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TUGAS PRA-PERTEMUAN 9 PRAKTIKUM PEMROGRAMAN BERORIENTSI OBJEK (Event Handling & GUI)

Penugasan

MVC(Model View Controller), MVP (Model View Presenter) adalah beberapa Architecture Pattern yang digunakan saat membangun aplikasi berbasis GUI. Inti penggunaan pattern ini adalah memisahkan antara business logic, data, dan tampilan (UI) sehingga memudahkan membangun aplikasi saat dikerjakan secara tim, memudahkan proses testing, dan pengembangan lain jika diperlukan.

<https://sites.google.com/site/averagelosercom/java/java-model-view-presenter-in-swing>
<http://www.wildcrest.com/Potel/Portfolio/mvp.pdf> .
<https://ssaurel.medium.com/learn-to-make-a-mvc-application-with-swing-and-java-8-3cd24cf7cb10>
https://www.tutorialspoint.com/design_pattern/mvc_pattern.htm

Buatlah sebuah Aplikasi GUI dengan MVC atau MVP Pattern berupa Form mahasiswa sederhana menggunakan Layout GridBagLayout dan nested layout lainnya (GridLayout,FlowLayout, dsj..) dan **layout komponen Harus sama seperti contoh GUI Student Form pada gambar !** Isian Asal Daerah cukup pilihan : **Jakarta ;Bogor; Depok; Tangerang; Bekasi;**. Selanjutnya Saat tombol reset di pilih maka semua isian akan kembali seperti semula, sedangkan pada saat tombol simpan di pilih akan dilakukan **proses validasi** sebelumnya dengan ketentuan :

- NIM **HARUS** memiliki Panjang 6 digit
- Nama : Panjang **maksimal** nama depan + nama belakang adalah **50 digit**
- Umur : **hanya** bisa diisi oleh **Angka**
- **Semua isian wajib terisi.**

Jika validasi benar maka akan **ditampilkan sebuah dialog** yang bertuliskan
"Daftar NIM dan Nama Mahasiswa yang telah berhasil disimpan :

NIM1-Nama1
NIM2-Nama2

"

Tetapi jika validasi salah maka akan menampilkan dialog yang bertuliskan "Terjadi kesalahan input pada : "

Isian Nama Belakang

Penyelesaian:

Mahasiswa.java

```
1 package prapertemuan9;
2
3 /**
4  *
5  * @author U53R
6  */
7 public class Mahasiswa {
8     private String nim;
9     private String namaDepan;
10    private String namaBelakang;
11    private String umur;
12    private String asal;
13
14    public Mahasiswa(String nim, String namaDepan, String namaBelakang, String umur, String asal) {
15        this.nim = nim;
16        this.namaDepan = namaDepan;
17        this.namaBelakang = namaBelakang;
18        this.umur = umur;
19        this.asal = asal;
20    }
21 }
```

```

21
22     public String getNim() {
23         return nim;
24     }
25
26     public String getNamaDepan() {
27         return namaDepan;
28     }
29
30     public String getNamaBelakang() {
31         return namaBelakang;
32     }
33
34     public String getUmur() {
35         return umur;
36     }
37
38     public String getAsal() {
39         return asal;
40     }
41 }

```

Validasi.java

```

1     package prapertemuan9;
2
3     /**
4      *
5      * @author U53R
6      */
7
8     import java.util.ArrayList;
9     import java.util.regex.Pattern;
10
11     public class Validasi {
12         private MahasiswaView view;
13         private ArrayList<Mahasiswa> listModel = new ArrayList<>();
14
15         public String simpan(String nim, String namaDepan, String namaBelakang, String umur, String asal){
16             String hasil = "";
17             if (nim.length()!=6){
18                 hasil += "Nim harus memiliki panjang 6 digit \n";
19             }
20             if (namaDepan.length() + namaBelakang.length()>50){
21                 hasil += "Panjang maksimal nama depan + nama belakang adalah 50 karakter";
22             }
23             if (!Pattern.matches("[0-9]+", umur)){
24                 hasil += "Umur hanya bisa diisi angka \n";
25             }
26             if (nim.length()==0||namaDepan.length()==0||namaBelakang.length()==0||umur.length()==0|| asal==""){
27                 hasil += "Semua isian wajib terisi \n";
28             }

```

```

29     if (hasil.length()==0) {
30         listModel.add(new Mahasiswa(nim, namaDepan, namaBelakang, umur, asal));
31         int i = 0;
32         hasil += "Daftar NIM dan Nama Mahasiswa yang telah berhasil disimpan : \n";
33         for(Mahasiswa m:listModel){
34             i++;
35             hasil += i + "." + m.getNim() + "-" + m.getNamaDepan() + " " + m.getNamaBelakang() + "\n";
36         }
37         return hasil;
38     }
39     else{
40         String keterangan = "Terjadi kesalahan: \n";
41         return keterangan + hasil;
42     }
43 }
44 }

```

MahasiswaView.java

```

1  package propertemuan9;
2
3  /**
4   *
5   * @author U53R
6   */
7
8  import java.awt.*;
9  import java.awt.event.*;
10 import javax.swing.*;
11
12 public class MahasiswaView {
13     private Validasi presenter = new Validasi();
14     private JFrame frame;
15     private JButton resetBtn;
16     private JButton simpanBtn;
17     private JTextField nimField;
18     private JTextField namaDepanField;
19     private JTextField namaBelakangField;
20     private JTextField umurField;
21     private JComboBox provinsiBox;
22     private JLabel label;
23
24     public MahasiswaView() {
25         createUI();
26     }
27
28     private void createUI() {
29         frame = new JFrame("Student Form");
30         frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
31         Container pane = frame.getContentPane();
32         pane.setLayout(new GridBagLayout());
33         GridBagConstraints c = new GridBagConstraints();
34         c.fill = GridBagConstraints.HORIZONTAL;

```

```
35
36 label = new JLabel("Nim: ");
37 c.fill = GridBagConstraints.HORIZONTAL;
38 c.gridx = 0;
39 c.gridy = 0;
40 c.ipadx = 100;
41 pane.add(label, c);
42
43 nimField = new JTextField();
44 c.fill = GridBagConstraints.HORIZONTAL;
45 c.gridx = 1;
46 c.gridy = 0;
47 c.ipadx = 20;
48 c.insets = new Insets(0, 80, 0, 0);
49 pane.add(nimField, c);
50
51 label = new JLabel("Nama: ");
52 c.fill = GridBagConstraints.HORIZONTAL;
53 c.gridx = 0;
54 c.gridy = 1;
55 c.ipadx = 100;
56 c.insets = new Insets(0, 0, 0, 0);
57 pane.add(label, c);
58
59 namaDepanField = new JTextField();
60 c.fill = GridBagConstraints.HORIZONTAL;
61 c.gridx = 1;
62 c.gridy = 1;
63 pane.add(namaDepanField, c);
64
65 namaBelakangField = new JTextField();
66 c.fill = GridBagConstraints.HORIZONTAL;
67 c.gridx = 2;
68 c.gridy = 1;
69 c.ipadx = 100;
70 pane.add(namaBelakangField, c);
71
72 label = new JLabel("Umur:");
73 c.fill = GridBagConstraints.HORIZONTAL;
74 c.gridx = 0;
75 c.gridy = 2;
76 c.ipadx = 100;
77 pane.add(label, c);
78
79 umurField = new JTextField();
80 c.fill = GridBagConstraints.HORIZONTAL;
81 c.gridx = 1;
82 c.gridy = 2;
83 c.ipadx = 1;
84 c.insets = new Insets(0, 160, 0, 0);
85 pane.add(umurField, c);
86
```

```

87     label = new JLabel("Asal:");
88     c.fill = GridBagConstraints.HORIZONTAL;
89     c.gridx = 0;
90     c.gridy = 3;
91     c.ipadx = 100;
92     c.insets = new Insets(0,0,0,0);
93     pane.add(label, c);
94
95     String[] pilihan = {"", "Sulawesi Utara",
96                         "Gorontalo",
97                         "Sulawesi Tengah",
98                         "Sulawesi Barat",
99                         "Sulawesi Selatan",
100                        "Sulawesi Tenggara"};
101     provinsiBox = new JComboBox(pilihan);
102     c.fill = GridBagConstraints.HORIZONTAL;
103     c.gridx = 1;
104     c.gridy = 3;
105     c.insets = new Insets(0,20,0,0);
106     pane.add(provinsiBox, c);
107
108     //Craete a new panel for the buttons
109     JPanel buttonPanel = new JPanel(new GridLayout(1,2,0,0));
110
111     resetBtn = new JButton("Reset");
112     buttonPanel.add(resetBtn);
113
114     simpanBtn = new JButton("Simpan");
115     buttonPanel.add(simpanBtn);
116
117     c.fill = GridBagConstraints.HORIZONTAL;
118     c.gridx = 0;
119     c.gridy = 4;
120     c.gridwidth = 2;
121     c.insets = new Insets(20,5,5,5);
122     pane.add(buttonPanel, c);
123
124     pane.add(new JPanel(), c);
125
126     frame.pack();
127     frame.setVisible(true);
128
129     resetBtn.addActionListener(new ActionListener()
130     {
131         @Override
132         public void actionPerformed(ActionEvent e)
133         {
134             nimField.setText("");
135             namaDepanField.setText("");
136             namaBelakangField.setText("");
137             umurField.setText("");
138             provinsiBox.setSelectedIndex(0);
139         }
140     });
141

```

```

143     simpanBtn.addActionListener(new ActionListener()
144     {
145         @Override
146         public void actionPerformed(ActionEvent e)
147         {
148             JOptionPane.showMessageDialog(frame,
149                 presenter.simpan(nimField.getText(), namaDepanField.getText(),
150                     namaBelakangField.getText(), umurField.getText(),
151                     (String) provinsiBox.getSelectedItem()));
152         }
153     });
154 }

```

PraPertemuan9Main.java

```

1  package prapertemuan9;
2
3  import javax.swing.SwingUtilities;
4
5  /**
6   *
7   * @author U53R
8   */
9  public class PraPertemuan9Main {
10     public static void main(String[] args) {
11         SwingUtilities.invokeLater(() ->
12         {
13             MahasiswaView view = new MahasiswaView();
14         });
15     }
16 }

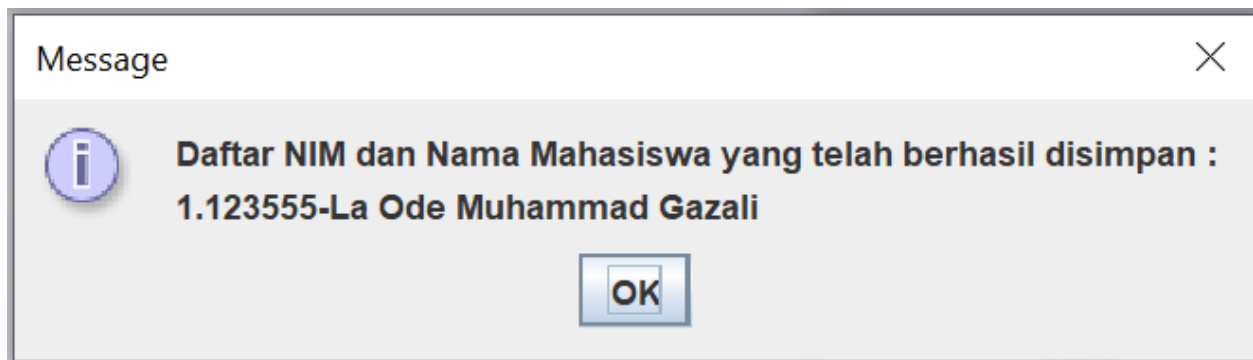
```

Output

- Contoh output saat data berhasil disimpan

Nim:	123555	
Nama:	La Ode Muhammad	Gazali
Umur:	21	
Asal:	Sulawesi Tenggara	

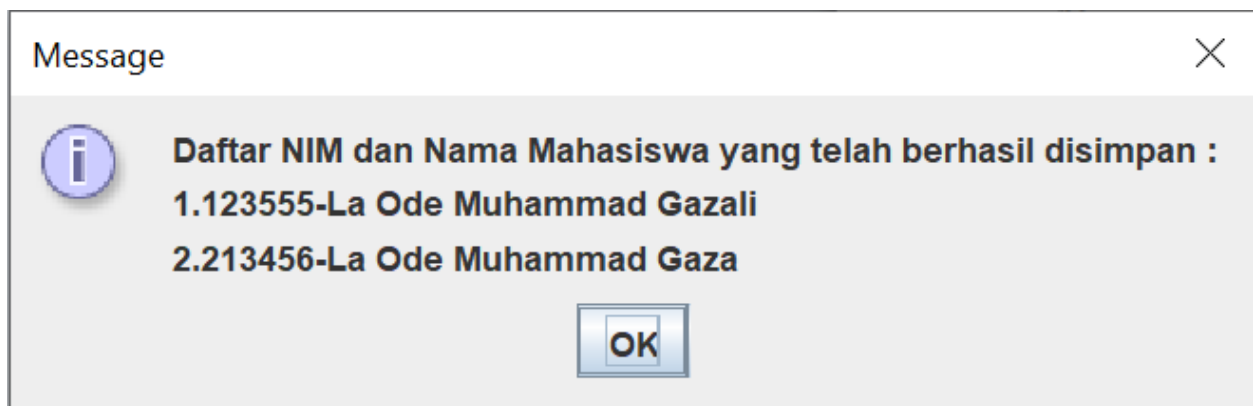
Reset Simpan



A window titled "Student Form" with standard window controls (minimize, maximize, close). It contains the following fields and labels:

- Nim:** A text input field containing "213456".
- Nama:** A text input field containing "La Ode Muhammad" and a separate text input field containing "Gaza".
- Umur:** A text input field containing "20".
- Asal:** A dropdown menu showing "Sulawesi Tengah" with a downward arrow.

At the bottom are two buttons: "Reset" and "Simpan".



- Contoh output saat inputan tidak sesuai kriteria

The screenshot displays a Java Swing window titled "Student Form" with a standard Mac OS X title bar (red, yellow, and green buttons). The form contains the following fields and controls:

- Nim:** A text field containing the value "222212696".
- Nama:** Two text fields. The first contains "La Ode Muhammad" and the second contains "Gazali".
- Umur:** A text field containing the value "as".
- Asal:** A dropdown menu currently showing "Sulawesi Selatan".
- Buttons:** Two buttons at the bottom, "Reset" and "Simpan", both with a blue gradient.

Overlaid on the bottom of the "Student Form" window is a smaller "Message" dialog box. It features a standard title bar and an information icon (a lowercase 'i' in a circle) on the left. The text inside the message box reads:

Terjadi kesalahan:
Nim harus memiliki panjang 6 digit
Umur hanya bisa diisi angka

At the bottom of the message box is an "OK" button with a blue gradient.