VIT-AP UNIVERSITY, ANDHRA PRADESH
Lab Sheet 3 : Calculator

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Lab3:

1. Design a Calculator App.
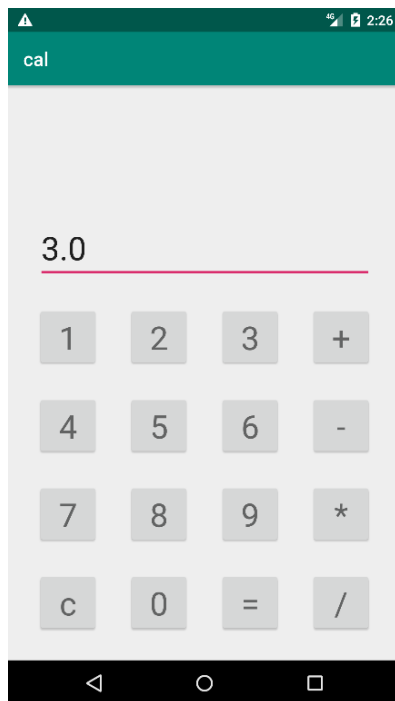
CODE:
MainActivity.java :

```
package com.example.calculator;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.GridLayout;
```

```java
public class MainActivity extends AppCompatActivity {
EditText e;
Button b1, b2, b3, b4, b5, b6, b7, b8, b9, b10, b11, b12, b13, b14, b15,
b16;
GridLayout g;
Float res1, res2;
boolean add, sub, mul, div;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        e = findViewById(R.id.editTextNumber);
        g = findViewById(R.id.gridLayout);
        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);
        b10 = findViewById(R.id.b0);
        b11 = findViewById(R.id.badd);
        b12 = findViewById(R.id.bsub);
        b13 = findViewById(R.id.bmul);
        b14 = findViewById(R.id.bdiv);
        b15 = findViewById(R.id.bclear);
        b16 = findViewById(R.id.bequal);

        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                e.setText(e.getText().toString() + "1");
            }
        });
        b2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                e.setText(e.getText().toString() + "2");
            }
        });
        b3.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                e.setText(e.getText().toString() + "3");
            }
        });
        b4.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                e.setText(e.getText().toString() + "4");
            }
        });
        b5.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                e.setText(e.getText().toString() + "5");
            }
        });
```

```java
        b6.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                e.setText(e.getText().toString() + "6");
            }
        });
        b7.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                e.setText(e.getText().toString() + "7");
            }
        });
        b8.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                e.setText(e.getText().toString() + "8");
            }
        });
        b9.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                e.setText(e.getText().toString() + "9");
            }
        });
        b10.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                e.setText(e.getText().toString() + "0");
            }
        });
        b11.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                if(e==null){
                    e.setText("");
                }
                else{
                    res1 = Float.parseFloat(e.getText() + "");
                    add = true;
                    e.setText(null);
                }
            }
        });
        b12.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                if(e==null){
                    e.setText("");
                }
                else{
                    res1 = Float.parseFloat(e.getText() + "");
                    sub = true;
                    e.setText(null);
                }
            }
        });
        b13.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                if(e==null){
                    e.setText("");
```

```java
                }
                else{
                    res1 = Float.parseFloat(e.getText() + "");
                    mul = true;
                    e.setText(null);
                }
            }
        });
        b14.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                if(e==null){
                    e.setText("");
                }
                else{
                    res1 = Float.parseFloat(e.getText() + "");
                    div = true;
                    e.setText(null);
                }
            }
        });
        b15.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                e.getText().clear();
            }
        });
        b16.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                res2 = Float.parseFloat(e.getText() + "");
                if(add == true){
                    e.setText(res1 + res2 + "");
                    add = false;
                }
                else if(sub == true){
                    e.setText(res1 - res2 + "");
                    sub = false;
                }
                if(mul == true){
                    e.setText(res1 * res2 + "");
                    mul = false;
                }
                if(div == true){
                    e.setText(res1 / res2 + "");
                    div = false;
                }
            }
        });
    }
}
```

activity_main_java:

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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">

    <GridLayout
        android:id="@+id/gridLayout"
        android:layout_width="0dp"
        android:layout_height="0dp"
        android:layout_marginStart="16dp"
        android:layout_marginEnd="16dp"
        android:layout_marginBottom="195dp"
        android:columnCount="4"
        android:orientation="vertical"
        android:rowCount="4"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editTextNumber">

        <Button
            android:id="@+id/b1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="1" />

        <Button
            android:id="@+id/b4"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="4" />

        <Button
            android:id="@+id/b7"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="7" />

        <Button
            android:id="@+id/bclear"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="C" />

        <Button
            android:id="@+id/b2"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="2" />

        <Button
            android:id="@+id/b5"
```

```xml
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="5" />

    <Button
        android:id="@+id/b8"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="8" />

    <Button
        android:id="@+id/b0"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="0" />

    <Button
        android:id="@+id/b3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="3" />

    <Button
        android:id="@+id/b6"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="6" />

    <Button
        android:id="@+id/b9"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="9" />

    <Button
        android:id="@+id/bequal"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="=" />

    <Button
        android:id="@+id/badd"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="+" />

    <Button
        android:id="@+id/bsub"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="-" />

    <Button
        android:id="@+id/bmul"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="*" />

    <Button
        android:id="@+id/bdiv"
        android:layout_width="wrap_content"
```

```
            android:layout_height="wrap_content"
            android:text="/" />
    </GridLayout>

    <EditText
        android:id="@+id/editTextNumber"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="133dp"
        android:layout_marginBottom="145dp"
        android:ems="10"
        android:inputType="number"
        app:layout_constraintBottom_toTopOf="@+id/gridLayout"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</android.support.constraint.ConstraintLayout>
```
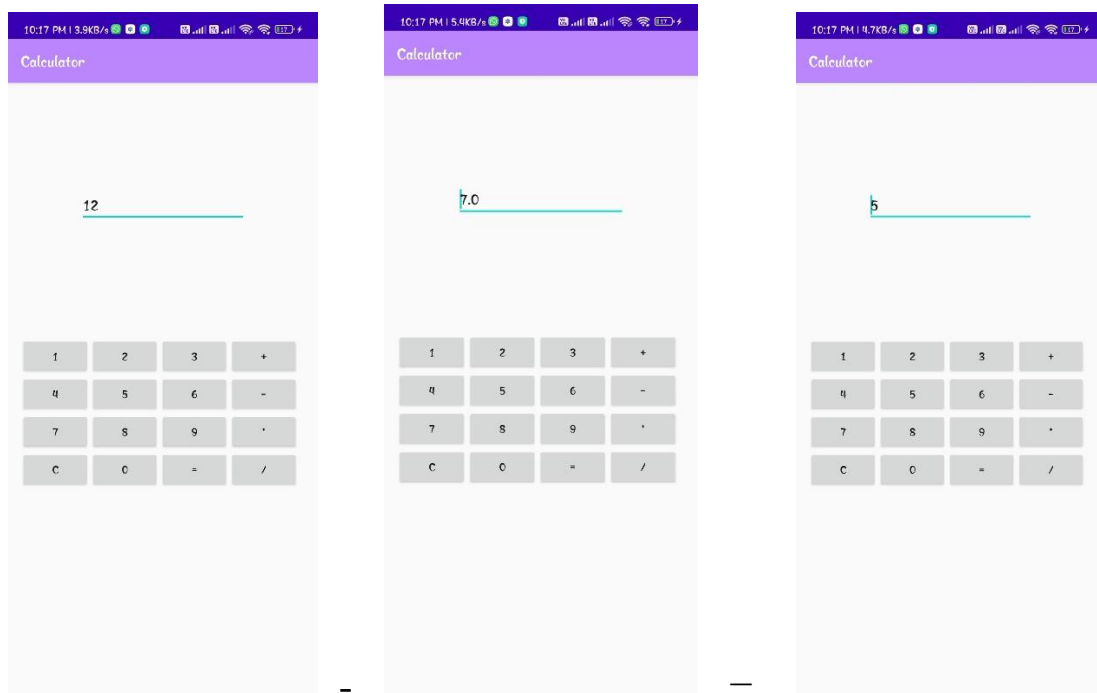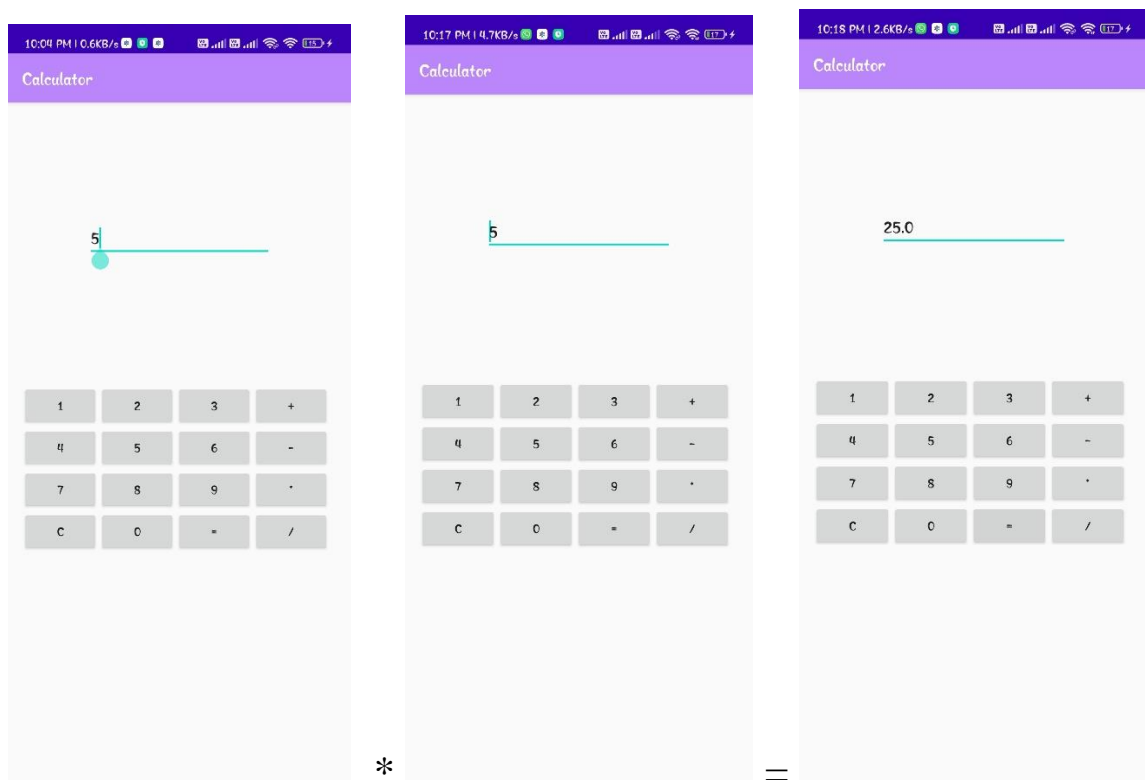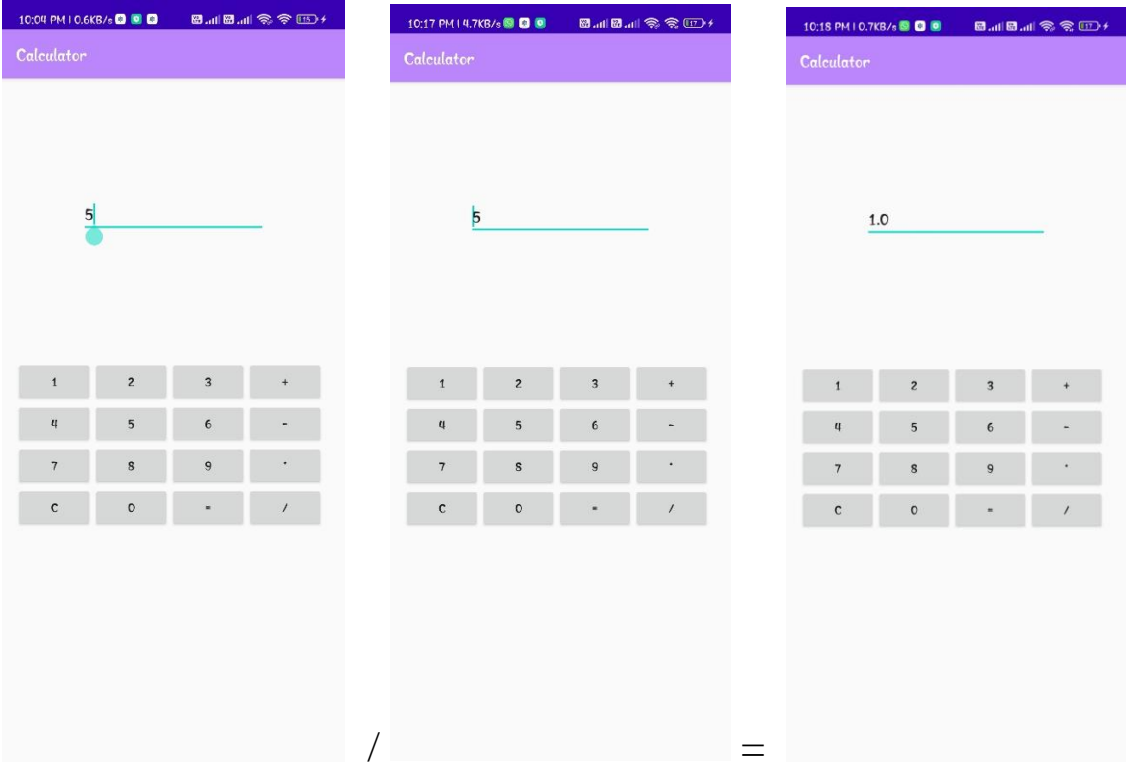
Output:
ADDITION OPERATION:

+   =
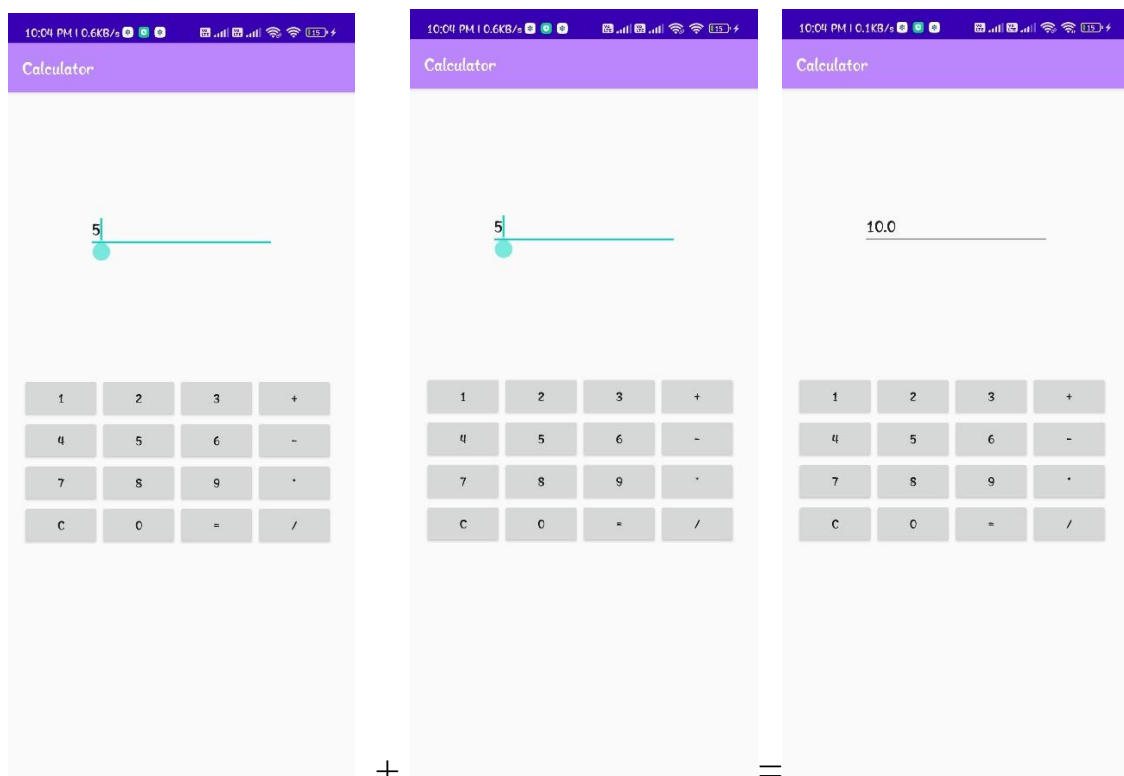
SUBTRACTION OPERATION:

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MULTIPLICATION OPERATION:

*

=

DIVISION OPERATION:

/ =

CLEAR OPERATION: