

**LAPORAN PRATIKUM
ALGORITMA DAN PEMROGRAMAN
“Laporan Tugas Pekan 8 ”**

Disusun Oleh:
Zaki Misucha Andefi
2511533006
Informatika Kelas B
Dosen Pengampu : Dr. Wahyudi, S.T, M.T.
Asisten Praktikum : Rahmad Dwirizki Olders



DEPARTEMEN INFORMATIKA
FAKULTAS TEKNOLOGI INFORMASI
UNIVERSITAS ANDALAS
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1. Pseudocode

PROGRAM TugasPekan8_2511533006

{Program untuk demonstrasi operator assignment dalam GUI Java}

Deklarasi

Frame : JFrame

Panel : JPanel

Label1, Label2, Label3 : JLabel

TextField1, TextField2 : JTextField

TextArea : JTextArea

Button : JButton

ScrollPane : JScrollPane

a, b : integer

hasil : StringBuilder

Pseudocode

ALGORITMA

BUAT Frame dengan judul "Operator Assignment"

SET Panel dengan background biru

TAMBAH Label "Bilangan 1", "Bilangan 2", "Hasil" ke Panel

TAMBAH TextField1 dan TextField2 untuk input bilangan

TAMBAH TextArea dengan ScrollPane untuk menampilkan hasil

TAMBAH Button "Process" dengan event handler

WHEN Button diklik:

IF TextField1 kosong THEN

 TAMPILKAN pesan peringatan "Bilangan 1 harus diisi"

ELSE IF TextField2 kosong THEN

 TAMPILKAN pesan peringatan "Bilangan 2 harus diisi"

ELSE

TRY

 a = Integer.parseInt(TextField1.getText())

 b = Integer.parseInt(TextField2.getText())

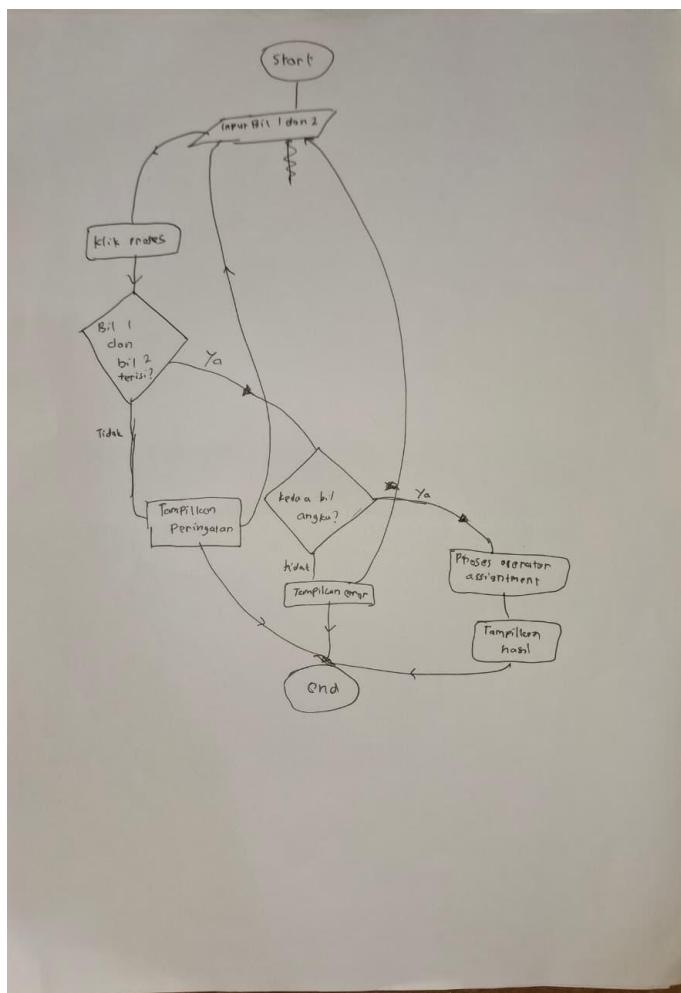
```
BUAT objek StringBuilder hasil  
APPEND header "HASIL OPERATOR ASSIGNMENT" ke hasil  
nilaiAwal = a  
// Operator +=  
a += b  
APPEND "a += b → a = " + a ke hasil  
a = nilaiAwal  
// Operator -=  
a -= b  
APPEND "a -= b → a = " + a ke hasil  
a = nilaiAwal  
// Operator *=  
a *= b  
APPEND "a *= b → a = " + a ke hasil  
a = nilaiAwal  
// Operator /=  
IF b ≠ 0 THEN  
    a /= b  
    APPEND "a /= b → a = " + a ke hasil  
    a = nilaiAwal  
ELSE  
    APPEND "a /= b → Pembagian dengan nol tidak diperbolehkan" ke  
hasil  
ENDIF  
// Operator %=  
IF b ≠ 0 THEN  
    a %= b  
    APPEND "a %= b → a = " + a ke hasil  
ELSE  
    APPEND "a %= b → Modulus dengan nol tidak diperbolehkan" ke  
hasil  
ENDIF
```

```

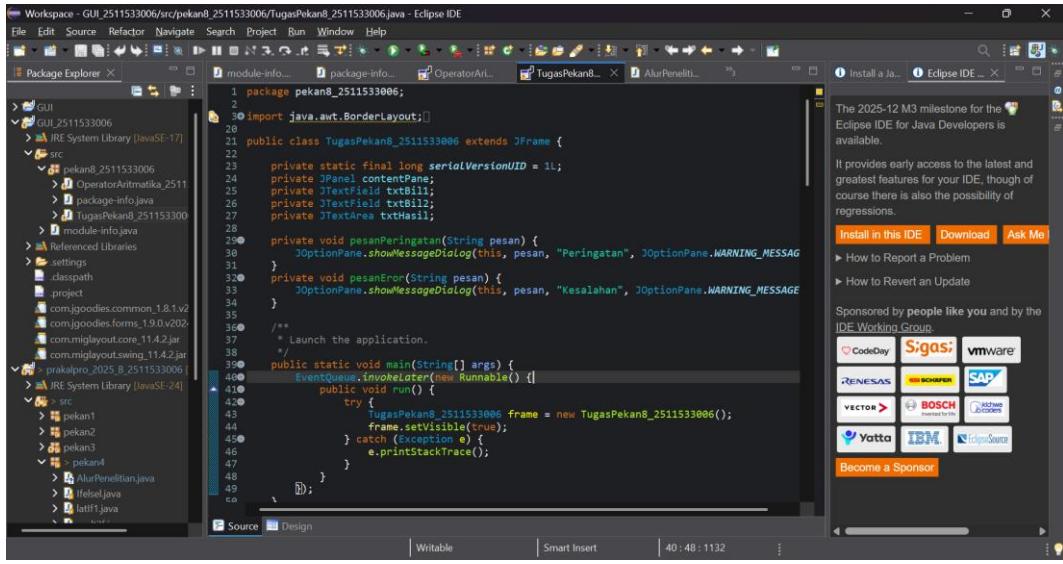
SET TextArea dengan teks hasil
CATCH NumberFormatException
TAMPILKAN pesan error "Bilangan 1 dan Bilangan 2 harus angka"
KOSONGKAN TextArea
END TRY
ENDIF
END WHEN
END PROGRAM

```

2. Flowchart



3. Kode Program



```

1 package pekan8_251153006;
2
3 import java.awt.BorderLayout;
4
5 public class TugasPekan8_251153006 extends JFrame {
6
7     private static final long serialVersionUID = 1L;
8
9     JPanel contentPane;
10    JTextField txtBil1;
11    JTextField txtBil2;
12    JTextArea txtHasil;
13
14    private void pesanPeringatan(String pesan) {
15        JOptionPane.showMessageDialog(this, pesan, "Peringatan", JOptionPane.WARNING_MESSAGE);
16    }
17
18    private void pesanError(String pesan) {
19        JOptionPane.showMessageDialog(this, pesan, "Kesalahan", JOptionPane.ERROR_MESSAGE);
20    }
21
22    /**
23     * Launch the application.
24     */
25    public static void main(String[] args) {
26        EventQueue.invokeLater(new Runnable() {
27            public void run() {
28                try {
29                    TugasPekan8_251153006 frame = new TugasPekan8_251153006();
30                    frame.setVisible(true);
31                } catch (Exception e) {
32                    e.printStackTrace();
33                }
34            }
35        });
36    }
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38    public void pesanPeringatan(String pesan) {
39        JOptionPane.showMessageDialog(this, pesan, "Peringatan", JOptionPane.WARNING_MESSAGE);
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42    public void pesanError(String pesan) {
43        JOptionPane.showMessageDialog(this, pesan, "Kesalahan", JOptionPane.ERROR_MESSAGE);
44    }
45
46    /**
47     * Create the frame.
48     */
49    public TugasPekan8_251153006() {
50        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
51        setBounds(100, 100, 500, 400);
52        contentPane = new JPanel();
53        contentPane.setBackground(new Color(0, 128, 192));
54        contentPane.setBorder(new EmptyBorder(5, 5, 5, 5));
55        contentPane.setLayout(null);
56
57        JLabel lblNewLabel_1 = new JLabel("Bilangan 1");
58        lblNewLabel_1.setBounds(20, 50, 70, 25);
59        contentPane.add(lblNewLabel_1);
60
61        JLabel lblNewLabel = new JLabel("Operator Assignment");
62        lblNewLabel.setBounds(150, 11, 200, 25);
63        lblNewLabel.setFont(new Font("Times New Roman", Font.BOLD, 18));
64        contentPane.add(lblNewLabel);
65
66        JLabel lblNewLabel_1_1 = new JLabel("Bilangan 2");
67        lblNewLabel_1_1.setBounds(20, 82, 70, 25);
68        contentPane.add(lblNewLabel_1_1);
69
70        JLabel lblNewLabel_1_1_1 = new JLabel("Hasil");
71        lblNewLabel_1_1_1.setBounds(20, 120, 70, 25);
72        contentPane.add(lblNewLabel_1_1_1);
73
74        JTextField txtBil1 = new JTextField();
75        txtBil1.setBounds(100, 50, 120, 20);
76        contentPane.add(txtBil1);
77
78        JTextField txtBil2 = new JTextField();
79        txtBil2.setBounds(100, 82, 120, 20);
80        contentPane.add(txtBil2);
81
82        JButton btnNewButton = new JButton("Proses");
83        btnNewButton.addActionListener(new ActionListener() {
84            public void actionPerformed(ActionEvent e) {
85                txtHasil = new JTextArea();
86                txtHasil.setColumns(10);
87                txtHasil.setRows(10);
88                txtHasil.setBounds(100, 84, 128, 28);
89                contentPane.add(txtHasil);
90
91                // Menggunakan JTextArea agar bisa menampilkan teks multi-line
92                txtHasil = new JTextArea();
93                txtHasil.setEditable(false);
94                txtHasil.setLineWrap(true);
95                txtHasil.setWrapStyleWord(true);
96                txtHasil.setFont(new Font("Monospaced", Font.PLAIN, 12));
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98                JScrollPane scrollPane = new JScrollPane(txtHasil);
99                scrollPane.setBounds(100, 128, 350, 200);
100               contentPane.add(scrollPane);
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107                            pesanPeringatan("Bilangan 1 harus diisi");
108                        } else if ((txtBil1.getText().trim()).isEmpty()) {
109                            pesanPeringatan("Bilangan 2 harus diisi");
110                        } else {
111                            try {
112                                int a = Integer.parseInt(txtBil1.getText());
113                                int b = Integer.parseInt(txtBil2.getText());
114
115                                StringBuilder hasil = new StringBuilder();
116                                hasil.append("HASIL OPERATOR ASSIGNMENT\n");
117                                hasil.append("*****\n\n");
118
119                                contentPane.add(new JLabel(hasil));
120
121                            } catch (Exception e1) {
122                                pesanError("Input yang dimasukkan salah");
123                            }
124                        }
125                    }
126                });
127
128                contentPane.add(btnNewButton_1);
129
130            }
131        });
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559        lblNewLabel.setFont(new Font("Times New Roman", Font.BOLD, 18));
560        contentPane.add(lblNewLabel);
561
562        JLabel lblNewLabel_1_1 = new JLabel("Bilangan 2");
563        lblNewLabel_1_1.setBounds(20, 82, 70, 25);
564        contentPane.add(lblNewLabel_1_1);
565
566        JLabel lblNewLabel_1_1_1 = new JLabel("Hasil");
567        lblNewLabel_1_1_1.setBounds(20, 120, 70, 25);
568        contentPane.add(lblNewLabel_1_1_1);
569
570        JTextField txtBil1 = new JTextField();
571        txtBil1.setBounds(100, 50, 120, 20);
572        contentPane.add(txtBil1);
573
574        JTextField txtBil2 = new JTextField();
575        txtBil2.setBounds(100, 82, 120, 20);
576        contentPane.add(txtBil2);
577
578        JButton btnNewButton = new JButton("Proses");
579        btnNewButton.addActionListener(new ActionListener() {
580            public void actionPerformed(ActionEvent e) {
581                txtHasil = new JTextArea();
582                txtHasil.setColumns(10);
583                txtHasil.setRows(10);
584                txtHasil.setBounds(100, 84, 128, 28);
585                contentPane.add(txtHasil);
586
587                // Menggunakan JTextArea agar bisa menampilkan teks multi-line
588                txtHasil = new JTextArea();
589                txtHasil.setEditable(false);
590                txtHasil.setLineWrap(true);
591                txtHasil.setWrapStyleWord(true);
592                txtHasil.setFont(new Font("Monospaced", Font.PLAIN, 12));
593
594                JScrollPane scrollPane = new JScrollPane(txtHasil);
595                scrollPane.setBounds(100, 128, 350, 200);
596                contentPane.add(scrollPane);
597
598                JButton btnNewButton_1 = new JButton("Proses");
599                btnNewButton_1.setBackground(new Color(255, 255, 255));
600                btnNewButton_1.addActionListener(new ActionListener() {
601                    public void actionPerformed(ActionEvent e) {
602                        if(txtBil1.getText().trim().isEmpty()) {
603                            pesanPeringatan("Bilangan 1 harus diisi");
604                        } else if ((txtBil1.getText().trim()).isEmpty()) {
605                            pesanPeringatan("Bilangan 2 harus diisi");
606                        } else {
607                            try {
608                                int a = Integer.parseInt(txtBil1.getText());
609                                int b = Integer.parseInt(txtBil2.getText());
610
611                                StringBuilder hasil = new StringBuilder();
612                                hasil.append("HASIL OPERATOR ASSIGNMENT\n");
613                                hasil.append("*****\n\n");
614
615                                contentPane.add(new JLabel(hasil));
616
617                            } catch (Exception e1) {
618                                pesanError("Input yang dimasukkan salah");
619                            }
620                        }
621                    }
622                });
623
624                contentPane.add(btnNewButton_1);
625
626            }
627        });
628
629        contentPane.add(btnNewButton);
630
631        setContentPane(contentPane);
632    }
633
634    public void pesanPeringatan(String pesan) {
635        JOptionPane.showMessageDialog(this, pesan, "Peringatan", JOptionPane.WARNING_MESSAGE);
636    }
637
638    public void pesanError(String pesan) {
639        JOptionPane.showMessageDialog(this, pesan, "Kesalahan", JOptionPane.ERROR_MESSAGE);
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642    /**
643     * Launch the application.
644     */
645    public static void main(String[] args) {
646        EventQueue.invokeLater(new Runnable() {
647            public void run() {
648                try {
649                    TugasPekan8_251153006 frame = new TugasPekan8_251153006();
650                    frame.setVisible(true);
651                } catch (Exception e) {
652                    e.printStackTrace();
653                }
654            }
655        });
656    }
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658    public void pesanPeringatan(String pesan) {
659        JOptionPane.showMessageDialog(this, pesan, "Peringatan", JOptionPane.WARNING_MESSAGE);
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662    public void pesanError(String pesan) {
663        JOptionPane.showMessageDialog(this, pesan, "Kesalahan", JOptionPane.ERROR_MESSAGE);
664    }
665
666    /**
667     * Create the frame.
668     */
669    public TugasPekan8_251153006() {
670        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
671        setBounds(100, 100, 500, 400);
672        contentPane = new JPanel();
673        contentPane.setBackground(new Color(0, 128, 192));
