ACTIVITY PERTEMUAN 6

NAMA   : Arya Wahyu Wijaya

NPM   : 50421223

KELAS   : 4IA14

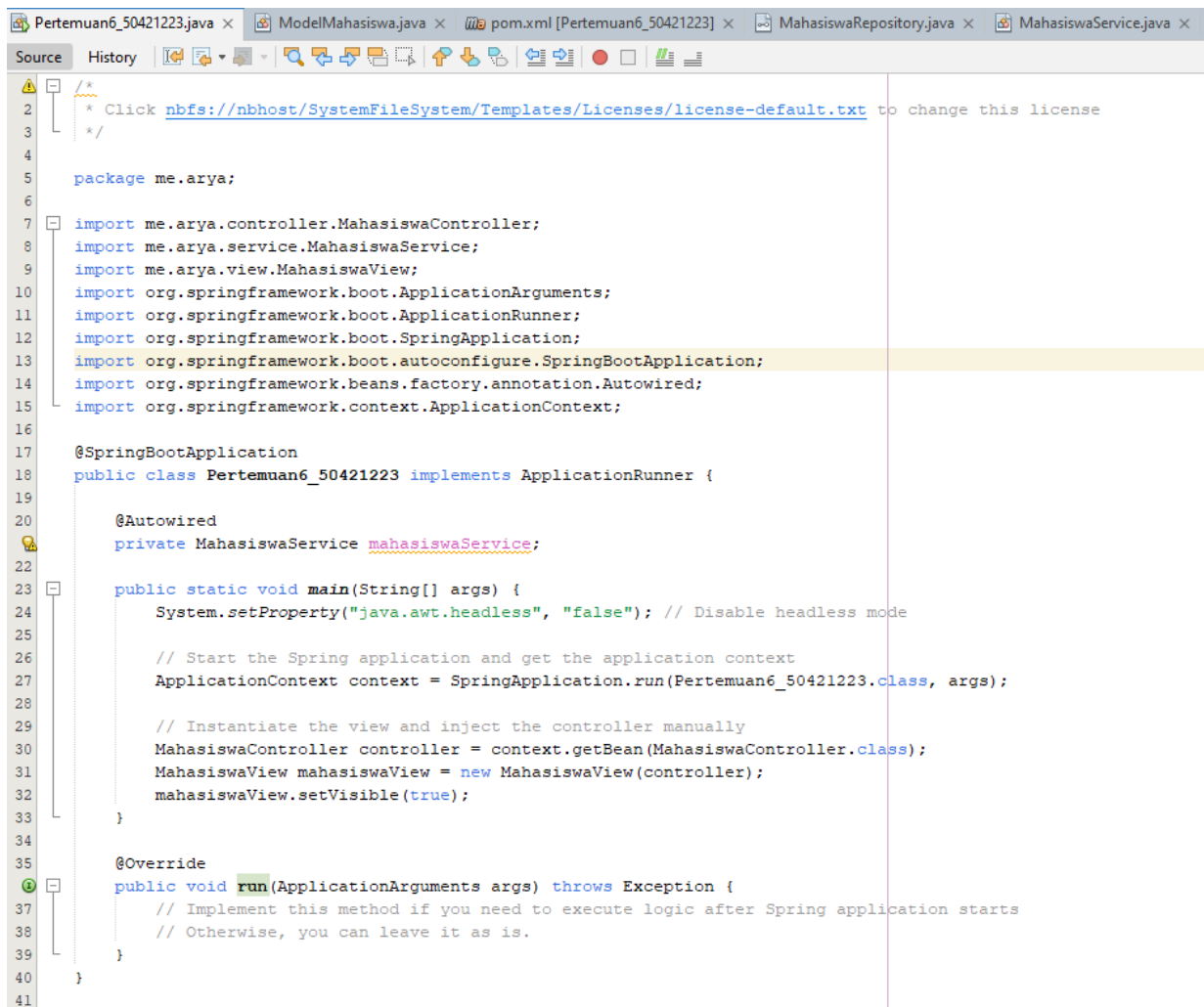MATERI   : Implementasi AOP dan Dependency Injection

