

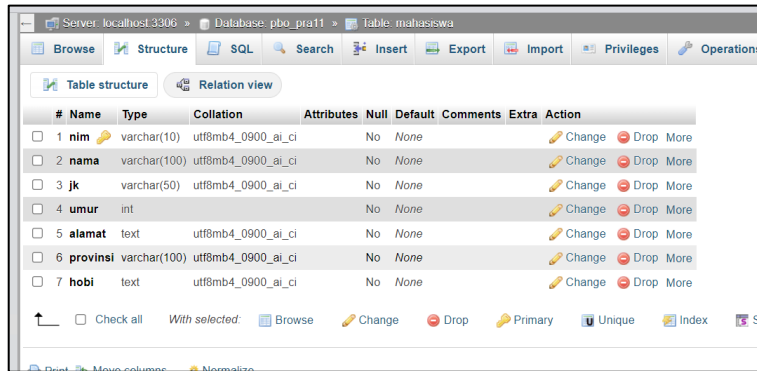
Nama : Muh. Nur Afrizal

NIM : 222212738

Kelas / No : 2KS1 / 25

MODUL 11 PEMROGRAMAN BERORIENTASI OBJEK DATABASE ACCESS (JDBC)

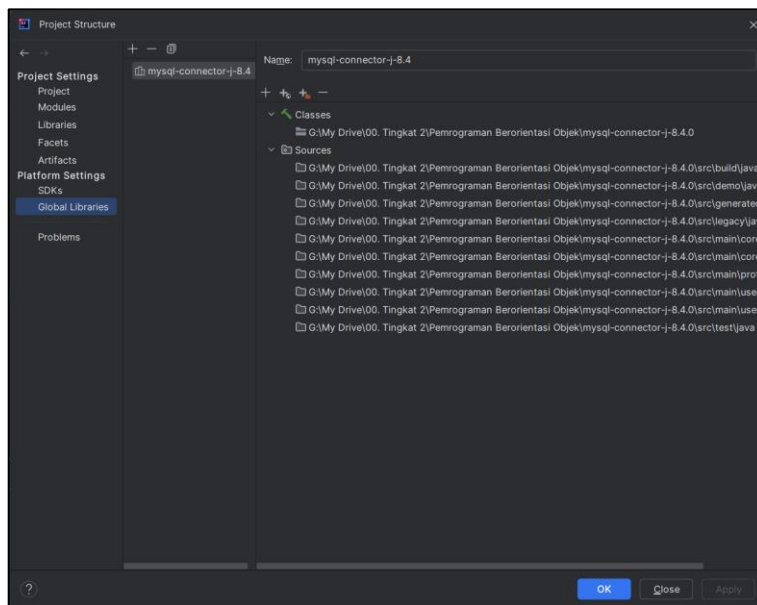
1. Database



The screenshot shows the 'Table structure' view for a table named 'mahasiswa' in a MySQL database. The table has 7 columns: nim, nama, jk, umur, alamat, provinsi, and hobi. Each column has a checkbox for selection, a pencil icon for 'Change', a red circle with a minus sign for 'Drop', and a magnifying glass for 'More'. The columns are defined with various data types and collations, all with 'No' for null and 'None' for default.

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/>	1 nim	varchar(10)	utf8mb4_0900_ai_ci		No	None			Change Drop More
<input type="checkbox"/>	2 nama	varchar(100)	utf8mb4_0900_ai_ci		No	None			Change Drop More
<input type="checkbox"/>	3 jk	varchar(50)	utf8mb4_0900_ai_ci		No	None			Change Drop More
<input type="checkbox"/>	4 umur	int			No	None			Change Drop More
<input type="checkbox"/>	5 alamat	text	utf8mb4_0900_ai_ci		No	None			Change Drop More
<input type="checkbox"/>	6 provinsi	varchar(100)	utf8mb4_0900_ai_ci		No	None			Change Drop More
<input type="checkbox"/>	7 hobi	text	utf8mb4_0900_ai_ci		No	None			Change Drop More

2. Menambah MySQL Connector Java ke Project



3. Source Code

a. EntryPanel.java

```
/*
 * Click
 * nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-
 * default.txt to change this license
 * Click
 * nbfs://nbhost/SystemFileSystem/Templates/GUIForms/JPanel.java to
 * edit this template
 */
package latihan.gui;

import java.sql.SQLException;
import java.util.ArrayList;
```

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```
import javax.swing.JOptionPane;
import javax.swing.table.DefaultTableModel;

/**
 *
 * @author muham
 */
public class EntryPanel extends javax.swing.JPanel {

    /**
     * Creates new form EntryPanel
     */
    public EntryPanel() {
        initComponents();
        loadTableData();
    }

    /**
     * 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() {

        jkButtonGroup = new javax.swing.ButtonGroup();
        jPanel1 = new javax.swing.JPanel();
        jLabel5 = new javax.swing.JLabel();
        jLabel6 = new javax.swing.JLabel();
        jScrollPane1 = new javax.swing.JScrollPane();
        alamatTextArea = new javax.swing.JTextArea();
        jLabel7 = new javax.swing.JLabel();
        provinsiComboBox = new javax.swing.JComboBox<>();
        jLabel8 = new javax.swing.JLabel();
        membacaCheckBox = new javax.swing.JCheckBox();
        menyanyiCheckBox = new javax.swing.JCheckBox();
        jLabel11 = new javax.swing.JLabel();
        jLabel12 = new javax.swing.JLabel();
        jLabel13 = new javax.swing.JLabel();
        nimTextField = new javax.swing.JTextField();
        namaTextField = new javax.swing.JTextField();
        lakiRadioButton = new javax.swing.JRadioButton();
        perempuanRadioButton = new javax.swing.JRadioButton();
        jLabel14 = new javax.swing.JLabel();
        berenangCheckBox = new javax.swing.JCheckBox();
        umurSpinner = new javax.swing.JSpinner();
        simpanButton = new javax.swing.JButton();
        jPanel2 = new javax.swing.JPanel();
        jScrollPane2 = new javax.swing.JScrollPane();
        mahasiswaTable = new javax.swing.JTable();

        setLayout(new java.awt.BorderLayout());

        jLabel5.setText("tahun");
```

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```
jLabel6.setText("Alamat :");

alamatTextArea.setColumns(20);
alamatTextArea.setRows(5);
jScrollPane.setViewportViewView(alamatTextArea);

jLabel7.setText("Provinsi :");

provinsiComboBox.setModel(new
javax.swing.DefaultComboBoxModel<>(new String[] { "Aceh", "DKI
Jakarta", "Jawa Timur", "Bali", "Maluku", "Papua" }));

jLabel8.setText("Hobi :");

membacaCheckBox.setText("Membaca");
menyanyiCheckBox.setText("Menyanyi");

jLabel11.setText("NIM :");

jLabel2.setText("Jenis Kelamin :");

jLabel3.setText("Nama :");

jKButtonGroup.add(lakiRadioButton);
lakiRadioButton.setText("Laki-laki");

jKButtonGroup.add(perempuanRadioButton);
perempuanRadioButton.setText("Perempuan");

jLabel4.setText("Umur :");

berenangCheckBox.setText("Berenang");

umurSpinner.setModel(new
javax.swing.SpinnerNumberModel(15, 10, 60, 1));

simpanButton.setText("Simpan");
simpanButton.addActionListener(new
java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent
evt) {
        simpanButtonActionPerformed(evt);
    }
});

javax.swing.GroupLayout jPanell1Layout = new
javax.swing.GroupLayout(jPanell1);
jPanell1.setLayout(jPanell1Layout);
jPanell1Layout.setHorizontalGroup(

jPanell1Layout.createParallelGroup(javax.swing.GroupLayout.Alignmen
t.LEADING)
    .addGap(0, 342, Short.MAX_VALUE)

.addGroup(jPanell1Layout.createParallelGroup(javax.swing.GroupLayou
t.Alignment.LEADING)
    .addGroup(jPanell1Layout.createSequentialGroup()
        .addGap(13, 13, 13)
```

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```
.addGroup(jPanellLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
    .addComponent(simpanButton)

.addGroup(jPanellLayout.createSequentialGroup())

.addGroup(jPanellLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
    .addComponent(jLabel1,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
    .addComponent(jLabel2,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
    .addComponent(jLabel3,
javax.swing.GroupLayout.Alignment.TRAILING,
javax.swing.GroupLayout.DEFAULT_SIZE, 83, Short.MAX_VALUE)
    .addComponent(jLabel4,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
    .addComponent(jLabel6,
javax.swing.GroupLayout.Alignment.TRAILING,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
    .addComponent(jLabel7,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
    .addComponent(jLabel8,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))

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

.addGroup(jPanellLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addComponent(berenangCheckBox,
javax.swing.GroupLayout.PREFERRED_SIZE, 85,
javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(menyanyiCheckBox,
javax.swing.GroupLayout.PREFERRED_SIZE, 85,
javax.swing.GroupLayout.PREFERRED_SIZE)

.addGroup(jPanellLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)

.addComponent(perempuanRadioButton,
javax.swing.GroupLayout.PREFERRED_SIZE, 98,
javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(lakiRadioButton,
javax.swing.GroupLayout.PREFERRED_SIZE, 98,
javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(namaTextField,
javax.swing.GroupLayout.DEFAULT_SIZE, 154, Short.MAX_VALUE)
    .addComponent(nimTextField))

.addGroup(jPanellLayout.createSequentialGroup())
    .addComponent(umurSpinner,
```

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```
javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATE
D)
        .addComponent(jLabel15,
javax.swing.GroupLayout.PREFERRED_SIZE, 39,
javax.swing.GroupLayout.PREFERRED_SIZE))
        .addComponent(jScrollPane1,
javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(provinsiComboBox,
javax.swing.GroupLayout.PREFERRED_SIZE, 92,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(membacaCheckBox,
javax.swing.GroupLayout.PREFERRED_SIZE, 85,
javax.swing.GroupLayout.PREFERRED_SIZE)))

.addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE))
    );
    jPanel1Layout.setVerticalGroup(

jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignmen
t.LEADING)
        .addGap(0, 439, Short.MAX_VALUE)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout
t.Alignment.LEADING)
        .addGroup(jPanel1Layout.createSequentialGroup())
        .addContainerGap()

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout
t.Alignment.BASELINE)
        .addComponent(jLabel11)
        .addComponent(nimTextField,
javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE))

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELA
TED)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout
t.Alignment.BASELINE)
        .addComponent(jLabel13)
        .addComponent(namaTextField,
javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE))

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELA
TED)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout
t.Alignment.BASELINE)
        .addComponent(jLabel12)
```

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```
.addComponent(lakiRadioButton)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATE
D)

.addComponent(perempuanRadioButton)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATE
D)

.addGroup(jPanellLayout.createParallelGroup(javax.swing.GroupLayout
t.Alignment.BASELINE)

.addComponent(jLabel4)
.addComponent(umurSpinner,
javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
.addComponent(jLabel5))

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELA
TED)

.addGroup(jPanellLayout.createParallelGroup(javax.swing.GroupLayout
t.Alignment.LEADING)

.addComponent(jLabel6)
.addComponent(jScrollPane1,
javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE))
.addGap(7, 7, 7)

.addGroup(jPanellLayout.createParallelGroup(javax.swing.GroupLayout
t.Alignment.BASELINE)

.addComponent(jLabel7)
.addComponent(provinsiComboBox,
javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE))

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELA
TED)

.addGroup(jPanellLayout.createParallelGroup(javax.swing.GroupLayout
t.Alignment.LEADING)

.addComponent(jLabel8)
.addComponent(membacaCheckBox))

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATE
D)

.addComponent(menyanyiCheckBox)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATE
D)

.addComponent(berenangCheckBox)
.addGap(18, 18, 18)
.addComponent(simpanButton)
.addContainerGap(37, Short.MAX_VALUE))

);

add(jPanell1, java.awt.BorderLayout.LINE_START);
```

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```
        mahasiswaTable.setModel(new
javax.swing.table.DefaultTableModel(
    new Object [][] {

        },
        new String [] {
            "NIM", "Nama", "Jenis Kelamin", "Umur"
        }
    ) {
        Class[] types = new Class [] {
            java.lang.String.class, java.lang.String.class,
java.lang.String.class, java.lang.Integer.class
        };
        boolean[] canEdit = new boolean [] {
            false, false, false, false
        };

        public Class getColumnClass(int columnIndex) {
            return types [columnIndex];
        }

        public boolean isCellEditable(int rowIndex, int
columnIndex) {
            return canEdit [columnIndex];
        }
    });
jScrollPane2.setViewportViewView(mahasiswaTable);

javax.swing.GroupLayout jPanel2Layout = new
javax.swing.GroupLayout(jPanel2);
jPanel2.setLayout(jPanel2Layout);
jPanel2Layout.setHorizontalGroup(

jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignmen
t.LEADING)
    .addGroup(0, 467, Short.MAX_VALUE)

.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayou
t.Alignment.LEADING)

.addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel2Layout.createSequentialGroup()
    .addGap(9, Short.MAX_VALUE)
    .addComponent(jScrollPane2,
javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
    .addGap())
);
jPanel2Layout.setVerticalGroup(

jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignmen
t.LEADING)
    .addGroup(0, 439, Short.MAX_VALUE)

.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayou
t.Alignment.LEADING)
    .addGroup(jPanel2Layout.createSequentialGroup()
```

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```
.addContainerGap()
.addComponent(jScrollPane2,
javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)

.addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE))
);

add(jPanel2, java.awt.BorderLayout.CENTER);
} // </editor-fold> // GEN-END: initComponents

private void
simpanButtonActionPerformed(java.awt.event.ActionEvent evt)
{ // GEN-FIRST: event_simpanButtonActionPerformed
    // TODO add your handling code here:
    Mahasiswa mhs = new Mahasiswa();
    mhs.setNim(nimTextField.getText());
    mhs.setNama(namaTextField.getText());
    if (lakiRadioButton.isSelected()) {
        mhs.setJenisKelamin("Laki-laki");
    }
    if (perempuanRadioButton.isSelected()) {
        mhs.setJenisKelamin("Perempuan");
    }
    int umur = (Integer) umurSpinner.getValue();
    mhs.setUmur(umur);
    mhs.setAlamat(alamatTextArea.getText());

    mhs.setProvinsi(provinsiComboBox.getSelectedItem().toString());
    ArrayList<String> hobiList = new ArrayList<>();
    if (membacaCheckBox.isSelected()) {
        hobiList.add("membaca");
    }
    if (menyanyiCheckBox.isSelected()) {
        hobiList.add("menyanyi");
    }
    if (berenangCheckBox.isSelected()) {
        hobiList.add("berenang");
    }
    mhs.setHobi(hobiList);

    try {
        Database.getInstance().insertMahasiswa(mhs);
        clearForm();
        JOptionPane.showMessageDialog(this, "Sukses
Tersimpan");
        loadTableData();
    } catch (SQLException e) {
        System.err.println(e);
        JOptionPane.showMessageDialog(this, "Gagal menyimpan
data", "Gagal", JOptionPane.ERROR_MESSAGE);
    }
} // GEN-LAST: event_simpanButtonActionPerformed

private void loadTableData() {
    DefaultTableModel dtm = (DefaultTableModel)
```


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```
mahasiswaTable.getModel();

//refresh table
while(dtm.getRowCount() > 0) {
    dtm.removeRow(0);
}

//isi tabel
try {
    for(Mahasiswa mhs :
Database.getInstance().getListMahasiswa()) {
        dtm.addRow(new Object[]{mhs.getNim(),
mhs.getNama(), mhs.getJenisKelamin(), mhs.getUmur()});
    }
} catch (SQLException e) {
    System.err.println(e);
    JOptionPane.showMessageDialog(this, "Gagal mengambil
data.", "Gagal", JOptionPane.ERROR_MESSAGE);
}
}

private void clearForm() {
    nimTextField.setText("");
    namaTextField.setText("");
    jkButtonGroup.clearSelection();
    umurSpinner.setValue(15);
    alamatTextArea.setText("");
    provinsiComboBox.setSelectedItem(-1);
    membacaCheckBox.setSelected(false);
    menyanyiCheckBox.setSelected(false);
    berenangCheckBox.setSelected(false);
}

// Variables declaration - do not modify//GEN-BEGIN:variables
private javax.swing.JTextArea alamatTextArea;
private javax.swing.JCheckBox berenangCheckBox;
private javax.swing.JLabel jLabel1;
private javax.swing.JLabel jLabel2;
private javax.swing.JLabel jLabel3;
private javax.swing.JLabel jLabel4;
private javax.swing.JLabel jLabel5;
private javax.swing.JLabel jLabel6;
private javax.swing.JLabel jLabel7;
private javax.swing.JLabel jLabel8;
private javax.swing.JPanel jPanel1;
private javax.swing.JPanel jPanel2;
private javax.swing.JScrollPane jScrollPane1;
private javax.swing.JScrollPane jScrollPane2;
private javax.swing.ButtonGroup jkButtonGroup;
private javax.swing.JRadioButton lakiRadioButton;
private javax.swing.JTable mahasiswaTable;
private javax.swing.JCheckBox membacaCheckBox;
private javax.swing.JCheckBox menyanyiCheckBox;
private javax.swing.JTextField namaTextField;
private javax.swing.JTextField nimTextField;
private javax.swing.JRadioButton perempuanRadioButton;
private javax.swing.JComboBox<String> provinsiComboBox;
private javax.swing.JButton simpanButton;
```

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```
private javax.swing.JSpinner umurSpinner;  
// End of variables declaration//GEN-END:variables  
}
```

b. Database.java

```
/*  
 * Click  
 nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-  
 default.txt to change this license  
 * Click  
 nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to  
 edit this template  
 */  
package latihan.gui;  
  
import java.io.Serializable;  
import java.sql.*;  
import java.util.ArrayList;  
import java.util.Arrays;  
import java.util.List;  
  
/**  
 *  
 * @author muham  
 */  
public class Database implements Serializable {  
    public static Database instance;  
  
    private final String DB_TYPE = "mysql";  
    private final String DB_HOST = "localhost";  
    private final String DB_PORT = "3306";  
    private final String DB_NAME = "pbo_pra11";  
    private final String DB_USER = "root";  
    private final String DB_PASS = "";  
  
    private ArrayList<Mahasiswa> data = new ArrayList<>();  
    private Database() {  
  
    }  
  
    public static synchronized Database getInstance() {  
        if(instance == null) {  
            instance = new Database();  
        }  
        return instance;  
    }  
  
    public void insertMahasiswa(Mahasiswa mahasiswa) throws  
    SQLException {  
        Connection conn = getConnection();  
        try {  
            String sql = "INSERT INTO mahasiswa VALUES (?, ?, ?,  
?, ?, ?, ?)";  
            PreparedStatement pstmt = conn.prepareStatement(sql);  
            pstmt.setString(1, mahasiswa.getNim());  
            pstmt.setString(2, mahasiswa.getNama());  
            pstmt.setString(3, mahasiswa.getJenisKelamin());  
            pstmt.setInt(4, mahasiswa.getUmur());  
            pstmt.setString(5, mahasiswa.getAlamat());  
        }  
    }  
}
```

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```
pstmt.setString(6, mahasiswa.getProvinsi());
pstmt.setString(7, String.join(",",
mahasiswa.getHobi()));

pstmt.executeUpdate();
} catch (SQLException ex) {
    throw ex;
} finally {
    if (conn != null) {
        conn.close();
    }
}

}

public List<Mahasiswa> getListMahasiswa() throws SQLException
{
    List<Mahasiswa> mhsList = new ArrayList<>();
    Connection conn = getConnection();
    try {
        String sql = "SELECT * FROM mahasiswa";
        Statement stmt = conn.createStatement();
        ResultSet rs = stmt.executeQuery(sql);
        while (rs.next()) {
            Mahasiswa mhs = new Mahasiswa();
            mhs.setNim(rs.getString("nim"));
            mhs.setNama(rs.getString("nama"));
            mhs.setJenisKelamin(rs.getString("jk"));
            mhs.setUmur(rs.getInt("umur"));
            mhs.setAlamat(rs.getString("alamat"));
            mhs.setProvinsi(rs.getString("provinsi"));
            mhs.setHobi(new
ArrayList<>(Arrays.asList(rs.getString("hobi").split(","))));

            mhsList.add(mhs);
        }
    } catch (SQLException e) {
        throw e;
    } finally {
        if (conn != null) {
            conn.close();
        }
    }

    return mhsList;
}

private Connection getConnection() throws SQLException {
    return
DriverManager.getConnection("jdbc:" + DB_TYPE + "://" + DB_HOST + ":" + DB_P
ORT + "/" + DB_NAME, DB_USER, DB_PASS);
}
}
```

c. Mahasiswa.java

```
/*
 * Click
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default.txt to change this license
 * Click
```

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```
nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to
edit this template
*/
package latihan.gui;

import java.io.Serializable;
import java.util.ArrayList;

/**
 *
 * @author muham
 */
public class Mahasiswa implements Serializable {
    private String nim, nama, jenisKelamin;
    private int umur;
    private String alamat, provinsi;
    private ArrayList<String> hobi;

    /**
     * @return the nim
     */
    public String getNim() {
        return nim;
    }

    /**
     * @param nim the nim to set
     */
    public void setNim(String nim) {
        this.nim = nim;
    }

    /**
     * @return the nama
     */
    public String getNama() {
        return nama;
    }

    /**
     * @param nama the nama to set
     */
    public void setNama(String nama) {
        this.nama = nama;
    }

    /**
     * @return the jenisKelamin
     */
    public String getJenisKelamin() {
        return jenisKelamin;
    }

    /**
     * @param jenisKelamin the jenisKelamin to set
     */
    public void setJenisKelamin(String jenisKelamin) {
        this.jenisKelamin = jenisKelamin;
    }
}
```

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```
/**
 * @return the umur
 */
public int getUmur() {
    return umur;
}

/**
 * @param umur the umur to set
 */
public void setUmur(int umur) {
    this.umur = umur;
}

/**
 * @return the alamat
 */
public String getAlamat() {
    return alamat;
}

/**
 * @param alamat the alamat to set
 */
public void setAlamat(String alamat) {
    this.alamat = alamat;
}

/**
 * @return the provinsi
 */
public String getProvinsi() {
    return provinsi;
}

/**
 * @param provinsi the provinsi to set
 */
public void setProvinsi(String provinsi) {
    this.provinsi = provinsi;
}

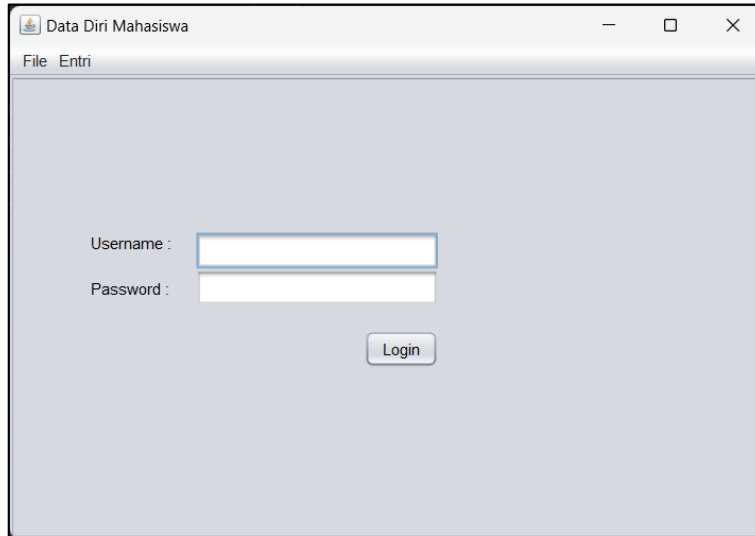
/**
 * @return the hobi
 */
public ArrayList<String> getHobi() {
    return hobi;
}

/**
 * @param hobi the hobi to set
 */
public void setHobi(ArrayList<String> hobi) {
    this.hobi = hobi;
}
}
```

