEnd="@+id/edt1"  
 android:layout\_alignRight="@+id/edt1"  
 android:layout\_marginStart="46dp"  
 android:layout\_marginLeft="46dp"  
 android:layout\_toRightOf="@+id/button3"  
 android:layout\_marginRight="20dp"  
 android:text="+"** />  
  
 <**Button  
 android:id="@+id/buttonsub"  
 style="?android:attr/buttonStyleSmall"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/buttonadd"  
 android:layout\_alignStart="@+id/buttonadd"  
 android:layout\_alignLeft="@+id/buttonadd"  
 android:layout\_alignEnd="@+id/buttonadd"  
 android:layout\_alignRight="@+id/buttonadd"  
 android:text="-"** />  
  
 <**Button  
 android:id="@+id/buttonmul"  
 style="?android:attr/buttonStyleSmall"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/buttonsub"  
 android:layout\_alignStart="@+id/buttonsub"  
 android:layout\_alignLeft="@+id/buttonsub"  
 android:layout\_alignParentEnd="true"  
 android:layout\_alignParentRight="true"  
 android:layout\_marginRight="20dp"  
 android:text="\*"** />  
  
 <**Button  
 android:id="@+id/button10"  
 style="?android:attr/buttonStyleSmall"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/button7"  
 android:layout\_toLeftOf="@+id/button2"  
 android:text="."** />  
  
 <**Button  
 android:id="@+id/button0"  
 style="?android:attr/buttonStyleSmall"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignLeft="@+id/button8"  
 android:layout\_alignStart="@+id/button8"  
 android:layout\_below="@+id/button8"  
 android:text="0"** />  
  
 <**Button  
 android:id="@+id/buttonC"  
 style="?android:attr/buttonStyleSmall"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignLeft="@+id/button9"  
 android:layout\_alignStart="@+id/button9"  
 android:layout\_below="@+id/button9"  
 android:text="C"** />  
  
 <**Button  
 android:id="@+id/buttondiv"  
 style="?android:attr/buttonStyleSmall"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignEnd="@+id/buttonmul"  
 android:layout\_alignLeft="@+id/buttonmul"  
 android:layout\_alignRight="@+id/buttonmul"  
 android:layout\_alignStart="@+id/buttonmul"  
 android:layout\_below="@+id/buttonmul"  
 android:text="/"** />  
  
 <**Button  
 android:id="@+id/buttoneql"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignEnd="@+id/buttondiv"  
 android:layout\_alignLeft="@+id/button10"  
 android:layout\_alignRight="@+id/buttondiv"  
 android:layout\_alignStart="@+id/button10"  
 android:layout\_below="@+id/button0"  
 android:layout\_marginTop="37dp"  
 android:layout\_marginRight="20dp"  
 android:text="="** />  
  
</**RelativeLayout**>

JAVA CODE  
**package** com.example.lab;  
  
**import** android.os.Bundle;  
**import** androidx.appcompat.app.AppCompatActivity;  
**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**, **button10**, **buttonC**, **buttonEqual**;  
 EditText **editText**;  
  
 **float mValueOne**, **mValueTwo**;  
  
 **boolean Addition**, **Subtract**, **Multiplication**, **Division**;  
  
 @Override  
 **protected void** onCreate(Bundle savedInstanceState) {  
 **super**.onCreate(savedInstanceState);  
 setContentView(R.layout.***activity\_main***);  
  
