

PRACTICAL NO: 1

Aim: Java Android Program to Perform all Operations using Calculators (addition, subtraction, multiplication, and division, Log, Clear).

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"
    tools:context=".MainActivity"
    android:orientation="vertical">
    <EditText
        android:id="@+id/editText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:background="@color/gray"
        android:gravity="right|center"
        android:textColor="@color/black"
        android:textSize="40pt"
        android:ems="10"
        android:inputType="textPersonName"
        android:text=""
        android:layout_marginBottom="1pt"/>

    <TableLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        >

        <TableRow
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:layout_marginBottom="1pt">

            <Button
                android:id="@+id/buAC"
                android:layout_width="30pt"
                android:layout_height="30pt"
                android:layout_marginRight="1pt"
                android:layout_weight="1"
                android:background="@color/teal"
                android:text="AC"
                android:textColor="#A1887F"
                app:backgroundTint="@color/teal"
                android:onClick="acEvent"></Button>

            <Button
                android:id="@+id/buLog"
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        android:layout_width="30pt"
        android:layout_height="30pt"
        android:layout_marginRight="1pt"
        android:layout_weight="1"
        android:background="@color/teal"
        android:text="Log"
        android:textColor="#A1887F"
        app:backgroundTint="@color/teal"
        android:onClick="logEvent"></Button>

<Button
    android:id="@+id/buDivide"
    android:layout_width="30pt"
    android:layout_height="30pt"
    android:layout_marginRight="1pt"
    android:layout_weight="1"
    android:background="@color/teal"
    android:text="/"
    android:textColor="#A1887F"
    app:backgroundTint="@color/teal"
    android:onClick="operatorEvent"></Button>

<Button
    android:id="@+id/buMultiply"
    android:layout_width="30pt"
    android:layout_height="30pt"
    android:layout_marginRight="1pt"
    android:layout_weight="1"
    android:background="@color/teal_700"
    android:text="*"
    android:textColor="#000000"
    app:backgroundTint="@color/teal_700"
    android:onClick="operatorEvent"></Button>
</TableRow>

<TableRow
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_marginBottom="1pt">

    <Button
        android:id="@+id/bu7"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:layout_marginRight="1pt"
        android:layout_weight="1"
        android:background="@color/teal"
        android:text="7"
        android:textColor="#A1887F"
        app:backgroundTint="@color/teal"
        android:onClick="numberEvent"></Button>

    <Button
        android:id="@+id/bu8"
        android:layout_width="30pt"
        android:layout_height="30pt"

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        android:layout_marginRight="1pt"
        android:layout_weight="1"
        android:background="@color/teal"
        android:text="8"
        android:textColor="#A1887F"
        app:backgroundTint="@color/teal"
        android:onClick="numberEvent"></Button>

<Button
    android:id="@+id/bu9"
    android:layout_width="30pt"
    android:layout_height="30pt"
    android:layout_marginRight="1pt"
    android:layout_weight="1"
    android:background="@color/teal"
    android:text="9"
    android:textColor="#A1887F"
    app:backgroundTint="@color/teal"
    android:onClick="numberEvent"></Button>

<Button
    android:id="@+id/buPercent"
    android:layout_width="30pt"
    android:layout_height="30pt"
    android:layout_marginRight="1pt"
    android:layout_weight="1"
    android:background="@color/teal_700"
    android:text="%"
    android:textColor="#000000"
    app:backgroundTint="@color/teal_700"
    android:onClick="percentEvent"
    ></Button>
</TableRow>
<TableRow
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_marginBottom="1pt">

    <Button
        android:id="@+id/bu4"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:layout_marginRight="1pt"
        android:layout_weight="1"
        android:background="@color/teal"
        android:text="4"
        android:textColor="#A1887F"
        app:backgroundTint="@color/teal"
        android:onClick="numberEvent"></Button>

    <Button
        android:id="@+id/bu5"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:layout_marginRight="1pt"
        android:layout_weight="1"
        android:background="@color/teal"

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        android:text="5"
        android:textColor="#A1887F"
        app:backgroundTint="@color/teal"
        android:onClick="numberEvent"></Button>

<Button
    android:id="@+id/bu6"
    android:layout_width="30pt"
    android:layout_height="30pt"
    android:layout_marginRight="1pt"
    android:layout_weight="1"
    android:background="@color/teal"
    android:text="6"
    android:textColor="#A1887F"
    app:backgroundTint="@color/teal"
    android:onClick="numberEvent"></Button>

<Button
    android:id="@+id/buPlus"
    android:layout_width="30pt"
    android:layout_height="30pt"
    android:layout_marginRight="1pt"
    android:layout_weight="1"
    android:background="@color/teal_700"
    android:text="+"
    android:textColor="#000000"
    app:backgroundTint="@color/teal_700"
    android:onClick="operatorEvent"></Button>
</TableRow>

<TableRow
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_marginBottom="1pt">

    <Button
        android:id="@+id/bu1"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:layout_marginRight="1pt"
        android:layout_weight="1"
        android:background="@color/teal"
        android:text="1"
        android:textColor="#A1887F"
        app:backgroundTint="@color/teal"
        android:onClick="numberEvent"></Button>

    <Button
        android:id="@+id/bu2"
        android:layout_width="30pt"
        android:layout_height="30pt"
        android:layout_marginRight="1pt"
        android:layout_weight="1"
        android:background="@color/teal"
        android:text="2"
        android:textColor="#A1887F"
        app:backgroundTint="@color/teal"

