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Batch: N7

Problem Statement: Design GUI to demonstrate the status of key on an AWT window such as KeyPressed, KeyReleased, KeyTyped using JAVA programming.

CODE :

```java
package lab1;

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

public class File1 extends Frame implements KeyListener {
    private Label label;
    private TextField textField;

    public File1() {
        setLayout(new FlowLayout());
        setTitle("Key Event Demonstration");
        setSize(400, 200);

        label = new Label("Press any key to see its status.");
        textField = new TextField(20);

        textField.addKeyListener(this);

        add(label);
        add(textField);

        setVisible(true);

        addWindowListener(new WindowAdapter() {
            public void windowClosing(WindowEvent we) {
                dispose();
            }
        });
    }

    public void keyPressed(KeyEvent e) {
        label.setText("Key Pressed: " + e.getKeyChar());
    }

    public void keyReleased(KeyEvent e) {
        label.setText("Key Released: " + e.getKeyChar());
    }
```

```java
    public void keyTyped(KeyEvent e) {
        label.setText("Key Typed: " + e.getKeyChar());
    }

    public static void main(String[] args) {
        new File1();
    }
}
```

OUTPUT :
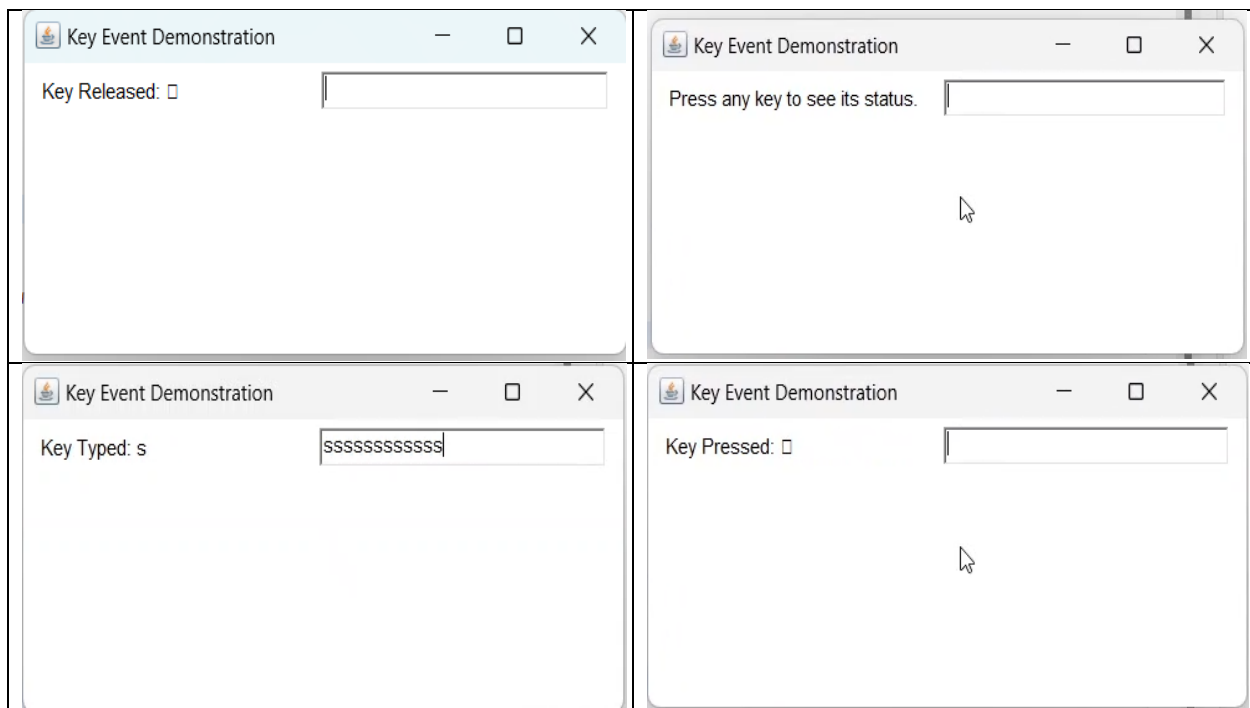
Problem Statement: Design a GUI-based calculator using Java AWT that takes two numbers as input via TextField components. The application should include four buttons (+, -, *, /) for basic arithmetic operations and a Label to display the result.

CODE :

```java
package lab1;

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

public class File2 extends Frame implements ActionListener {
    private TextField num1, num2, result;
    private Button addButton, subButton, mulButton, divButton;
    private Label label1, label2, labelResult;

    public File2() {

        setLayout(new FlowLayout());
        setTitle("AWT Calculator");
        setSize(400, 300);

        label1 = new Label("Number 1:");
        num1 = new TextField(10);

        label2 = new Label("Number 2:");
        num2 = new TextField(10);

        labelResult = new Label("Result:");
        result = new TextField(10);
        result.setEditable(false);

        addButton = new Button("+");
        subButton = new Button("-");
        mulButton = new Button("*");
        divButton = new Button("/");


        addButton.addActionListener(this);
        subButton.addActionListener(this);
        mulButton.addActionListener(this);
        divButton.addActionListener(this);


        add(label1);
        add(num1);
```

```java
        add(label2);
        add(num2);
        add(addButton);
        add(subButton);
        add(mulButton);
        add(divButton);
        add(labelResult);
        add(result);


        addWindowListener(new WindowAdapter() {
            public void windowClosing(WindowEvent e) {
                dispose();
            }
        });

        setVisible(true);
    }


    public void actionPerformed(ActionEvent e) {
        try {

            double number1 = Double.parseDouble(num1.getText());
            double number2 = Double.parseDouble(num2.getText());
            double res = 0;


            if (e.getSource() == addButton) {
                res = number1 + number2;
            } else if (e.getSource() == subButton) {
                res = number1 - number2;
            } else if (e.getSource() == mulButton) {
                res = number1 * number2;
            } else if (e.getSource() == divButton) {
                if (number2 != 0) {
                    res = number1 / number2;
                } else {
                    result.setText("Error: Division by 0");
                    return;
                }
            }


            result.setText(String.valueOf(res));
        } catch (NumberFormatException ex) {
            result.setText("Error: Invalid input");
        }
    }
```

```java
    public static void main(String[] args) {
        new File2();
    }
}
```

OUTPUT :