MATA PRAKTIKUM : RPL 2

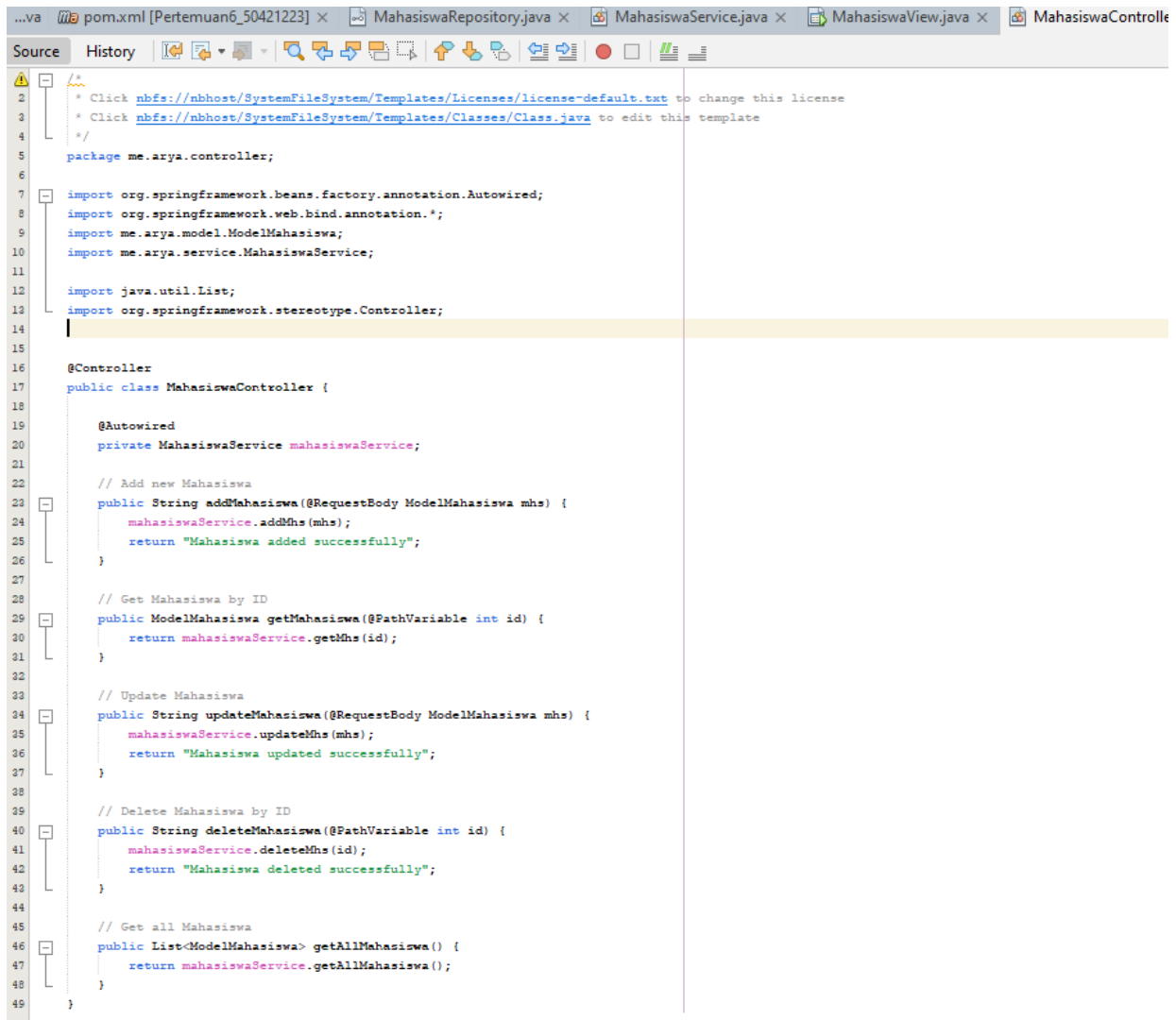**Soal :**

Screenshot Code dan Output

Jawab :

<u>CODE</u>

- Pertemuan6_50421223.java

```java
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
 */

package me.arya;

import me.arya.controller.MahasiswaController;
import me.arya.service.MahasiswaService;
import me.arya.view.MahasiswaView;
import org.springframework.boot.ApplicationArguments;
import org.springframework.boot.ApplicationRunner;
import org.springframework.boot.SpringApplication;
import org.springframework.boot.autoconfigure.SpringBootApplication;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.context.ApplicationContext;

@SpringBootApplication
public class Pertemuan6_50421223 implements ApplicationRunner {

    @Autowired
    private MahasiswaService mahasiswaService;

    public static void main(String[] args) {
        System.setProperty("java.awt.headless", "false"); // Disable headless mode

        // Start the Spring application and get the application context
        ApplicationContext context = SpringApplication.run(Pertemuan6_50421223.class, args);

        // Instantiate the view and inject the controller manually
        MahasiswaController controller = context.getBean(MahasiswaController.class);
        MahasiswaView mahasiswaView = new MahasiswaView(controller);
        mahasiswaView.setVisible(true);
    }

    @Override
    public void run(ApplicationArguments args) throws Exception {
        // Implement this method if you need to execute logic after Spring application starts
        // Otherwise, you can leave it as is.
    }
}
```

- MahasiswaController.java

```java
package me.arya.controller;

import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.web.bind.annotation.*;
import me.arya.model.ModelMahasiswa;
import me.arya.service.MahasiswaService;

import java.util.List;
import org.springframework.stereotype.Controller;


@Controller
public class MahasiswaController {

    @Autowired
    private MahasiswaService mahasiswaService;

    // Add new Mahasiswa
    public String addMahasiswa(@RequestBody ModelMahasiswa mhs) {
        mahasiswaService.addMhs(mhs);
        return "Mahasiswa added successfully";
    }

    // Get Mahasiswa by ID
    public ModelMahasiswa getMahasiswa(@PathVariable int id) {
        return mahasiswaService.getMhs(id);
    }

    // Update Mahasiswa
    public String updateMahasiswa(@RequestBody ModelMahasiswa mhs) {
        mahasiswaService.updateMhs(mhs);
        return "Mahasiswa updated successfully";
    }

    // Delete Mahasiswa by ID
    public String deleteMahasiswa(@PathVariable int id) {
        mahasiswaService.deleteMhs(id);
        return "Mahasiswa deleted successfully";
    }

    // Get all Mahasiswa
    public List<ModelMahasiswa> getAllMahasiswa() {
        return mahasiswaService.getAllMahasiswa();
    }
}
```

- ModelMahasiswa.java

```java
package me.arya.model;

import jakarta.persistence.*;

@Entity
@Table(name = "mahasiswa")
public class ModelMahasiswa {

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

    @Column(name = "npm", nullable = false, length = 8)
    private String npm;

    @Column(name = "nama", nullable = false, length = 50)
    private String nama;

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

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

    // constructor kosong untuk ORM
    public ModelMahasiswa() {

    }

    //constructor ada isinya untuk dipanggil di aplikasi
    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;
    }
}
```

- ModelTabelMahasiswa.java

```java
package me.arya.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(); // Jumlah baris sesuai dengan jumlah data mahasiswa
    }

    @Override
    public int getColumnCount() {
        return columnNames.length; // Jumlah kolom sesuai dengan jumlah elemen dalam columnNames
    }

    @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]; // Mengatur nama kolom
    }

    @Override
    public boolean isCellEditable(int rowIndex, int columnIndex) {
        return false; // Semua sel tidak dapat diedit
    }

    // Method untuk menambahkan atau memodifikasi data, jika dibutuhkan
    public void setMahasiswaList(List<ModelMahasiswa> mahasiswaList) {
        this.mahasiswaList = mahasiswaList;
        fireTableDataChanged(); // Memberitahu JTable bahwa data telah berubah
    }
}
```
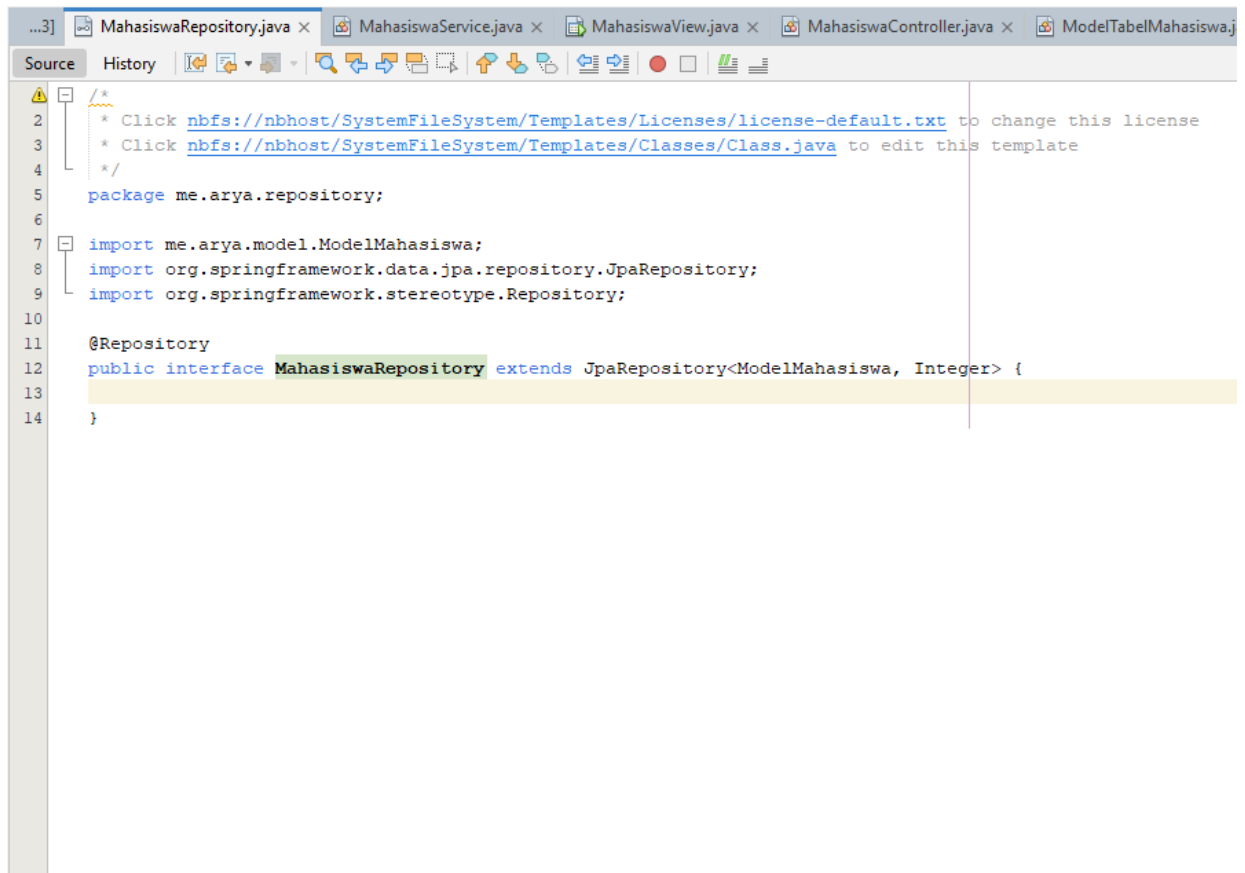
- MahasiswaRepository.java

Source | History

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

import me.arya.model.ModelMahasiswa;
import org.springframework.data.jpa.repository.JpaRepository;
import org.springframework.stereotype.Repository;

@Repository
public interface MahasiswaRepository extends JpaRepository<ModelMahasiswa, Integer> {

}
```

- MahasiswaService.java

...3] | MahasiswaRepository.java × | MahasiswaService.java × | MahasiswaView.java × | MahasiswaController.java × | ModelTabelMahasiswa.j

Source | History

```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.arya.service;

import me.arya.model.ModelMahasiswa;
import me.arya.repository.MahasiswaRepository;
import java.util.List;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.stereotype.Service;

@Service
public class MahasiswaService {

    @Autowired
    private MahasiswaRepository repository;

    public void addMhs(ModelMahasiswa mhs) {
        repository.save(mhs);
    }

    public ModelMahasiswa getMhs(int id) {
        return repository.findById(id).orElse(null);
    }

    public void updateMhs(ModelMahasiswa mhs) {
        repository.save(mhs);
    }

    public void deleteMhs(int id) {
        repository.deleteById(id);
    }

    public List<ModelMahasiswa> getAllMahasiswa() {
        return repository.findAll();
    }
}
```

- MahasiswaView.java

NPM

NAMA

SEMESTER

IPK
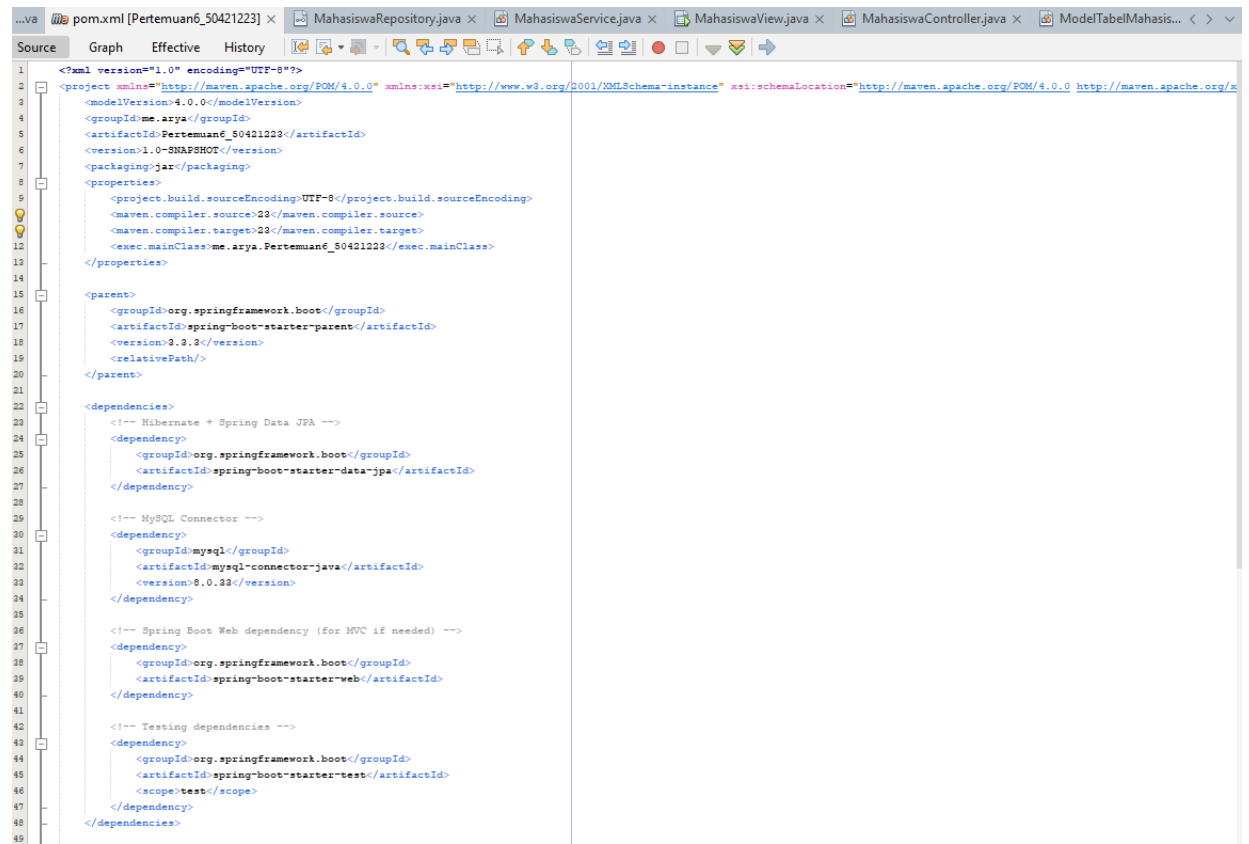
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Title 1	Title 2	Title 3	Title 4

...3] | MahasiswaRepository.java × | MahasiswaService.java × | MahasiswaView.java × | MahasiswaController.java × | ModelTabelMahasiswa.java ×

Source Design History

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

/**
 *
 * @author Arya
 */
public class MahasiswaView extends javax.swing.JFrame {

    /**
     * Creates new form MahasiswaView2
     */
    private MahasiswaController controller;

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

    private MahasiswaView() {
        throw new UnsupportedOperationException("Not supported yet."); // Generated from nbfs://nbhost/SystemFileSystem/Templates/Classes/Code/GeneratedMethodBody
    }
    public void loadMahasiswaTable() {
        // Ambil data dari controller
        List<ModelMahasiswa> listMahasiswa = controller.getAllMahasiswa();

        // Buat model tabel kustom dengan data mahasiswa
        ModelTabelMahasiswa tableModel = new ModelTabelMahasiswa(listMahasiswa);

        // Set model pada JTable
        dataTable.setModel(tableModel);
    }


    /**
     * This method is called from within the constructor to initialise the form.
     * WARNING: Do NOT modify this code. The content of this method is always
     * regenerated by the Form Editor.
     */
    @SuppressWarnings("unchecked")
    Generated Code

    private void npmFieldActionPerformed(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:
```

- Application.properties

...3] | MahasiswaRepository.java × | MahasiswaService.java × | MahasiswaView.java × | MahasiswaController.java × | ModelTabelMahasiswa.java × | application.properties ×

Source History

```properties
# Konfigurasi MySQL Hibernate
spring.datasource.url=jdbc:mysql://localhost:3306/spring_50421223?useSSL=false&serverTimezone=UTC
spring.datasource.username=root
spring.datasource.password=
spring.datasource.driver-class-name=com.mysql.cj.jdbc.Driver

# Hibernate settings
spring.jpa.hibernate.ddl-auto=update
spring.jpa.show-sql=true
```

- pom.xml


```xml
<?xml version="1.0" encoding="UTF-8"?>
<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/x
    <modelVersion>4.0.0</modelVersion>
    <groupId>me.arya</groupId>
    <artifactId>Pertemuan6_50421223</artifactId>
    <version>1.0-SNAPSHOT</version>
    <packaging>jar</packaging>
    <properties>
        <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
        <maven.compiler.source>23</maven.compiler.source>
        <maven.compiler.target>23</maven.compiler.target>
        <exec.mainClass>me.arya.Pertemuan6_50421223</exec.mainClass>
    </properties>

    <parent>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-starter-parent</artifactId>
        <version>3.3.3</version>
        <relativePath/>
    </parent>

    <dependencies>
        <!-- Hibernate + Spring Data JPA -->
        <dependency>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-starter-data-jpa</artifactId>
        </dependency>

        <!-- MySQL Connector -->
        <dependency>
            <groupId>mysql</groupId>
            <artifactId>mysql-connector-java</artifactId>
            <version>8.0.33</version>
        </dependency>

        <!-- Spring Boot Web dependency (for MVC if needed) -->
        <dependency>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-starter-web</artifactId>
        </dependency>

        <!-- Testing dependencies -->
        <dependency>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-starter-test</artifactId>
            <scope>test</scope>
        </dependency>
    </dependencies>
```

OUTPUT

ID	NPM	Nama	Semester	IPK
1	50421223	Arya	7	4.0
2	50421224	Wahyu	5	3.7

NPM: 50421224

NAMA: Wahyu

SEMESTER: 5

IPK: 3.7

Simpan   Buang   Refresh