write a program to design a calculator to demonstrate the use of grid layout using swing components in java

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import javax.swing.*;
import java.awt.*;
import java.awt.event.*;

public class CalculatorGridLayout extends JFrame implements ActionListener {
   // Components
   JTextField display;
   JPanel buttonPanel;
   String[] buttonLabels = {
      "7", "8", "9", "/",
      "4", "5", "6", "*",
      "1", "2", "3", "-",
      "0", "C", "=", "+"
   };
   JButton[] buttons = new JButton[16];

   // Variables for calculation
   double num1 = 0, num2 = 0, result = 0;
   char operator;

   // Constructor to set up GUI
   public CalculatorGridLayout() {
      // Set frame title and layout
      setTitle("Calculator - GridLayout");
      setLayout(new BorderLayout());

      // Create display field
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    display = new JTextField();
    display.setEditable(false);
    display.setFont(new Font("Arial", Font.BOLD, 24));
    add(display, BorderLayout.NORTH); // Add to top of frame

    // Create panel for buttons using GridLayout (4 rows, 4 columns)
    buttonPanel = new JPanel();
    buttonPanel.setLayout(new GridLayout(4, 4, 5, 5)); // 5 px gaps

    // Create buttons and add to panel
    for (int i = 0; i < 16; i++) {
        buttons[i] = new JButton(buttonLabels[i]);
        buttons[i].setFont(new Font("Arial", Font.BOLD, 20));
        buttons[i].addActionListener(this); // Add listener
        buttonPanel.add(buttons[i]);
    }

    // Add button panel to frame
    add(buttonPanel, BorderLayout.CENTER);

    // Set frame properties
    setSize(400, 400);
    setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    setVisible(true);
}

// Handle button clicks
public void actionPerformed(ActionEvent e) {
    String command = e.getActionCommand();

    if ((command.charAt(0) >= '0' && command.charAt(0) <= '9')) {
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            // Append digit to display
            display.setText(display.getText() + command);
        } else if (command.charAt(0) == 'C') {
            // Clear display and reset variables
            display.setText("");
            num1 = num2 = result = 0;
        } else if (command.charAt(0) == '=') {
            // Perform calculation
            num2 = Double.parseDouble(display.getText());
            switch (operator) {
                case '+': result = num1 + num2; break;
                case '-': result = num1 - num2; break;
                case '*': result = num1 * num2; break;
                case '/': result = num2 != 0 ? num1 / num2 : 0; break;
            }
            display.setText("" + result);
        } else {
            // Store first number and operator
            num1 = Double.parseDouble(display.getText());
            operator = command.charAt(0);
            display.setText("");
        }
    }

    // Main method to run the calculator
    public static void main(String[] args) {
        new CalculatorGridLayout();
    }
}
```

Out Put :