

# UCS1711 -MOBILE APPLICATION DEVELOPMENT LAB

## EX - 3: CALCULATOR APPLICATION

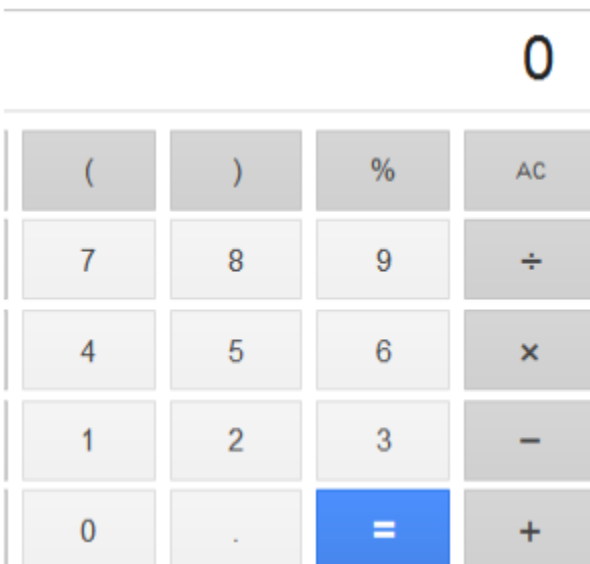
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### AIM :

Create a Calculator Application using Andriod with the operations specified in the diagram. The layout of the calculator should look as given below. Use listeners for the buttons to achieve the desired output.



## CODE :

### MainActivity.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.os.Bundle;

public class MainActivity extends AppCompatActivity {
    Button button0, button1, button2, button3, button4, button5, button6,
        button7, button8, button9, buttonAdd, buttonSub, buttonDivision,
        buttonMul, button10, buttonC,
    buttonEqual,buttonOpen,buttonClose,buttonPercent;
    EditText crunchifyEditText;
    boolean crunchifyAddition, mSubtract, crunchifyMultiplication,
    crunchifyDivision,crunchifyPercent;

    float mValueOne, mValueTwo;
    @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.buttoneq);
buttonPercent = (Button) findViewById(R.id.cent);
buttonOpen = (Button) findViewById(R.id.openb);
buttonClose = (Button) findViewById(R.id.closeb);
crunchifyEditText = (EditText) findViewById(R.id.edt1);

buttonOpen.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText() + "(");
    }
});
buttonClose.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText() + ")");
    }
});

button1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText() + "1");
    }
});

button2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText() + "2");
    }
});

button3.setOnClickListener(new View.OnClickListener() {
    @Override

```

```
        public void onClick(View v) {  
            crunchifyEditText.setText(crunchifyEditText.getText() + "3");  
        }  
    });
```

```
button4.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        crunchifyEditText.setText(crunchifyEditText.getText() + "4");  
    }  
});
```

```
button5.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        crunchifyEditText.setText(crunchifyEditText.getText() + "5");  
    }  
});
```

```
button6.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        crunchifyEditText.setText(crunchifyEditText.getText() + "6");  
    }  
});
```

```
button7.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        crunchifyEditText.setText(crunchifyEditText.getText() + "7");  
    }  
});
```

```
button8.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        crunchifyEditText.setText(crunchifyEditText.getText() + "8");  
    }  
});
```

```
button9.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        crunchifyEditText.setText(crunchifyEditText.getText() + "9");  
    }  
});
```

```
button0.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        crunchifyEditText.setText(crunchifyEditText.getText() + "0");  
    }  
});
```

```
buttonAdd.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
  
        if (crunchifyEditText == null) {  
            crunchifyEditText.setText("");  
        } else {  
            mValueOne = Float.parseFloat(crunchifyEditText.getText() + "");  
            crunchifyAddition = true;  
            crunchifyEditText.setText(null);  
        }  
    }  
});
```

```
buttonSub.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        mValueOne = Float.parseFloat(crunchifyEditText.getText() + "");  
        mSubtract = true;  
        crunchifyEditText.setText(null);  
    }  
});
```

```
buttonMul.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {
```

```
        mValueOne = Float.parseFloat(crunchifyEditText.getText() + "");
        crunchifyMultiplication = true;
        crunchifyEditText.setText(null);
    }
});
```

```
buttonDivision.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        mValueOne = Float.parseFloat(crunchifyEditText.getText() + "");
        crunchifyDivision = true;
        crunchifyEditText.setText(null);
    }
});
```

```
buttonEqual.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        mValueTwo = Float.parseFloat(crunchifyEditText.getText() + "");

        if (crunchifyAddition == true) {
            crunchifyEditText.setText(mValueOne + mValueTwo + "");
            crunchifyAddition = false;
        }

        if (mSubtract == true) {
            crunchifyEditText.setText(mValueOne - mValueTwo + "");
            mSubtract = false;
        }

        if (crunchifyMultiplication == true) {
            crunchifyEditText.setText(mValueOne * mValueTwo + "");
            crunchifyMultiplication = false;
        }

        if (crunchifyDivision == true) {
            crunchifyEditText.setText(mValueOne / mValueTwo + "");
            crunchifyDivision = false;
        }
    }
});
```

```

    }
    if (crunchifyPercent == true) {
        crunchifyEditText.setText(mValueOne / 100 + "");
        crunchifyDivision = false;
    }
}
});

buttonC.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText("");
    }
});

button10.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        crunchifyEditText.setText(crunchifyEditText.getText() + ".");
    }
});
}
}

```

### Activity\_main.xml:

```

<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/relative1"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <Button

```

```
android:id="@+id/cent"
style="?android:attr/buttonStyleSmall"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_below="@+id/button9"
android:layout_alignStart="@+id/button9"
android:layout_alignLeft="@+id/button9"
android:layout_centerHorizontal="true"
android:layout_marginStart="4dp"
android:layout_marginLeft="4dp"
android:layout_marginTop="53dp"
android:text="%" />
```

<Button

```
android:id="@+id/closeb"
style="?android:attr/buttonStyleSmall"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_below="@+id/button9"
android:layout_alignStart="@+id/button9"
android:layout_alignLeft="@+id/button9"
android:layout_marginStart="-44dp"
android:layout_marginLeft="-44dp"
android:layout_marginTop="54dp"
android:text=")" />
```

<Button

```
android:id="@+id/openb"
style="?android:attr/buttonStyleSmall"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_below="@+id/button9"
android:layout_alignStart="@+id/button9"
android:layout_alignLeft="@+id/button9"
android:layout_marginStart="-94dp"
```



```
android:layout_marginLeft="-94dp"
android:layout_marginTop="54dp"
android:text="(" />
```

```
<EditText
    android:id="@+id/edt1"
    android:layout_marginTop="60dp"
    android:layout_marginLeft="30dp"
    android:layout_marginRight="30dp"
    android:layout_width="match_parent"
    android:layout_height="wrap_content" />
```

```
<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_alignEnd="@+id/edt1"
android:layout_alignRight="@+id/edt1"
android:layout_alignTop="@+id/button3"
android:layout_marginLeft="46dp"
android:layout_marginStart="46dp"
android:layout_toRightOf="@+id/button3"
android:text="+" />
```

<Button

