

**TUGAS PEKAN 8**  
**PEMROGRAMAN ALGORITMA DAN PEMROGRAMAN**

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## TUGAS

### MEMBUAT OPERASI ASSIGMENT DENGAN GRAPHICAL USER INTERFACE (GUI) PADA JAVA

#### 1. CODE PROGRAM

```
1 package pekan8_2511531014;
2
3
4 import java.awt.EventQueue;
5
6 import javax.swing.JFrame;
7 import javax.swing.JPanel;
8 import javax.swing.border.EmptyBorder;
9 import java.awt.Color;
10 import javax.swing.JLabel;
11 import javax.swing.JOptionPane;
12
13 import java.awt.Font;
14 import javax.swing.SwingConstants;
15 import javax.swing.JTextField;
16 import javax.swing.JButton;
17 import java.awt.event.ActionListener;
18 import java.awt.event.ActionEvent;
```

Code program ini digunakan sebagai Impor library dari Java untuk membuat aplikasi GUI. Lalu dapat dilanjutkan dengan menginisiasikan variabel variable dan membuat pesan peringatan dan pesan error.

```
9 public class tugasAlproPekan8_2511531014 extends JFrame {
10
11     private static final long serialVersionUID = 1L;
12     private JPanel contentPane;
13     private JTextField tfBill1;
14     private JTextField tfBill2;
15     private JTextField txtPenjumlahan;
16     private JTextField txtPengurangan;
17     private JTextField txtPerkalian;
18     private JTextField txtPembagian;
19     private JTextField txtMod;
20     private void pesanPeringatan(String pesan) {
21         JOptionPane.showMessageDialog(this, pesan, "Peringatan", JOptionPane.WARNING_MESSAGE);
22     }
23     private void pesanError(String pesan) {
24         JOptionPane.showMessageDialog(this, pesan, "Kesalahan", JOptionPane.ERROR_MESSAGE);
25     }
26 }
```

Lalu dapat menambahkan method main

```
public static void main(String[] args) {
    EventQueue.invokeLater(new Runnable() {
        public void run() {
            try {
                tugasAlproPekan8_2511531014 frame = new tugasAlproPekan8_2511531014();
                frame.setVisible(true);
            } catch (Exception e) {
                e.printStackTrace();
            }
        }
    });
}
```

Setelah itu lanjutkan dengan mengatur size, warna background, dan layout sesuai yang di inginkan.

```
57 public tugasAlproPekan8_2511531014() {
58     setTitle("Operator Assignment");
59     setBackground(new Color(240, 240, 240));
60     setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
61     setBounds(100, 100, 450, 600);
62     contentPane = new JPanel();
63     contentPane.setBackground(new Color(10, 130, 80));
64     contentPane.setBorder(new EmptyBorder(5, 5, 5, 5));
65     setContentPane(contentPane);
66     contentPane.setLayout(null);
67
68     JLabel Bil1 = new JLabel("Bilangan 1");
69     Bil1.setForeground(new Color(32, 65, 125));
70     Bil1.setFont(new Font("Times New Roman", Font.BOLD, 12));
71     Bil1.setBounds(33, 64, 80, 13);
72     contentPane.add(Bil1);
73
74     JLabel lblTitle = new JLabel("OPERATOR ASSIGNMENT");
75     lblTitle.setBounds(113, 10, 219, 22);
76     lblTitle.setForeground(new Color(32, 65, 125));
77     lblTitle.setHorizontalAlignment(SwingConstants.CENTER);
78     lblTitle.setFont(new Font("Times New Roman", Font.BOLD, 18));
79     contentPane.add(lblTitle);
80
81     JLabel Bil2 = new JLabel("Bilangan 2");
82     Bil2.setForeground(new Color(32, 65, 125));
83     Bil2.setFont(new Font("Times New Roman", Font.BOLD, 12));
84     Bil2.setBounds(33, 97, 80, 13);
85     contentPane.add(Bil2);
86
87     tfBil1 = new JTextField();
88     tfBil1.setHorizontalAlignment(SwingConstants.CENTER);
89     tfBil1.setFont(new Font("Times New Roman", Font.BOLD, 12));
90     tfBil1.setBounds(102, 61, 96, 19);
91     contentPane.add(tfBil1);
92     tfBil1.setColumns(10);
93
94     tfBil2 = new JTextField();
95     tfBil2.setHorizontalAlignment(SwingConstants.CENTER);
96     tfBil2.setFont(new Font("Times New Roman", Font.BOLD, 12));
97     tfBil2.setColumns(10);
98     tfBil2.setBounds(102, 94, 96, 19);
99     contentPane.add(tfBil2);
100
101     JLabel lblNewLabel = new JLabel("HASIL OPERASI");
102     lblNewLabel.setForeground(new Color(32, 65, 125));
103     lblNewLabel.setFont(new Font("Times New Roman", Font.BOLD, 12));
104     lblNewLabel.setBounds(33, 158, 96, 13);
105     contentPane.add(lblNewLabel);
106
107     JLabel lblNewLabel_1 = new JLabel("Assignment Penjumlahan");
108     lblNewLabel_1.setForeground(new Color(32, 65, 125));
109     lblNewLabel_1.setFont(new Font("Times New Roman", Font.PLAIN, 12));
110     lblNewLabel_1.setBounds(35, 200, 180, 13);
111     contentPane.add(lblNewLabel_1);
112
113     JLabel lblNewLabel_1_1_1 = new JLabel("Assignment Pengurangan");
114     lblNewLabel_1_1_1.setForeground(new Color(32, 65, 125));
115     lblNewLabel_1_1_1.setFont(new Font("Times New Roman", Font.PLAIN, 12));
116     lblNewLabel_1_1_1.setBounds(35, 270, 180, 13);
117     contentPane.add(lblNewLabel_1_1_1);
118
119     JLabel lblNewLabel_1_1_2 = new JLabel("Assignment Hasil Sisa Bagi");
```

```

118
119     JLabel lblNewLabel_1_1_2 = new JLabel("Assigment Hasil Sisa Bagi");
120     lblNewLabel_1_1_2.setForeground(new Color(32, 65, 125));
121     lblNewLabel_1_1_2.setFont(new Font("Times New Roman", Font.PLAIN, 12));
122     lblNewLabel_1_1_2.setBounds(33, 480, 180, 13);
123     contentPane.add(lblNewLabel_1_1_2);
124
125     JLabel lblNewLabel_1_1_3 = new JLabel("Assigment Perkalian");
126     lblNewLabel_1_1_3.setForeground(new Color(32, 65, 125));
127     lblNewLabel_1_1_3.setFont(new Font("Times New Roman", Font.PLAIN, 12));
128     lblNewLabel_1_1_3.setBounds(33, 340, 180, 13);
129     contentPane.add(lblNewLabel_1_1_3);
130
131     JLabel lblNewLabel_1_1_3_1 = new JLabel("Assigment Pembagian");
132     lblNewLabel_1_1_3_1.setForeground(new Color(32, 65, 125));
133     lblNewLabel_1_1_3_1.setFont(new Font("Times New Roman", Font.PLAIN, 12));
134     lblNewLabel_1_1_3_1.setBounds(33, 410, 180, 13);
135     contentPane.add(lblNewLabel_1_1_3_1);
136
137     JLabel lblNewLabel_2 = new JLabel("Penjumlahan");
138     lblNewLabel_2.setForeground(new Color(32, 65, 125));
139     lblNewLabel_2.setHorizontalAlignment(SwingConstants.LEFT);
140     lblNewLabel_2.setFont(new Font("Times New Roman", Font.BOLD, 12));
141     lblNewLabel_2.setBounds(33, 225, 80, 13);
142     contentPane.add(lblNewLabel_2);
143
144     JLabel lblNewLabel_2_1 = new JLabel("Pengurangan");
145     lblNewLabel_2_1.setForeground(new Color(32, 65, 125));
146     lblNewLabel_2_1.setHorizontalAlignment(SwingConstants.LEFT);
147     lblNewLabel_2_1.setFont(new Font("Times New Roman", Font.BOLD, 12));
148     lblNewLabel_2_1.setBounds(33, 290, 80, 13);
149     contentPane.add(lblNewLabel_2_1);
150
50
51     JLabel lblNewLabel_2_1_1 = new JLabel("Modulo");
52     lblNewLabel_2_1_1.setForeground(new Color(32, 65, 125));
53     lblNewLabel_2_1_1.setHorizontalAlignment(SwingConstants.LEFT);
54     lblNewLabel_2_1_1.setFont(new Font("Times New Roman", Font.BOLD, 12));
55     lblNewLabel_2_1_1.setBounds(33, 500, 80, 13);
56     contentPane.add(lblNewLabel_2_1_1);
57
58     JLabel lblNewLabel_2_1_2 = new JLabel("Perkalian");
59     lblNewLabel_2_1_2.setForeground(new Color(32, 65, 125));
60     lblNewLabel_2_1_2.setHorizontalAlignment(SwingConstants.LEFT);
61     lblNewLabel_2_1_2.setFont(new Font("Times New Roman", Font.BOLD, 12));
62     lblNewLabel_2_1_2.setBounds(33, 360, 80, 13);
63     contentPane.add(lblNewLabel_2_1_2);
64
65     JLabel lblNewLabel_2_1_2_1 = new JLabel("Pembagian");
66     lblNewLabel_2_1_2_1.setForeground(new Color(32, 65, 125));
67     lblNewLabel_2_1_2_1.setHorizontalAlignment(SwingConstants.LEFT);
68     lblNewLabel_2_1_2_1.setFont(new Font("Times New Roman", Font.BOLD, 12));
69     lblNewLabel_2_1_2_1.setBounds(33, 430, 80, 13);
70     contentPane.add(lblNewLabel_2_1_2_1);
71
72     txtPenjumlahan = new JTextField();
73     txtPenjumlahan.setHorizontalAlignment(SwingConstants.CENTER);
74     txtPenjumlahan.setFont(new Font("Times New Roman", Font.BOLD, 12));
75     txtPenjumlahan.setBounds(133, 222, 60, 20);
76     contentPane.add(txtPenjumlahan);
77     txtPenjumlahan.setColumns(10);
78

```

```

185
186     txtPerkalian = new JTextField();
187     txtPerkalian.setHorizontalAlignment(SwingConstants.CENTER);
188     txtPerkalian.setFont(new Font("Times New Roman", Font.BOLD, 12));
189     txtPerkalian.setColumns(10);
190     txtPerkalian.setBounds(133, 357, 60, 20);
191     contentPane.add(txtPerkalian);
192
193     txtPembagian = new JTextField();
194     txtPembagian.setHorizontalAlignment(SwingConstants.CENTER);
195     txtPembagian.setFont(new Font("Times New Roman", Font.BOLD, 12));
196     txtPembagian.setColumns(10);
197     txtPembagian.setBounds(133, 427, 60, 20);
198     contentPane.add(txtPembagian);
199
200     txtMod = new JTextField();
201     txtMod.setHorizontalAlignment(SwingConstants.CENTER);
202     txtMod.setFont(new Font("Times New Roman", Font.BOLD, 12));
203     txtMod.setColumns(10);
204     txtMod.setBounds(133, 497, 60, 20);
205     contentPane.add(txtMod);
206
207     JButton btnProses = new JButton("Proses");
208     btnProses.setForeground(new Color(32, 65, 125));
209     btnProses.addActionListener(new ActionListener() {
210         public void actionPerformed(ActionEvent e) {
211

