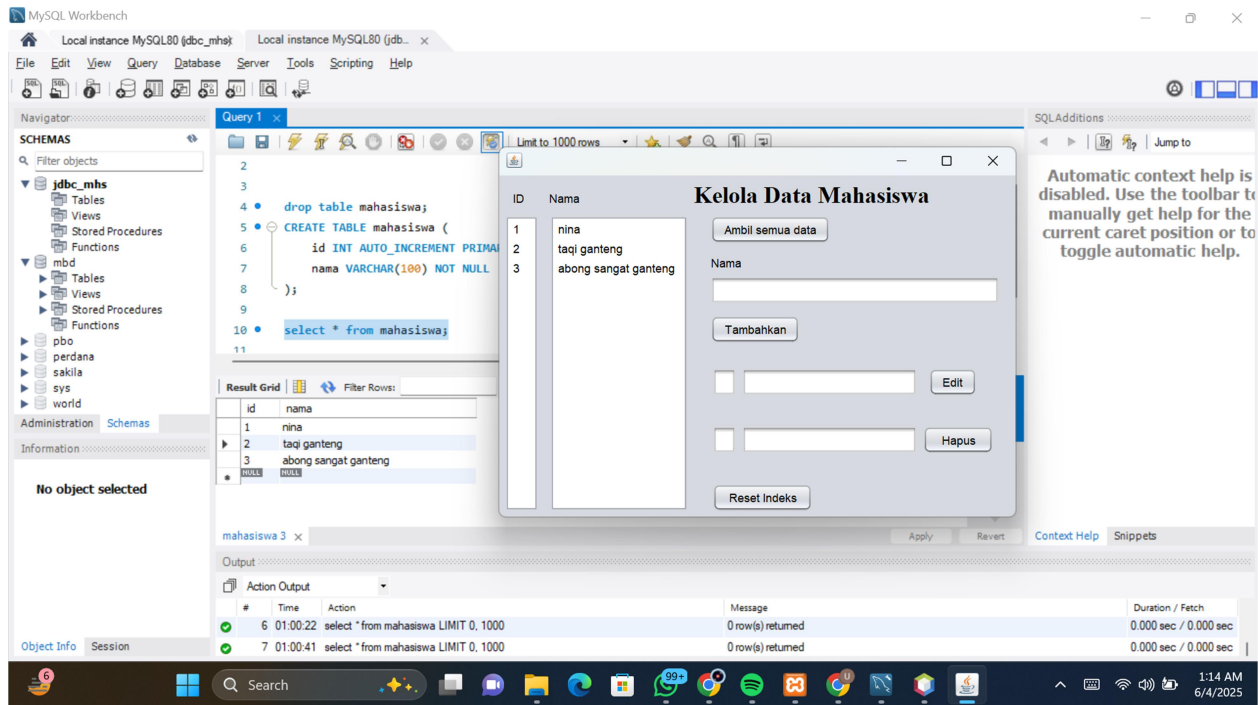


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LAB C1 - PBO



Ini adalah hasil dari eksekusi GUI yang sudah diselaraskan dengan MySQL workbench, dan berikut adalah kode untuk source design nya

```
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this
 license
 * Click nbfs://nbhost/SystemFileSystem/Templates/GuiForms/JFrame.java to edit this template
 */
package jdbc.program;

import java.sql.SQLException;
import java.util.ArrayList;
import java.util.List;
import java.util.logging.Level;
import java.util.logging.Logger;
import javax.swing.DefaultListModel;
import javax.swing.JOptionPane;
import jdbc.model.Mahasiswa;
import jdbc.service.MysqlMahasiswaService;
import jdbc.service.*;
import jdbc.utilities.MysqlUtility;
import static jdbc.utilities.MysqlUtility.getConnection;
```

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```
/**
 *
 * @author Abror
 */
public class JFrameUtama extends javax.swing.JFrame {
    private MysqlMahasiswaService service;

    /**
     * Creates new form JFrameUtama
     */
    public JFrameUtama() throws SQLException {
        initComponents();
        service = new MysqlMahasiswaService();
        loadMahasiswaList();
        jListID.addListSelectionListener(e -> updateTextFieldsFromList());
        jListNama.addListSelectionListener(e -> updateTextFieldsFromList());
    }

    private void loadMahasiswaList() throws SQLException {
        DefaultListModel<String> namaModel = new DefaultListModel<>();
        DefaultListModel<String> idModel = new DefaultListModel<>();
        List<Mahasiswa> mahasiswaList = service.getAll();
        for (Mahasiswa mhs : mahasiswaList) {
            namaModel.addElement(mhs.getNama());
            idModel.addElement(String.valueOf(mhs.getId()));
        }

        jListNama.setModel(namaModel);
        jListID.setModel(idModel);
    }

    private void updateTextFieldsFromList() {
        int index = jListID.getSelectedIndex();
        if (index != -1) {
            String selectedId = jListID.getModel().getElementAt(index);
            String selectedName = jListNama.getModel().getElementAt(index);

            jTextFieldID.setText(selectedId);
            jTextFieldNama.setText(selectedName);
            jTextFieldID2.setText(selectedId);
            jTextFieldNama2.setText(selectedName);
        }
    }
}
```

```
}  
}  
  
/**  
 * This method is called from within the constructor to initialize the form.  
 * WARNING: Do NOT modify this code. The content of this method is always  
 * regenerated by the Form Editor.  
 */  
@SuppressWarnings("unchecked")  
// <editor-fold defaultstate="collapsed" desc="Generated Code">  
private void initComponents() {  
  
    jLabelID = new javax.swing.JLabel();  
    jLabelNama = new javax.swing.JLabel();  
    jScrollPane1 = new javax.swing.JScrollPane();  
    jListID = new javax.swing.JList<>();  
    jScrollPane2 = new javax.swing.JScrollPane();  
    jListNama = new javax.swing.JList<>();  
    jLabelKelolaDataMahasiswa = new javax.swing.JLabel();  
    jButtonAmbilSemuaData = new javax.swing.JButton();  
    jLabelNama2 = new javax.swing.JLabel();  
    jTextFieldNama = new javax.swing.JTextField();  
    jButtonTambahkan = new javax.swing.JButton();  
    jTextFieldID = new javax.swing.JTextField();  
    jTextFieldNama2 = new javax.swing.JTextField();  
    jButtonEdit = new javax.swing.JButton();  
    jTextFieldID2 = new javax.swing.JTextField();  
    jTextFieldNama3 = new javax.swing.JTextField();  
    jButtonHapus = new javax.swing.JButton();  
    jButtonResetIndeks = new javax.swing.JButton();  
  
    setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);  
  
    jLabelID.setText("ID");  
  
    jLabelNama.setText("Nama");  
  
    jListID.setModel(new javax.swing.AbstractListModel<String>() {  
        String[] strings = { "Item 1", "Item 2", "Item 3", "Item 4", "Item 5" };  
        public int getSize() { return strings.length; }  
        public String getElementAt(int i) { return strings[i]; }  
    });  
    jScrollPane1.setViewportView(jListID);  
  
    jListNama.setModel(new javax.swing.AbstractListModel<String>() {  
        String[] strings = { "Item 1", "Item 2", "Item 3", "Item 4", "Item 5" };  
    });  
}
```

```
        public int getSize() { return strings.length; }
        public String getElementAt(int i) { return strings[i]; }
    });
    jScrollPane2.setViewportViewView(jListNama);

    jLabelKelolaDataMahasiswa.setFont(new java.awt.Font("Times New Roman", 1, 24)); //
NOI18N
    jLabelKelolaDataMahasiswa.setText("Kelola Data Mahasiswa");

    jButtonAmbilSemuaData.setText("Ambil semua data");
    jButtonAmbilSemuaData.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            jButtonAmbilSemuaDataActionPerformed(evt);
        }
    });

    jLabelNama2.setText("Nama");

    jTextFieldNama.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            jTextFieldNamaActionPerformed(evt);
        }
    });

    jButtonTambahkan.setText("Tambahkan");
    jButtonTambahkan.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            jButtonTambahkanActionPerformed(evt);
        }
    });

    jTextFieldID.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            jTextFieldIDActionPerformed(evt);
        }
    });

    jTextFieldNama2.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            jTextFieldNama2ActionPerformed(evt);
        }
    });

    jButtonEdit.setText("Edit");
    jButtonEdit.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
```

```

        jButtonEditActionPerformed(evt);
    }
});

jTextFieldID2.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jTextFieldID2ActionPerformed(evt);
    }
});

jTextFieldNama3.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jTextFieldNama3ActionPerformed(evt);
    }
});

jButtonHapus.setText("Hapus");
jButtonHapus.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButtonHapusActionPerformed(evt);
    }
});

jButtonResetIndeks.setText("Reset Indeks");
jButtonResetIndeks.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButtonResetIndeksActionPerformed(evt);
    }
});

javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
getContentPane().setLayout(layout);
layout.setHorizontalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .add(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addComponent(jLabelID)
                .addComponent(jLabelNama))
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
            .addComponent(jScrollPane1, javax.swing.GroupLayout.PREFERRED_SIZE,
34, javax.swing.GroupLayout.PREFERRED_SIZE)

```

```
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
    .addComponent(jScrollPane2, javax.swing.GroupLayout.PREFERRED_SIZE,
141, javax.swing.GroupLayout.PREFERRED_SIZE)))

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(layout.createSequentialGroup()
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
        .addComponent(jLabelKelolaDataMahasiswa)
        .addGap(88, 88, 88))
    .addGroup(layout.createSequentialGroup()
        .addGap(23, 23, 23)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(layout.createSequentialGroup()

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addComponent(jLabelNama2)
    .addComponent(jButtonAmbilSemuaData))
    .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE))
    .addGroup(layout.createSequentialGroup()

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addComponent(jButtonTambahkan)
    .addComponent(jTextFieldNama,
javax.swing.GroupLayout.PREFERRED_SIZE, 295,
javax.swing.GroupLayout.PREFERRED_SIZE))
    .addGap(0, 0, Short.MAX_VALUE)))
    .addGroup(layout.createSequentialGroup()
        .addGap(25, 25, 25)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addComponent(jButtonResetIndeks,
javax.swing.GroupLayout.PREFERRED_SIZE, 102,
javax.swing.GroupLayout.PREFERRED_SIZE)
    .addGroup(layout.createSequentialGroup()

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
    .addComponent(jTextFieldID,
javax.swing.GroupLayout.PREFERRED_SIZE, 24,
javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(jTextFieldID2,
javax.swing.GroupLayout.PREFERRED_SIZE, 24,
javax.swing.GroupLayout.PREFERRED_SIZE))
```

```
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING, false)
    .addComponent(jTextFieldNama3,
javax.swing.GroupLayout.DEFAULT_SIZE, 179, Short.MAX_VALUE)
    .addComponent(jTextFieldNama2))

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(layout.createSequentialGroup()
        .addGap(12, 12, 12)
        .addComponent(jButtonEdit))
    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
layout.createSequentialGroup()

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
    .addComponent(jButtonHapus,
javax.swing.GroupLayout.PREFERRED_SIZE, 72,
javax.swing.GroupLayout.PREFERRED_SIZE))))))
    .addContainerGap()))
);
layout.setVerticalGroup(
    layout.createSequentialGroup()
        .addGroup(layout.createSequentialGroup()
            .addComponent(jLabelID)
            .addComponent(jLabelNama)
            .addComponent(jLabelKelolaDataMahasiswa))
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addGroup(layout.createSequentialGroup()
    .addComponent(jScrollPane2, javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(layout.createSequentialGroup()
        .addComponent(jButtonAmbilSemuaData)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
    .addComponent(jLabelNama2)
    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
    .addComponent(jTextFieldNama, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
    .addComponent(jButtonTambahkan)
    .addGap(26, 26, 26)
```

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```
.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
    .addComponent(jTextFieldID, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(jTextFieldNama2,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(jButtonEdit))
    .addGap(31, 31, 31)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
    .addComponent(jTextFieldID2,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(jTextFieldNama3,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(jButtonHapus))
    .addGap(31, 31, 31)
    .addComponent(jButtonResetIndeks))
    .addComponent(jScrollPane1))
    .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE))
);

pack();
} // </editor-fold>

private void jButtonAmbilSemuaDataActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    try {
        // TODO add your handling code here:
        loadMahasiswaList();
    } catch (SQLException ex) {
        Logger.getLogger(JFrameUtama.class.getName()).log(Level.SEVERE, null, ex);
    }
}

private void jTextFieldNamaActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
}

private void jButtonTambahkanActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    String nama = jTextFieldNama.getText();
```



```
        if (nama.isEmpty()) {
            JOptionPane.showMessageDialog(this, "Nama tidak boleh kosong", "Error",
JOptionPane.ERROR_MESSAGE);
            return;
        }

        try {
            service.add(nama);
            loadMahasiswaList();
            jTextFieldNama.setText("");
        } catch (SQLException e) {
            e.printStackTrace();
            JOptionPane.showMessageDialog(this, "Error adding mahasiswa", "Error",
JOptionPane.ERROR_MESSAGE);
        }
    }

    private void jButtonEditActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
    }

    private void jButtonHapusActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        String idStr = jTextFieldID2.getText();

        if (idStr.isEmpty()) {
            JOptionPane.showMessageDialog(this, "ID tidak boleh kosong", "Error",
JOptionPane.ERROR_MESSAGE);
            return;
        }

        try {
            int id = Integer.parseInt(idStr);
            service.delete(id);
            loadMahasiswaList(); // Reload the list after deleting an item
            jTextFieldID2.setText("");
            jTextFieldNama2.setText("");
            jTextFieldID.setText("");
            jTextFieldNama.setText("");
        } catch (NumberFormatException e) {
            JOptionPane.showMessageDialog(this, "ID harus berupa angka", "Error",
JOptionPane.ERROR_MESSAGE);
        } catch (SQLException ex) {
            Logger.getLogger(JFrameUtama.class.getName()).log(Level.SEVERE, null, ex);
        }
    }
}
```

```
private void jButtonResetIndeksActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    try {
        service.indexReset();
        loadMahasiswaList();
    } catch (SQLException e) {
        e.printStackTrace();
        JOptionPane.showMessageDialog(this, "Error resetting index", "Error",
JOptionPane.ERROR_MESSAGE);
    }
}

private void jTextFieldID2ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
}

private void jTextFieldNama2ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
}

private void jTextFieldNama3ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
}

private void jTextFieldIDAActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
}

/**
 * @param args the command line arguments
 */
public static void main(String args[]) {
    /* Set the Nimbus look and feel */
    //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code (optional) ">
    /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and feel.
     * For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
     */
    try {
        for (javax.swing.UIManager.LookAndFeelInfo info :
javax.swing.UIManager.getInstalledLookAndFeels()) {
            if ("Nimbus".equals(info.getName())) {
                javax.swing.UIManager.setLookAndFeel(info.getClassName());
                break;
            }
        }
    }
}
```

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```
        } catch (ClassNotFoundException ex) {

java.util.logging.Logger.getLogger(JFrameUtama.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(JFrameUtama.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(JFrameUtama.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(JFrameUtama.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
    }
//</editor-fold>

    /* Create and display the form */
    java.awt.EventQueue.invokeLater(new Runnable() {
        public void run() {
            try {
                new JFrameUtama().setVisible(true);
            } catch (SQLException ex) {
                Logger.getLogger(JFrameUtama.class.getName()).log(Level.SEVERE, null, ex);
            }
        }
    });
}

// Variables declaration - do not modify
private javax.swing.JButton jButtonAmbilSemuaData;
private javax.swing.JButton jButtonEdit;
private javax.swing.JButton jButtonHapus;
private javax.swing.JButton jButtonResetIndeks;
private javax.swing.JButton jButtonTambahkan;
private javax.swing.JLabel jLabelID;
private javax.swing.JLabel jLabelKelolaDataMahasiswa;
private javax.swing.JLabel jLabelNama;
private javax.swing.JLabel jLabelNama2;
private javax.swing.JList<String> jListID;
private javax.swing.JList<String> jListNama;
private javax.swing.JScrollPane jScrollPane1;
private javax.swing.JScrollPane jScrollPane2;
private javax.swing.JTextField jTextFieldID;
```

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```
private javax.swing.JTextField jTextFieldID2;  
private javax.swing.JTextField jTextFieldNama;  
private javax.swing.JTextField jTextFieldNama2;  
private javax.swing.JTextField jTextFieldNama3;  
// End of variables declaration  
}
```