```
android:id="@+id/buttonsub"
style="?android:attr/buttonStyleSmall"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignEnd="@+id/buttonadd"
android:layout_alignLeft="@+id/buttonadd"
android:layout_alignRight="@+id/buttonadd"
android:layout_alignStart="@+id/buttonadd"
android:layout_below="@+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_alignLeft="@+id/buttonsub"
android:layout_alignParentEnd="true"
android:layout_alignParentRight="true"
android:layout_alignStart="@+id/buttonsub"
android:layout_below="@+id/buttonsub"
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"
```

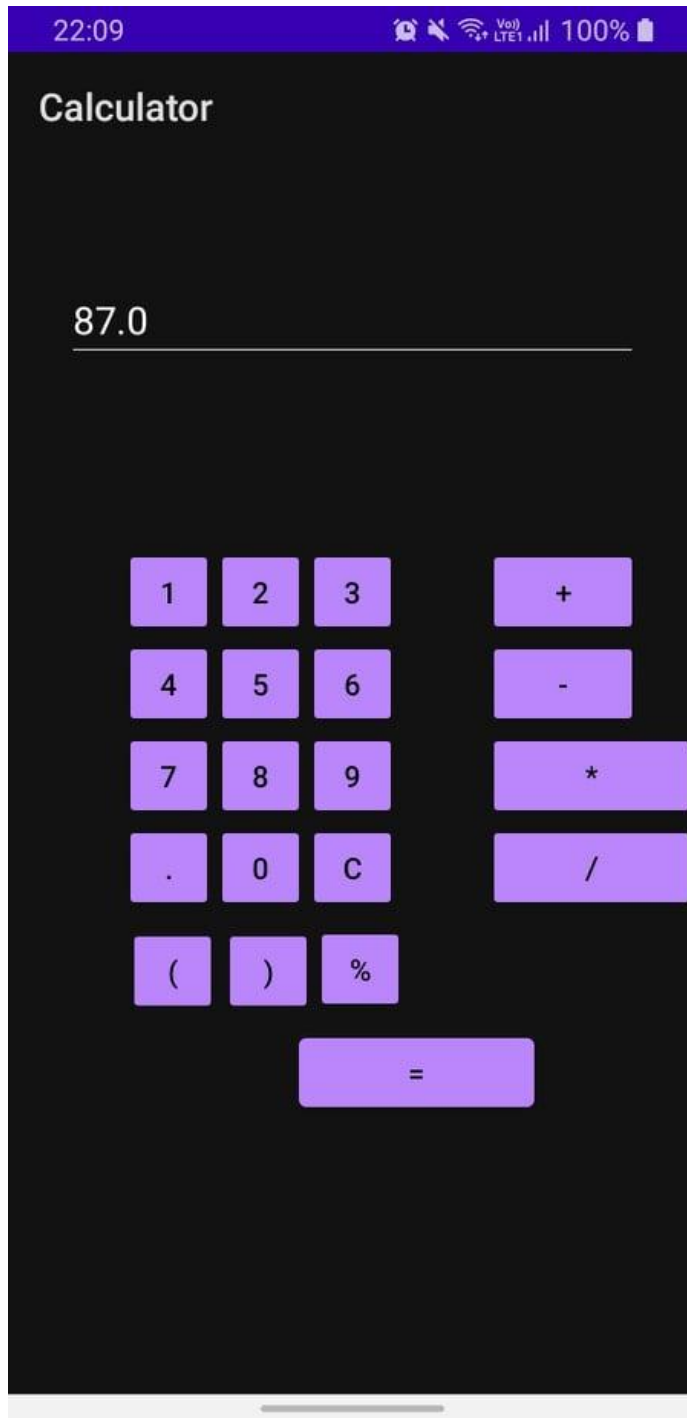
```
android:layout_alignStart="@+id/buttonmul"  
android:layout_below="@+id/buttonmul"  
android:text="/" />
```

<Button

```
android:id="@+id/buttoneql"  
android:layout_width="147dp"  
android:layout_height="wrap_content"  
android:layout_below="@+id/button0"  
android:layout_alignStart="@+id/button10"  
android:layout_alignLeft="@+id/button10"  
android:layout_alignEnd="@+id/buttondiv"  
android:layout_alignRight="@+id/buttondiv"  
android:layout_marginStart="92dp"  
android:layout_marginLeft="92dp"  
android:layout_marginTop="59dp"  
android:layout_marginEnd="85dp"  
android:layout_marginRight="86dp"  
android:text="" />
```

</RelativeLayout>

## OUTPUT :



## RESULT :

Thus we have successfully developed an android Calculator application.