

Q) Develop a basic calculator application using Swing.

INPUT CODE:

```
import javax.swing.*;

import java.awt.*;

import java.awt.event.*;

public class Main{

    public static void main(String[] args) {

        JFrame frame = new JFrame("Calculator");

        frame.setSize(350, 300);

        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);

        frame.setLayout(new GridLayout(5, 1, 10, 10));

        JPanel inputPanel = new JPanel(new GridLayout(1, 2, 10, 10));

        JTextField field1 = new JTextField();

        JTextField field2 = new JTextField();

        inputPanel.add(field1);

        inputPanel.add(field2);

        JPanel buttonPanel = new JPanel(new GridLayout(1, 4, 10, 10));

        JButton add = new JButton("+");

        JButton sub = new JButton("-");

        JButton mul = new JButton("*");

        JButton div = new JButton("/");

        buttonPanel.add(add);

        buttonPanel.add(sub);

        buttonPanel.add(mul);
```

```
buttonPanel.add(div);
```

```
JLabel label = new JLabel("Result: ", SwingConstants.CENTER);
```

```
label.setFont(new Font("Arial", Font.BOLD, 16));
```

```
ActionListener listener = new ActionListener() {  
    public void actionPerformed(ActionEvent e) {  
        try {  
            int num1 = Integer.parseInt(field1.getText());  
            int num2 = Integer.parseInt(field2.getText());  
            if (e.getSource() == add) {  
                label.setText("Result: " + (num1 + num2));  
            } else if (e.getSource() == sub) {  
                label.setText("Result: " + (num1 - num2));  
            } else if (e.getSource() == mul) {  
                label.setText("Result: " + (num1 * num2));  
            } else {  
                if (num2 != 0) {  
                    label.setText("Result: " + (num1 / num2));  
                } else {  
                    label.setText("Cannot divide by zero!");  
                }  
            }  
        } catch (NumberFormatException ex) {  
            label.setText("Please enter valid numbers!");  
        }  
    }  
}
```

```
};
```

```
add.addActionListener(listener);  
sub.addActionListener(listener);  
mul.addActionListener(listener);  
div.addActionListener(listener);
```

```
frame.add(new JLabel("Enter Numbers:", SwingConstants.CENTER));  
frame.add(inputPanel);  
frame.add(buttonPanel);  
frame.add(label);
```

```
frame.setLocationRelativeTo(null);  
frame.setVisible(true);
```

```
}
```

```
}
```

OUTPUT:



