

Calculator

Submitted in fulfillment of the requirements

Of micro-project

Advance Java Programming

By

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SUBJECT INCHARGE

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Department of Computer Engineering

Academic Year 2020-21



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CERTIFICATE

This is to certify that the micro project

“Calculator”

Is done by

“ Ashish Bhoir & Vishal Jadhav ”

Is submitted for

“Advance Java Programming”

For

The diploma in Computer Engineering to the



Maharashtra State Board of Technical Education, Mumbai

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(Prof. D.R.Suroshe)

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ROLL NO	NAME OF STUDENTS	ENROLLMENT NO
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Department of Computer Engineering

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Report

Introduction

Hear by using basics tool of java we made calculator , plots of basics function. For understanding the basic function of the GUI and programming we made the calculator which will perform the basic mathematical function like addition , subtraction , division , multiplication and some more.

the aim of this project is to understand object oriented programming language and JFrame. the calculator application perform basic mathematical operation when the user operate the application call the corresponding class and the user can perform various mathematical operation provides the class.

Rationale

An electronic hardware device or software capable of performing mathematical calculations such as addition, multiplication, subtraction, or division. The Casio Computer Company developed the first electronic calculator in 1957. Since then, calculators have come in many sizes, and they are also built into most operating systems on computers, as well as smartphones and tablets. The picture is an example of the Calculator software program included in every version of Microsoft Windows.

Aim

Program to develop calculator.

Course Outcomes

1. Develop programs using GUI framework (AWT and Swing).
2. Handle events of AWT and Swing Components.
3. Develop a program to handle events in Java Programming.

Literature

Java is a set of computer software and specifications developed by James Gosling at Sun Microsystems, which was later acquired by the Oracle Corporation, that provides a system for developing application software and deploying it in a cross-platform computing environment. Java is used in a wide variety of computing platforms from devices and mobile phones to enterprise servers and supercomputers. Java applets, which are less common than standalone Java applications, were commonly run in secure, sandboxed environments to provide many features of native applications through being embedded in HTML pages.

Actual Methodology Followed

Topic	Work Done	Work Done By
1	Gathering of Information	Ashish Bhoir , Vishal Jadhav
2	Execution of Program	Vishal Jadhav
3	Report Making	Ashish Bhoir

Skill Developed

1. Able to write the program using JApplet /JFrame.
2. Able to implement the different components of Awt and Swing (JButton, JLabel, JtextField, JPanel)

Source Code

```
import java.awt.*;
import java.awt.event.*;

class MyCalculator extends Frame implements ActionListener {

    TextField tfInput;
    Panel panel;

    String btnString[] = {"7", "8", "9", "+",
                          "4", "5", "6", "-",
                          "1", "2", "3", "*",
                          "C", "0", "=", "/"};
    Button btn[] = new Button[16];
    int num1 = 0, num2 = 0, result = 0;
    char op;

    public MyCalculator() {

        Font f = new Font("Cambria", Font.BOLD, 18);

        tfInput = new TextField(10);
        tfInput.setFont(f);

        panel = new Panel();

        add(tfInput, "North");
        add(panel, "Center");

        panel.setLayout(new GridLayout(4,4));

        for(int i=0; i < 16; i++) {

            btn[i] = new Button(btnString[i]);
            btn[i].setFont(f);
            btn[i].addActionListener(this);
            panel.add(btn[i]);
        }

        addWindowListener(new WindowAdapter(){

            public void windowClosing(WindowEvent we) {
                System.exit(0);
            }
        });
    }
}
```

```
}

public void actionPerformed(ActionEvent ae) {

    String str = ae.getActionCommand();

    if(str.equals("+")) {

        op = '+';
        num1 = Integer.parseInt(tfInput.getText());
        tfInput.setText("");
    }
    else if(str.equals("-")) {
        op = '-';
        num1 = Integer.parseInt(tfInput.getText());
        tfInput.setText("");
    }
    else if(str.equals("*")) {
        op = '*';
        num1 = Integer.parseInt(tfInput.getText());
        tfInput.setText("");
    }
    else if(str.equals("/")) {
        op = '/';
        num1 = Integer.parseInt(tfInput.getText());
        tfInput.setText("");
    }
    else if(str.equals("=")) {

        num2 = Integer.parseInt(tfInput.getText());

        switch(op) {

            case '+' : result = num1 + num2;
                break;
            case '-' : result = num1 - num2;
                break;
            case '*' : result = num1 * num2;
                break;
            case '/' : result = num1 / num2;
                break;
        }
        tfInput.setText(result + "");
        result = 0;
    }
}
```

```
        else if(str.equals("C")) {

            tfInput.setText("");
            num1 = num2 = result = 0;
        }
        else {
            tfInput.setText(tfInput.getText() + str);
        }
    }

    public static void main(String args[]) {

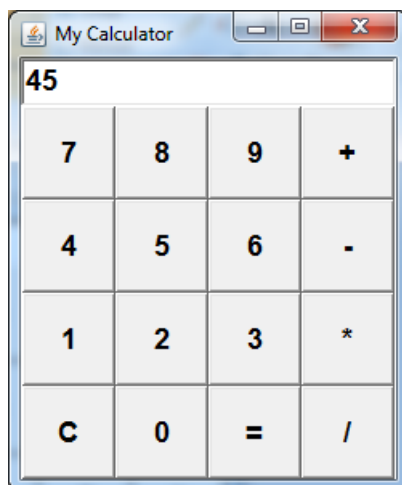
        MyCalculator m = new MyCalculator();
        m.setTitle("My Calculator");
        m.setSize(250,300);
        m.setVisible(true);
    }
}
```


Output

```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.18363.900]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Program Files\Java\jdk-14.0.1\bin>javac calculator.java

C:\Program Files\Java\jdk-14.0.1\bin>java calculator
```



Application

1. A calculator is a device that perform arithmetic operation on number.
2. The simplest calculator can do only addition , subtraction, multiplication, and division.
3. More sophisticated calculators can handle exponent ial operations, roots, logarithm, trigonometric function .

Conclusion

From this Project, We are Able to Develop a Calculator in Java using Different components of java AWT and java Swing.