

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.SwingConstantsConstants;
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 tfBil1;
14     private JTextField tfBil2;
15     private JTextField txtPenjumlahan;
16     private JTextField txtPengurangan;
17     private JTextField txtPerkalian;
18     private JTextField txtPembagian;
19     private JTextField txtMod;
20
21     private void pesanPeringatan(String pesan) {
22         JOptionPane.showMessageDialog(this, pesan, "Peringatan", JOptionPane.WARNING_MESSAGE);
23     }
24     private void pesanError(String pesan) {
25         JOptionPane.showMessageDialog(this, pesan, "Kesalahan", JOptionPane.ERROR_MESSAGE);
26     }
27 }
```

Lalu dapat menambahkan methode 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 ASSIGMENT");  
75        lblTitle.setBounds(113, 10, 219, 22);  
76        lblTitle.setForeground(new Color(32, 65, 125));  
77        lblTitle.setHorizontalTextPosition(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("Assigment 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("Assigment 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("Assigment Hasil Sisa Bagi");  
120
```

Source Design

```
110
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
151
152     JLabel lblNewLabel_2_1_1 = new JLabel("Modulo");
153     lblNewLabel_2_1_1.setForeground(new Color(32, 65, 125));
154     lblNewLabel_2_1_1.setHorizontalAlignment(SwingConstants.LEFT);
155     lblNewLabel_2_1_1.setFont(new Font("Times New Roman", Font.BOLD, 12));
156     lblNewLabel_2_1_1.setBounds(33, 500, 80, 13);
157     contentPane.add(lblNewLabel_2_1_1);
158
159     JLabel lblNewLabel_2_1_2 = new JLabel("Perkalian");
160     lblNewLabel_2_1_2.setForeground(new Color(32, 65, 125));
161     lblNewLabel_2_1_2.setHorizontalAlignment(SwingConstants.LEFT);
162     lblNewLabel_2_1_2.setFont(new Font("Times New Roman", Font.BOLD, 12));
163     lblNewLabel_2_1_2.setBounds(33, 360, 80, 13);
164     contentPane.add(lblNewLabel_2_1_2);
165
166     JLabel lblNewLabel_2_1_2_1 = new JLabel("Pembagian");
167     lblNewLabel_2_1_2_1.setForeground(new Color(32, 65, 125));
168     lblNewLabel_2_1_2_1.setHorizontalAlignment(SwingConstants.LEFT);
169     lblNewLabel_2_1_2_1.setFont(new Font("Times New Roman", Font.BOLD, 12));
170     lblNewLabel_2_1_2_1.setBounds(33, 430, 80, 13);
171     contentPane.add(lblNewLabel_2_1_2_1);
172
173     txtPenjumlahan = new JTextField();
174     txtPenjumlahan.setHorizontalAlignment(SwingConstants.CENTER);
175     txtPenjumlahan.setFont(new Font("Times New Roman", Font.BOLD, 12));
176     txtPenjumlahan.setBounds(133, 222, 60, 20);
177     contentPane.add(txtPenjumlahan);
178     txtPenjumlahan.setColumns(10);
```

```

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

```

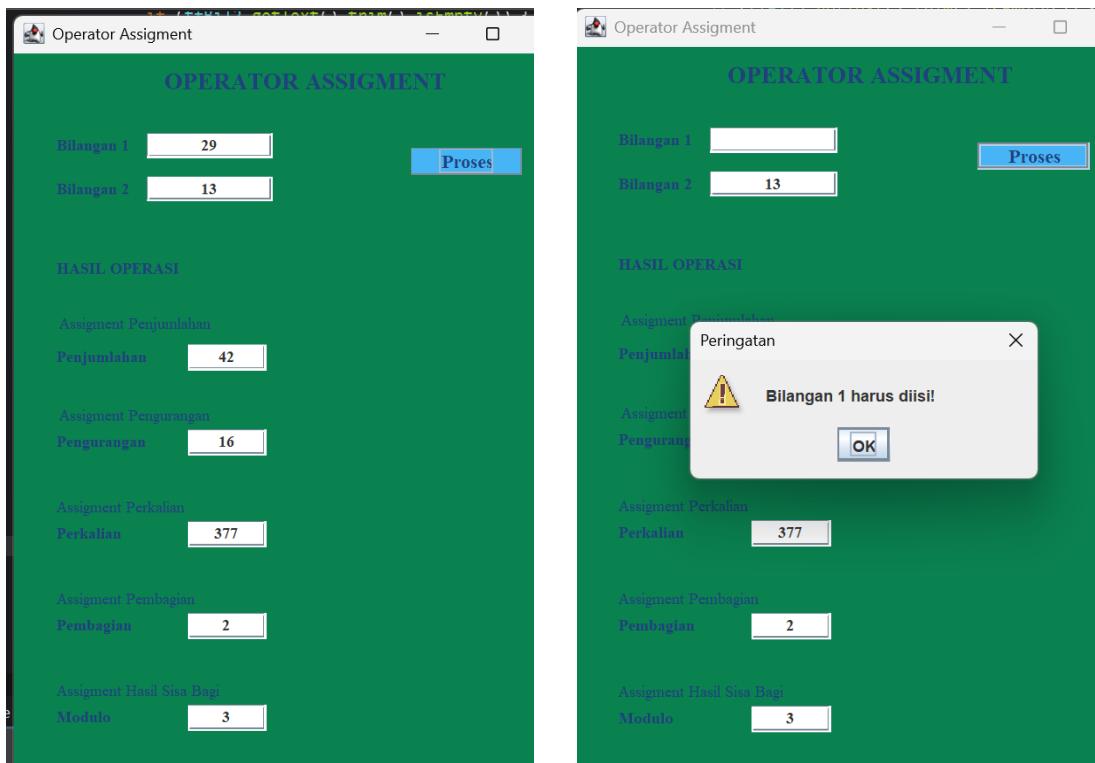
Setelah mengatur size, font, dan background dan layoutnya, dapat melanjutkan dengan menginputkan Syntax yang berisikan Operator di operasikan.

```

211             if (tfBil1.getText().trim().isEmpty()) {
212                 pesanPeringatan("Bilangan 1 harus diisi!");
213                 return;
214             }
215             if (tfBil2.getText().trim().isEmpty()) {
216                 pesanPeringatan("Bilangan 2 harus diisi");
217                 return;
218             }
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 Assigment 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 aritmataika
(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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