Calculator Project

Milestone 2

Mahmoud Abdalla Mohasseb

20P2787

Java Code

```
package com.example.calculator;

// azbot divide by zero
// azbot length ally zahr fe text

import android.os.Bundle;

import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.fragment.app.Fragment;

import android.service.quickaccesswallet.SelectWalletCardRequest;
import android.support.v4.os.IResultReceiver;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.Button;
import android.widget.ImageButton;
import android.widget.TextView;
import android.widget.Toast;

public class Calculator extends Fragment {
    Button[] btns = new Button[35];
    TextView tv;

    double operandOne = 0, result = 0;
    String operation = "";
    String viewText = "", pressed = "0";
    boolean first = true, isFloat = false, isNeg = false, firstOp = true,
firstRun = true;
    int base = 10;


    View.OnClickListener numberListener = new View.OnClickListener() {
        @Override
        public void onClick(View view) {

//Toast.makeText(getActivity(),"numbers",Toast.LENGTH_SHORT).show();
            firstOp = true;

            switch (view.getId()) {
                case R.id.btn_num0:
                    if (!first) pressed += "0";
                    break;
                case R.id.btn_num1:
                    pressed += "1";
                    if(first) pressed = (isNeg) ? "-":"";
                    first = false;
                    break;
                case R.id.btn_num2:
                    if (base != 2) {
                        if(first) pressed = (isNeg) ? "-":"";
                        pressed += "2";
                        first = false;
```

```
                }
                break;
            case R.id.btn_num3:
                if (base != 2) {
                    if(first) pressed = (isNeg) ? "-":"";
                    pressed += "3";
                    first = false;
                }
                break;
            case R.id.btn_num4:
                if (base != 4) {
                    if(first) pressed = (isNeg) ? "-":"";
                    pressed += "4";
                    first = false;
                }
                break;
            case R.id.btn_num5:
                if (base != 2) {
                    if(first) pressed = (isNeg) ? "-":"";
                    pressed += "5";
                    first = false;
                }
                break;
            case R.id.btn_num6:
                if (base != 2) {
                    if(first) pressed = (isNeg) ? "-":"";
                    pressed += "6";
                    first = false;
                }
                break;
            case R.id.btn_num7:
                if (base != 2) {
                    if(first) pressed = (isNeg) ? "-":"";
                    pressed += "7";
                    first = false;
                }
                break;
            case R.id.btn_num8:
                if (base == 10 || base == 16) {
                    if(first) pressed = (isNeg) ? "-":"";
                    pressed += "8";
                    first = false;
                }
                break;
            case R.id.btn_num9:
                if (base == 10 || base == 16) {
                    if(first) pressed = (isNeg) ? "-":"";
                    pressed += "9";
                    first = false;
                }
                break;
            case R.id.btn_A:
                if (base == 16) {
                    if(first) pressed = "";
                    pressed += "A";
                    first = false;
                }
```

```
                    break;
                case R.id.btn_B:
                    if (base == 16) {
                        if(first) pressed = "";
                        pressed += "B";
                        first = false;
                    }
                    break;
                case R.id.btn_C:
                    if (base == 16) {
                        if(first) pressed = "";
                        pressed += "C";
                        first = false;
                    }
                    break;
                case R.id.btn_D:
                    if (base == 16) {
                        if(first) pressed = "";
                        pressed += "D";
                        first = false;
                    }
                    break;
                case R.id.btn_E:
                    if (base == 16) {
                        if(first) pressed = "";
                        pressed += "E";
                        first = false;
                    }
                    break;
                case R.id.btn_F:
                    if (base == 16) {
                        if(first) pressed = "";
                        pressed += "F";
                        first = false;
                    }
                    break;
                case R.id.btn_float:
                    if (!isFloat && base == 10) {
                        pressed += ".";
                        isFloat = true;
                        first = false;
                    }
                    break;
                case R.id.btn_plusNeg:
                    if (first && base == 10) {
                        if (isNeg) pressed = "0";
                        else pressed = "-0";
                        isNeg = !isNeg;
                    }
                    break;
            }

            /*if(pressed.length() <= 9)*/tv.setText(viewText + operation +
"\n" + pressed);
        }
    };
```

```
View.OnClickListener baseListener = new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        Toast.makeText(getActivity(),"base",Toast.LENGTH_SHORT).show();
        switch (view.getId()){
            case R.id.btn_decimal:
                base = 10;
                break;
            case R.id.btn_hexa:
                base = 16;
                break;
            case R.id.btn_binary:
                base = 2;
                break;
            case R.id.btn_octal:
                base = 8;
                break;
        }
    }
};

View.OnClickListener memoryListener = new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        Toast.makeText(getActivity(),"memory",Toast.LENGTH_SHORT).show();
    }
};


View.OnClickListener opsListener = new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        if(firstOp){
            operandOne = Double.parseDouble(pressed);
            if(firstRun) {
                result = operandOne;
                firstRun = false;
                viewText += pressed;
            }
            else {
                switch (operation) {
                    case "+":
                        viewText += " + ";
                        result += operandOne;
                        break;
                    case "-":
                        viewText += " - ";
                        result -= operandOne;
                        break;
                    case "*":
                        viewText += " * ";
                        result *= operandOne;
                        break;
                    case "÷":
                        viewText += " ÷ ";
                        result /= operandOne;
                        break;
```

```
                    }
                    viewText += pressed;
                }
                tv.setText(viewText + "\n");
                first = true;
                isNeg = isFloat = false;
                pressed = "0";
                firstOp = false;
            }


            switch (view.getId()){
                case R.id.btn_sum:
                    tv.setText(viewText + " +" + "\n" + result);
                    operation = "+";
                    break;
                case R.id.btn_subtract:
                    tv.setText(viewText + " -" + "\n" + result);
                    operation = "-";
                    break;
                case R.id.btn_multiply:
                    tv.setText(viewText + " *" + "\n" + result);
                    operation = "*";
                    break;
                case R.id.btn_divide:
                    if(operandOne != 0) {
                        tv.setText(viewText + " ÷" + "\n" + result);
                        operation = "÷";
                    }
                    else{
                        Toast.makeText(getActivity(),"Can not divide by
Zero",Toast.LENGTH_SHORT).show();
                    }
                    break;
                case R.id.btn_equal:
                    tv.setText(viewText + "=" + "\n" + result);
                    result = 0;
                    operandOne = 0;
                    operation = "";
                    viewText = "";
                    pressed = "0";
                    first = true;
                    isFloat = false;
                    isNeg = false;
                    firstOp = true;
                    firstRun = true;
                    break;

            }


        }
    };
```

```
    public Calculator() {
        // Required empty public constructor
    }

    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
                             Bundle savedInstanceState) {
        // Inflate the layout for this fragment
        return inflater.inflate(R.layout.fragment_calculator, container,
false);
    }


    @Override
    public void onViewCreated(@NonNull View view, @Nullable Bundle
savedInstanceState) {
        super.onViewCreated(view, savedInstanceState);

        tv = (TextView)view.findViewById(R.id.TV_numbers);

        /* numbers buttons */
        btns[0] = (Button)view.findViewById(R.id.btn_num0);
        btns[1] = (Button)view.findViewById(R.id.btn_num1);
        btns[2] = (Button)view.findViewById(R.id.btn_num2);
        btns[3] = (Button)view.findViewById(R.id.btn_num3);
        btns[4] = (Button)view.findViewById(R.id.btn_num4);
        btns[5] = (Button)view.findViewById(R.id.btn_num5);
        btns[6] = (Button)view.findViewById(R.id.btn_num6);
        btns[7] = (Button)view.findViewById(R.id.btn_num7);
        btns[8] = (Button)view.findViewById(R.id.btn_num8);
        btns[9] = (Button)view.findViewById(R.id.btn_num9);
        btns[10] = (Button)view.findViewById(R.id.btn_A);
        btns[11] = (Button)view.findViewById(R.id.btn_B);
        btns[12] = (Button)view.findViewById(R.id.btn_C);
        btns[13] = (Button)view.findViewById(R.id.btn_D);
        btns[14] = (Button)view.findViewById(R.id.btn_E);
        btns[15] = (Button)view.findViewById(R.id.btn_F);
        btns[16] = (Button)view.findViewById(R.id.btn_float);
        btns[17] = (Button)view.findViewById(R.id.btn_plusNeg);


        for(int i = 0; i <= 17; i++){
            btns[i].setOnClickListener(numberListener);
        }

        /* base buttons */
        btns[18] = (Button)view.findViewById(R.id.btn_decimal);
        btns[19] = (Button)view.findViewById(R.id.btn_binary);
        btns[20] = (Button)view.findViewById(R.id.btn_hexa);
        btns[21] = (Button)view.findViewById(R.id.btn_octal);

        for(int i = 18; i <= 21; i++){
            btns[i].setOnClickListener(baseListener);
        }
```

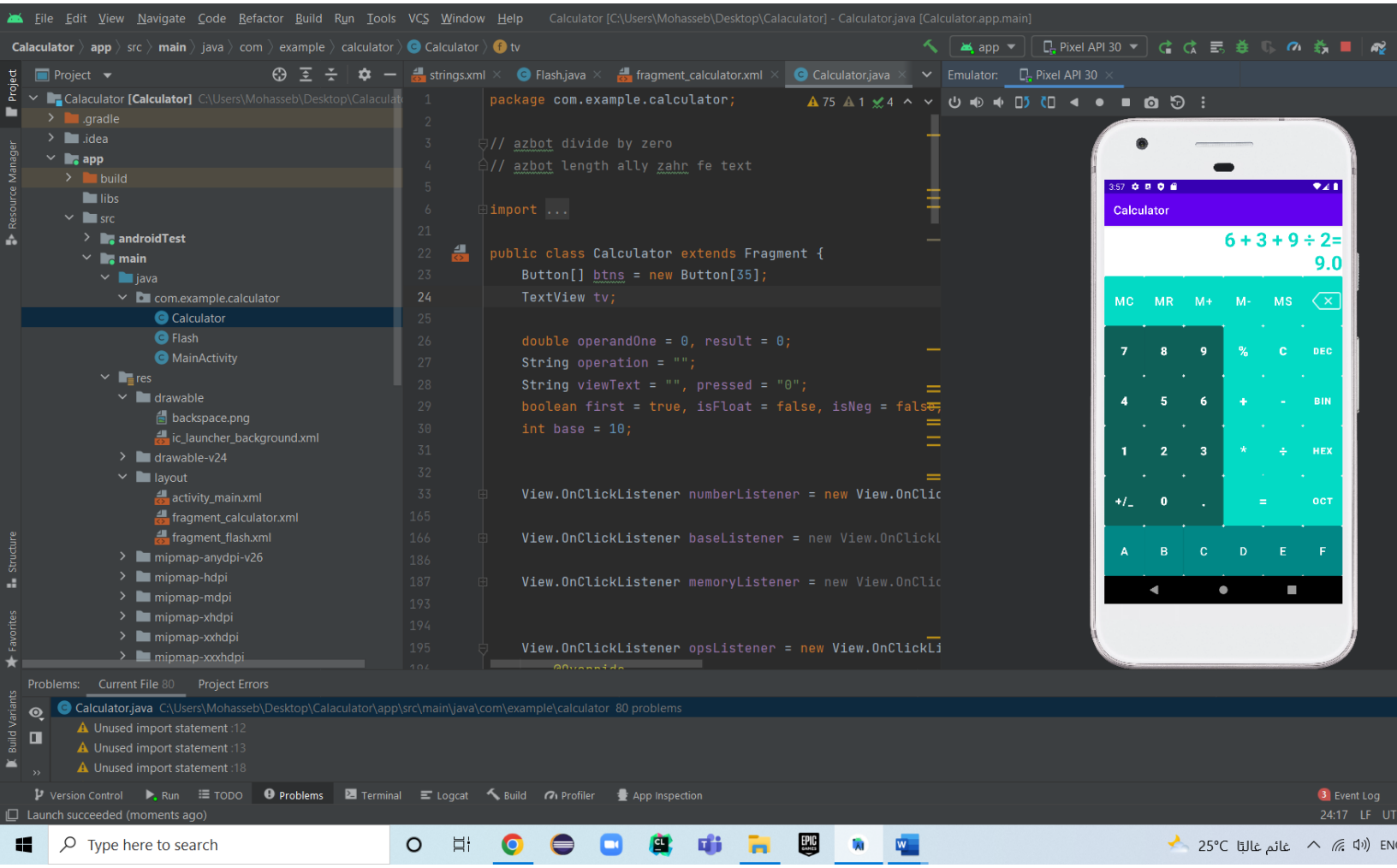
```
        /* operations buttons */
        btns[22] = (Button)view.findViewById(R.id.btn_sum);
        btns[23] = (Button)view.findViewById(R.id.btn_subtract);
        btns[24] = (Button)view.findViewById(R.id.btn_multiply);
        btns[25] = (Button)view.findViewById(R.id.btn_divide);
        btns[26] = (Button)view.findViewById(R.id.btn_mod);
        btns[27] = (Button)view.findViewById(R.id.btn_equal);
        btns[28] = (Button)view.findViewById(R.id.btn_removeAll);
        btns[29] = (Button) view.findViewById(R.id.btn_backSpace);

        for(int i = 22; i <= 29; i++){
            btns[i].setOnClickListener(opsListener);
        }

        /* memory buttons */
        btns[30] = (Button)view.findViewById(R.id.btn_memPlus);
        btns[31] = (Button)view.findViewById(R.id.btn_memSubtract);
        btns[32] = (Button)view.findViewById(R.id.btn_memRecall);
        btns[33] = (Button)view.findViewById(R.id.btn_memRemove);
        btns[34] = (Button)view.findViewById(R.id.btn_memStore);

        for(int i = 30; i <= 34; i++){
            btns[i].setOnClickListener(memoryListener);
        }
    }
}
```

Screenshot of layout



Test case scenarios:

000000000000000	o/p: 0
0……	o/p: 0.
053 + - * + 9	o/p: 53 + 9