

Tugas Pemrograman Visual Pertemuan ke-7

Table Mahasiswa

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Source Code:

```
package programmahasiswa;

import javax.swing.*.*;
import javax.swing.event.ChangeEvent;
import javax.swing.event.ChangeListener;
import javax.swing.event.DocumentEvent;
import javax.swing.event.DocumentListener;
import javax.swing.table.DefaultTableModel;
import java.awt.*.*;
import java.awt.event.*.*;
import java.sql.*.*;

public class ProgramData extends JFrame implements ActionListener{

    public Connection con;
    private Statement state;
    private DefaultTableModel tblModel;
    private JLabel lb1;
    private JLabel lb2;
    private JLabel lb3;
    private JLabel lb4;
    private JTextField fnama;
    private JRadioButton rbmale;
    private JRadioButton rbfemale;
    private JTextField fangkatan;
    private JScrollPane scroll;
    private JTable tblmhs;
```

```
private JButton submit;

private JButton clear;

private JLabel lb5;

private JTextField tfnama;

private JLabel lb6;

private JComboBox<String> fjurusan;

private JComboBox<String> cbjurusan;

public ProgramData() {

    Components();

    init();

}

private void Components() {

    lb1 = new JLabel();

    lb2 = new JLabel();

    lb3 = new JLabel();

    lb4 = new JLabel();

    fnama = new JTextField();

    rbmale = new JRadioButton();

    rbfemale = new JRadioButton();

    fangkatan = new JTextField();

    scroll = new JScrollPane();

    tblmhs = new JTable();

    submit = new JButton();

    clear = new JButton();

    lb5 = new JLabel();

    tfnama = new JTextField();

    lb6 = new JLabel();

    fjurusan = new JComboBox<>();

    cbjurusan = new JComboBox<>();

}
```

```
Container contentPane = getContentPane();

lb1.setText("Nama");
lb2.setText("Jenis Kelamin");
lb3.setText("Jurusan");
lb4.setText("Angkatan");
rbmale.setText("Laki-Laki");
rbmale.setSelected(true);
rbfemale.setText("Perempuan");
{
    scroll.setViewportViewView(tblmhs);
}
submit.setText("Submit");
clear.setText("Clear");
lb5.setText("Nama");
lb6.setText("Jurusan");
fjurusan.setModel(new DefaultComboBoxModel<>(new String[] {
    "Teknik Informatika",
    "Sistem Informasi",
    "Sistem Komputer"
}));
cbjurusan.setModel(new DefaultComboBoxModel<>(new String[] {
    "Semua Jurusan",
    "Teknik Informatika",
    "Sistem Informasi",
    "Sistem Komputer"
}));

GroupLayout contentPaneLayout = new GroupLayout(contentPane);
```

```

contentPane.setLayout(contentPaneLayout);

contentPaneLayout.setHorizontalGroup(
    contentPaneLayout.createParallelGroup()
        .addGroup(contentPaneLayout.createSequentialGroup()
            .addContainerGap()
            .addGroup(contentPaneLayout.createParallelGroup()
                .addComponent(lb2)
                .addComponent(lb3)
                .addComponent(lb4)
                .addComponent(lb1))
            .addPreferredGap(LayoutStyle.ComponentPlacement.UNRELATED)
            .addGroup(contentPaneLayout.createParallelGroup(GroupLayout.Alignment.TRAILING,
false)
                .addGroup(contentPaneLayout.createSequentialGroup()
                    .addComponent(clear)
                    .addPreferredGap(LayoutStyle.ComponentPlacement.RELATED,
 GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addComponent(submit))
                .addGroup(GroupLayout.Alignment.LEADING,
contentPaneLayout.createSequentialGroup()
                    .addComponent(rbmale)
                    .addPreferredGap(LayoutStyle.ComponentPlacement.UNRELATED)
                    .addComponent(rbfemale))
                .addComponent(fnama, GroupLayout.Alignment.LEADING)
                .addComponent(fangkatan, GroupLayout.Alignment.LEADING)
                .addComponent(fjurus))
            .addGap(18, 18, 18)
            .addGroup(contentPaneLayout.createParallelGroup()
                .addComponent(scroll, GroupLayout.PREFERRED_SIZE, GroupLayout.DEFAULT_SIZE,
 GroupLayout.PREFERRED_SIZE)
                .addGroup(contentPaneLayout.createSequentialGroup()
                    .addGroup(contentPaneLayout.createParallelGroup()

```

```

        .addComponent(lb6)

        .addComponent(lb5))

    .addGap(18, 18, 18)

    .addGroup(contentPaneLayout.createParallelGroup(GroupLayout.Alignment.LEADING,
false)

        .addComponent(tfnama, GroupLayout.DEFAULT_SIZE, 385, Short.MAX_VALUE)

        .addComponent(cbjurusan, GroupLayout.DEFAULT_SIZE, 385, Short.MAX_VALUE))))

    .addContainerGap(12, Short.MAX_VALUE))

);
contentPaneLayout.setVerticalGroup(
    contentPaneLayout.createParallelGroup()

        .addGroup(contentPaneLayout.createSequentialGroup()

            .addContainerGap()

            .addGroup(contentPaneLayout.createParallelGroup(GroupLayout.Alignment.TRAILING,
false)

                .addComponent(scroll, GroupLayout.Alignment.LEADING, GroupLayout.DEFAULT_SIZE,
0, Short.MAX_VALUE)

                .addGroup(contentPaneLayout.createSequentialGroup()

                    .addGroup(contentPaneLayout.createParallelGroup(GroupLayout.Alignment.BASELINE)

                        .addComponent(lb1)

                        .addComponent(fnama, GroupLayout.PREFERRED_SIZE,
GroupLayout.DEFAULT_SIZE, GroupLayout.PREFERRED_SIZE))

                        .addGap(10, 10, 10)

                    .addGroup(contentPaneLayout.createParallelGroup(GroupLayout.Alignment.BASELINE)

                        .addComponent(lb2)

                        .addComponent(rbmale)

                        .addComponent(rbfemale))

                    .addPreferredGap(LayoutStyle.ComponentPlacement.UNRELATED)

                .addGroup(contentPaneLayout.createParallelGroup(GroupLayout.Alignment.BASELINE)

                    .addComponent(lb3)

```

```

        .addComponent(fjurusan, GroupLayout.PREFERRED_SIZE,
        GroupLayout.DEFAULT_SIZE, GroupLayout.PREFERRED_SIZE))

        .addPreferredGap(LayoutStyle.ComponentPlacement.UNRELATED)

    .addGroup(contentPaneLayout.createParallelGroup(GroupLayout.Alignment.BASELINE)

        .addComponent(lb4)

        .addComponent(fangkatan, GroupLayout.PREFERRED_SIZE,
        GroupLayout.DEFAULT_SIZE, GroupLayout.PREFERRED_SIZE))

        .addGap(18, 18, 18)

    .addGroup(contentPaneLayout.createParallelGroup(GroupLayout.Alignment.BASELINE)

        .addComponent(submit)

        .addComponent(clear))))

        .addGap(18, 18, 18)

        .addGroup(contentPaneLayout.createParallelGroup(GroupLayout.Alignment.BASELINE)

            .addComponent(lb5)

            .addComponent(tfnama, GroupLayout.PREFERRED_SIZE, GroupLayout.DEFAULT_SIZE,
            GroupLayout.PREFERRED_SIZE))

            .addPreferredGap(LayoutStyle.ComponentPlacement.RELATED,
            GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)

            .addGroup(contentPaneLayout.createParallelGroup(GroupLayout.Alignment.BASELINE)

                .addComponent(lb6)

                .addComponent(cbjurusan, GroupLayout.PREFERRED_SIZE, GroupLayout.DEFAULT_SIZE,
                GroupLayout.PREFERRED_SIZE))

            .addContainerGap())

        );

    pack();

    setLocationRelativeTo(getOwner());
}

private void init() {

    ButtonGroup group = new ButtonGroup();

    group.add(rbmale);

