LAPORAN TUGAS PRAKTIKUM 8

Oleh :

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ALGORITMA DAN PEMROGRAMAN

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A. Soal

bikin GUI sesuai dari arahan bapak di kelas, ada kelas praktikum yang dapat operator relasional

B. Pseudocode

1. Buat window GUI dengan judul "Operator Relasional - Java GUI"

2. Buat komponen:
   - TextField A
   - TextField B
   - ComboBox operator berisi: ">", "<", "==", "!=", ">=", "<="
   - Tombol Compare
   - Label hasil
   - TextArea penjelasan

3. Tambahkan semua komponen ke window dengan layout yang rapi

4. Ketika tombol Compare ditekan:
   A_text ← isi TextField A
   B_text ← isi TextField B
   operator ← nilai dari ComboBox

5. Jika A_text kosong ATAU B_text kosong:
   tampilkan pesan "Isi kedua angka terlebih dahulu"
   STOP

6. Coba ubah A_text dan B_text menjadi angka (tipe double):
   A ← parseDouble(A_text)
   B ← parseDouble(B_text)
   Jika gagal:
   tampilkan pesan "Masukkan angka valid"
   STOP

7. Tetapkan epsilon (eps ← 1e-9)

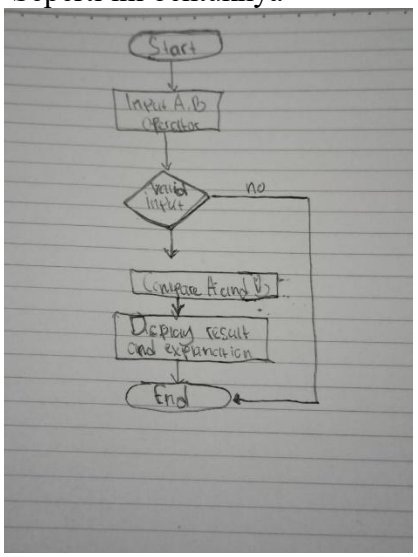
8. SWITCH berdasarkan operator:
   CASE ">":
      result ← (A > B)
      explanation ← buat kalimat penjelasan
   CASE "<":
      result ← (A < B)
      explanation ← buat kalimat penjelasan
   CASE "==":
      result ← (abs(A - B) < eps)
      explanation ← penjelasan equality float
   CASE "!=":
      result ← NOT(abs(A - B) < eps)

explanation ← penjelasan inequality float
CASE ">=":
result ← (A > B) OR (abs(A - B) < eps)
explanation ← penjelasan
CASE "<=":
result ← (A < B) OR (abs(A - B) < eps)
explanation ← penjelasan
DEFAULT:
result ← false
explanation ← "operator tidak dikenali"

9. Tampilkan:
- Label hasil ← result
- TextArea ← explanation

10. END PROGRAM

A. Flowchart
Seperti ini bentuknya



B. Source Code

```
import java.util.Scanner;

import java.awt.EventQueue;
import javax.swing.JFrame;
import javax.swing.JPanel;
import javax.swing.border.EmptyBorder;
import javax.swing.JLabel;
import javax.swing.JOptionPane;
import javax.swing.SwingConstants;
import java.awt.Font;
import javax.swing.JTextField;
import javax.swing.JComboBox;
```

```
import javax.swing.DefaultComboBoxModel;
import javax.swing.JButton;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;

public class OperatorAritmatikaGUI_2411533008 extends JFrame {

   private JPanel contentPane;
   private JTextField txtBil1;
   private JTextField txtBil2;
   private JTextField txtHasil;

   private void pesanPeringatan(String pesan) {
      JOptionPane.showMessageDialog(this, pesan, "Peringatan",
JOptionPane.WARNING_MESSAGE);
   }

   private void PesanEror(String pesan) {
      JOptionPane.showMessageDialog(this, pesan, "Peringatan", JOptionPane.ERROR_MESSAGE);
   }

   public static void main(String[] args) {
      EventQueue.invokeLater(new Runnable() {
         public void run() {
            try {
               OperatorAritmatikaGUI_2411533008 frame = new
OperatorAritmatikaGUI_2411533008();
               frame.setVisible(true);
            } catch (Exception e) {
               e.printStackTrace();
            }
         }
      });
   }

   public OperatorAritmatikaGUI_2411533008() {
      setTitle("Operator Aritmatika");
      setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
      setBounds(100, 100, 330, 280);
      contentPane = new JPanel();
      contentPane.setBorder(new EmptyBorder(5, 5, 5, 5));
      setContentPane(contentPane);
      contentPane.setLayout(null);

      JLabel lblTitle = new JLabel("OPERATOR ARITMATIKA");
      lblTitle.setHorizontalAlignment(SwingConstants.CENTER);
      lblTitle.setFont(new Font("Segoe UI Light", Font.BOLD, 15));
      lblTitle.setBounds(60, 11, 191, 14);
      contentPane.add(lblTitle);

      JLabel lblBil1 = new JLabel("Bilangan 1");
      lblBil1.setBounds(10, 50, 80, 14);
      contentPane.add(lblBil1);
```

```
JLabel lblBil2 = new JLabel("Bilangan 2");
lblBil2.setBounds(10, 90, 80, 14);
contentPane.add(lblBil2);

JLabel lblOp = new JLabel("Operator");
lblOp.setBounds(10, 130, 80, 14);
contentPane.add(lblOp);

JLabel lblHasil = new JLabel("Hasil");
lblHasil.setBounds(10, 170, 80, 14);
contentPane.add(lblHasil);

txtBil1 = new JTextField();
txtBil1.setBounds(100, 47, 96, 20);
txtBil1.setHorizontalAlignment(SwingConstants.CENTER);
contentPane.add(txtBil1);

txtBil2 = new JTextField();
txtBil2.setBounds(100, 87, 96, 20);
txtBil2.setHorizontalAlignment(SwingConstants.CENTER);
contentPane.add(txtBil2);

txtHasil = new JTextField();
txtHasil.setBounds(100, 167, 96, 20);
txtHasil.setHorizontalAlignment(SwingConstants.CENTER);
txtHasil.setEditable(false);
contentPane.add(txtHasil);

JComboBox cbOperator = new JComboBox();
cbOperator.setModel(new DefaultComboBoxModel(new String[]{"+" , "-" , ":" , "x" , "%"}));
cbOperator.setBounds(100, 127, 96, 22);
contentPane.add(cbOperator);

JButton btnNewButton = new JButton("Hitung");
btnNewButton.addActionListener(new ActionListener() {
   int hasil;

   public void actionPerformed(ActionEvent e) {

      // VALIDASI INPUT KOSONG
      if (txtBil1.getText().trim().isEmpty()) {
         pesanPeringatan("Bilangan 1 Harus diisi");
         return;
      }
      else if (txtBil2.getText().trim().isEmpty()) {
         pesanPeringatan("Bilangan 2 Harus diisi");
         return;
      }

      // PROSES TRY CATCH
      try {
         int a = Integer.valueOf(txtBil1.getText());
```

```
                int b = Integer.valueOf(txtBil2.getText());
                int c = cbOperator.getSelectedIndex();

                if (c == 0) hasil = a + b;
                else if (c == 1) hasil = a - b;
                else if (c == 2) hasil = a / b;
                else if (c == 3) hasil = a * b;
                else hasil = a % b;

                txtHasil.setText(String.valueOf(hasil));

            } catch (NumberFormatException ex) {
                PesanEror("Bilangan 1 dan Bilangan 2 harus angka");
            }
        }
    });

    btnNewButton.setBounds(210, 127, 89, 23);
    contentPane.add(btnNewButton);
  }
}
```

C. Screenshot Output