Nama : Muh. Nur Afrizal
NIM : 222212738
Kelas / No : 2KS1 / 25

4. Output

a. Login Form



Username :

Password :

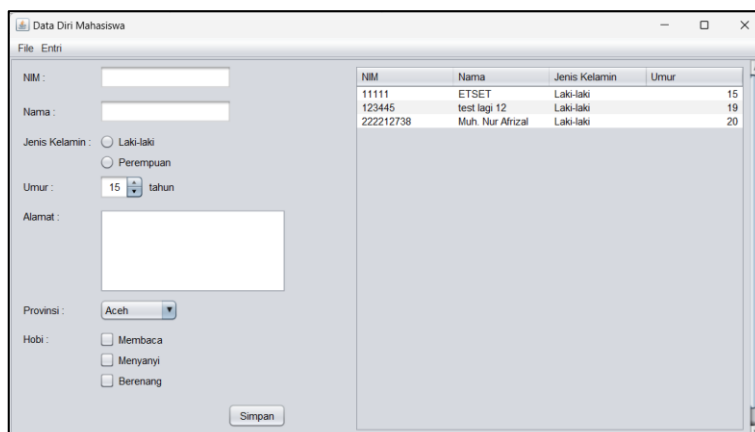
Login

b. Home



SELAMAT DATANG

c. Tampil mahasiswa pada JTable



NIM :

Nama :

Jenis Kelamin : ☐ Laki-laki ☐ Perempuan

Umur : tahun

Alamat :

Provinsi :

Hobi : ☐ Membaca ☐ Menyanyi ☐ Berenang

Simpan

NIM	Nama	Jenis Kelamin	Umur
11111	ETSET	Laki-laki	15
123445	test lagi 12	Laki-laki	19
222212738	Muh. Nur Afrizal	Laki-laki	20

Nama : Muh. Nur Afrizal

NIM : 222212738

Kelas / No : 2KS1 / 25

d. Tambah mahasiswa

The screenshot shows a Java Swing application window titled "Data Diri Mahasiswa". The window has a menu bar with "File" and "Entri". The main area is divided into two sections. On the left is a form for entering student data, and on the right is a table of existing data.

Form Fields:


- NIM:
- Nama:
- Jenis Kelamin: ☐ Laki-laki ☐ Perempuan
- Umur: tahun
- Alamat:
- Provinsi:
- Hobi: ☐ Membaca ☐ Menyanyi ☐ Berenang
- Simpan button

Table:

NIM	Nama	Jenis Kelamin	Umur
11111	ETSET	Laki-laki	15
123445	test lagi 12	Laki-laki	19
222212738	Muh. Nur Afrizal	Laki-laki	20

Message Dialog:

Message

 Sukses Tersimpan

OK