ACTIVITY PERTEMUAN 1

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NPM : 50421437

KELAS : 4IA14

MATERI : Konsep dasar ORM (Object Relational Mapping) dan Framework Hibernate

MATA PRAKTIKUM : Rekayasa Perangkat Lunak 2

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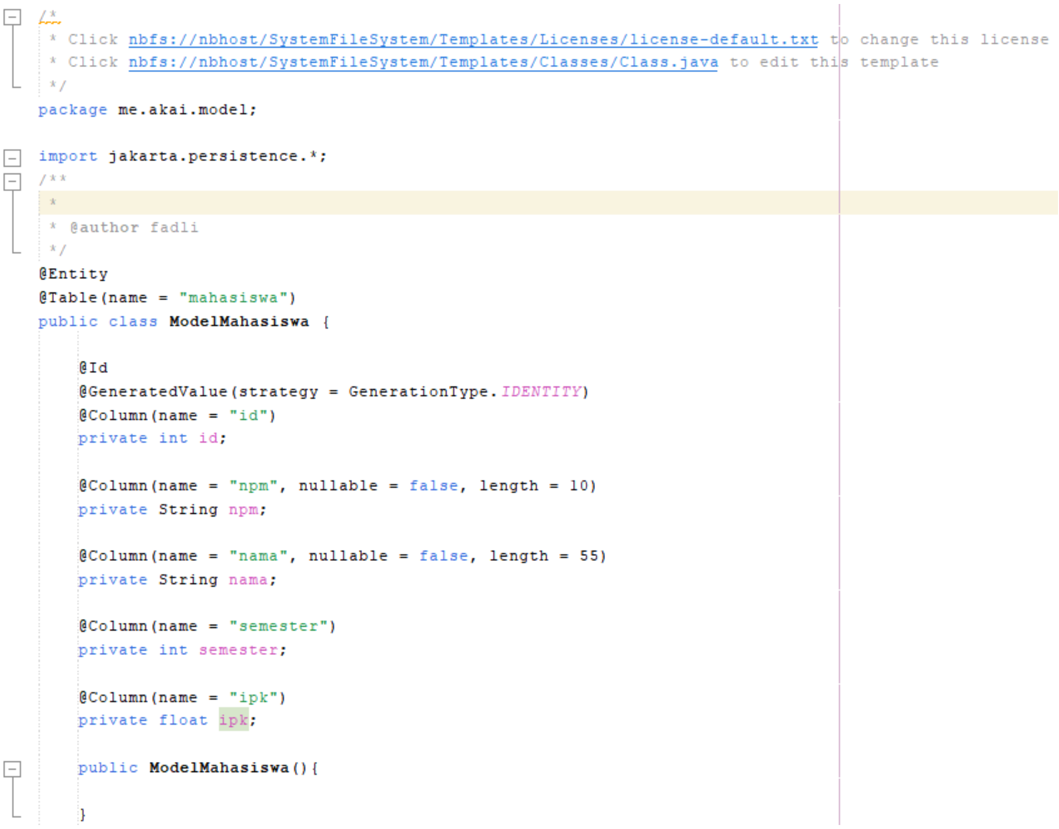
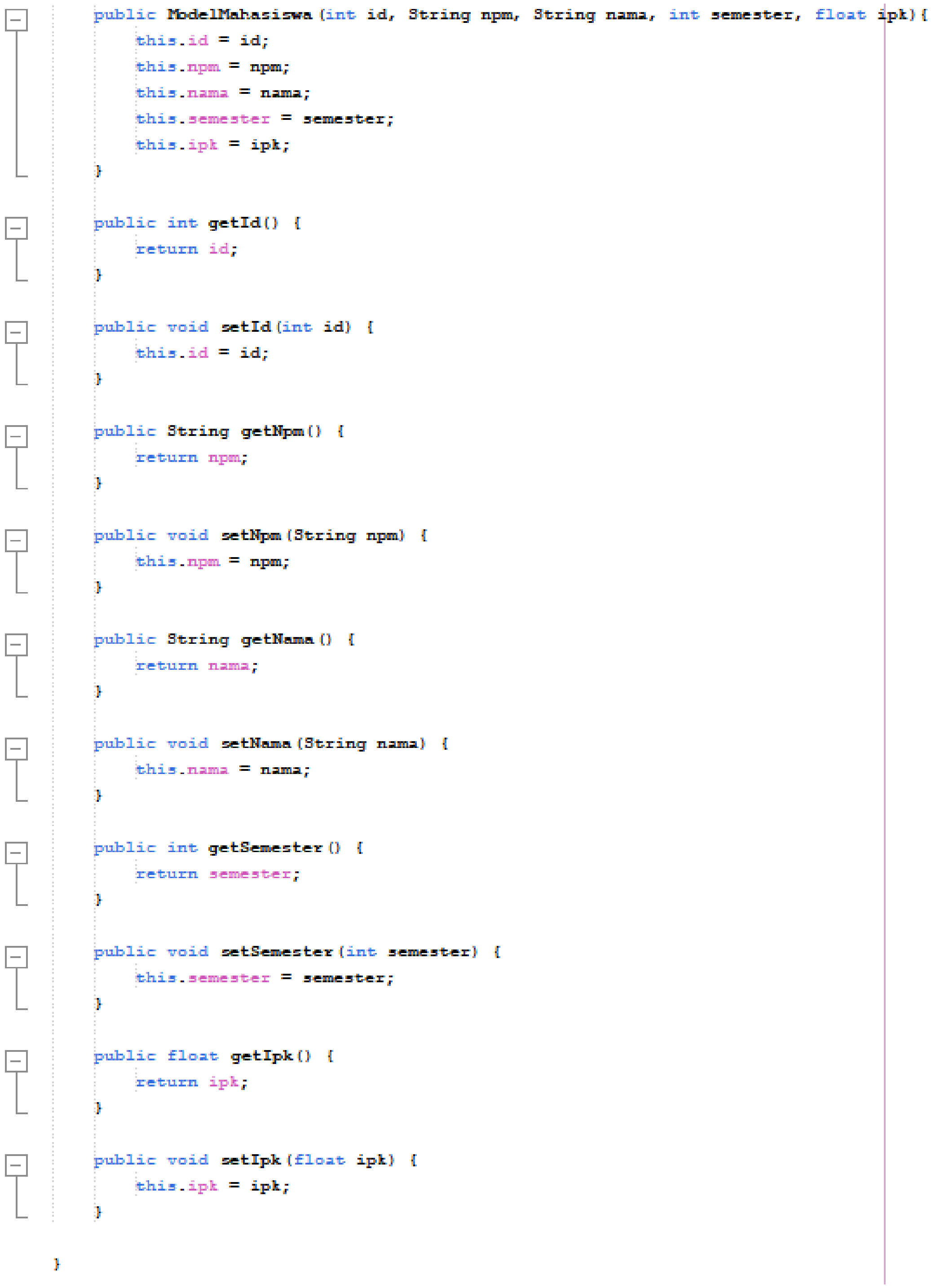
1. ModelMahasiswa.java