674        contentPane.setBorder(new EmptyBorder(5, 5, 5, 5));
675        contentPane.setLayout(null);
676
677        JLabel lblNewLabel_1 = new JLabel("Bilangan 1");
678        lblNewLabel_1.setBounds(20, 50, 70, 25);
679        contentPane.add(lblNewLabel_1);
680
681        JLabel lblNewLabel = new JLabel("Operator Assignment");
682        lblNewLabel.setBounds(150, 11, 200, 25);
683        lblNewLabel.setFont(new Font("Times New Roman", Font.BOLD, 18));
684        contentPane.add(lblNewLabel);
685
686        JLabel lblNewLabel_1_1 = new JLabel("Bilangan 2");
687        lblNewLabel_1_1.setBounds(20, 82, 70, 25);
688        contentPane.add(lblNewLabel_1_1);
689
690        JLabel lblNewLabel_1_1_1 = new JLabel("Hasil");
691        lblNewLabel_1_1_1.setBounds(20, 120, 70, 25);
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693
694        JTextField txtBil1 = new JTextField();
695        txtBil1.setBounds(100, 50, 120, 20);
696        contentPane.add(txtBil1);
697
698        JTextField txtBil2 = new JTextField();
699        txtBil2.setBounds(100, 82, 120, 20);
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703        btnNewButton.addActionListener(new ActionListener() {
704            public void actionPerformed(ActionEvent e) {
705                txtHasil = new JTextArea();
706                txtHasil.setColumns(10);
707                txtHasil.setRows(10);
708                txtHasil.setBounds(100, 84, 128, 28);
709                contentPane.add(txtHasil);
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711                // Menggunakan JTextArea agar bisa menampilkan teks multi-line
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713                txtHasil.setEditable(false);
714                txtHasil.setLineWrap(true);
715                txtHasil.setWrapStyleWord(true);
716                txtHasil.setFont(new Font("Monospaced", Font.PLAIN, 12));
717
718                JScrollPane scrollPane = new JScrollPane(txtHasil);
719                scrollPane.setBounds(100, 128, 350, 200);
720                contentPane.add(scrollPane);
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722                JButton btnNewButton_1 = new JButton("Proses");
723                btnNewButton_1.setBackground(new Color(255, 255, 255));
724                btnNewButton_1.addActionListener(new ActionListener() {
725                    public void actionPerformed(ActionEvent e) {
726                        if(txtBil1.getText().trim().isEmpty()) {
727                            pesanPeringatan("Bilangan 1 harus diisi");
728                        } else if ((txtBil1.getText().trim()).isEmpty()) {
729                            pesanPeringatan("Bilangan 2 harus diisi");
730                        } else {
731                            try {
732                                int a = Integer.parseInt(txtBil1.getText());
733                                int b = Integer.parseInt(txtBil2.getText());
734
735                                StringBuilder hasil = new StringBuilder();
736                                hasil.append("HASIL OPERATOR ASSIGNMENT\n");
737                                hasil.append("*****\n\n");
738
739                                contentPane.add(new JLabel(hasil));
740
741                            } catch (Exception e1) {
742                                pesanError("Input yang dimasukkan salah");
743                            }
744                        }
745                    }
746                });
747
748                contentPane.add(btnNewButton_1);
749
750            }
751        });
752
753        contentPane.add(btnNewButton);
754
755        setContentPane(contentPane);
756    }
757
758    public void pesanPeringatan(String pesan) {
759        JOptionPane.showMessageDialog(this, pesan, "Peringatan", JOptionPane.WARNING_MESSAGE);
760    }
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762    public void pesanError(String pesan) {
763        JOptionPane.showMessageDialog(this, pesan, "Kesalahan", JOptionPane.ERROR_MESSAGE);
764    }
765
766    /**
767     * Launch the application.
768     */
769    public static void main(String[] args) {
770        EventQueue.invokeLater(new Runnable() {
771            public void run() {
772                try {
773                    TugasPekan8_251153006 frame = new TugasPekan8_251153006();
774                    frame.setVisible(true);
775                } catch (Exception e) {
776                    e.printStackTrace();
777                }
778            }
779        });
780    }
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790    /**
791     * Create the frame.
792     */
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794        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
795        setBounds(100, 100, 500, 400);
796        contentPane = new JPanel();
797        contentPane.setBackground(new Color(0, 128, 192));