```

```

group.add(rbfemale);

cbjurusan.addItemListener(e -> fetchData());

tfnama.getDocument().addDocumentListener(new DocumentListener() {

    @Override

    public void insertUpdate(DocumentEvent e) {

        fetchData();

    }

    @Override

    public void removeUpdate(DocumentEvent e) {

        fetchData();

    }

    @Override

    public void changedUpdate(DocumentEvent e) {

        fetchData();

    }

});

clear.addActionListener(this);

submit.addActionListener(this);

try {

    Class.forName("com.mysql.jdbc.Driver");

    con = DriverManager.getConnection(

        "jdbc:mysql://localhost/data_mahasiswa",

        "root",

        ""

    );

    state = con.createStatement();

    resetTable();

    fetchData();

} catch (ClassNotFoundException | SQLException e) {

```

```

        e.printStackTrace();
    }
}

@Override
public void actionPerformed(ActionEvent e) {
    switch (e.getActionCommand()) {
        case "Clear":
            resetForm();
            break;
        case "Submit":
            String nama = fnama.getText();
            String kelamin = (rbmale.isSelected()) ? rbmale.getText() : rbfemale.getText();
            String jurusan = fjurusan.getSelectedItem().toString();
            int angkatan = Integer.parseInt(fangkatan.getText());
            insertData(nama, kelamin, jurusan, angkatan);
            break;
    }
}

private void resetTable() {
    tblModel = new DefaultTableModel();
    tblModel.setColumnIdentifiers(new Object[]{
        "id",
        "Nama",
        "Jenis Kelamin",
        "Jurusan",
        "Angkatan"
    });
}

```



```

private String getSelectQuery(String nama, String jurusan) {

    String selectQuery = "SELECT * FROM daftar_mahasiswa";

    if (!nama.isEmpty()) {
        selectQuery += String.format(" WHERE nama LIKE '%%%s%%'", nama);
    }

    if (!nama.isEmpty() && !jurusan.isEmpty() && !jurusan.equals("Semua Jurusan")) {
        selectQuery += String.format(" AND jurusan LIKE '%%%s%%'", jurusan);
    }

    if (nama.isEmpty() && !jurusan.isEmpty() && !jurusan.equals("Semua Jurusan")) {
        selectQuery += String.format(" WHERE jurusan LIKE '%%%s%%'", jurusan);
    }

    return selectQuery;
}

private void insertData(String nama, String kelamin, String jurusan, int angkatan) {

    String insertQuery = "INSERT INTO daftar_mahasiswa (`nama`, `jenis_kelamin`, `jurusan`, `angkatan`) VALUES (?, ?, ?, ?)";

    try {
        PreparedStatement stmt = con.prepareStatement(insertQuery);
        stmt.setString(1, nama);
        stmt.setString(2, kelamin);
        stmt.setString(3, jurusan);
        stmt.setInt(4, angkatan);
        stmt.executeUpdate();

        resetForm();
        fetchData();
    } catch (SQLException e) {

```

```
        e.printStackTrace();
    }
}

private ResultSet getResultQuery(String query) {
    try {
        return state.executeQuery(query);
    } catch (SQLException e) {
        e.printStackTrace();
    }

    return null;
}

private void fetchData() {
    resetTable();
    showData(getResultQuery(getSelectQuery(tfnama.getText(),
cbjurusan.getSelectedItemAt().toString())));
}

private void resetForm() {
    fnama.setText("");
    rbmale.setEnabled(true);
    fjurusan.setSelectedIndex(0);
    fangkatan.setText("");
}

private void showData(ResultSet result) {
    if (result != null) {
        try {
            while (result.next()) {
```

```

        tblModel.addRow(new Object[]{
            result.getInt("id"),
            result.getString("nama"),
            result.getString("jenis_kelamin"),
            result.getString("jurusan"),
            result.getInt("angkatan")
        });
    }
} catch (SQLException e) {
    e.printStackTrace();
}
}

tblmhs.setModel(tblModel);
}

}

package programmahasiswa;
import javax.swing.*.*;
public class ProgramMahasiswa {

    public static void main(String[] args) {
        ProgramData layout = new ProgramData();
        layout.setTitle("Daftar Mahasiswa");
        layout.setSize(780, 290);
        layout.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        layout.setLocationRelativeTo(null);
    }
}

```

```
layout.setVisible(true);
```

```
}
```

```
}
```

Screenshot:

The top screenshot shows a window titled "Daftar Mahasiswa". It contains a form with the following fields: "Nama" (text input), "Jenis Kelamin" (radio buttons for "Laki-Laki" and "Perempuan", with "Laki-Laki" selected), "Jurusan" (dropdown menu showing "Teknik Informatika"), and "Angkatan" (text input). Below the form are "Clear" and "Submit" buttons. To the right is a table with 5 columns: "id", "Nama", "Jenis Kelamin", "Jurusan", and "Angkatan". The table contains 2 rows of data.

id	Nama	Jenis Kelamin	Jurusan	Angkatan
1	Hezar Muham...	Laki-laki	Teknik Inform...	2017
2	Ferdiansyah	Laki-laki	Teknik Inform...	2018

The bottom screenshot shows a window titled "Table". It contains a similar form to the top window, but the "Jurusan" dropdown menu is set to "Semua Jurusan". The table to the right has 6 rows of data.

id	Nama	Jenis Kelamin	Jurusan	Angkatan
1	Hezar Muham...	Laki-laki	Teknik Inform...	2017
2	Ferdiansyah	Laki-laki	Teknik Inform...	2018
3	Gorni	Laki-laki	Sistem Inform...	2018
4	Astri widiastuti	Laki-laki	Sistem Inform...	2017
5	Zian Vieri	Laki-laki	Sistem Komp...	2019
6	Fanny Putri	Laki-laki	Sistem Komp...	2016

Daftar Mahasiswa

Nama

Rihaz Saputra

Jenis Kelamin

☒ Laki-Laki ☐ Perempuan

Jurusan

Teknik Informatika

Angkatan

2017

Clear

Submit

id	Nama	Jenis Kelamin	Jurusan	Angkatan
1	Hezar Muham...	Laki-laki	Teknik Inform...	2017
2	Ferdiansyah	Laki-laki	Teknik Inform...	2018
3	Gorni	Laki-laki	Sistem Inform...	2018
4	Astri widiastuti	Laki-laki	Sistem Inform...	2017
5	Zian Vieri	Laki-laki	Sistem Komp...	2019
6	Fanny Putri	Laki-laki	Sistem Komp...	2016

Nama

Jurusan

Semua Jurusan

Daftar Mahasiswa

Nama

Jenis Kelamin

☒ Laki-Laki ☐ Perempuan

Jurusan

Teknik Informatika

Angkatan

Clear

Submit

id	Nama	Jenis Kelamin	Jurusan	Angkatan
1	Hezar Muham...	Laki-laki	Teknik Inform...	2017
2	Ferdiansyah	Laki-laki	Teknik Inform...	2018
3	Gorni	Laki-laki	Sistem Inform...	2018
4	Astri widiastuti	Laki-laki	Sistem Inform...	2017
5	Zian Vieri	Laki-laki	Sistem Komp...	2019
6	Fanny Putri	Laki-laki	Sistem Komp...	2016
7	Rihaz Saputra	Laki-laki	Teknik Inform...	2017

Nama

Jurusan

Semua Jurusan