 **button0** = (Button) findViewById(R.id.***button0***);  
 **button1** = (Button) findViewById(R.id.***button1***);  
 **button2** = (Button) findViewById(R.id.***button2***);  
 **button3** = (Button) findViewById(R.id.***button3***);  
 **button4** = (Button) findViewById(R.id.***button4***);  
 **button5** = (Button) findViewById(R.id.***button5***);  
 **button6** = (Button) findViewById(R.id.***button6***);  
 **button7** = (Button) findViewById(R.id.***button7***);  
 **button8** = (Button) findViewById(R.id.***button8***);  
 **button9** = (Button) findViewById(R.id.***button9***);  
 **button10** = (Button) findViewById(R.id.***button10***);  
 **buttonAdd** = (Button) findViewById(R.id.***buttonadd***);  
 **buttonSub** = (Button) findViewById(R.id.***buttonsub***);  
 **buttonMul** = (Button) findViewById(R.id.***buttonmul***);  
 **buttonDivision** = (Button) findViewById(R.id.***buttondiv***);  
 **buttonC** = (Button) findViewById(R.id.***buttonC***);  
 **buttonEqual** = (Button) findViewById(R.id.***buttoneql***);  
 **editText** = (EditText) findViewById(R.id.***edt1***);  
  
  
 **button1**.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
 **editText**.setText(**editText**.getText() + **"1"**);  
 }  
 });  
  
 **button2**.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
 **editText**.setText(**editText**.getText() + **"2"**);  
 }  
 });  
  
 **button3**.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
 **editText**.setText(**editText**.getText() + **"3"**);  
 }  
 });  
  
 **button4**.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
 **editText**.setText(**editText**.getText() + **"4"**);  
 }  
 });  
  
 **button5**.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
 **editText**.setText(**editText**.getText() + **"5"**);  
 }  
 });  
  
 **button6**.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
 **editText**.setText(**editText**.getText() + **"6"**);  
 }  
 });  
  
 **button7**.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
 **editText**.setText(**editText**.getText() + **"7"**);  
 }  
 });  
  
 **button8**.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
 **editText**.setText(**editText**.getText() + **"8"**);  
 }  
 });  
  
 **button9**.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
 **editText**.setText(**editText**.getText() + **"9"**);  
 }  
 });  
  
 **button0**.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
 **editText**.setText(**editText**.getText() + **"0"**);  
 }  
 });  
  
 **buttonAdd**.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
  
 **if** (**editText** == **null**) {  
 **editText**.setText(**""**);  
 } **else** {  
 **mValueOne** = Float.*parseFloat*(**editText**.getText() + **""**);  
 **Addition** = **true**;  
 **editText**.setText(**null**);  
 }  
 }  
 });  
  
 **buttonSub**.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
 **mValueOne** = Float.*parseFloat*(**editText**.getText() + **""**);  
 **Subtract** = **true**;  
 **editText**.setText(**null**);  
 }  
 });  
  
 **buttonMul**.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
 **mValueOne** = Float.*parseFloat*(**editText**.getText() + **""**);  
 **Multiplication** = **true**;  
 **editText**.setText(**null**);  
 }  
 });  
  
 **buttonDivision**.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
 **mValueOne** = Float.*parseFloat*(**editText**.getText() + **""**);  
 **Division** = **true**;  
 **editText**.setText(**null**);  
 }  
 });  
  
 **buttonEqual**.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
 **mValueTwo** = Float.*parseFloat*(**editText**.getText() + **""**);  
 **if** (**Addition** == **true**) {  
 **editText**.setText(**mValueOne** + **mValueTwo** + **""**);  
 **Addition** = **false**;  
 }  
 **if** (**Subtract** == **true**) {  
 **editText**.setText(**mValueOne** - **mValueTwo** + **""**);  
 **Subtract** = **false**;  
 }  
 **if** (**Multiplication** == **true**) {  
 **editText**.setText(**mValueOne** \* **mValueTwo** + **""**);  
 **Multiplication** = **false**;  
 }  
 **if** (**Division** == **true**) {  
 **editText**.setText(**mValueOne** / **mValueTwo** + **""**);  
 **Division** = **false**;  
 }  
 }  
 });  
 **buttonC**.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
 **editText**.setText(**""**);  
 }  
 });  
 **button10**.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
 **editText**.setText(**editText**.getText() + **"."**);  
 }  
 });  
 }  
}  
OUTPUT