798        contentPane.setBorder(new EmptyBorder(5, 5, 5, 5));
799        contentPane.setLayout(null);
800
801        JLabel lblNewLabel_1 = new JLabel("Bilangan 1");
802        lblNewLabel_1.setBounds(20, 50, 70, 25);
803        contentPane.add(lblNewLabel_1);
804
805        JLabel lblNewLabel = new JLabel("Operator Assignment");
806        lblNewLabel.setBounds(150, 11, 200, 25);
807        lblNewLabel.setFont(new Font("Times New Roman", Font.BOLD, 18));
808        contentPane.add(lblNewLabel);
809
810        JLabel lblNewLabel_1_1 = new JLabel("Bilangan 2");
811        lblNewLabel_1_1.setBounds(20, 82, 70, 25);
812        contentPane.add(lblNewLabel_1_1);
813
814        JLabel lblNewLabel_1_1_1 = new JLabel("Hasil");
815        lblNewLabel_1_1_1.setBounds(20, 120, 70, 25);
816        contentPane.add(lblNewLabel_1_1_1);
817
818        JTextField txtBil1 = new JTextField();
819        txtBil1.setBounds(100, 50, 120, 20);
820        contentPane.add(txtBil1);
821
822        JTextField txtBil2 = new JTextField();
823        txtBil2.setBounds(100, 82, 120, 20);
824        contentPane.add(txtBil2);
825
826        JButton btnNewButton = new JButton("Proses");
827        btnNewButton.addActionListener(new ActionListener() {
828            public void actionPerformed(ActionEvent e) {
829                txtHasil = new JTextArea();
830                txtHasil.setColumns(10);
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838                txtHasil.setLineWrap(true);
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852                        } else if ((txtBil1.getText().trim()).isEmpty()) {
853                            pesanPeringatan("Bilangan 2 harus diisi");
854                        } else {
855                            try {
856                                int a = Integer.parseInt(txtBil1.getText());
857                                int b = Integer.parseInt(txtBil2.getText());
858
859                                StringBuilder hasil = new StringBuilder();
860                                hasil.append("HASIL OPERATOR ASSIGNMENT\n");
861                                hasil.append("*****\n\n");
862
863                                contentPane.add(new JLabel(hasil));
864
865                            } catch (Exception e1) {
866                                pesanError("Input yang dimasukkan salah");
867                            }
868                        }
869                    }
870                });
871
872                contentPane.add(btnNewButton_1);
873
874            }
875        });
876
877        contentPane.add(btnNewButton);
878
879        setContentPane(contentPane);
880    }
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882    public void pesanPeringatan(String pesan) {
883        JOptionPane.showMessageDialog(this, pesan, "Peringatan", JOptionPane.WARNING_MESSAGE);
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885
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887        JOptionPane.showMessageDialog(this, pesan, "Kesalahan", JOptionPane.ERROR_MESSAGE);
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891     * Launch the application.
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893    public static void main(String[] args) {
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895            public void run() {
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897                    TugasPekan8_251153006 frame = new TugasPekan8_251153006();
898                    frame.setVisible(true);
899                } catch (Exception e) {
900                    e.printStackTrace();
901                }
902            }
903        });
904    }
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907        JOptionPane.showMessageDialog(this, pesan, "Peringatan", JOptionPane.WARNING_MESSAGE);
908    }
909
910    public void pesanError(String pesan) {
911        JOptionPane.showMessageDialog(this, pesan, "Kesalahan", JOptionPane.ERROR_MESSAGE);
912    }
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914    /**
915     * Create the frame.
916     */
917    public TugasPekan8_251153006() {
918        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
919        setBounds(100, 100, 500, 400);
920        contentPane = new JPanel();
921        contentPane.setBackground(new Color(0, 128, 192));
922        contentPane.setBorder(new EmptyBorder(5, 5, 5, 5));
923        contentPane.setLayout(null);
924
925        JLabel lblNewLabel_1 = new JLabel("Bilangan 1");
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928
929        JLabel lblNewLabel = new JLabel("Operator Assignment");
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932        contentPane.add(lblNewLabel);
933
934        JLabel lblNewLabel_1_1 = new JLabel("Bilangan 2");
935        lblNewLabel_1_1.setBounds(20, 82, 70, 25);
936        contentPane.add(lblNewLabel_1_1);
937
938        JLabel lblNewLabel_1_1_1 = new JLabel("Hasil");
939       
```

Workspace - GUI_2511533006/src/pekan8_2511533006/TugasPekan8_2511533006.java - Eclipse IDE

```
File Edit Source Refactor Navigate Project Run Window Help
Package Explorer    module-info... package-info... OperatorArith... TugasPekan8_... AlurPenelitian...
GUI
src
  pekan8_2511533006
    OperatorArithmatic_2511
    package-info.java
    TugasPekan8_2511533006
    module-info.java
  settings
    classpath
    project
    com.jgoodies.common.1.8.1v2
    com.jgoodies.forms.1.9.0v202
    com.miglayout.core.114.2jar
  prakalipro_2025_8_2511533006
    IRE System Library [JavaSE-24]
  src
    pekan1
    pekan2
    pekan3
    pekan4
      AlurPenelitian.java
      Ifelse.java
      Latif.java
  module-info.java
  Referenced Libraries
  settings
    classpath
    project
    com.jgoodies.common.1.8.1v2
    com.jgoodies.forms.1.9.0v202
    com.miglayout.core.114.2jar
  prakalipro_2025_8_2511533006
    IRE System Library [JavaSE-24]
  src
    pekan1
    pekan2
    pekan3
    pekan4
      AlurPenelitian.java
      Ifelse.java
      Latif.java
  module-info.java
```

// Simpan nilai awal untuk setiap operasi
int nilaiAwal = a;
// Operator Assignment +=
a += b;
hasil.append("a += b + a = ").append(a).append("\n");
a = nilaiAwal; // Reset ke nilai awal
// Operator Assignment -=
a -= b;
hasil.append("a -= b + a = ").append(a).append("\n");
a = nilaiAwal; // Reset ke nilai awal
// Operator Assignment *=
a *= b;
hasil.append("a *= b + a = ").append(a).append("\n");
a = nilaiAwal; // Reset ke nilai awal
// Operator Assignment /=
if (b != 0) {
 a /= b;
 hasil.append("a /= b + a = ").append(a).append("\n");
 a = nilaiAwal; // Reset ke nilai awal
} else {
 hasil.append("a /= b + Pembagian dengan nol tidak diperbolehkan");
}
// Operator Assignment %=
if (b != 0) {
 a %= b;
 hasil.append("a %= b + a = ").append(a);
} else {
 hasil.append("a %= b + Modulus dengan nol tidak diperbolehkan");
}

Workspace - GUI_2511533006/src/pekan8_2511533006/TugasPekan8_2511533006.java - Eclipse IDE

```
File Edit Source Refactor Navigate Project Run Window Help
Package Explorer    module-info... package-info... OperatorArith... TugasPekan8_... AlurPenelitian...
GUI
src
  pekan8_2511533006
    OperatorArithmatic_2511
    package-info.java
    TugasPekan8_2511533006
    module-info.java
  settings
    classpath
    project
    com.jgoodies.common.1.8.1v2
    com.jgoodies.forms.1.9.0v202
    com.miglayout.core.114.2jar
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    IRE System Library [JavaSE-24]
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    pekan1
    pekan2
    pekan3
    pekan4
      AlurPenelitian.java
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  src
    pekan1
    pekan2
    pekan3
    pekan4
      AlurPenelitian.java
      Ifelse.java
      Latif.java
  module-info.java
```

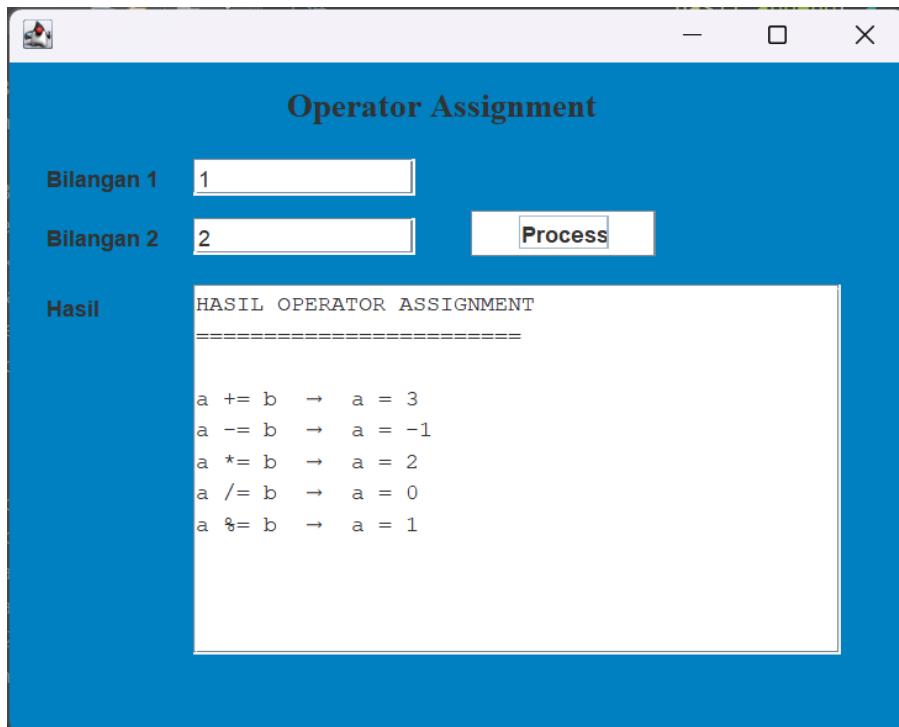
hasil.append("a += b + a = ").append(a).append("\n");
a = nilaiAwal; // Reset ke nilai awal
// Operator Assignment /=
if (b != 0) {
 a /= b;
 hasil.append("a /= b + a = ").append(a).append("\n");
 a = nilaiAwal; // Reset ke nilai awal
} else {
 hasil.append("a /= b + Pembagian dengan nol tidak diperbolehkan");
}
// Operator Assignment %=
if (b != 0) {
 a %= b;
 hasil.append("a %= b + a = ").append(a);
} else {
 hasil.append("a %= b + Modulus dengan nol tidak diperbolehkan");
}

txtHasil.setText(hasil.toString());