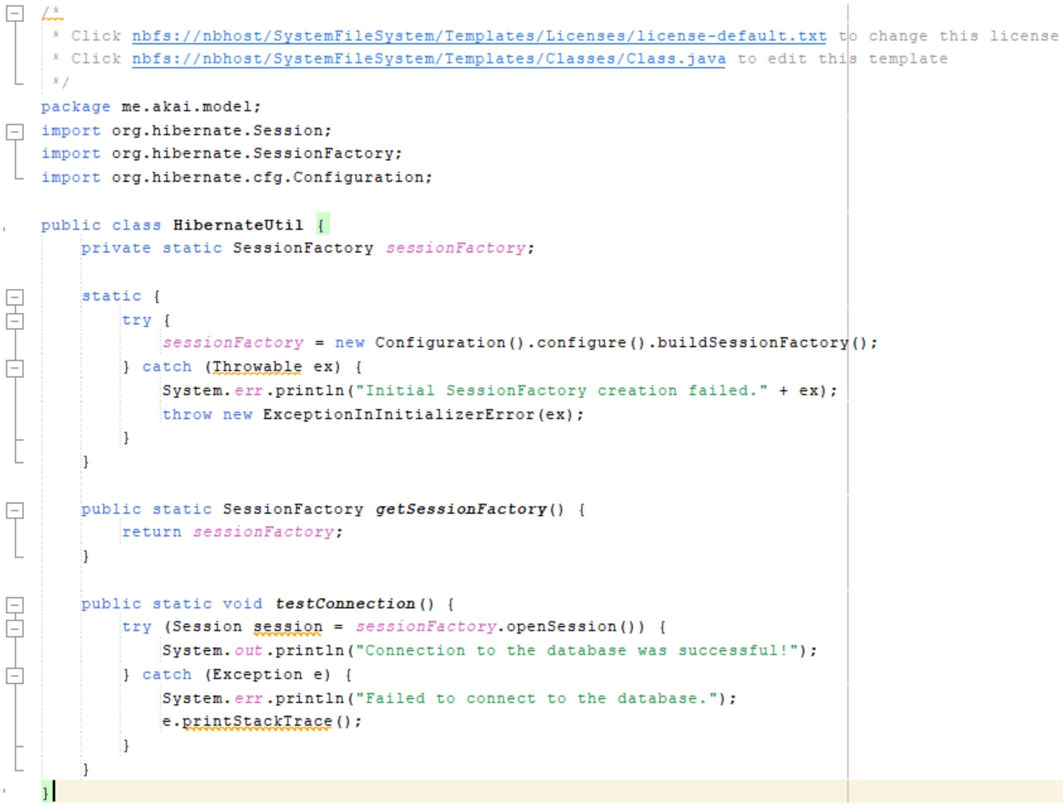


```
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
 * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
 */
package me.akai.model;

import jakarta.persistence.*;
/**
 *
 * @author fadli
 */
@Entity
@Table(name = "mahasiswa")
public class ModelMahasiswa {

    @Id
    @GeneratedValue(strategy = GenerationType.IDENTITY)
    @Column(name = "id")
    private int id;

    @Column(name = "npm", nullable = false, length = 10)
    private String npm;

    @Column(name = "nama", nullable = false, length = 55)
    private String nama;

    @Column(name = "semester")
    private int semester;

    @Column(name = "ipk")
    private float ipk;

    public ModelMahasiswa(){

    }
```



```java
    public ModelMahasiswa(int id, String npm, String nama, int semester, float ipk){
        this.id = id;
        this.npm = npm;
        this.nama = nama;
        this.semester = semester;
        this.ipk = ipk;
    }

    public int getId() {
        return id;
    }

    public void setId(int id) {
        this.id = id;
    }

    public String getNpm() {
        return npm;
    }

    public void setNpm(String npm) {
        this.npm = npm;
    }

    public String getNama() {
        return nama;
    }

    public void setNama(String nama) {
        this.nama = nama;
    }

    public int getSemester() {
        return semester;
    }

    public void setSemester(int semester) {
        this.semester = semester;
    }

    public float getIpk() {
        return ipk;
    }

    public void setIpk(float ipk) {
        this.ipk = ipk;
    }

}
```

2. HibernateUtil.java



```java
/*
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 * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
 */
package me.akai.model;
import org.hibernate.Session;
import org.hibernate.SessionFactory;
import org.hibernate.cfg.Configuration;

public class HibernateUtil {
    private static SessionFactory sessionFactory;

    static {
        try {
            sessionFactory = new Configuration().configure().buildSessionFactory();
        } catch (Throwable ex) {
            System.err.println("Initial SessionFactory creation failed." + ex);
            throw new ExceptionInInitializerError(ex);
        }
    }

    public static SessionFactory getSessionFactory() {
        return sessionFactory;
    }

    public static void testConnection() {
        try (Session session = sessionFactory.openSession()) {
            System.out.println("Connection to the database was successful!");
        } catch (Exception e) {
            System.err.println("Failed to connect to the database.");
            e.printStackTrace();
        }
    }
}
```
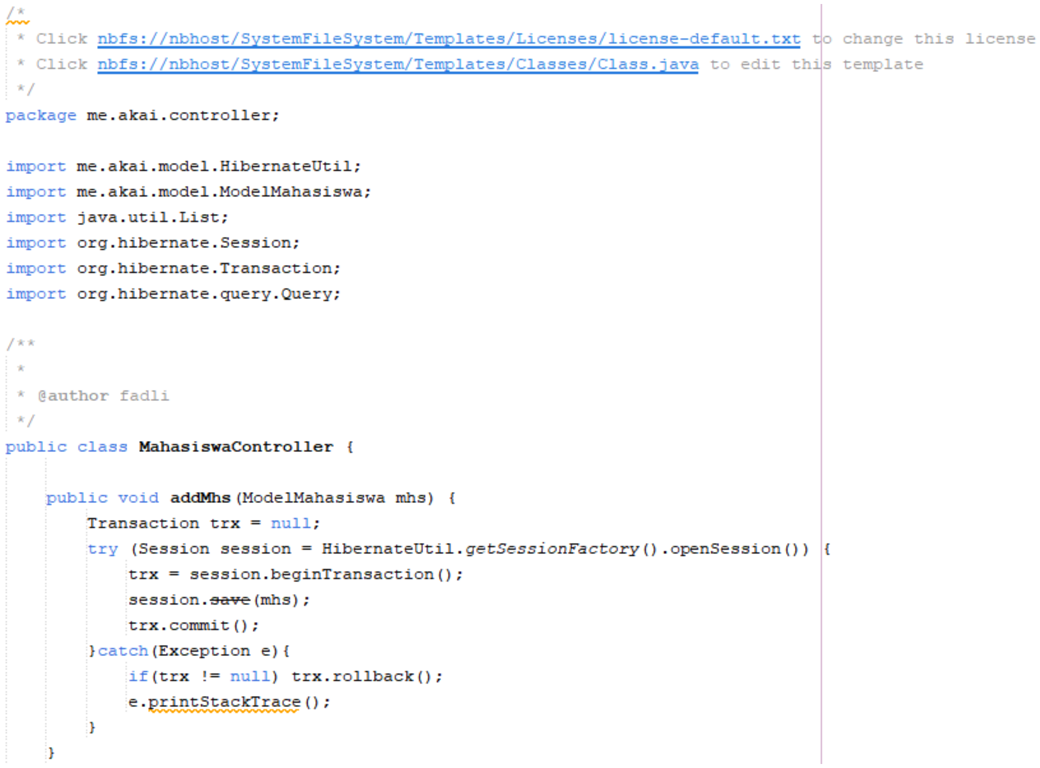
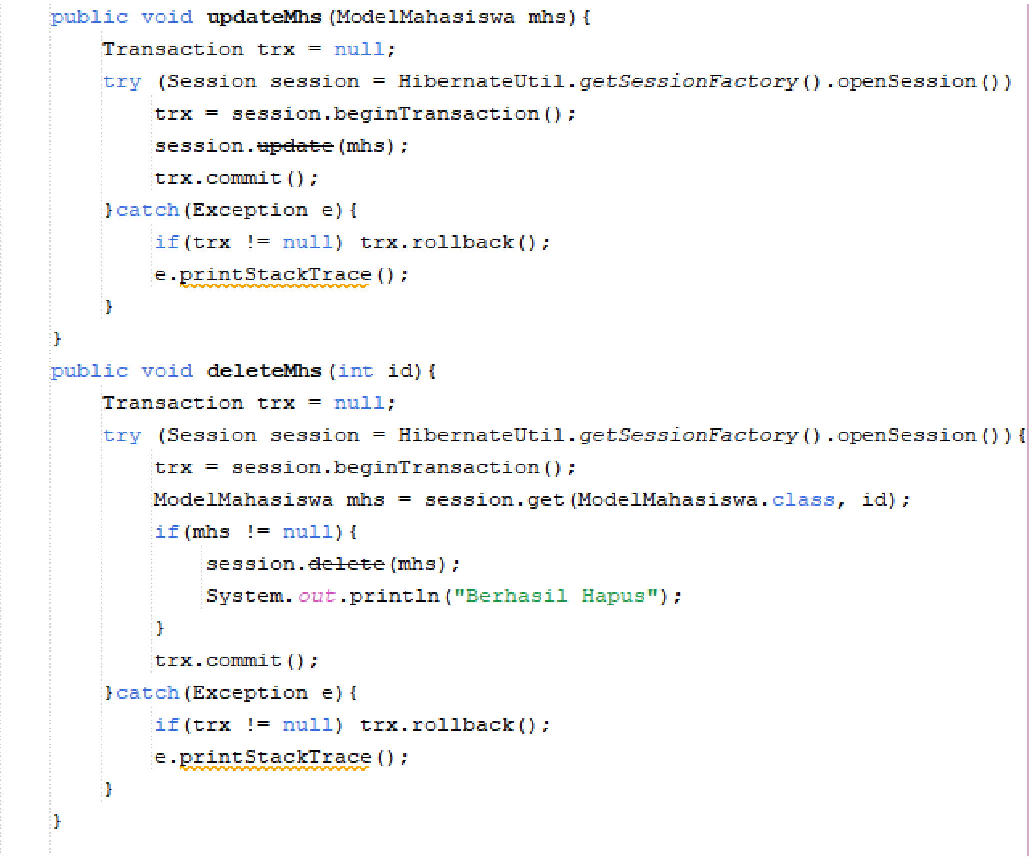
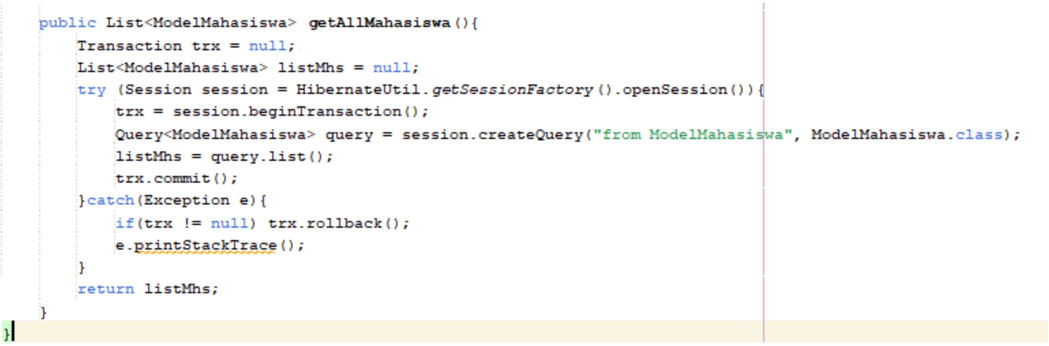

3. MahasiswaController.java



```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 me.akai.controller;

import me.akai.model.HibernateUtil;
import me.akai.model.ModelMahasiswa;
import java.util.List;
import org.hibernate.Session;
import org.hibernate.Transaction;
import org.hibernate.query.Query;

/**
 *
 * @author fadli
 */
public class MahasiswaController {

    public void addMhs(ModelMahasiswa mhs) {
        Transaction trx = null;
        try (Session session = HibernateUtil.getSessionFactory().openSession()) {
            trx = session.beginTransaction();
            session.~~save~~(mhs);
            trx.commit();
        }catch(Exception e){
            if(trx != null) trx.rollback();
            e.printStackTrace();
        }
    }
```

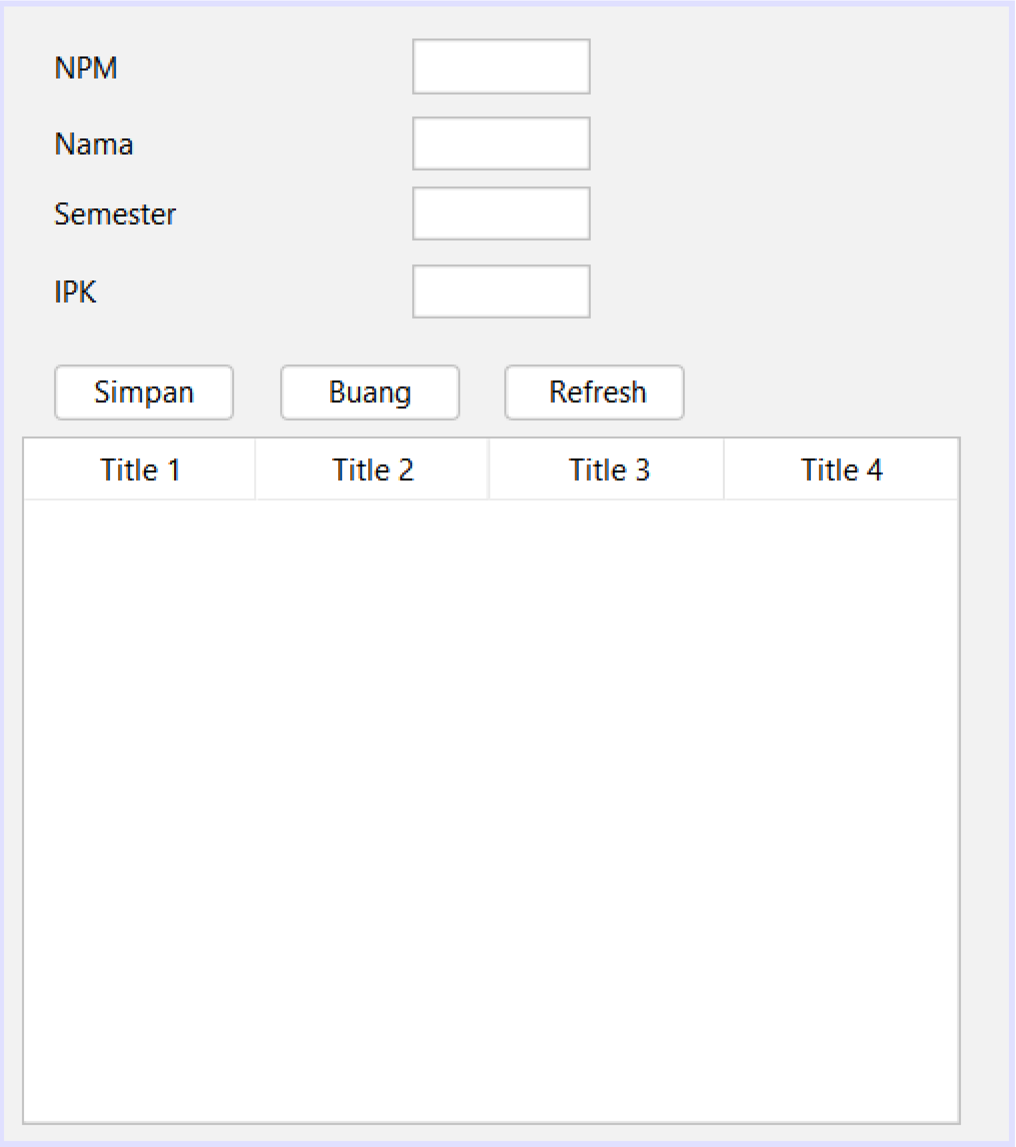


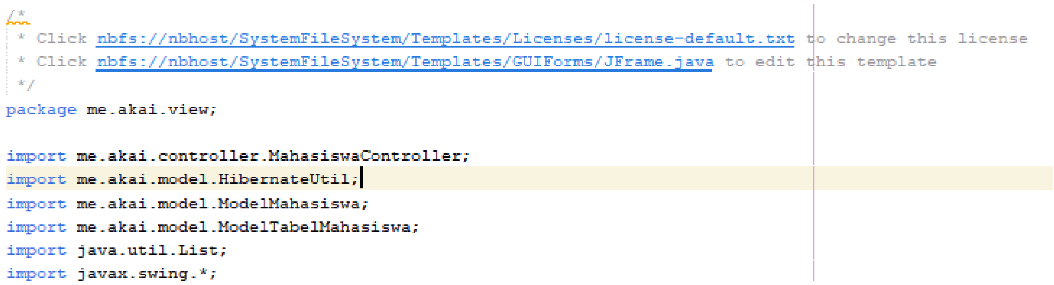
```
    public void updateMhs(ModelMahasiswa mhs){
        Transaction trx = null;
        try (Session session = HibernateUtil.getSessionFactory().openSession()) {
            trx = session.beginTransaction();
            session.~~update~~(mhs);
            trx.commit();
        }catch(Exception e){
            if(trx != null) trx.rollback();
            e.printStackTrace();
        }
    }
    public void deleteMhs(int id){
        Transaction trx = null;
        try (Session session = HibernateUtil.getSessionFactory().openSession()){
            trx = session.beginTransaction();
            ModelMahasiswa mhs = session.get(ModelMahasiswa.class, id);
            if(mhs != null){
                session.~~delete~~(mhs);
                System.out.println("Berhasil Hapus");
            }
            trx.commit();
        }catch(Exception e){
            if(trx != null) trx.rollback();
            e.printStackTrace();
        }
    }
```



