

EXERCISE 5

DESIGN A SIMPLE CALCULATOR

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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">

<TextView
    android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="35dp"
    android:layout_marginTop="72dp"
    android:layout_marginBottom="48dp"
    android:text="calculator"
    android:textAllCaps="true"
    android:textColor="#7E168F"
    android:textSize="20sp"
    app:layout_constraintBottom_toTopOf="@+id/editTextTextPersonName"
    app:layout_constraintStart_toStartOf="@+id/editTextTextPersonName"
    app:layout_constraintTop_toTopOf="parent" />

<EditText
    android:id="@+id/editTextTextPersonName"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginBottom="78dp"
    android:ems="10"
    app:layout_constraintBottom_toTopOf="@+id/bt8"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView" />
```

<Button

```
    android:id="@+id/bt9"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_marginStart="16dp"
    android:layout_marginTop="270dp"
    android:layout_marginEnd="39dp"
    android:layout_marginBottom="55dp"
    android:text="9"
    app:layout_constraintBottom_toTopOf="@+id/bt6"
    app:layout_constraintEnd_toStartOf="@+id/bt8"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
```

<Button

```
    android:id="@+id/bt8"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_marginEnd="34dp"
    android:layout_marginBottom="55dp"
    android:text="8"
    app:layout_constraintBottom_toTopOf="@+id/bt4"
    app:layout_constraintEnd_toStartOf="@+id/bt7"
    app:layout_constraintStart_toEndOf="@+id/bt9"
    app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName" />
```

<Button

```
    android:id="@+id/bt7"
    android:layout_width="0dp"
    android:layout_height="41dp"
    android:layout_marginEnd="41dp"
    android:text="7"
    app:layout_constraintBaseline_toBaselineOf="@+id/bt8"
    app:layout_constraintEnd_toStartOf="@+id/btadd"
    app:layout_constraintStart_toEndOf="@+id/bt8" />
```

<Button

```
    android:id="@+id/bt6"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_marginStart="16dp"
    android:layout_marginEnd="41dp"
    android:layout_marginBottom="38dp"
    android:text="6"
    app:layout_constraintBottom_toTopOf="@+id/bt3"
    app:layout_constraintEnd_toStartOf="@+id/bt5"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/bt9" />
```

```
<Button
    android:id="@+id/bt5"
    android:layout_width="0dp"
    android:layout_height="41dp"
    android:layout_marginEnd="32dp"
    android:text="5"
    app:layout_constraintBaseline_toBaselineOf="@+id/bt4"
    app:layout_constraintEnd_toStartOf="@+id/bt4"
    app:layout_constraintStart_toEndOf="@+id/bt6" />
```

```
<Button
    android:id="@+id/bt4"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_marginEnd="41dp"
    android:layout_marginBottom="38dp"
    android:text="4"
    app:layout_constraintBottom_toTopOf="@+id/bt1"
    app:layout_constraintEnd_toStartOf="@+id/btsub"
    app:layout_constraintStart_toEndOf="@+id/bt5"
    app:layout_constraintTop_toBottomOf="@+id/bt8" />
```

```
<Button
    android:id="@+id/bt3"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_marginStart="16dp"
    android:layout_marginEnd="41dp"
    android:layout_marginBottom="36dp"
    android:text="3"
    app:layout_constraintBottom_toTopOf="@+id/btclr"
    app:layout_constraintEnd_toStartOf="@+id/bt2"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/bt6" />
```

```
<Button
    android:id="@+id/bt2"
    android:layout_width="0dp"
    android:layout_height="41dp"
    android:layout_marginEnd="32dp"
    android:text="2"
    app:layout_constraintBaseline_toBaselineOf="@+id/bt1"
    app:layout_constraintEnd_toStartOf="@+id/bt1"
    app:layout_constraintStart_toEndOf="@+id/bt3" />
```

```
<Button
    android:id="@+id/bt1"
```

```
android:layout_width="0dp"
android:layout_height="0dp"
android:layout_marginEnd="41dp"
android:layout_marginBottom="36dp"
android:text="1"
app:layout_constraintBottom_toTopOf="@+id/bt0"
app:layout_constraintEnd_toStartOf="@+id/btmul"
app:layout_constraintStart_toEndOf="@+id/bt2"
app:layout_constraintTop_toBottomOf="@+id/bt4" />
```

<Button

```
android:id="@+id/btclr"
android:layout_width="0dp"
android:layout_height="0dp"
android:layout_marginStart="16dp"
android:layout_marginEnd="39dp"
android:layout_marginBottom="168dp"
android:text="clear"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toStartOf="@+id/bt0"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/bt3" />
```

<Button

```
android:id="@+id/bt0"
android:layout_width="0dp"
android:layout_height="0dp"
android:layout_marginEnd="34dp"
android:layout_marginBottom="42dp"
android:text="0"
app:layout_constraintBottom_toTopOf="@+id/btdot"
app:layout_constraintEnd_toStartOf="@+id/bteq"
app:layout_constraintStart_toEndOf="@+id/btclr"
app:layout_constraintTop_toBottomOf="@+id/bt1" />
```

<Button

```
android:id="@+id/bteq"
android:layout_width="0dp"
android:layout_height="41dp"
android:layout_marginEnd="41dp"
android:text=""
app:layout_constraintBaseline_toBaselineOf="@+id/bt0"
app:layout_constraintEnd_toStartOf="@+id/btdiv"
app:layout_constraintStart_toEndOf="@+id/bt0" />
```

<Button

```
android:id="@+id/btadd"
android:layout_width="0dp"
```

```
android:layout_height="0dp"
android:layout_marginTop="270dp"
android:layout_marginEnd="25dp"
android:layout_marginBottom="51dp"
android:text="+"
app:layout_constraintBottom_toTopOf="@+id/btsub"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toEndOf="@+id/bt7"
app:layout_constraintTop_toTopOf="parent" />
```

<Button

```
android:id="@+id/btsub"
android:layout_width="0dp"
android:layout_height="0dp"
android:layout_marginEnd="25dp"
android:layout_marginBottom="34dp"
android:text="-"
app:layout_constraintBottom_toTopOf="@+id/btmul"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toEndOf="@+id/bt4"
app:layout_constraintTop_toBottomOf="@+id/btadd" />
```

<Button

```
android:id="@+id/btmul"
android:layout_width="0dp"
android:layout_height="0dp"
android:layout_marginEnd="25dp"
android:layout_marginBottom="32dp"
android:text="*"
app:layout_constraintBottom_toTopOf="@+id/btdiv"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toEndOf="@+id/bt1"
app:layout_constraintTop_toBottomOf="@+id/btsub" />
```

<Button

```
android:id="@+id/btdiv"
android:layout_width="0dp"
android:layout_height="0dp"
android:layout_marginEnd="25dp"
android:layout_marginBottom="164dp"
android:text="/"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toEndOf="@+id/bteq"
app:layout_constraintTop_toBottomOf="@+id/btmul" />
```

<Button

```
android:id="@+id/btdot"
```

```

        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginEnd="32dp"
        android:layout_marginBottom="78dp"
        android:text="."
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="@+id/bteq"
        app:layout_constraintTop_toBottomOf="@+id/bt0" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

MAINACTIVITY.JAVA:

```

package com.example.my_calculator;

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 {

    EditText ed;
    Button b1,b2,b3,b4,b5,b6,b7,b8,b9,b0;
    Button badd,bsub,bmul,bdiv,beq,bclr,bdot;
    float res1,res2;
    boolean Add,Sub,Mul,Div;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        ed=(EditText)findViewById(R.id.editTextTextPersonName);
        b0=(Button)findViewById(R.id.bt0);
        b1=(Button)findViewById(R.id.bt1);
        b2=(Button)findViewById(R.id.bt2);
        b3=(Button)findViewById(R.id.bt3);
        b4=(Button)findViewById(R.id.bt4);
        b5=(Button)findViewById(R.id.bt5);
        b6=(Button)findViewById(R.id.bt6);
        b7=(Button)findViewById(R.id.bt7);
        b8=(Button)findViewById(R.id.bt8);
        b9=(Button)findViewById(R.id.bt9);
        badd=(Button)findViewById(R.id.btadd);
        bsub=(Button)findViewById(R.id.btsub);
        bmul=(Button)findViewById(R.id.btmul);
        bdiv=(Button)findViewById(R.id.btdiv);
    }
}

```

```
beq=(Button)findViewById(R.id.bteq);
bclr=(Button)findViewById(R.id.btclr);
bdot=(Button)findViewById(R.id.btdot);
b0.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        ed.setText(ed.getText()+"0");
    }
});
b1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        ed.setText(ed.getText()+"1");
    }
});
b2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        ed.setText(ed.getText()+"2");
    }
});
b3.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        ed.setText(ed.getText()+"3");
    }
});
b4.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        ed.setText(ed.getText()+"4");
    }
});
b5.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        ed.setText(ed.getText()+"5");
    }
});
b6.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        ed.setText(ed.getText()+"6");
    }
});
b7.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
```

```

        ed.setText(ed.getText()+"7");
    }
});
b8.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        ed.setText(ed.getText()+"8");
    }
});
b9.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        ed.setText(ed.getText()+"9");
    }
});
badd.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        if(ed==null)
        {
            ed.setText("");
        }
        else{
            res1=Float.parseFloat(ed.getText()+"");
            Add=true;
            ed.setText(null);
        }
    }
});
bsub.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        if(ed==null)
        {
            ed.setText("");
        }
        else{
            res1=Float.parseFloat(ed.getText()+"");
            Sub=true;
            ed.setText(null);
        }
    }
});
bmul.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        if(ed==null)
        {

```



```

        ed.setText("");
    }
    else{
        res1=Float.parseFloat(ed.getText()+"");
        Mul=true;
        ed.setText(null);
    }
}
});
bdiv.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        if(ed==null)
        {
            ed.setText("");
        }
        else{
            res1=Float.parseFloat(ed.getText()+"");
            Div=true;
            ed.setText(null);
        }
    }
});
beq.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        res2=Float.parseFloat(ed.getText()+"");
        if(Add==true)
        {
            ed.setText(res1+res2+"");
            Add=false;
        }
        if(Sub==true)
        {
            ed.setText(res1-res2+"");
            Sub=false;
        }
        if(Mul==true)
        {
            ed.setText(res1*res2+"");
            Mul=false;
        }
        if(Div==true)
        {
            ed.setText(res1/res2+"");
            Div=false;
        }
    }
}

```

```
});  
bdot.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View view) {  
        ed.setText(ed.getText()+".");  
    }  
});  
bclr.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View view) {  
        ed.setText("");  
    }  
});  
}  
}
```

OUTPUT:



