Tugas Pemrograman Visual ke-7 Pertemuan ke-12

Table Mahasiswa

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Source Code:

```java
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;
```

```java
    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<>();
```

```java
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.setViewportView(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);
```

```java
        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(fjurusan))
          .addGap(18, 18, 18)
          .addGroup(contentPaneLayout.createParallelGroup()
            .addComponent(scroll, GroupLayout.PREFERRED_SIZE, GroupLayout.DEFAULT_SIZE,
GroupLayout.PREFERRED_SIZE)
            .addGroup(contentPaneLayout.createSequentialGroup()
              .addGroup(contentPaneLayout.createParallelGroup()
```

```java
                .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)
```

```java
                    .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);
```

```java
    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) {
```

```java
            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"
        });
    }
```

```java
    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) {
```

```java
                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.getSelectedItem().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()) {
```

```java
            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:

Daftar Mahasiswa (Window 1)

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 (Window 2)

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 ▾