## MOBILE APPLICATION DEVELOPMENT:

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## Question:

Design a calculator to perform addition, subtraction, multiplication and division. Also a 'C' button to clear the Value in the Textbox and '=' button to display the result.

## Xml:

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout</pre>
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:visibility="visible"
    tools:context=".MainActivity">
    <TextView
        android:id="@+id/T1"
        android:layout width="347dp"
        android:layout height="0dp"
        android:layout marginTop="93dp"
        android:layout marginBottom="51dp"
        android:textAlignment="viewEnd"
        android:textSize="30sp"
        android:visibility="visible"
        app:layout constraintBottom toTopOf="@+id/BA"
        app:layout constraintEnd toEndOf="parent"
        app:layout constraintHorizontal bias="0.421"
        app:layout constraintStart toStartOf="parent"
        app:layout constraintTop toTopOf="parent"
        tools:visibility="visible" />
    <Button
        android:id="@+id/B1"
        android:layout width="wrap content"
        android:layout height="wrap content"
        android:layout marginStart="1dp"
        android:layout marginEnd="2dp"
        android:text="1"
        app:layout constraintBaseline toBaselineOf="@+id/B2"
        app:layout constraintEnd toStartOf="@+id/B2"
        app:layout constraintStart toStartOf="parent" />
    <Button
        android:id="@+id/B2"
        android:layout width="wrap content"
        android:layout height="wrap content"
        android:layout marginEnd="3dp"
```

```
android:text="2"
    app:layout constraintEnd toStartOf="@+id/B3"
    app:layout_constraintStart toEndOf="@+id/B1"
    app:layout constraintTop toTopOf="@+id/B3" />
<Button
    android:id="@+id/B3"
    android:layout width="wrap content"
    android:layout height="wrap content"
    android:layout marginEnd="3dp"
   android:text="3"
   app:layout constraintBaseline toBaselineOf="@+id/BA"
    app:layout constraintEnd toStartOf="@+id/BA"
    app:layout constraintStart toEndOf="@+id/B2" />
<Button
    android:id="@+id/BA"
   android:layout width="wrap content"
    android:layout height="wrap content"
   android:layout marginBottom="15dp"
   android:text="+"
    app:layout constraintBottom toTopOf="@+id/BS"
    app:layout_constraintEnd toEndOf="parent"
    app:layout_constraintStart toEndOf="@+id/B3"
    app:layout constraintTop toBottomOf="@+id/T1" />
<Button
   android:id="@+id/B4"
    android:layout width="wrap content"
    android:layout_height="wrap_content"
    android:layout marginEnd="3dp"
   android:text="4"
    app:layout constraintBaseline toBaselineOf="@+id/B5"
    app:layout constraintEnd toStartOf="@+id/B5"
    app:layout constraintStart toStartOf="parent" />
<Button
   android:id="@+id/B5"
    android:layout width="wrap content"
    android:layout height="wrap content"
    android:layout marginEnd="3dp"
    android:layout marginBottom="2dp"
    android:text="\overline{5}"
    app:layout constraintBottom toBottomOf="@+id/B6"
    app:layout_constraintEnd toStartOf="@+id/B6"
    app:layout constraintStart toEndOf="@+id/B4" />
<Button
    android:id="@+id/B6"
    android:layout width="wrap content"
    android:layout height="wrap content"
    android:layout marginEnd="3dp"
    android:text="\overline{6}"
    app:layout constraintBaseline toBaselineOf="@+id/BS"
    app:layout constraintEnd toStartOf="@+id/BS"
    app:layout constraintStart toEndOf="@+id/B5" />
```

```
<Button
   android:id="@+id/BS"
   android:layout width="wrap content"
   android:layout height="wrap content"
   android:layout marginBottom="12dp"
   android:text="-"
   app:layout constraintBottom toTopOf="@+id/BD"
    app:layout constraintEnd toEndOf="parent"
    app:layout constraintStart toEndOf="@+id/B6"
    app:layout constraintTop toBottomOf="@+id/BA" />
<Button
   android:id="@+id/B7"
   android:layout width="wrap content"
   android:layout height="wrap content"
   android:layout marginEnd="3dp"
   android:text="7"
   app:layout constraintBaseline toBaselineOf="@+id/B8"
    app:layout constraintEnd toStartOf="@+id/B8"
   app:layout constraintStart toStartOf="parent" />
<But.ton
   android:id="@+id/B8"
   android:layout width="wrap content"
   android:layout height="wrap content"
   android:layout marginEnd="3dp"
   android:text="8"
   app:layout constraintEnd toStartOf="@+id/B9"
    app:layout_constraintStart toEndOf="@+id/B7"
   app:layout constraintTop toTopOf="@+id/B9" />
<Button
   android:id="@+id/B9"
   android:layout width="wrap content"
   android:layout height="wrap content"
   android:layout marginEnd="3dp"
   android:text="9"
   app:layout constraintBaseline toBaselineOf="@+id/BD"
    app:layout constraintEnd toStartOf="@+id/BD"
   app:layout constraintStart toEndOf="@+id/B8" />
<But.ton
   android:id="@+id/BD"
   android:layout width="wrap content"
   android:layout height="wrap content"
   android:layout marginBottom="11dp"
   android:text="/"
   app:layout constraintBottom toTopOf="@+id/BM"
    app:layout constraintEnd toEndOf="parent"
    app:layout_constraintStart toEndOf="@+id/B9"
   app:layout_constraintTop toBottomOf="@+id/BS" />
<Button
   android:id="@+id/B0"
   android:layout width="wrap content"
   android:layout height="wrap content"
   android:layout marginStart="1dp"
```

```
android:layout marginTop="12dp"
        android:layout marginEnd="4dp"
        android:text="0"
        app:layout constraintEnd toStartOf="@+id/BC"
        app:layout constraintStart toStartOf="parent"
        app:layout constraintTop toBottomOf="@+id/B7" />
    <Button
        android:id="@+id/BC"
        android:layout width="wrap content"
        android:layout height="wrap content"
        android:layout marginEnd="5dp"
        android:text="C"
        app:layout constraintBaseline toBaselineOf="@+id/BO"
        app:layout constraintEnd toStartOf="@+id/BE"
        app:layout constraintStart toEndOf="@+id/B0" />
    <Button
        android:id="@+id/BE"
        android:layout width="wrap content"
        android:layout height="wrap content"
        android:layout marginTop="1dp"
        android:layout marginEnd="4dp"
        android:text="="
        app:layout constraintEnd toStartOf="@+id/BM"
        app:layout constraintStart toEndOf="@+id/BC"
        app:layout constraintTop toTopOf="@+id/BM" />
    <Button
        android:id="@+id/BM"
        android:layout width="wrap content"
        android:layout height="wrap content"
        android:layout marginBottom="273dp"
        android:text="*"
        app:layout constraintBottom toBottomOf="parent"
        app:layout constraintEnd toEndOf="parent"
        app:layout constraintStart toEndOf="@+id/BE"
        app:layout_constraintTop toBottomOf="@+id/BD" />
</androidx.constraintlayout.widget.ConstraintLayout>
Java:
package com.example.lab21;
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 t1;
   Button b0,b1,b2,b3,b4,b5,b6,b7,b8,b9,ba,bs,bd,bm,bc,be;
    int res = 0, temp = 0;
    String t, r, op;
```

```
@Override
    protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState); setContentView(R.layout.activity main);
        t1 = findViewById(R.id.T1);
       b0 = findViewById(R.id.B0);
       b1 = findViewById(R.id.B1);
       b2 = findViewById(R.id.B2);
       b3 = findViewById(R.id.B3);
       b4 = findViewById(R.id.B4);
       b5 = findViewById(R.id.B5);
       b6 = findViewById(R.id.B6);
       b7 = findViewById(R.id.B7);
       b8 = findViewById(R.id.B8);
       b9 = findViewById(R.id.B9);
       ba = findViewById(R.id.BA);
       bs = findViewById(R.id.BS);
       bd = findViewById(R.id.BD);
       bm = findViewById(R.id.BM);
       bc = findViewById(R.id.BC);
       be = findViewById(R.id.BE);
       b0.setOnClickListener(new View.OnClickListener() { @Override
       public void onClick(View v) {
            t = t1.getText().toString();
            r = t + "0";
            t1.setText(r);
        }
        });
       b1.setOnClickListener(new View.OnClickListener() { @Override
        public void onClick(View v) {
            t = t1.getText().toString();
            r = t + "1";
            t1.setText(r);
        }
        });
       b2.setOnClickListener(new View.OnClickListener() { @Override
       public void onClick(View v) {
            t = t1.getText().toString();
            r = t + "2";
            t1.setText(r);
        });
       b3.setOnClickListener(new View.OnClickListener() { @Override
        public void onClick(View v) {
            t = t1.getText().toString();
            r = t + "3";
            t1.setText(r);
        }
        });
       b4.setOnClickListener(new View.OnClickListener() { @Override
       public void onClick(View v) {
            t = t1.getText().toString();
            r = t + "4";
            t1.setText(r);
        }
        });
       b5.setOnClickListener(new View.OnClickListener() { @Override
```

public void onClick(View v) {

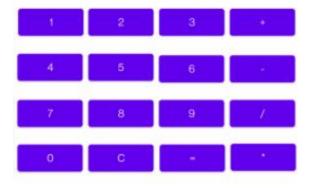
```
t = t1.getText().toString();
    r = t + "5";
    t1.setText(r);
});
b6.setOnClickListener(new View.OnClickListener() { @Override
public void onClick(View v) {
    t = t1.getText().toString();
    r = t + "6";
    t1.setText(r);
}
});
b7.setOnClickListener(new View.OnClickListener() { @Override
public void onClick(View v) {
    t = t1.getText().toString();
    r = t + "7";
    t1.setText(r);
});
b8.setOnClickListener(new View.OnClickListener() { @Override
public void onClick(View v) {
    t = t1.getText().toString();
    r = t + "8";
    t1.setText(r);
}
});
b9.setOnClickListener(new View.OnClickListener() { @Override
public void onClick(View v) {
    t = t1.getText().toString();
    r = t + "9";
    t1.setText(r);
});
ba.setOnClickListener(new View.OnClickListener() { @Override
public void onClick(View v) {
    op = "+";
    temp = Integer.parseInt(t1.getText().toString()); t1.setText("");
});
bs.setOnClickListener(new View.OnClickListener() { @Override
public void onClick(View v) {
    op = "-";
    temp = Integer.parseInt(t1.getText().toString()); t1.setText("");
});
bd.setOnClickListener(new View.OnClickListener() { @Override
public void onClick(View v) { op = "/";
    temp = Integer.parseInt(t1.getText().toString()); t1.setText("");
});
bm.setOnClickListener(new View.OnClickListener() { @Override
public void onClick(View v) {
    op = "*";
    temp = Integer.parseInt(t1.getText().toString()); t1.setText("");
});
bc.setOnClickListener(new View.OnClickListener() { @Override
```

```
public void onClick(View v) {
            temp = 0; t1.setText("");
        });
        be.setOnClickListener(new View.OnClickListener() { @Override
        public void onClick(View v) {
            if (op.equals("+")) {
                res = temp + Integer.parseInt(t1.getText().toString());
t1.setText(String.valueOf(res));
            else if (op.equals("-")) {
               res = temp - Integer.parseInt(t1.getText().toString());
                t1.setText(String.valueOf(res));
            else if (op.equals("/")) {
                res = temp / Integer.parseInt(t1.getText().toString());
t1.setText(String.valueOf(res));
            else if (op.equals("*")) {
               res = temp * Integer.parseInt(t1.getText().toString());
t1.setText(String.valueOf(res));
            }
        });
   }
}
```

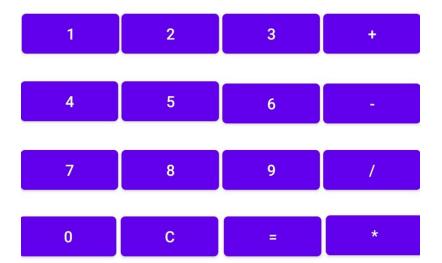
output:

## calculator

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