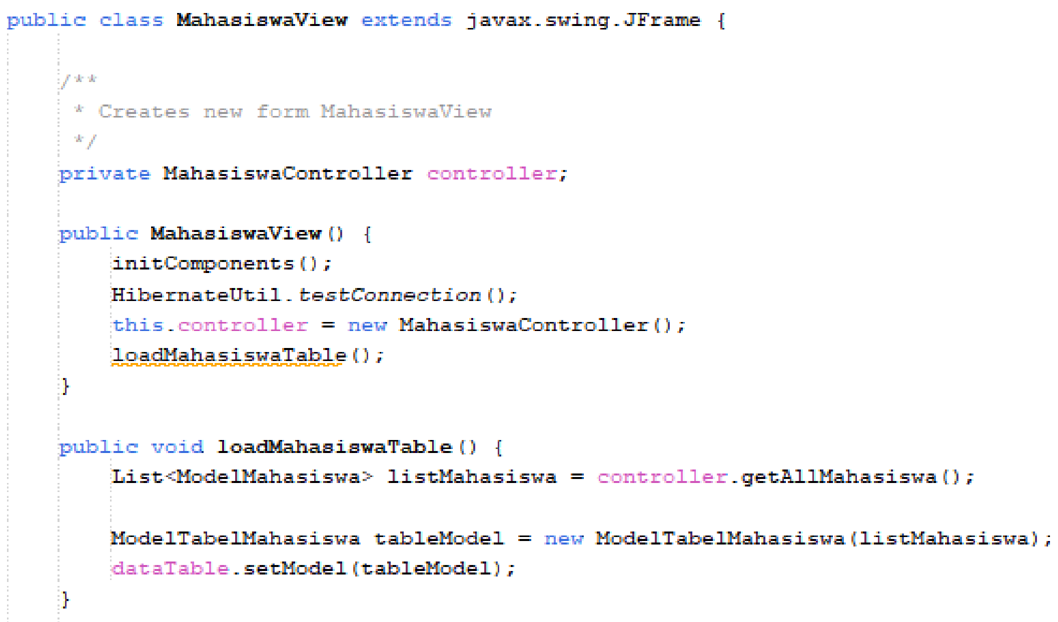
```
    public List<ModelMahasiswa> getAllMahasiswa(){
        Transaction trx = null;
        List<ModelMahasiswa> listMhs = null;
        try (Session session = HibernateUtil.getSessionFactory().openSession()){
            trx = session.beginTransaction();
            Query<ModelMahasiswa> query = session.createQuery("from ModelMahasiswa", ModelMahasiswa.class);
            listMhs = query.list();
            trx.commit();
        }catch(Exception e){
            if(trx != null) trx.rollback();
            e.printStackTrace();
        }
        return listMhs;
    }
}
```

4. MahasiswaView.java

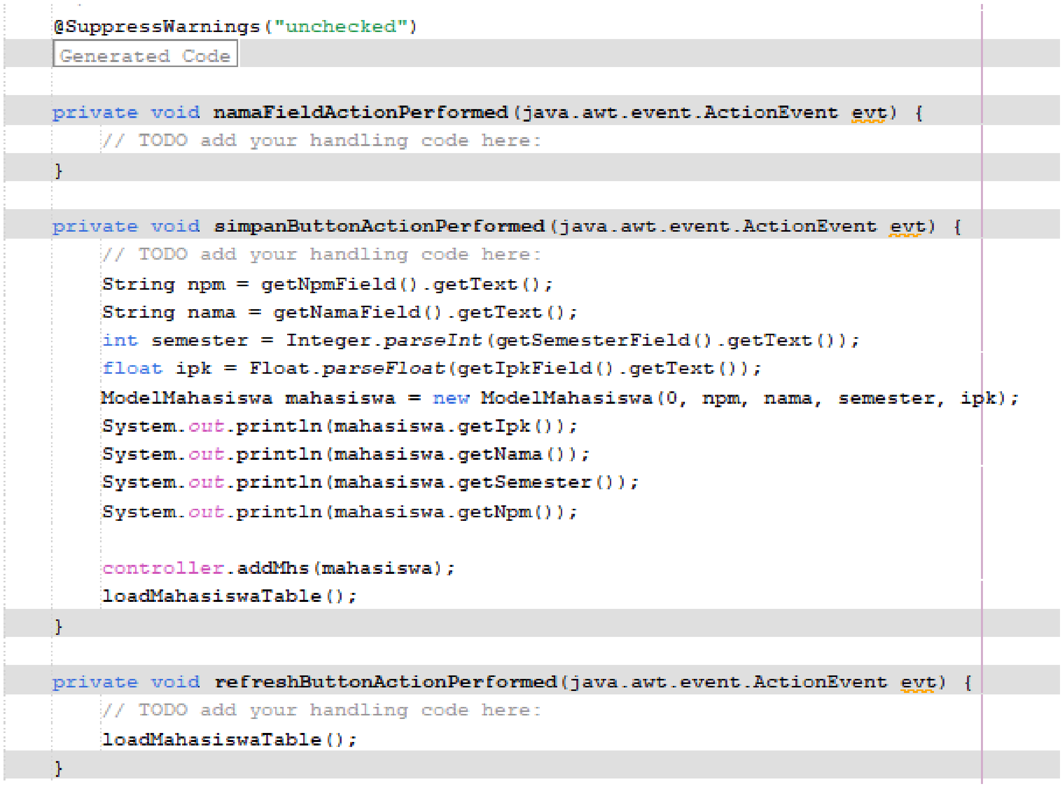




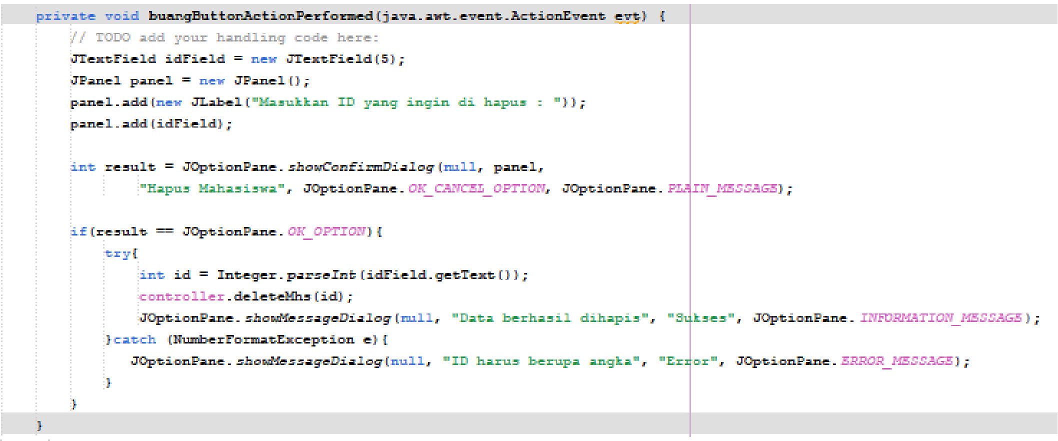
```
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
 * Click nbfs://nbhost/SystemFileSystem/Templates/GUIForms/JFrame.java to edit this template
 */
package me.akai.view;

import me.akai.controller.MahasiswaController;
import me.akai.model.HibernateUtil;
import me.akai.model.ModelMahasiswa;
import me.akai.model.ModelTabelMahasiswa;
import java.util.List;
import javax.swing.*;
```



