

CSE4002 - MOBILE APPLICATION DEVELOPMENT

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LAB - 4

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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.

MainActivity.java:

```
package com.example.lab4;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
public class MainActivity extends AppCompatActivity {
    double result;
    char op;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        final EditText e = (EditText) findViewById(R.id.et);
        Button b1 = (Button) findViewById(R.id.b1);
        Button b2 = (Button) findViewById(R.id.b2);
        Button b3 = (Button) findViewById(R.id.b3);
        Button b4 = (Button) findViewById(R.id.b4);
        Button b5 = (Button) findViewById(R.id.b5);
        Button b6 = (Button) findViewById(R.id.b6);
```

```

        Button b7 = (Button) findViewById(R.id.b7);
        Button b8 = (Button) findViewById(R.id.b8);
        Button b9 = (Button) findViewById(R.id.b9);
        Button b0 = (Button) findViewById(R.id.b0);
        Button be = (Button) findViewById(R.id.be);
        Button bp = (Button) findViewById(R.id.bp);
        Button bs = (Button) findViewById(R.id.bs);
        Button bm = (Button) findViewById(R.id.bm);
        Button bd = (Button) findViewById(R.id.bd);
        Button bc = (Button) findViewById(R.id.bc);
        b0.setOnClickListener(new View.OnClickListener() {
            public void onClick(View v) {
                //
            }
        });
        if (!(e.getText().toString().equals(""))){
            e.setText(e.getText().toString() + "0");
        }
    }
}

```

```

        b1.setOnClickListener(new View.OnClickListener() {
            public void onClick(View v) {
                e.setText(e.getText().toString() + "1");
            }
        });
        b2.setOnClickListener(new View.OnClickListener() {
            public void onClick(View v) {
                e.setText(e.getText().toString() + "2");
            }
        });
        b3.setOnClickListener(new View.OnClickListener() {
            public void onClick(View v) {
                e.setText(e.getText().toString() + "3");
            }
        });
        b4.setOnClickListener(new View.OnClickListener() {
            public void onClick(View v) {
                e.setText(e.getText().toString() + "4");
            }
        });
        b5.setOnClickListener(new View.OnClickListener() {
            public void onClick(View v) {
                e.setText(e.getText().toString() + "5");
            }
        });
        b6.setOnClickListener(new View.OnClickListener() {
            public void onClick(View v) {
                e.setText(e.getText().toString() + "6");
            }
        });
        b7.setOnClickListener(new View.OnClickListener() {
            public void onClick(View v) {
                e.setText(e.getText().toString() + "7");
            }
        });
        b8.setOnClickListener(new View.OnClickListener() {
            public void onClick(View v) {
                e.setText(e.getText().toString() + "8");
            }
        });
    }
}

```

```

    });
    b9.setOnClickListener(new View.OnClickListener() {
        public void onClick(View v) {
            e.setText(e.getText().toString() + "9");
        }
    });
    bc.setOnClickListener(new View.OnClickListener() {
        public void onClick(View v) {
            e.setText("");
        }
    });
    bp.setOnClickListener(new View.OnClickListener() {
        public void onClick(View v) {
            op = '+';
            result = Double.parseDouble(e.getText().toString());
            e.setText("");
        }
    });
    bs.setOnClickListener(new View.OnClickListener() {
        public void onClick(View v) {
            op = '-';
            result = Double.parseDouble(e.getText().toString());
            e.setText("");
        }
    });

```

```

    bm.setOnClickListener(new View.OnClickListener() {
        public void onClick(View v) {
            op = '*';
            result = Double.parseDouble(e.getText().toString());
            e.setText("");
        }
    });
    bd.setOnClickListener(new View.OnClickListener() {
        public void onClick(View v) {
            op = '/';
            result = Double.parseDouble(e.getText().toString());
            e.setText("");
        }
    });
    be.setOnClickListener(new View.OnClickListener() {
        public void onClick(View v) {
            if (op == '+') {
                double n = Double.parseDouble(e.getText().toString());
                e.setText(String.valueOf(result + n));
            } else if (op == '-') {
                double n = Double.parseDouble(e.getText().toString());
                e.setText(String.valueOf(result - n));
            } else if (op == '*') {
                double n = Double.parseDouble(e.getText().toString());
                e.setText(String.valueOf(result * n));
            } else {
                double n = Double.parseDouble(e.getText().toString());
                e.setText(String.valueOf(result / n));
            }
        }
    });
}

```

```

    };
    });
}
;
}

```

activity_main.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"
    tools:context=".MainActivity">
    <Button
        android:id="@+id/bc"
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:text="c"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toStartOf="@+id/b0"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toBottomOf="@+id/b7" />
    <Button
        android:id="@+id/bd"
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:text="/"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toEndOf="@+id/be"
        app:layout_constraintTop_toBottomOf="@+id/bm" />
    <Button
        android:id="@+id/be"
        android:layout_width="65dp"
        android:layout_height="65dp" android:text="="
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toStartOf="@+id/bd"
        app:layout_constraintHorizontal_bias="0.5"

```

```

        app:layout_constraintStart_toEndOf="@+id/b0"
        app:layout_constraintTop_toBottomOf="@+id/b9" />
    <Button
        android:id="@+id/b0"
        android:layout_width="65dp"
        android:layout_height="65dp" android:text="0"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toStartOf="@+id/be"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toEndOf="@+id/bc"
        app:layout_constraintTop_toBottomOf="@+id/b8" />
    <Button
        android:id="@+id/b7"
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:text="7"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        app:layout_constraintBottom_toTopOf="@+id/bc"
        app:layout_constraintEnd_toStartOf="@+id/b8"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/b4" />
    <Button
        android:id="@+id/bm"
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:text="*"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        app:layout_constraintBottom_toTopOf="@+id/bd"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toEndOf="@+id/b9"
        app:layout_constraintTop_toBottomOf="@+id/bs" />
    <Button
        android:id="@+id/b9"
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:text="9"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        app:layout_constraintBottom_toTopOf="@+id/be"
        app:layout_constraintEnd_toStartOf="@+id/bm"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toEndOf="@+id/b8"

        app:layout_constraintTop_toBottomOf="@+id/b6" />
    <Button
        android:id="@+id/b8"
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:text="8"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        app:layout_constraintBottom_toTopOf="@+id/b0"
        app:layout_constraintEnd_toStartOf="@+id/b9"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toEndOf="@+id/b7"

```

```

        app:layout_constraintTop_toBottomOf="@+id/b5" />
    <Button
        android:id="@+id/b4"
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:text="4"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        app:layout_constraintBottom_toTopOf="@+id/b7"
        app:layout_constraintEnd_toStartOf="@+id/b5"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/b1" />
    <Button
        android:id="@+id/bs"
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:text="-"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        app:layout_constraintBottom_toTopOf="@+id/bm"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toEndOf="@+id/b6"
        app:layout_constraintTop_toBottomOf="@+id/bp" />
    <Button
        android:id="@+id/b6"
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:text="6"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        app:layout_constraintBottom_toTopOf="@+id/b9"
        app:layout_constraintEnd_toStartOf="@+id/bs"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toEndOf="@+id/b5"
        app:layout_constraintTop_toBottomOf="@+id/b3" />
    <Button
        android:id="@+id/b5"
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:text="5"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        app:layout_constraintBottom_toTopOf="@+id/b8"
        app:layout_constraintEnd_toStartOf="@+id/b6"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toEndOf="@+id/b4"
        app:layout_constraintTop_toBottomOf="@+id/b2" />
    <Button
        android:id="@+id/bp"
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:text="+"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        app:layout_constraintBottom_toTopOf="@+id/bs"
        app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintHorizontal_bias="0.5"
    app:layout_constraintStart_toEndOf="@+id/b3"

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```

        app:layout_constraintTop_toBottomOf="@+id/et" />
    <EditText
        android:id="@+id/et"
        android:layout_width="350dp"
        android:layout_height="64dp"
        android:ems="10"
        android:inputType="number"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.259" />
    <Button
        android:id="@+id/b1"
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:text="1"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        app:layout_constraintBottom_toTopOf="@+id/b4"
        app:layout_constraintEnd_toStartOf="@+id/b2"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/et" />
    <Button
        android:id="@+id/b2"
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:text="2"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        app:layout_constraintBottom_toTopOf="@+id/b5"
        app:layout_constraintEnd_toStartOf="@+id/b3"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toEndOf="@+id/b1"
        app:layout_constraintTop_toBottomOf="@+id/et" />
    <Button
        android:id="@+id/b3"
        android:layout_width="65dp"
        android:layout_height="65dp"
        android:text="3"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        app:layout_constraintBottom_toTopOf="@+id/b6"
        app:layout_constraintEnd_toStartOf="@+id/bp"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toEndOf="@+id/b2"
        app:layout_constraintTop_toBottomOf="@+id/et" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

$$3 \times 9 = 27$$