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        android:onClick="numberEvent"></Button>

<Button
    android:id="@+id/bu3"
    android:layout_width="30pt"
    android:layout_height="30pt"
    android:layout_marginRight="1pt"
    android:layout_weight="1"
    android:background="@color/teal"
    android:text="3"
    android:textColor="#A1887F"
    app:backgroundTint="@color/teal"
    android:onClick="numberEvent"></Button>

<Button
    android:id="@+id/buMinus"
    android:layout_width="30pt"
    android:layout_height="30pt"
    android:layout_marginRight="1pt"
    android:layout_weight="1"
    android:background="@color/teal_700"
    android:text="-"
    android:textColor="#000000"
    app:backgroundTint="@color/teal_700"
    android:onClick="operatorEvent"></Button>
</TableRow>
</TableLayout>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal">

<Button
    android:id="@+id/bu0"
    android:layout_width="46pt"
    android:layout_height="30pt"
    android:layout_marginRight="1pt"
    android:layout_weight="2"
    android:background="@color/teal"
    android:text="0"
    android:textColor="#A1887F"
    app:backgroundTint="@color/teal"
    android:onClick="numberEvent"></Button>

<Button
    android:id="@+id/buDot"
    android:layout_width="46pt"
    android:layout_height="30pt"
    android:layout_marginRight="1pt"
    android:layout_weight="2"
    android:background="@color/teal"
    android:text="."
    android:textColor="#A1887F"
    app:backgroundTint="@color/teal"
    android:onClick="numberEvent"></Button>

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        <Button
            android:id="@+id/buEqual"
            android:layout_width="24pt"
            android:layout_height="30pt"
            android:layout_marginRight="1pt"
            android:layout_weight="2"
            android:background="@color/teal_700"
            android:text=""
            android:textColor="#000000"
            app:backgroundTint="@color/teal_700"
            android:onClick="equalEvent"></Button>
    </LinearLayout>
</LinearLayout>

```

color.xml:

```

<?xml version="1.0" encoding="utf-8"?>
<resources>
    <color name="purple_200">#FFBB86FC</color>
    <color name="purple_500">#FF6200EE</color>
    <color name="purple_700">#FF3700B3</color>
    <color name="teal_200">#FF03DAC5</color>
    <color name="teal_700">#FF018786</color>
    <color name="black">#FF000000</color>
    <color name="gray">#989494</color>
    <color name="white">#FFFFFF</color>
    <color name="teal">#052928</color>
    <color name="blue">#009688</color>
</resources>

```

MainActivity.java:

```
package com.example.myapplication;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    EditText ed1;
    boolean isNewOp=true;
    String op="";
    String oldNumber="";
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        ed1=(EditText) findViewById(R.id.editText);
    }

    public void numberEvent(View view) {
        if(isNewOp==true)
        {
            ed1.setText("");
            isNewOp=false;
        }
        String number=ed1.getText().toString();
        switch(view.getId())
        {
            case R.id.bu1:
                number += "1";
                break;

            case R.id.bu2:
                number += "2";
                break;

            case R.id.bu3:
                number += "3";
                break;

            case R.id.bu4:
                number += "4";
                break;
            case R.id.bu5:
```

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        number += "5";
        break;
    case R.id.bu6:
        number += "6";
        break;
    case R.id.bu7:
        number += "7";
        break;
    case R.id.bu8:
        number += "8";
        break;
    case R.id.bu9:
        number += "9";
        break;
    case R.id.buDot:
        number += ".";
        break;
    case R.id.bu0:
        number += "0";
        break;
    }
    ed1.setText(number);

    // Toast.makeText(getApplicationContext(),"7",Toast.LENGTH_LONG).show();

}

public void operatorEvent(View view) {

    isNewOp=true;
    oldNumber=ed1.getText().toString();
    switch(view.getId())
    {
        case R.id.buDivide:
            op="/";
            break;
        case R.id.buMultiply:
            op="*";
            break;
        case R.id.buPlus:
            op="+";
            break;
        case R.id.buMinus:
            op="-";
            break;
    }
}

public void equalEvent(View view) {

    String newNumber=ed1.getText().toString();
    double result = 0.0;
    switch(op)
    {
        case "/":

```



```

result=Double.parseDouble(oldNumber)/Double.parseDouble(newNumber);
        break;
        case "*":
result=Double.parseDouble(oldNumber)*Double.parseDouble(newNumber);
        break;
        case "+":
result=Double.parseDouble(oldNumber)+Double.parseDouble(newNumber);
        break;
        case "-":
result=Double.parseDouble(oldNumber)-Double.parseDouble(newNumber);
        break;

    }
    ed1.setText(result+"");
}

public void acEvent(View view) {

    ed1.setText("0");
    isNewOp=true;
}

public void percentEvent(View view) {

    double no = Double.parseDouble(ed1.getText().toString())/100;
    ed1.setText(no+"");
    isNewOp=true;
}

public void logEvent(View view) {
    Double temp=0.0;
    Double x=0.0;

    String newNumber=ed1.getText().toString();
    temp=Double.parseDouble(newNumber);
    x= Math.log(temp);

    ed1.setText(x+"");
    isNewOp=true;
}
}

```

Output:





