

# Mobile App Development

## Exercise 3

Q1. Develop a simple calculator application with all the process of arithmetic operations

activity\_main.xml :

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout 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">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="40dp"
        android:text="Simple Calculator"
        android:gravity="center"
        android:textAppearance="@style/TextAppearance.AppCompat.Large" />

    <TextView
        android:layout_width="120dp"
        android:layout_height="wrap_content"
        android:layout_alignParentStart="true"
        android:layout_alignParentTop="true"
        android:layout_marginStart="30dp"
        android:layout_marginTop="140dp"
        android:gravity="center"
        android:text="Enter Number : "
        android:textAppearance="@style/TextAppearance.AppCompat.Medium" />

    <TextView
        android:id="@+id/dispatch_variable"
        android:layout_width="200dp"
        android:layout_height="40dp"
        android:layout_alignParentStart="true"
        android:layout_alignParentTop="true"
```

```
        android:layout_marginStart="180dp"
        android:layout_marginTop="135dp"
        android:gravity="right"
        android:text="0"
        android:background="@android:color/darker_gray"
        android:textAppearance="@style/TextAppearance.AppCompat.Large" />
```

#### <TextView

```
        android:layout_width="120dp"
        android:layout_height="wrap_content"
        android:layout_alignParentStart="true"
        android:layout_alignParentTop="true"
        android:layout_marginStart="30dp"
        android:layout_marginTop="200dp"
        android:gravity="center"
        android:text="Result : "
        android:textAppearance="@style/TextAppearance.AppCompat.Medium" />
```

#### <TextView

```
        android:id="@+id/disp_result"
        android:layout_width="200dp"
        android:layout_height="40dp"
        android:layout_alignParentStart="true"
        android:layout_alignParentTop="true"
        android:layout_marginStart="180dp"
        android:layout_marginTop="190dp"
        android:gravity="right"
        android:text="0"
        android:background="@android:color/darker_gray"
        android:textAppearance="@style/TextAppearance.AppCompat.Large" />
```

#### <Button

```
        android:id="@+id/num_1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentStart="true"
        android:layout_alignParentBottom="true"
        android:layout_marginStart="30dp"
        android:layout_marginBottom="220dp"
        android:onClick="variable_typed"
        android:tag="1"
        android:text="1" />
```

#### <Button

```
        android:id="@+id/num_2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentStart="true"
```

```
android:layout_alignParentBottom="true"
android:layout_centerInParent="true"
android:layout_marginStart="165dp"
android:layout_marginBottom="220dp"
android:onClick="variable_typed"
android:tag="2"
android:text="2" />
```

<Button

```
android:id="@+id/num_3"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="30dp"
android:layout_marginBottom="220dp"
android:onClick="variable_typed"
android:tag="3"
android:text="3" />
```

<Button

```
android:id="@+id/num_4"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentStart="true"
android:layout_alignParentBottom="true"
android:layout_marginStart="30dp"
android:layout_marginBottom="160dp"
android:onClick="variable_typed"
android:tag="4"
android:text="4" />
```

<Button

```
android:id="@+id/num_5"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentStart="true"
android:layout_alignParentBottom="true"
android:layout_marginStart="165dp"
android:layout_marginBottom="160dp"
android:onClick="variable_typed"
android:tag="5"
android:text="5" />
```

<Button

```
android:id="@+id/num_6"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
```

```
android:layout_marginEnd="30dp"
android:layout_marginBottom="160dp"
android:onClick="variable_typed"
android:tag="6"
android:text="6" />
```

<Button

```
android:id="@+id/num_7"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentStart="true"
android:layout_alignParentBottom="true"
android:layout_marginStart="30dp"
android:layout_marginBottom="100dp"
android:onClick="variable_typed"
android:tag="7"
android:text="7" />
```

<Button

```
android:id="@+id/num_8"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentStart="true"
android:layout_alignParentBottom="true"
android:layout_marginStart="165dp"
android:layout_marginBottom="100dp"
android:onClick="variable_typed"
android:tag="8"
android:text="8" />
```

<Button

```
android:id="@+id/num_9"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentEnd="true"
android:layout_alignParentBottom="true"
android:layout_marginEnd="30dp"
android:layout_marginBottom="100dp"
android:onClick="variable_typed"
android:tag="9"
android:text="9" />
```

<Button

```
android:id="@+id/num_decimal"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentStart="true"
android:layout_alignParentBottom="true"
android:layout_marginStart="30dp"
android:layout_marginBottom="40dp"
```

```
    android:onClick="variable_typed"
    android:tag="10"
    android:text="." />
```

#### <Button

```
    android:id="@+id/num_0"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentBottom="true"
    android:layout_centerHorizontal="true"
    android:layout_marginStart="165dp"
    android:layout_marginBottom="40dp"
    android:onClick="variable_typed"
    android:tag="0"
    android:text="0" />
```

#### <Button

```
    android:id="@+id/func_add"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentBottom="true"
    android:layout_marginStart="30dp"
    android:layout_marginBottom="340dp"
    android:onClick="addition"
    android:text="+" />
```

#### <Button

```
    android:id="@+id/func_sub"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentBottom="true"
    android:layout_marginStart="165dp"
    android:layout_marginBottom="340dp"
    android:onClick="subtraction"
    android:text="-" />
```

#### <Button

```
    android:id="@+id/func_del"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="30dp"
    android:layout_marginBottom="340dp"
    android:onClick="delete"
    android:text="Delete" />
```

```
<Button
    android:id="@+id/func_mul"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentBottom="true"
    android:layout_marginStart="30dp"
    android:layout_marginBottom="280dp"
    android:onClick="multiplication"
    android:text="x" />
```

```
<Button
    android:id="@+id/func_div"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_alignParentBottom="true"
    android:layout_marginStart="165dp"
    android:layout_marginBottom="280dp"
    android:onClick="division"
    android:text="/" />
```

```
<Button
    android:id="@+id/func_clear"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="30dp"
    android:layout_marginBottom="280dp"
    android:onClick="clear"
    android:text="Clear" />
```

```
<Button
    android:id="@+id/num_equal"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentEnd="true"
    android:layout_alignParentBottom="true"
    android:layout_marginEnd="30dp"
    android:layout_marginBottom="40dp"
    android:onClick="eq"
    android:text="=" />
```

```
</RelativeLayout>
```

## MainActivity.java

```
package com.example.simplecalculator;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    float result = 0;
    String variable = "";
    String opr = "";
    float temp = 0;
    TextView Variable_Display;
    TextView Result_Display;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Variable_Display = (TextView)findViewById(R.id.disp_variable);
        Result_Display = (TextView)findViewById(R.id.disp_result);
    }

    public void variable_typed(View v){
        String character = v.getTag().toString();
        if (character.equals("10")){
            character=".";
        }
        variable = variable +character;
        Variable_Display.setText(variable);
    }

    public void clear(View v){
        variable = "";
        result=0;
        opr="";
        Variable_Display.setText("0");
        Result_Display.setText("0");
    }

    public void delete(View v){
        if (variable != null && variable.length() > 0) {
            variable = variable.substring(0, variable.length() - 1);
        }
        Variable_Display.setText(variable+"");
    }
}
```

```

public void eq(View v){
    switch(opr){
        case "add":
            result=temp+Float.parseFloat(variable);
            break;
        case "sub":
            result=temp-Float.parseFloat(variable);
            break;
        case "mul":
            result=temp*Float.parseFloat(variable);
            break;
        case "div":
            result=temp/Float.parseFloat(variable);
            break;
        default:
            break;
    }
    variable=result+"";
    opr="";
    Variable_Display.setText(result+"");
    Result_Display.setText(result+"");
}

public void addition(View v){
    temp = Float.parseFloat(variable);
    opr="add";
    variable="";
}

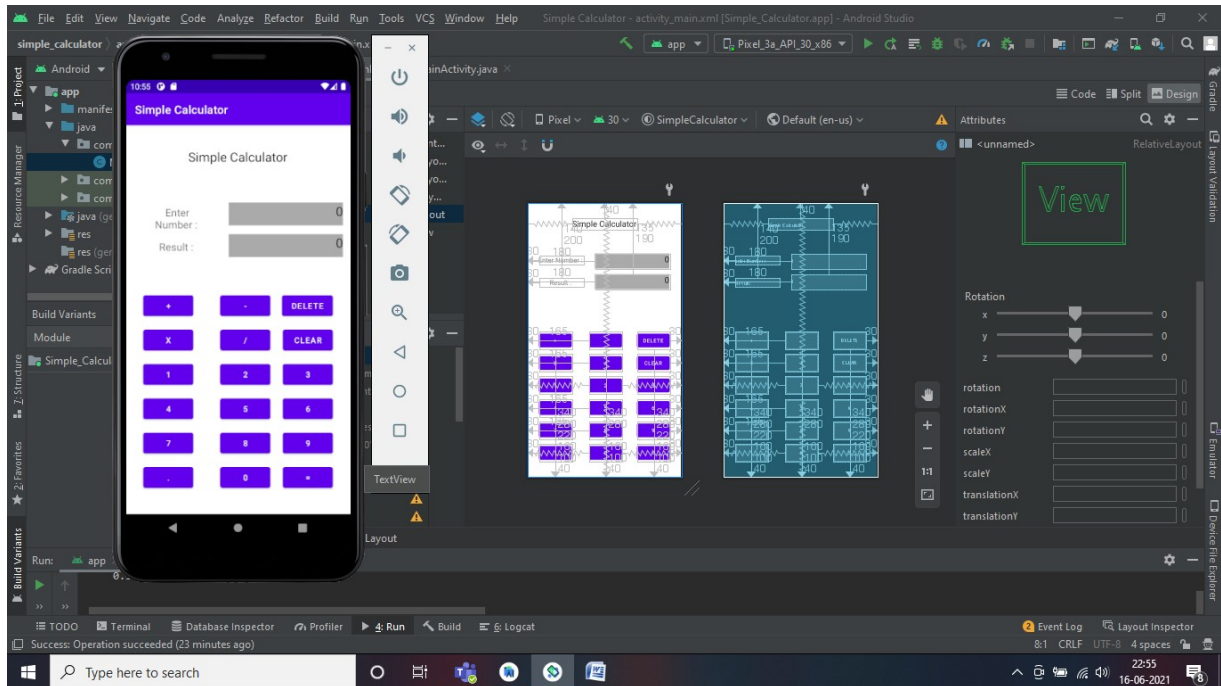
public void subtraction(View v){
    temp = Float.parseFloat(variable);
    opr="sub";
    variable="";
}

public void multiplication(View v){
    temp = Float.parseFloat(variable);
    opr="mul";
    variable="";
}

public void division(View v){
    temp = Float.parseFloat(variable);
    opr="div";
    variable="";
}
}

```





Sample Calculation :  $1+5=6$

