

实验八 图形用户界面（运算器）

一 实验目的：

1 掌握 java 语言图形用户界面的编写过程

二 实验内容：

1 请用 java 语言编写一个运算器应用程序。要求实现运算器中常用的功能（+，-，*，\）。

```
Calculator.java
1 import java.awt.*;
2 import java.awt.event.ActionEvent;
3 import java.awt.event.ActionListener;
4 import javax.script.ScriptEngine;
5 import javax.script.ScriptEngineManager;
6 import javax.script.ScriptException;
7 import javax.swing.*;
8 import javax.swing.border.EmptyBorder;
9
10 public class Calculator extends JFrame implements ActionListener {
11     private ScriptEngine jse = new ScriptEngineManager().getEngineByName("JavaScript");
12
13     private JPanel northPanel = new JPanel();
14     private JTextField showText = new JTextField();
15     private JButton acButton = new JButton("AC");
16
17     private JPanel btnPanel = new JPanel(new GridLayout(4, 4, 4, 4));
18     private JButton[] buttons = new JButton[16];
19     private String btnStr = "789/456*123-0.+=";
20
21     private void initUI() {
22         this.setSize(300, 300);
23         northPanel.setBorder(new EmptyBorder(6, 6, 6, 6));
24         northPanel.setLayout(new BorderLayout());
25         northPanel.add(showText, BorderLayout.CENTER);
26         acButton.setFont(new Font("微软雅黑", Font.BOLD, 15));
27         acButton.addActionListener(this);
28         northPanel.add(acButton, BorderLayout.EAST);
29         this.add(northPanel, BorderLayout.NORTH);
30
31         btnPanel.setBorder(new EmptyBorder(6, 6, 6, 6));
32         for (int i=0; i < btnStr.length(); i++) {
33             buttons[i] = new JButton(String.valueOf(btnStr.charAt(i)));
34             buttons[i].setFont(new Font("微软雅黑", Font.BOLD, 15));
35             buttons[i].addActionListener(this);
36             btnPanel.add(buttons[i]);
37         }
38         this.add(btnPanel, BorderLayout.CENTER);
39         this.setDefaultCloseOperation(WindowConstants.EXIT_ON_CLOSE);
40         this.setVisible(true);
41     }
42
43     @Override
44     public void actionPerformed(ActionEvent e) {
```

```
45         JButton button = (JButton) e.getSource();
46         if (button.getLabel().equals("AC")) {
47             showText.setText("");
48         } else if (button.getLabel().equals("=")) {
49             try {
50                 showText.setText(jse.eval(showText.getText()).toString());
51             } catch (ScriptException e1) {
52                 e1.printStackTrace();
53             }
54         } else {
55             showText.setText(showText.getText() + button.getLabel());
56         }
57     }
58
59     private Calculator (String title) throws HeadlessException {
60         super(title);
61     }
62
63     public static void main(String[] args) {
64         new Calculator("Calculator").initUI();
65     }
66 }
```