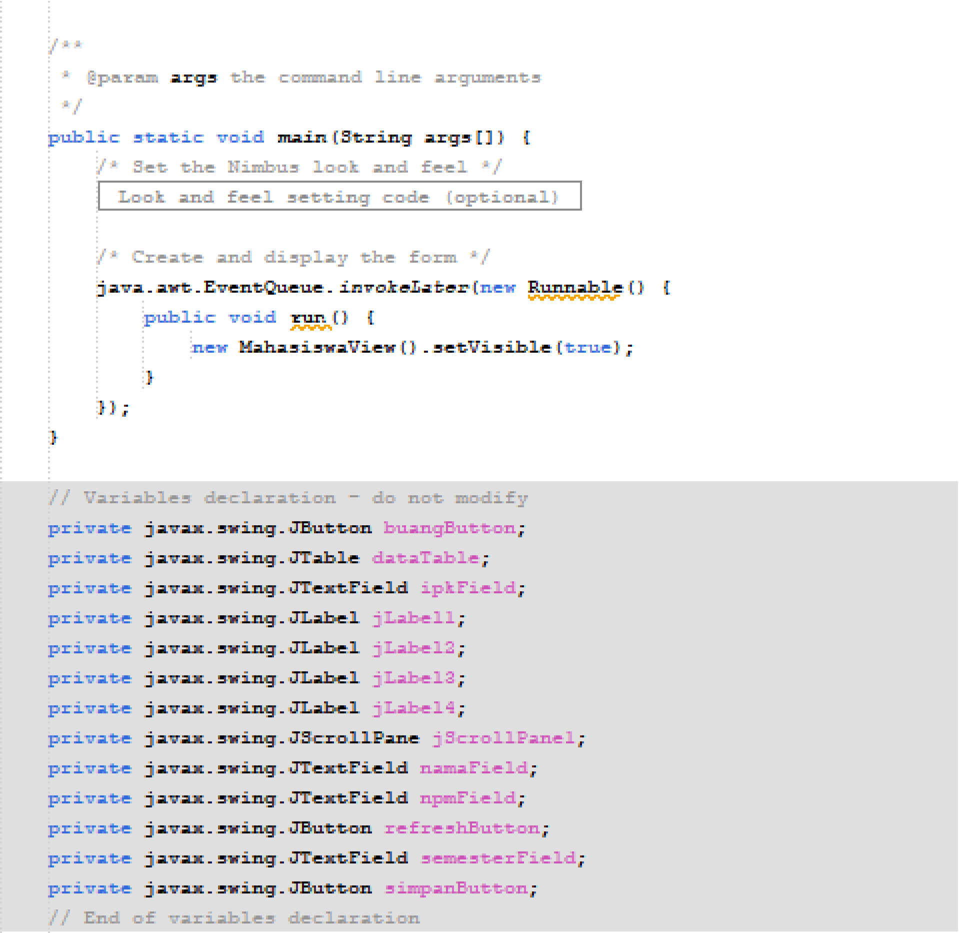
```java
public class MahasiswaView extends javax.swing.JFrame {

    /**
     * Creates new form MahasiswaView
     */
    private MahasiswaController controller;

    public MahasiswaView() {
        initComponents();
        HibernateUtil.testConnection();
        this.controller = new MahasiswaController();
        loadMahasiswaTable();
    }

    public void loadMahasiswaTable() {
        List<ModelMahasiswa> listMahasiswa = controller.getAllMahasiswa();

        ModelTabelMahasiswa tableModel = new ModelTabelMahasiswa(listMahasiswa);
        dataTable.setModel(tableModel);
    }
```



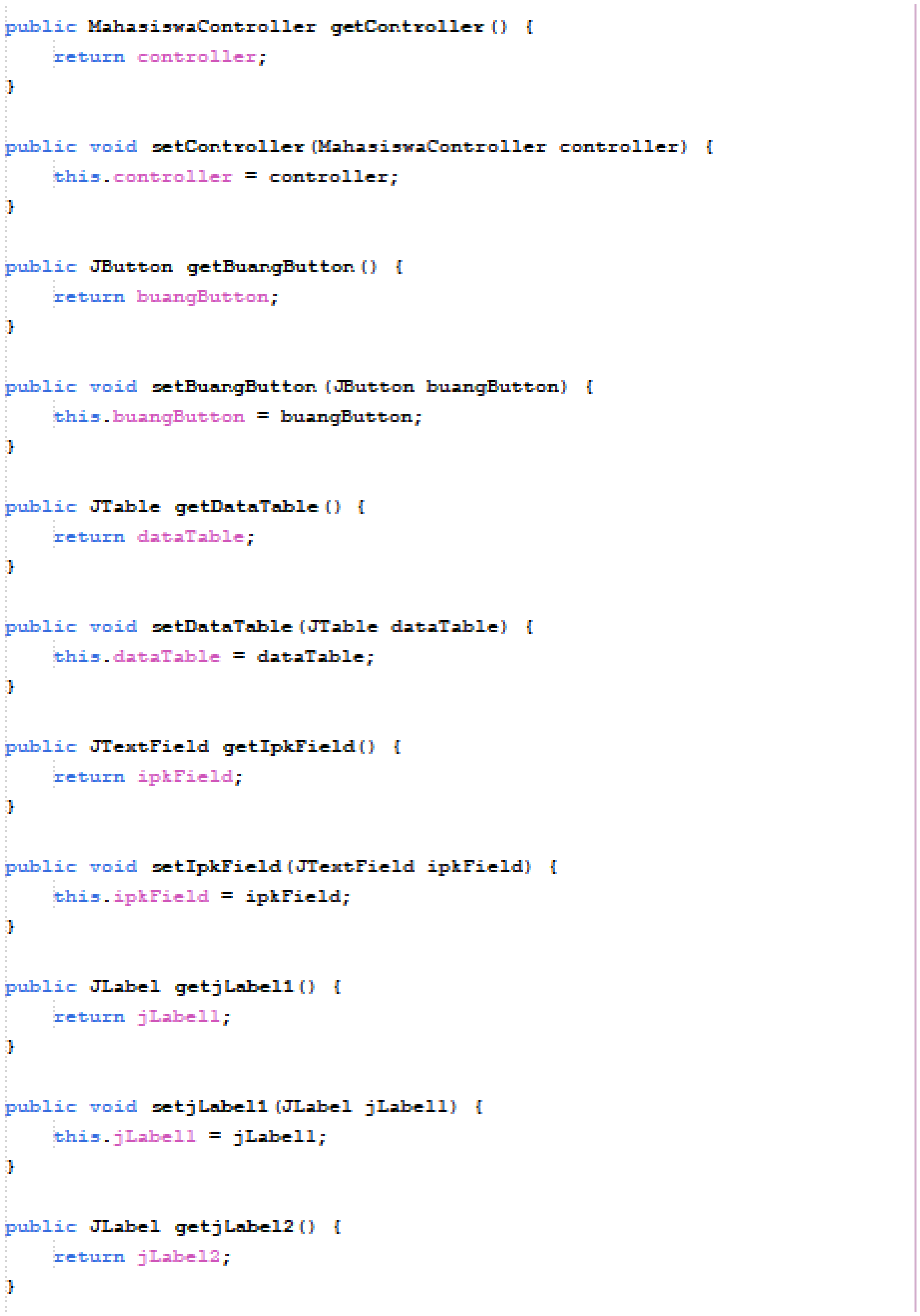
```java
    @SuppressWarnings("unchecked")
    Generated Code

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

    private void simpanButtonActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        String npm = getNpmField().getText();
        String nama = getNamaField().getText();
        int semester = Integer.parseInt(getSemesterField().getText());
        float ipk = Float.parseFloat(getIpkField().getText());
        ModelMahasiswa mahasiswa = new ModelMahasiswa(0, npm, nama, semester, ipk);
        System.out.println(mahasiswa.getIpk());
        System.out.println(mahasiswa.getNama());
        System.out.println(mahasiswa.getSemester());
        System.out.println(mahasiswa.getNpm());

        controller.addMhs(mahasiswa);
        loadMahasiswaTable();
    }

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



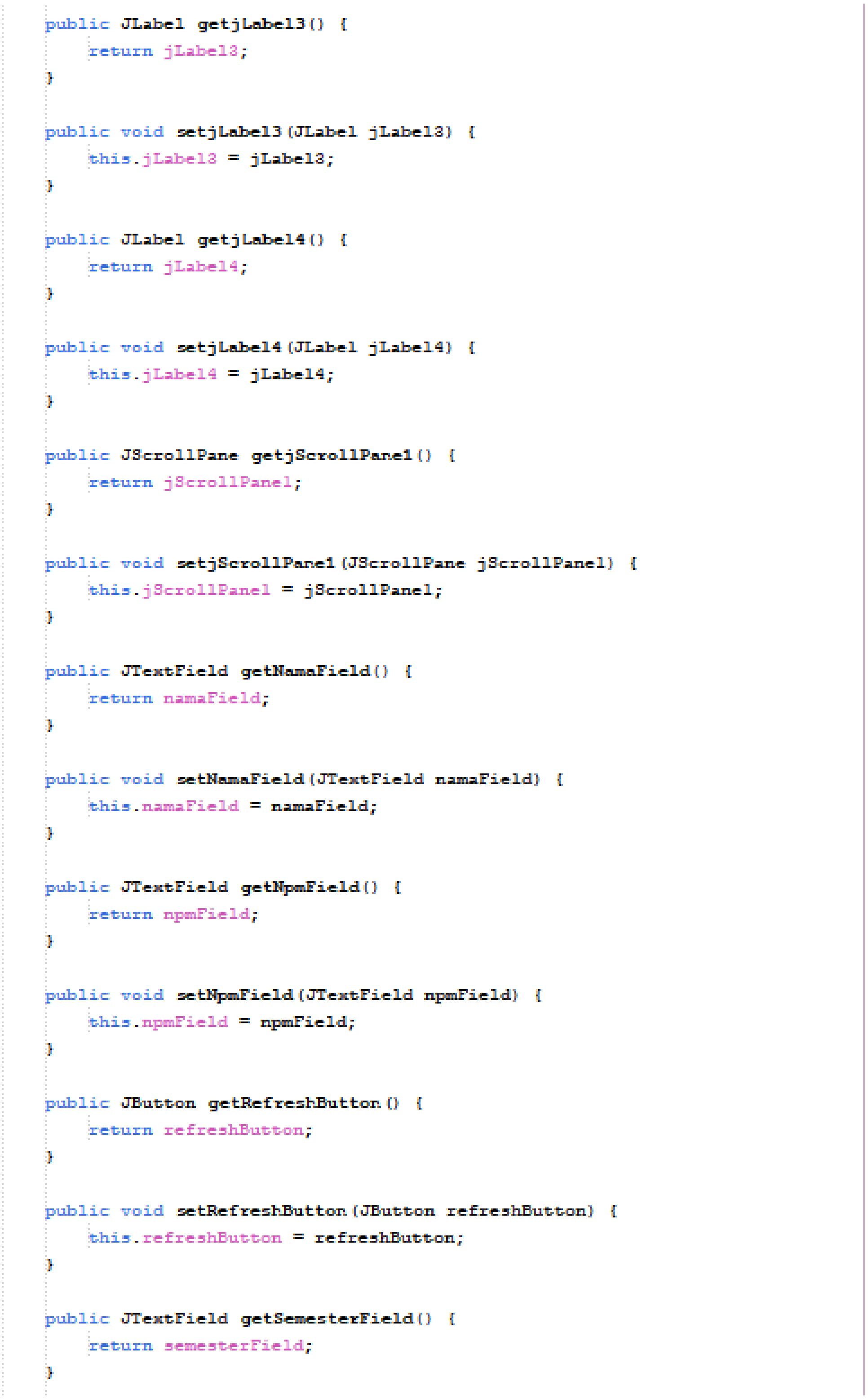
```
private void buangButtonActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    JTextField idField = new JTextField(5);
    JPanel panel = new JPanel();
    panel.add(new JLabel("Masukkan ID yang ingin di hapus : "));
    panel.add(idField);

    int result = JOptionPane.showConfirmDialog(null, panel,
            "Hapus Mahasiswa", JOptionPane.OK_CANCEL_OPTION, JOptionPane.PLAIN_MESSAGE);

    if(result == JOptionPane.OK_OPTION){
        try{
            int id = Integer.parseInt(idField.getText());
            controller.deleteMhs(id);
            JOptionPane.showMessageDialog(null, "Data berhasil dihapis", "Sukses", JOptionPane.INFORMATION_MESSAGE);
        }catch (NumberFormatException e){
           JOptionPane.showMessageDialog(null, "ID harus berupa angka", "Error", JOptionPane.ERROR_MESSAGE);
        }
    }
}
```



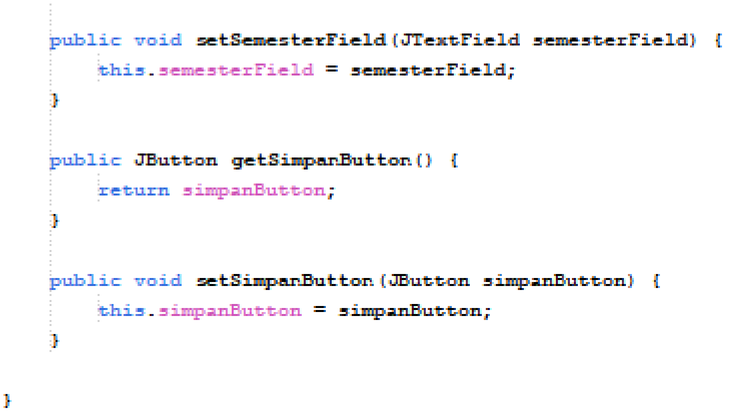
```
    /**
     * @param args the command line arguments
     */
    public static void main(String args[]) {
        /* Set the Nimbus look and feel */
        Look and feel setting code (optional)

        /* Create and display the form */
        java.awt.EventQueue.invokeLater(new Runnable() {
            public void run() {
                new MahasiswaView().setVisible(true);
            }
        });
    }

    // Variables declaration - do not modify
    private javax.swing.JButton buangButton;
    private javax.swing.JTable dataTable;
    private javax.swing.JTextField ipkField;
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel3;
    private javax.swing.JLabel jLabel4;
    private javax.swing.JScrollPane jScrollPane1;
    private javax.swing.JTextField namaField;
    private javax.swing.JTextField npmField;
    private javax.swing.JButton refreshButton;
    private javax.swing.JTextField semesterField;
    private javax.swing.JButton simpanButton;
    // End of variables declaration
```



```
public MahasiswaController getController() {
    return controller;
}

public void setController(MahasiswaController controller) {
    this.controller = controller;
}

public JButton getBuangButton() {
    return buangButton;
}

public void setBuangButton(JButton buangButton) {
    this.buangButton = buangButton;
}

public JTable getDataTable() {
    return dataTable;
}

public void setDataTable(JTable dataTable) {
    this.dataTable = dataTable;
}

public JTextField getIpkField() {
    return ipkField;
}

public void setIpkField(JTextField ipkField) {
    this.ipkField = ipkField;
}

public JLabel getjLabel1() {
    return jLabel1;
}

public void setjLabel1(JLabel jLabel1) {
    this.jLabel1 = jLabel1;
}

public JLabel getjLabel2() {
    return jLabel2;
}
```

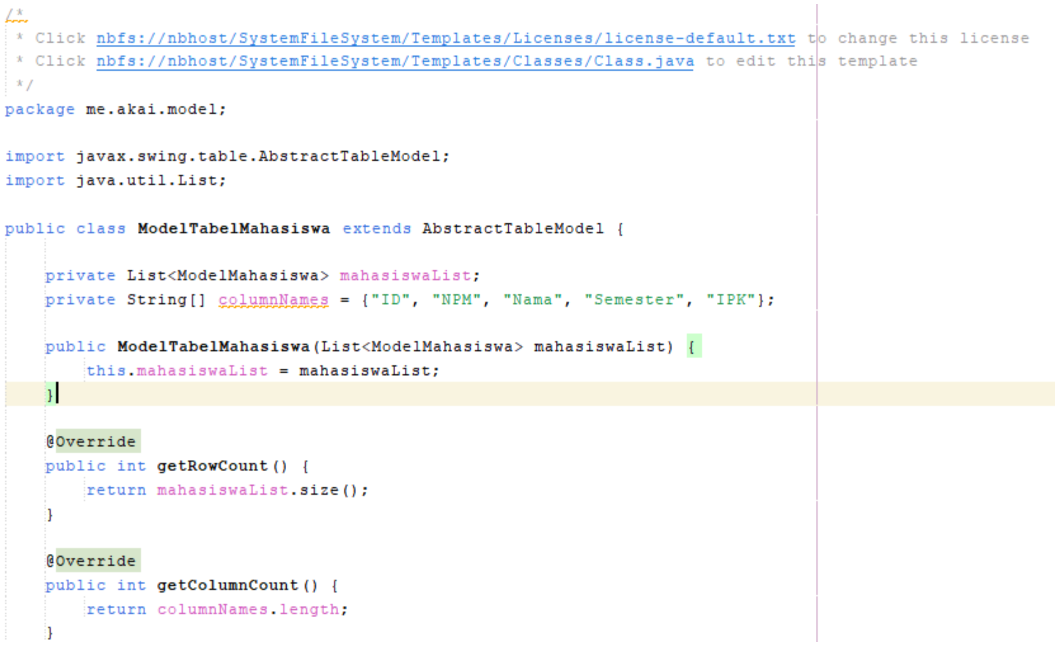


```
public JLabel getjLabel3() {
    return jLabel3;
}

public void setjLabel3(JLabel jLabel3) {
    this.jLabel3 = jLabel3;
}

public JLabel getjLabel4() {
    return jLabel4;
}

public void setjLabel4(JLabel jLabel4) {
    this.jLabel4 = jLabel4;
}

public JScrollPane getjScrollPane1() {
    return jScrollPane1;
}

public void setjScrollPane1(JScrollPane jScrollPane1) {
    this.jScrollPane1 = jScrollPane1;
}

public JTextField getNamaField() {
    return namaField;
}

public void setNamaField(JTextField namaField) {
    this.namaField = namaField;
}

public JTextField getNpmField() {
    return npmField;
}

public void setNpmField(JTextField npmField) {
    this.npmField = npmField;
}

public JButton getRefreshButton() {
    return refreshButton;
}

public void setRefreshButton(JButton refreshButton) {
    this.refreshButton = refreshButton;
}

public JTextField getSemesterField() {
    return semesterField;
}
```



```
    public void setSemesterField(JTextField semesterField) {
        this.semesterField = semesterField;
    }

    public JButton getSimpanButton() {
        return simpanButton;
    }

    public void setSimpanButton(JButton simpanButton) {
        this.simpanButton = simpanButton;
    }

}
```

5. ModelTabelMahasiswa.java



```
/*
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 * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
 */
package me.akai.model;

import javax.swing.table.AbstractTableModel;
import java.util.List;

public class ModelTabelMahasiswa extends AbstractTableModel {

    private List<ModelMahasiswa> mahasiswaList;
    private String[] columnNames = {"ID", "NPM", "Nama", "Semester", "IPK"};

    public ModelTabelMahasiswa(List<ModelMahasiswa> mahasiswaList) {
        this.mahasiswaList = mahasiswaList;
    }

    @Override
    public int getRowCount() {
        return mahasiswaList.size();
    }

    @Override
    public int getColumnCount() {
        return columnNames.length;
    }
```
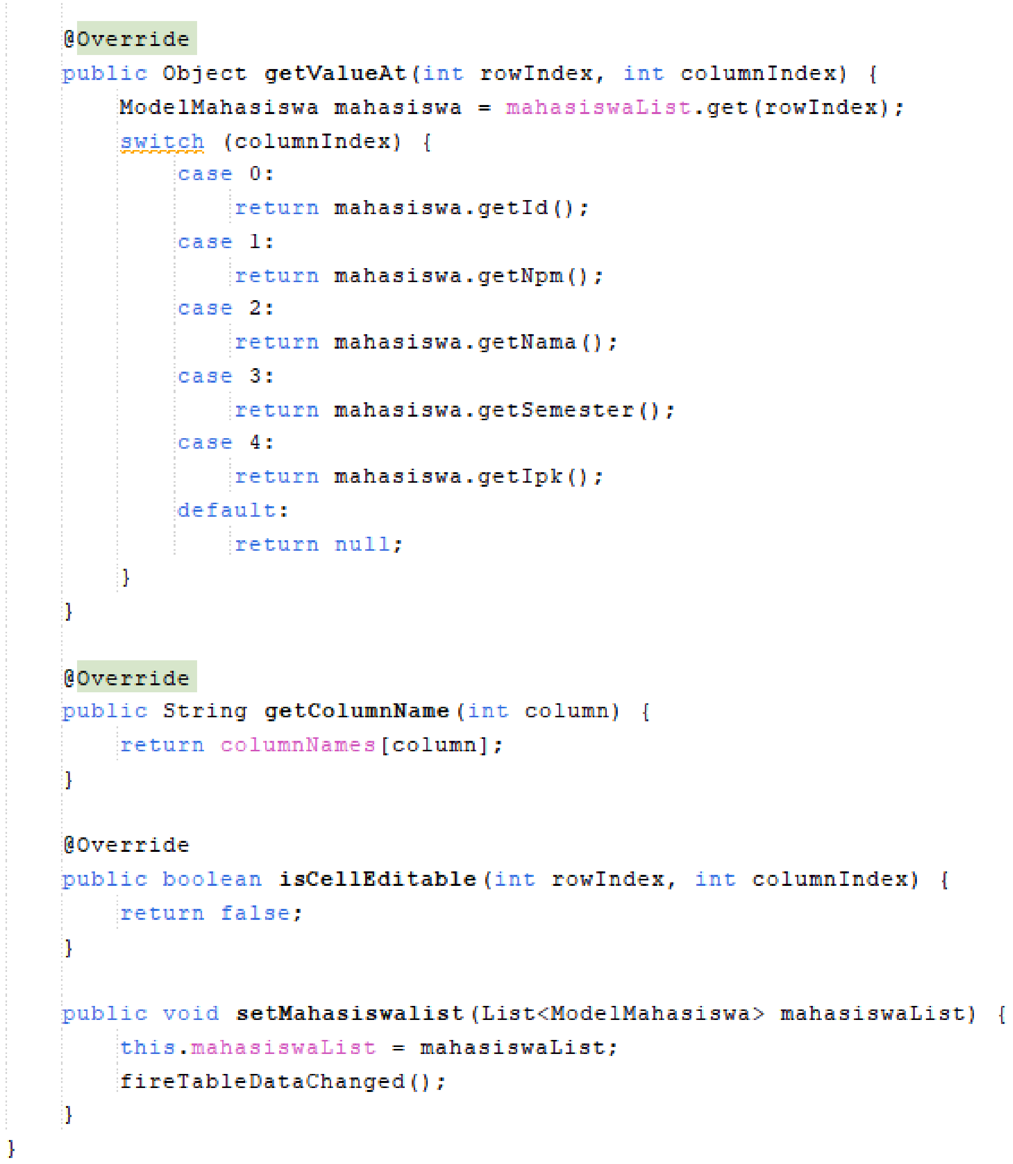
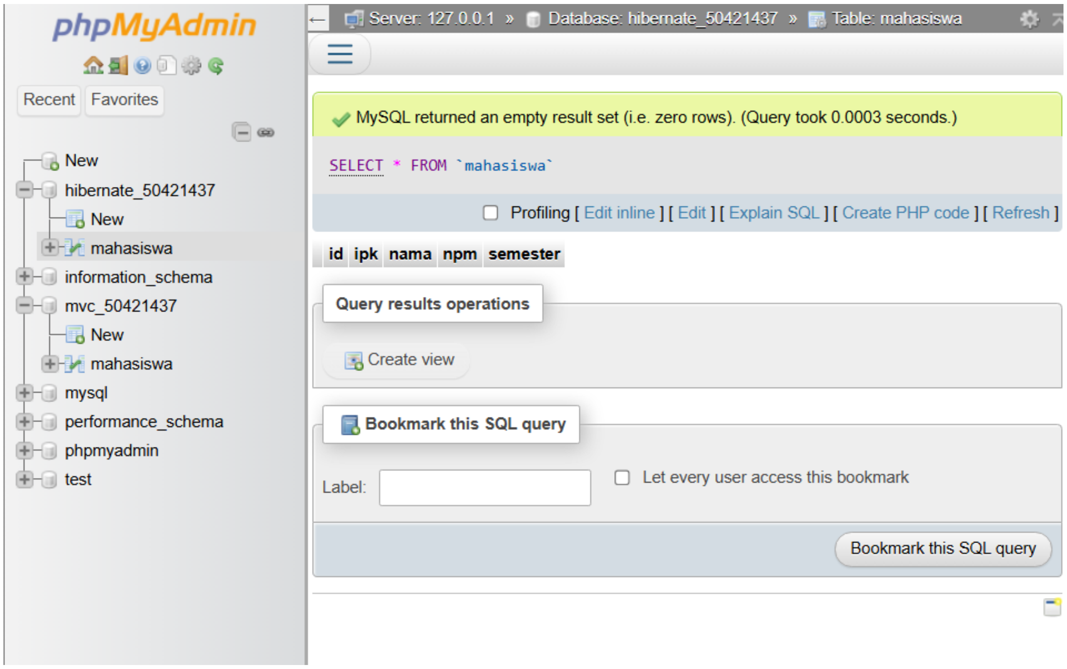



```java
    @Override
    public Object getValueAt(int rowIndex, int columnIndex) {
        ModelMahasiswa mahasiswa = mahasiswaList.get(rowIndex);
        switch (columnIndex) {
            case 0:
                return mahasiswa.getId();
            case 1:
                return mahasiswa.getNpm();
            case 2:
                return mahasiswa.getNama();
            case 3:
                return mahasiswa.getSemester();
            case 4:
                return mahasiswa.getIpk();
            default:
                return null;
        }
    }