```

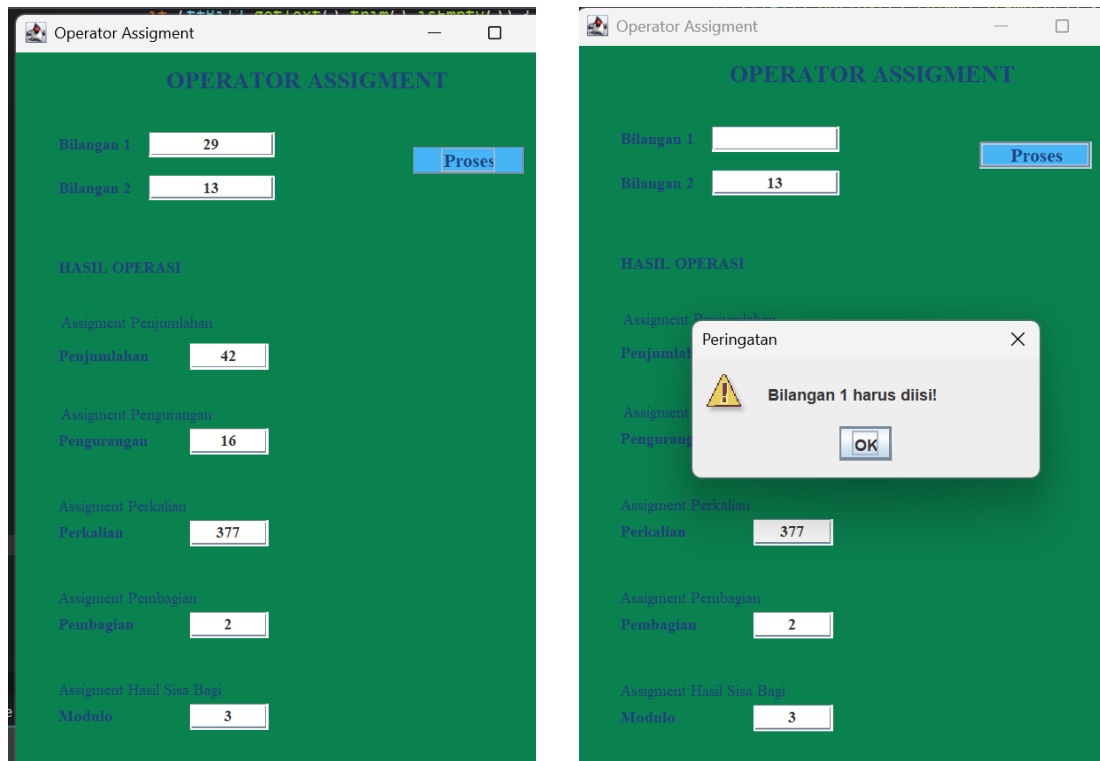
Setelah mengatur size, font, dan background dan layoutnya, dapat melanjutkan dengan menginputkan Syntax yang berisikan Operator dioperasikan.

```

211
212     if (tfBil1.getText().trim().isEmpty()) {
213         pesanPeringatan("Bilangan 1 harus diisi!");
214         return;
215     }
216     if (tfBil2.getText().trim().isEmpty()) {
217         pesanPeringatan("Bilangan 2 harus diisi!");
218         return;
219     }
220
221     try {
222         int a = Integer.parseInt(tfBil1.getText());
223         int b = Integer.parseInt(tfBil2.getText());
224
225         //Operasi
226         txtPenjumlahan.setText(String.valueOf(a + b));
227         txtPengurangan.setText(String.valueOf(a - b));
228         txtPerkalian.setText(String.valueOf(a * b));
229
230         if (b == 0) {
231             txtPembagian.setText("Error");
232             txtMod.setText("Error");
233             pesanError("Bilangan 2 tidak boleh 0!");
234         } else {
235             txtPembagian.setText(String.valueOf(a/b));
236             txtMod.setText(String.valueOf(a%b));
237         }
238     } catch (NumberFormatException ex) {
239         pesanError("Bilangan 1 dan 2 harus angka!");
240     }
241 }
242 });

```

Hasil Outputnya



Program ini mensimulasikan Operator Assignment yang di buat dan di design dari GUI

## 2.BAHASA NATURAL

1. Mulai
2. Program menampilkan form dengan dua kotak input:
3. Inisisasi Bil 1, Bil 2, Hasil Penjumlahan, Hasil Pengurangan, Hasil Pembagian, Hasil Perkalian, Hasil Modulus
4. Input Bil 1, Bil 2
5. menekan tombol “Proses”.
6. Program mengambil bil 1 dan bil 2 dari input.
7. Program melakukan operasi berikut:
  - Menghitung penjumlahan ( $X + Y$ )
  - Menghitung pengurangan ( $X - Y$ )
  - Menghitung perkalian ( $X \times Y$ )
  - Menghitung pembagian ( $X \div Y$ )
  - Menghitung modulo atau sisa bagi ( $X \% Y$ )
8. Program menampilkan hasil setiap operasi pada kotak hasil masing-masing:
9. Selesai

### 3.PSEUDOCODE

JUDUL:

Program Operator Assigment

Program digunakan untuk menampilkan hasil perhitungan aritmatika (penjumlahan, pengurangan, perkalian, pembagian, dan modulo)

DEKLARASI:

Var = bil1, bil2 : Integer

Var = hasilTambah, hasilKurang, hasilKali, hasilBagi, hasilMod: Integer

ALGORITMA;

```
1. INPUT bil1, bil2;
2. IF bil 1, bil2 != number THEN {
3.     PRINT "Bilangan 1 dan 2 harus angka!"
4. } ELSE {
5.     hasilTambah <- bil1 + bil2;
6.     hasilKurang <- bil1 -bil2;
7.     hasilKali <- bilq* bil2;
8.     IF bil2 != 0, THEN
9.         hasilBagi <- bil1/ bil2;
10.        hasilMod <- bil1% bil2;
11.    } ELSE {
12.        PRINT "Bilangan 2 tidak boleh 0!".
13.    }END IF
14. }END IF
15. PRINT hasilTambah, hasilKurang, hasilKali, hasilBagi, hasil Mod.
16. END
```

### 4.FLOWCHART

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