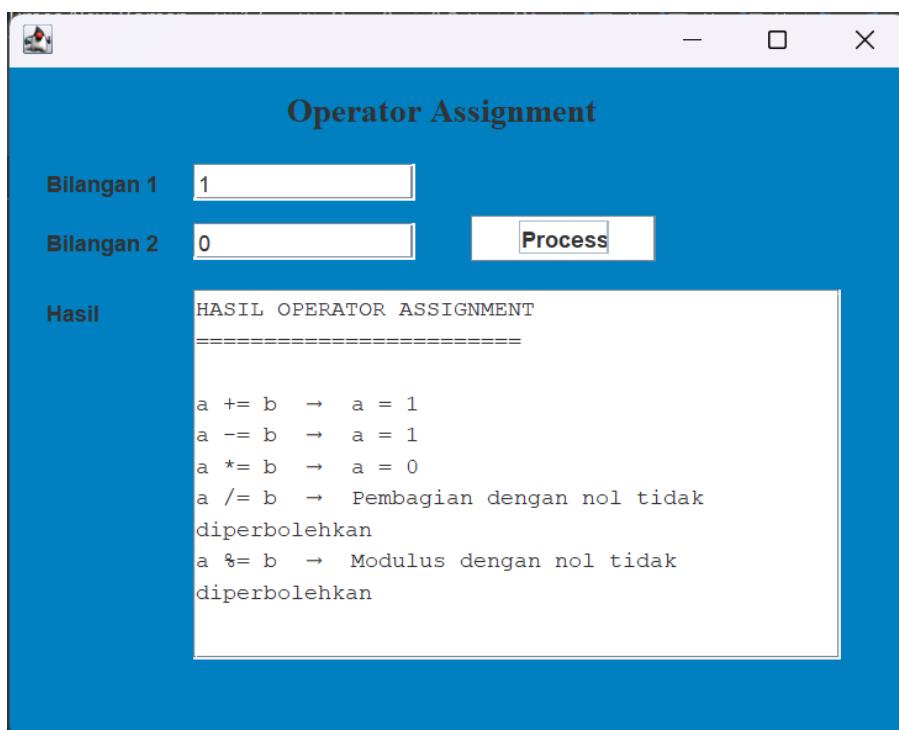
} catch (NumberFormatException ex) {
 pesanError("Bilangan 1 dan Bilangan 2 harus angka");
 txtHasil.setText("");
}
});
btnNewButton.setBounds(250, 80, 100, 25);
contentPane.add(btnNewButton);
}

4. Hasil Output Program

1. Program dengan input valid dan output berhasil



2. Program dengan Input tidak valid



5. Penjelasan Singkat Program

Deskripsi Program

Program ini merupakan aplikasi GUI Java Swing yang mendemonstrasikan penggunaan operator assignment dalam bentuk visual. Program memungkinkan pengguna untuk memasukkan dua bilangan dan melihat hasil dari berbagai operasi assignment yang diterapkan.

Struktur Program

Program terdiri dari satu class utama TugasPekan8_2511533006 yang extends JFrame dan mengimplementasikan komponen-komponen GUI berikut:

1. **JTextField** - Untuk input bilangan 1 dan bilangan 2
2. **JTextArea** - Untuk menampilkan hasil operasi dengan format multi-line
3. **JScrollPane** - Untuk membuat area hasil yang dapat di-scroll
4. **JButton** - Untuk memproses perhitungan
5. **JLabel** - Untuk label penanda

Operator Assignment yang Diimplementasikan

```
// 1. Operator += (Penambahan)
a += b; // Setara dengan: a = a + b

// 2. Operator -= (Pengurangan)
a -= b; // Setara dengan: a = a - b

// 3. Operator *= (Perkalian)
a *= b; // Setara dengan: a = a * b

// 4. Operator /= (Pembagian)
a /= b; // Setara dengan: a = a / b

// 5. Operator %= (Modulus)
a %= b; // Setara dengan: a = a % b
```

Fitur Validasi Input

1. Validasi Kelengkapan Data

- Memastikan kedua bilangan telah diisi sebelum diproses
- Menampilkan pesan peringatan jika ada field yang kosong

2. Validasi Tipe Data

- Memastikan input berupa angka menggunakan try-catch block
- Menangani NumberFormatException dengan pesan error yang informatif

3. Validasi Pembagian dengan Nol

- Mencegah error division by zero pada operasi /= dan %=
- Menampilkan pesan yang jelas ketika terjadi percobaan pembagian dengan nol

Fitur Tambahan

1. **Reset Nilai** - Mengembalikan nilai variabel a ke nilai awal setelah setiap operasi untuk memastikan perhitungan yang independen
2. **Format Output** - Menggunakan StringBuilder untuk membuat output yang terstruktur dan rapi
3. **Scrollable Text Area** - Memungkinkan menampilkan hasil yang panjang dalam area terbatas
4. **User-Friendly Interface** - Desain GUI yang intuitif dengan warna dan layout yang jelas

Kelebihan Program

- **Robust:** Dilengkapi dengan error handling yang komprehensif
- **User-Friendly:** Interface GUI yang mudah digunakan
- **Edukatif:** Menampilkan proses step-by-step setiap operasi assignment
- **Structured:** Output yang terorganisir dan mudah dibaca

Program ini berhasil mendemonstrasikan konsep operator assignment dalam konteks pemrograman GUI, sekaligus menerapkan prinsip-prinsip good programming practice seperti validasi input dan error handling.