    @Override
    public String getColumnName(int column) {
        return columnNames[column];
    }

    @Override
    public boolean isCellEditable(int rowIndex, int columnIndex) {
        return false;
    }

    public void setMahasiswalist(List<ModelMahasiswa> mahasiswaList) {
        this.mahasiswaList = mahasiswaList;
        fireTableDataChanged();
    }
}
```

output



✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0003 seconds.)

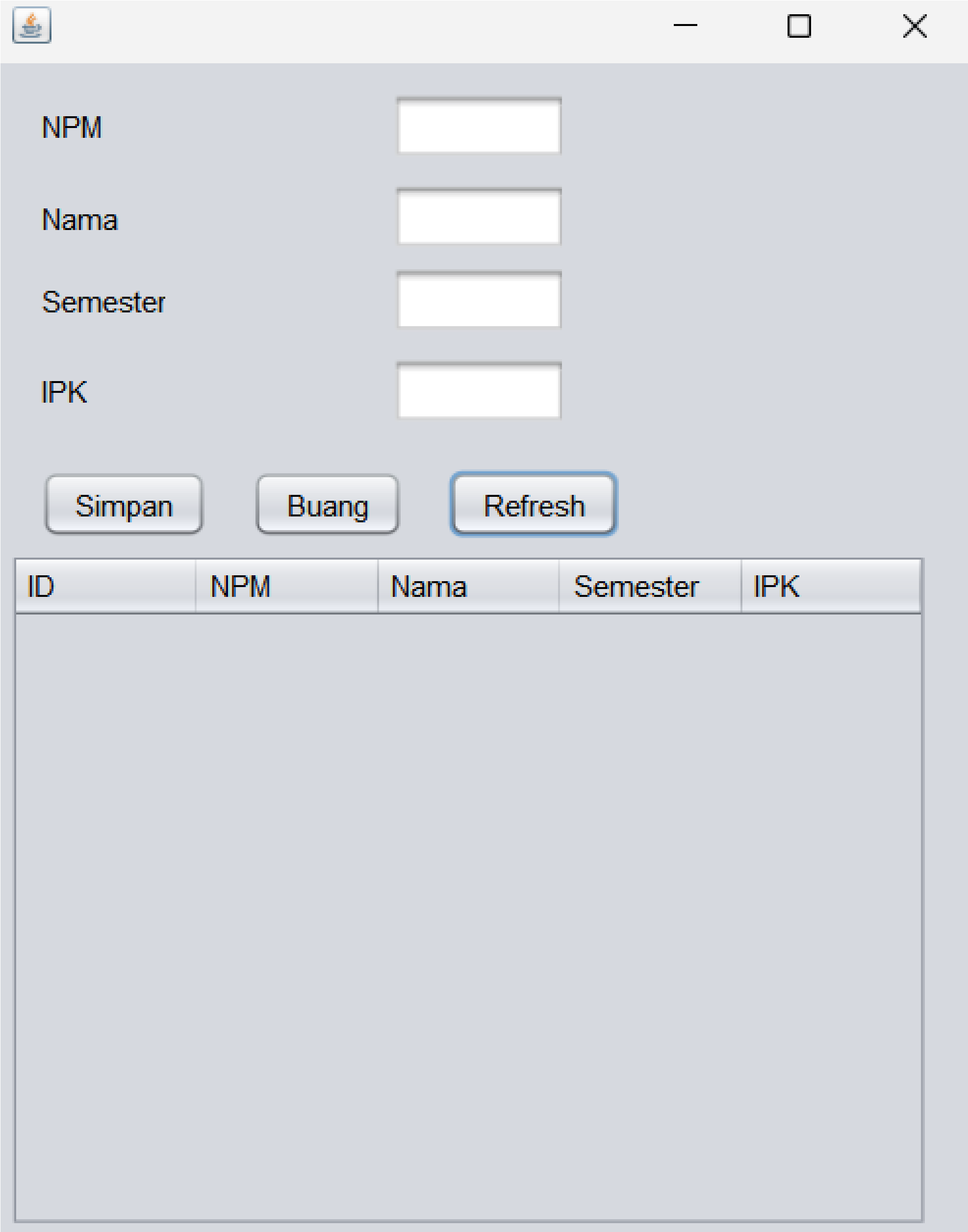
```
SELECT * FROM `mahasiswa`
```

□ Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

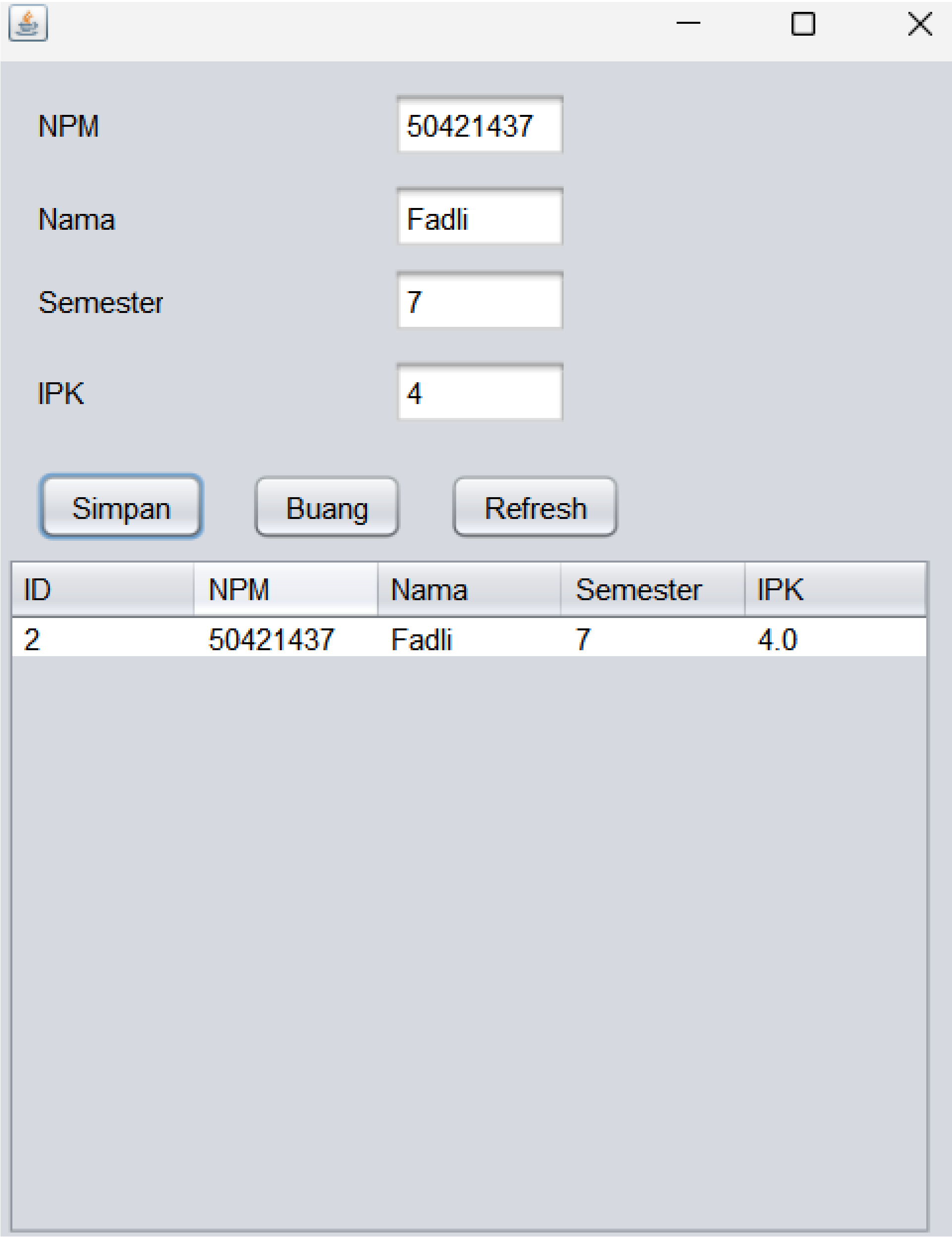
id	ipk	nama	npm	semester

Label:

□ Let every user access this bookmark



ID	NPM	Nama	Semester	IPK



NPM 50421437

Nama Fadli

Semester 7

IPK 4

ID	NPM	Nama	Semester	IPK
2	50421437	Fadli	7	4.0