

## ACTIVITY PERTEMUAN 6

NAMA : Andi Purnama

NPM : 50422215

KELAS : 4IA18

MATERI : IMPLEMENTASI AOP DAN DEPENDENCY INJECTION PADA PROJECT SPRING DAN HIBERNATE

MATA PRAKTIKUM : Rekayasa Perangkat Lunak

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The screenshot shows an IDE interface with the pom.xml file open. The top navigation bar includes tabs for Source, Graph, Effective, and History, along with various tool icons. The main pane displays the XML code for the pom.xml file, which defines a Maven project with groupId com.mycompany, artifactId rpl\_pert6, version 1.0-SNAPSHOT, packaging jar, and properties for sourceEncoding, maven.compiler.release, and exec.mainClass. It also specifies a parent project (org.springframework.boot:spring-boot-starter-parent) and dependencies for org.springframework.boot:spring-boot-starter-data-jpa. Below the XML code, the terminal output shows the Maven build process:

```
<?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
  <modelVersion>4.0.0</modelVersion>
  <groupId>com.mycompany</groupId>
  <artifactId>rpl_pert6</artifactId>
  <version>1.0-SNAPSHOT</version>
  <packaging>jar</packaging>
  <properties>
    <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
    <maven.compiler.release>20</maven.compiler.release>
    <exec.mainClass>com.mycompany.rpl_pert6.Rpl_pert6</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>
--- spring-boot:3.3.3:repackage (repackage) @ rpl_pert6 ---
Replacing main artifact C:\Users\User\Downloads\rpl_pert6\target\rpl_pert6-1.0-SNAPS
The original artifact has been renamed to C:\Users\User\Downloads\rpl_pert6\target\r

--- install:3.1.3:install (default-install) @ rpl_pert6 ---
Installing C:\Users\User\Downloads\rpl_pert6\pom.xml to C:\Users\User\.m2\repository
Installing C:\Users\User\Downloads\rpl_pert6\target\rpl_pert6-1.0-SNAPSHOT.jar to C:
-----
BUILD SUCCESS
-----
Total time: 21.698 s
Finished at: 2025-11-22T12:25:46+07:00
-----
```

The screenshot shows a Java Swing application window. At the top, there are standard window controls: minimize, maximize, and close. Below the title bar, there are four input fields with labels and a row of three buttons.

<b>NPM</b>	<input type="text" value="50422215"/>
<b>NAMA</b>	<input type="text" value="Andi Purnama"/>
<b>SEMESTER</b>	<input type="text" value="7"/>
<b>IPK</b>	<input type="text" value="3.8"/>

Below the input fields is a row of three buttons:

- Simpan**
- Refresh**
- Hapus**

At the bottom, there is a table with the following data:

ID	NPM	Nama	Semester	IPK
3	50422215	Andi Purnama	7	3.8

The screenshot shows an IDE interface with the file `MahasiswaApp.java` open. The tab bar at the top has "Source" selected. The code editor shows Java code for a Spring Boot application. The code includes imports for various Spring framework classes and annotations, as well as the definition of the `MahasiswaApp` class which implements `ApplicationRunner`.

```

1  /*
2   * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
3   * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
4   */
5  package com.mycompany.rpl_pert6;
6
7  import com.mycompany.rpl_pert6.controller.MahasiswaController;
8  import com.mycompany.rpl_pert6.service.MahasiswaService;
9  import com.mycompany.rpl_pert6.view.MahasiswaView;
10 import org.springframework.beans.factory.annotation.Autowired;
11 import org.springframework.boot.ApplicationArguments;
12 import org.springframework.boot.ApplicationRunner;
13 import org.springframework.boot.SpringApplication;
14 import org.springframework.boot.autoconfigure.SpringBootApplication;
15 import org.springframework.context.ApplicationContext;
16
17
18 @SpringBootApplication
19 public class MahasiswaApp implements ApplicationRunner {
20
21     @Autowired
22     private MahasiswaService mahasiswaService;
23
24     public static void main(String[] args) {
25         System.setProperty("java.awt.headless", "false"); // Disable headless mode
26
27         // Start the Spring application and get the application context
28         ApplicationContext context = SpringApplication.run(MahasiswaApp.class, args);
29     }
30 }

```

MahasiswaController.java

```
Source History |  * 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 com.mycompany.rpl_pert6.controller;

import com.mycompany.rpl_pert6.model.ModelMahasiswa;
import com.mycompany.rpl_pert6.service.MahasiswaService;
import java.util.List;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.stereotype.Controller;
import org.springframework.web.bind.annotation.PathVariable;
import org.springframework.web.bind.annotation.RequestBody;

@Controller
public class MahasiswaController {

    @Autowired
    private MahasiswaService mahasiswaService;

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

ModelMahasiswa.java

```
Source History |  * 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 com.mycompany.rpl_pert6.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;
}
```

ModelTableMahasiswa.java

```
Source History |  |        |    
```

```
1  /*
2   * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
3   * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
4   */
5  package com.mycompany.rpl_pert6.model;
6
7  import java.util.List;
8  import javax.swing.table.AbstractTableModel;
9
10
11 public class ModelTableMahasiswa extends AbstractTableModel{
12     private List<ModelMahasiswa> mahasiswaList;
13     private String[] columnNames = {"ID", "NPM", "Nama", "Semester", "IPK"};
14
15     public ModelTableMahasiswa(List<ModelMahasiswa> mahasiswaList) {
16         this.mahasiswaList = mahasiswaList;
17     }
18
19     @Override
20     public int getRowCount() {
21         return mahasiswaList.size(); // Jumlah baris sesuai dengan jumlah data mahasiswa
22     }
23
24     @Override
25     public int getColumnCount() {
26         return columnNames.length; // Jumlah kolom sesuai dengan jumlah elemen dalam columnNames
27     }
28
29     @Override
30     public Object getValueAt(int rowIndex, int columnIndex) {
31         ModelMahasiswa mahasiswa = mahasiswaList.get(rowIndex);
```

MahasiswaRepository.java

```
Source History |  |        |    
```

```
1  /*
2   * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
3   * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
4   */
5  package com.mycompany.rpl_pert6.repository;
6
7  import com.mycompany.rpl_pert6.model.ModelMahasiswa;
8  import org.springframework.data.jpa.repository.JpaRepository;
9  import org.springframework.stereotype.Repository;
10
11
12 @Repository
13 public interface MahasiswaRepository extends JpaRepository<ModelMahasiswa, Integer> {
14
15 }
```

The screenshot shows a Java code editor window with the file `MahasiswaService.java` open. The code implements a service layer for managing student data.

```
1  /*
2  * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
3  * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
4  */
5  package com.mycompany.rpl_pert6.service;
6
7  import com.mycompany.rpl_pert6.model.ModelMahasiswa;
8  import com.mycompany.rpl_pert6.repository.MahasiswaRepository;
9  import java.util.List;
10 import org.springframework.beans.factory.annotation.Autowired;
11 import org.springframework.stereotype.Service;
12
13
14
15 @Service
16 public class MahasiswaService {
17
18     @Autowired
19     private MahasiswaRepository repository;
20
21     public void addMhs(ModelMahasiswa mhs) {
22         repository.save(mhs);
23     }
24
25     public ModelMahasiswa getMhs(int id) {
26         return repository.findById(id).orElse(null);
27     }
28
29     public void updateMhs(ModelMahasiswa mhs) {
30         repository.save(mhs);
31     }
}
```