

## 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
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="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="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" />

<Button
    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" />

<Button
    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/B0"
    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

```

```

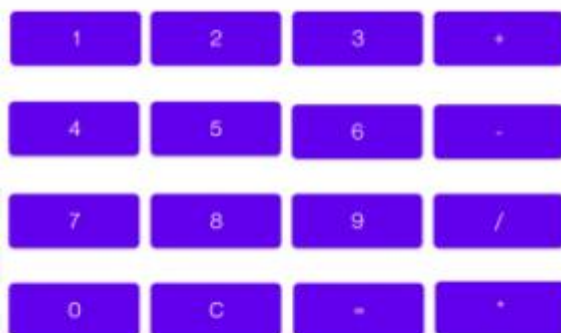
        public void onClick(View v) {
            temp = 0; t1.setText("");
        }
    });
    be.setOnClickListener(new View.OnClickListener() { @Override
    public void onClick(View v) {
        if (op.equals("+")) {
            res = temp + Integer.parseInt(t1.getText().toString());
            t1.setText(String.valueOf(res));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

4





9:41



lab2.1

1

2

3

+

4

5

6

-

7

8

9

/

0

C

=

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