

PUPUT DEBBYLA WALZAHRA

51421182_4IA06

Rekayasa Perangkat Lunak 2

MVC, Instalasi & Penerapan dan Akses Database dengan JDBC

1. Jelaskan bagaimana cara membuat database “mvc_db” menggunakan XAMPP!

Jawab:

1. **Buka XAMPP Control Panel:**

- o Pastikan Apache dan MySQL sudah berjalan dengan mengklik tombol “Start” di sebelah kedua layanan tersebut.

2. **Akses phpMyAdmin:**

- o Buka browser dan ketik localhost/phpmyadmin di bilah alamat, lalu tekan Enter.

3. **Buat Database Baru:**

- o Di phpMyAdmin, klik tab “Databases”.
- o Di kolom “Create database”, masukkan nama database yang diinginkan, misalnya “mvc_db”.
- o Klik tombol “Create”.

4. **Konfirmasi Pembuatan Database:**

- o Setelah database dibuat, Anda akan melihat pesan konfirmasi dan database “mvc_db” akan muncul di daftar database yang tersedia.

2. Screenshot hasil codingan kalian lengkap dengan window project, navigator dan outputnya!

Jawab:

Aktifkan Apache dan MySQL lalu klik admin MySQL untuk menampilkan tab database pada browser

XAMPP Control Panel v3.3.0 [Compiled: Apr 6th 2021]

XAMPP Control Panel v3.3.0

Service	Module	PID(s)	Port(s)	Actions			
	Apache	5892 17548	80, 443	Stop	Admin	Config	Logs
	MySQL	17284	3306	Stop	Admin	Config	Logs
	FileZilla			Start	Admin	Config	Logs
	Mercury			Start	Admin	Config	Logs
	Tomcat			Start	Admin	Config	Logs

Config Netstat Shell Explorer Services Help Quit

```
13.40.53 [main] Initializing Control Panel
13.40.53 [main] Windows Version: Home 64-bit
13.40.53 [main] XAMPP Version: 8.1.10
13.40.53 [main] Control Panel Version: 3.3.0 [ Compiled: Apr 6th 2021 ]
13.40.53 [main] Running with Administrator rights - good!
13.40.53 [main] XAMPP Installation Directory: "c:\xampp"
13.40.53 [main] Checking for prerequisites
13.40.55 [main] All prerequisites found
13.40.55 [main] Initializing Modules
13.40.55 [main] Starting Check-Timer
13.40.55 [main] Control Panel Ready
13.41.07 [Apache] Attempting to start Apache app...
13.41.07 [Apache] Status change detected: running
13.41.08 [mysql] Attempting to start MySQL app...
13.41.09 [mysql] Status change detected: running
```

Setelah itu klik New dan Buat nama database

The screenshot shows the phpMyAdmin interface for MySQL. The top navigation bar includes tabs for Databases, SQL, Status, User accounts, Export, Import, Settings, Replication, Variables, and More. The main area is titled 'Databases' and shows a list of existing databases: databasetest, information_schema, kelas_kelempok, mahasiswa, mysql, performance_schema, person, person1, and phpmyadmin. On the left, there's a sidebar with a 'Recent' section containing 'New', 'databasetest', 'information_schema', 'kelas_kelempok', 'mahasiswa', 'mysql', 'performance_schema', 'person', 'person1', and 'phpmyadmin'. Below the sidebar is a tree view of the database structure. In the center, there's a form for creating a new database. The 'Create database' field contains 'mve_db', and the 'Collation' dropdown is set to 'utf8mb4_general_ci'. Below the form are buttons for 'Check all' and 'Drop'. At the bottom, there are tabs for 'Database', 'Collation', and 'Action'.

Setelah dituliskan codingan pada database, setelah itu klik GO dan pastikan hasilnya berhasil

```

CREATE TABLE `mahasiswa` (
  `id` int(11) NOT NULL,
  `ipk` float NOT NULL,
  `nama` varchar(55) DEFAULT NULL,
  `npm` varchar(10) DEFAULT NULL,
  `semester` int(3) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;

ALTER TABLE `mahasiswa` ADD PRIMARY KEY (`id`);

ALTER TABLE `mahasiswa` MODIFY `id` int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=2;

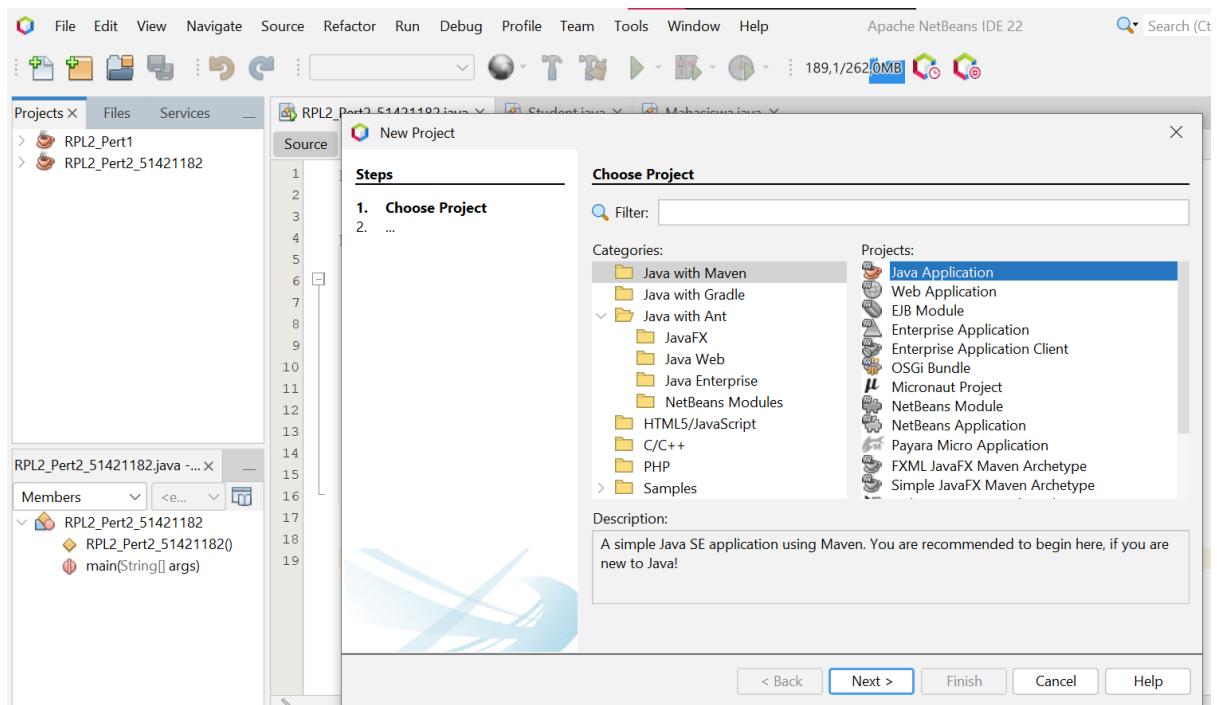
COMMIT;

```

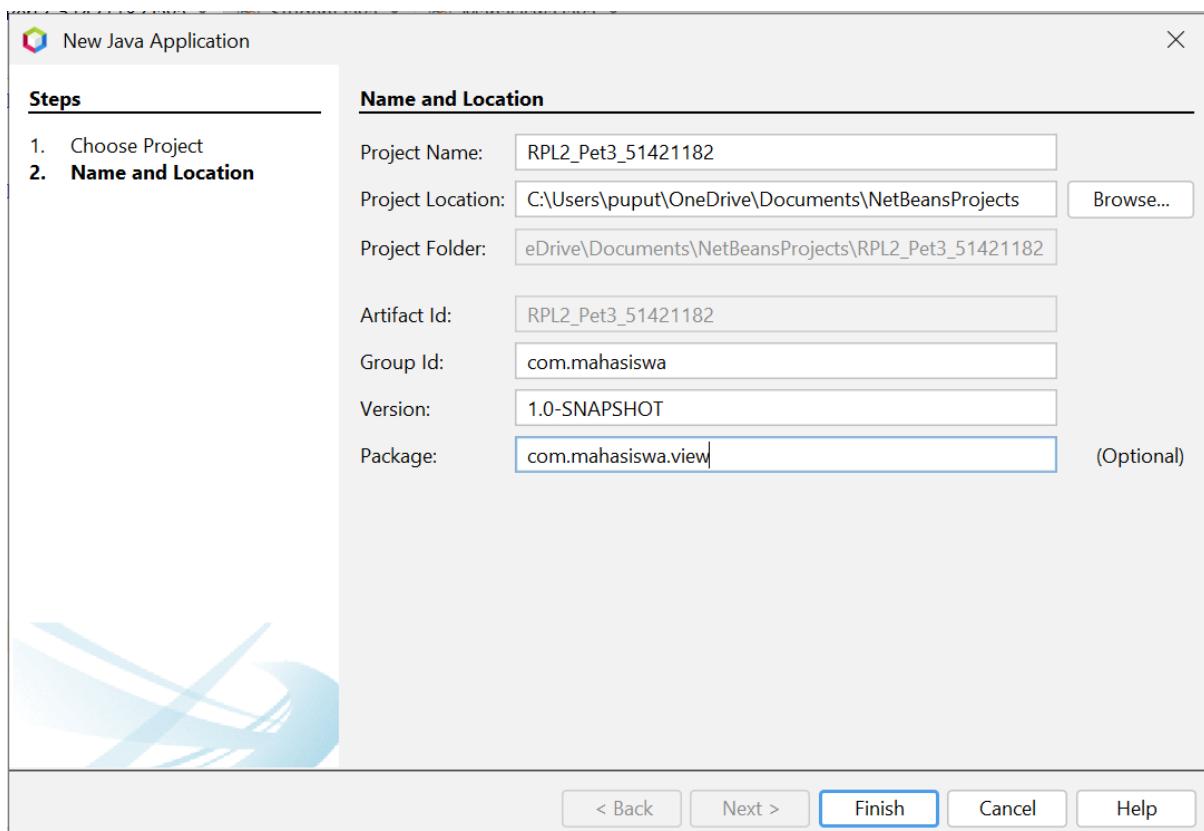
Pastikan table sudah ada di menu Structure

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	<code>id</code>	int(11)	utf8mb4_general_ci		No	None		AUTO_INCREMENT	Change Drop More
2	<code>ipk</code>	float			No	None			Change Drop More
3	<code>nama</code>	varchar(55)	utf8mb4_general_ci		Yes	NULL			Change Drop More
4	<code>npm</code>	varchar(10)	utf8mb4_general_ci		Yes	NULL			Change Drop More
5	<code>semester</code>	int(3)			No	None			Change Drop More

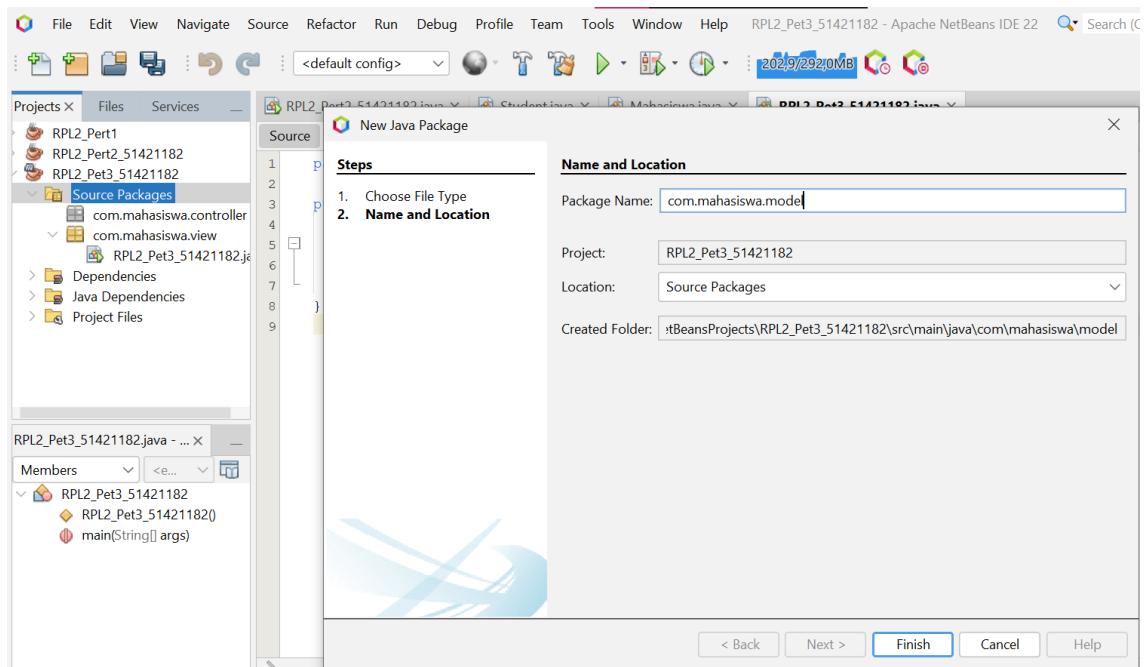
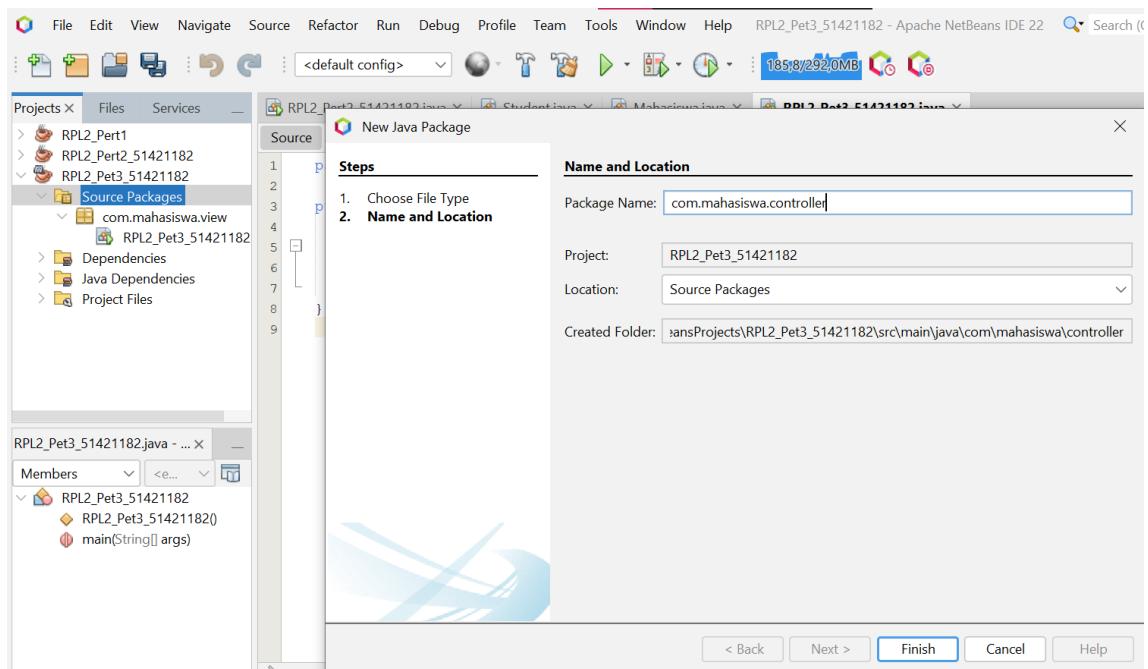
Setelah itu masuk ke NetBeans dan buat project Java Application menggunakan Java with MAVEN



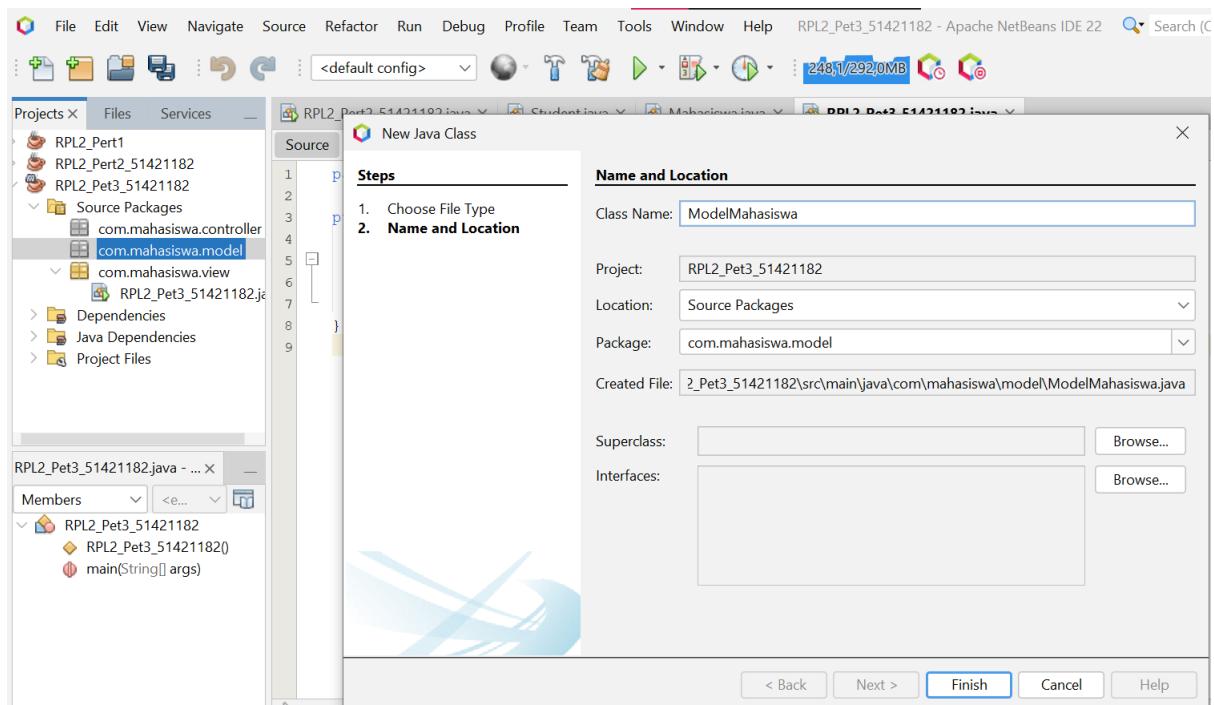
Buat nama projectnya dan klik finish



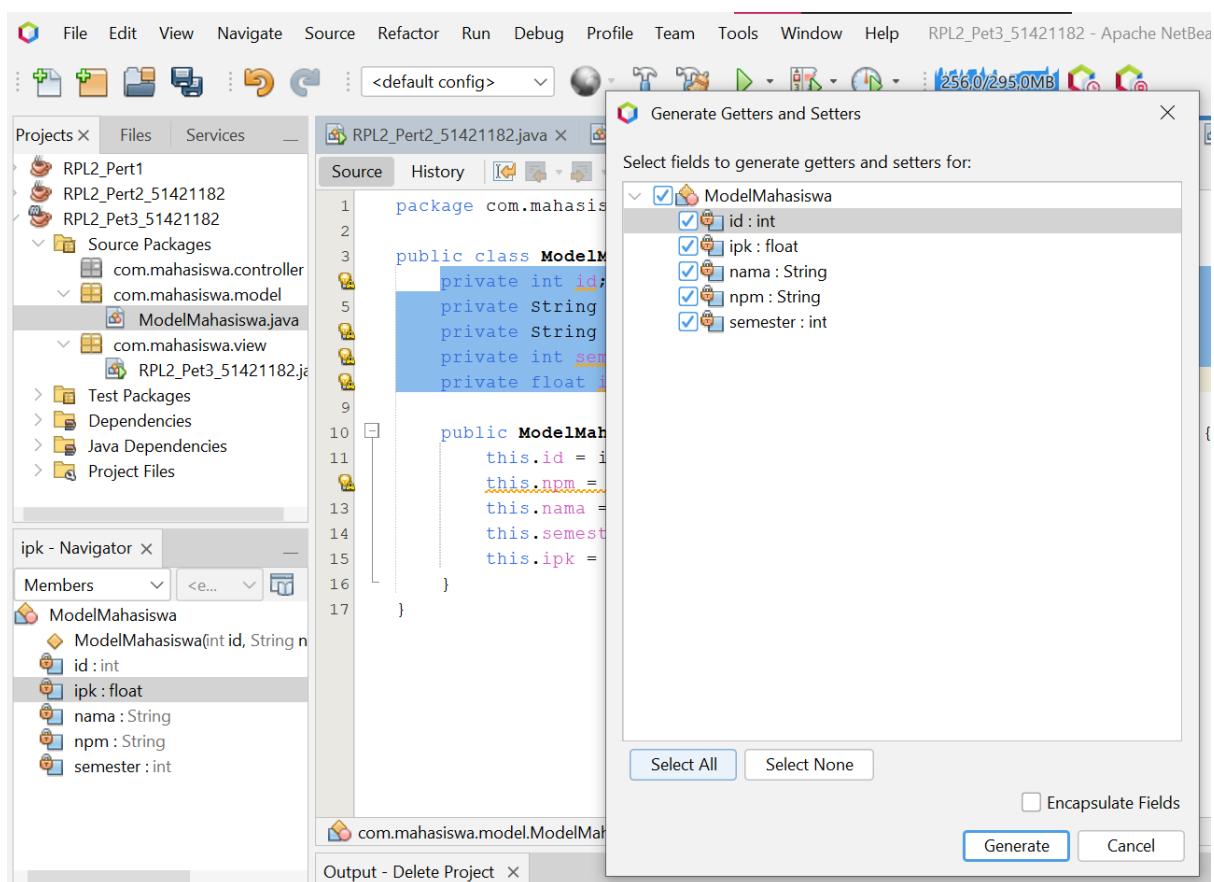
Buat java package pada project



Buat java class pada com.mahasiswa.model



Berikut code pada ModelMahasiswa (lakukan Getters and Setters)



```

package com.mahasiswa.model;

public class ModelMahasiswa {
    private int id;
    private String npm;
    private String nama;
    private int semester;
    private float ipk;

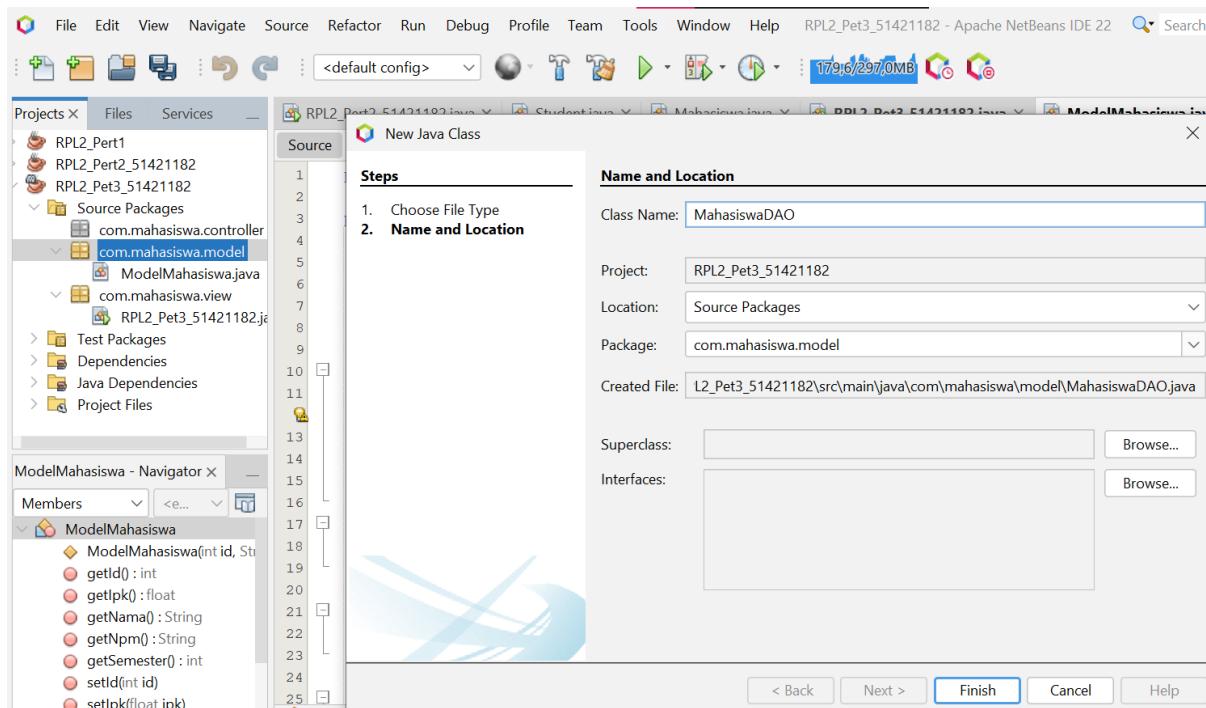
    public ModelMahasiswa(int id, String nama, String npm, int semester, float ipk) {
        this.id = id;
        this.npm = npm;
        this.nama = nama;
        this.semester = semester;
        this.ipk = ipk;
    }

    public int getId() {
        return id;
    }

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

```

Buat java class baru pada com.mahasiswa.model dengan nama MahasiswaDAO



The screenshot shows the Apache NetBeans IDE interface. The top menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help, and RPL2_Pet3_51421182 - Apache NetBeans IDE 22. The title bar shows the current project name. Below the menu is a toolbar with various icons for file operations. The main area has tabs for MahasiswaView.java, ModelMahasiswa.java, MahasiswaDAO.java, pom.xml [RPL2_Pet3_51421182], and MahasiswaController.java. The left sidebar shows the Project tree with packages like com.mahasiswa.controller, com.mahasiswa.model, com.mahasiswa.view, and their sub-files. A Navigator window titled 'getAllMahasiswa - Navigator' is open, showing members of the MahasiswaDAO class.

```

String sql = "SELECT * FROM mahasiswa";
try {
    Statement stmt = connection.createStatement();
    ResultSet rs = stmt.executeQuery(sql);
    while (rs.next()) {
        mahasiswaList.add(new ModelMahasiswa(
            rs.getInt("id"),
            rs.getString("npm"),
            rs.getString("nama"),
            rs.getInt("semester"),
            rs.getFloat("ipk")));
    }
} catch (SQLException e) {
    e.printStackTrace();
}
return mahasiswaList;
}

public void updateMahasiswa(ModelMahasiswa mahasiswa) {
    String sql = "UPDATE mahasiswa SET npm = ?, nama = ?, semester = ?, ipk = ? WHERE id = ?";
    try {
        PreparedStatement pstmt = connection.prepareStatement(sql);
    }
}

```

Pom.xml

The screenshot shows the pom.xml editor in Apache NetBeans. The top menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help, and pom.xml [RPL2_Pet3_51421182] - pom.xml. The title bar shows the current file name. Below the menu is a toolbar with various icons for file operations. The main area displays the XML code for the pom.xml file, which defines the project's packaging, properties, dependencies, and main class.

```

<packaging>jar</packaging>
<properties>
    <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
    <maven.compiler.source>22</maven.compiler.source>
    <maven.compiler.target>22</maven.compiler.target>
    <exec.mainClass>com.mahasiswa.view.RPL2_Pet3_51421182</exec.mainClass>
</properties>

<dependencies>
    <dependency>
        <groupId>mysql</groupId>
        <artifactId>mysql-connector-java</artifactId>
        <version>8.0.33</version>
    </dependency>
</dependencies>

```

MahasiswaController

The screenshot shows the Apache NetBeans IDE interface with the project RPL2_Pet3_51421182 open. The left pane displays the project structure under 'Source Packages' for the com.mahasiswa.controller package, which contains MahasiswaController.java, MahasiswaDAO.java, and ModelMahasiswa.java. The right pane shows the source code for MahasiswaController.java:

```

import com.mahasiswa.model.MahasiswaDAO;
import com.mahasiswa.model.ModelMahasiswa;
import java.util.List;

public class MahasiswaController {
    private MahasiswaDAO mahasiswaDAO;

    public void displayMahasiswaList(List<ModelMahasiswa> mahasiswaList) {
        if(mahasiswaList.isEmpty()){
            System.out.println("Tidak ada data mahasiswa");
        }else{
            System.out.println("");
            System.out.println("=====");
            for(ModelMahasiswa m: mahasiswaList){
                System.out.println("ID : " + m.getId());
                System.out.println("NPM : " + m.getNpm());
                System.out.println("NAMA : " + m.getNama());
                System.out.println("SEMESTER : " + m.getSemester());
                System.out.println("IPK : " + m.getIpk());
                System.out.println("=====");
            }
            displayMessage("Mahasiswa berhasil ditampilkan");
        }
    }

    com.mahasiswa.controller.MahasiswaController >

```

MahasiswaView

The screenshot shows the Apache NetBeans IDE interface with the project RPL2_Pet3_51421182 open. The left pane displays the project structure under 'Source Packages' for the com.mahasiswa.view package, which contains MahasiswaView.java. The right pane shows the source code for MahasiswaView.java:

```

package com.mahasiswa.view;

import com.mahasiswa.controller.MahasiswaController;
import com.mahasiswa.model.MahasiswaDAO;
import java.util.Scanner;

public class MahasiswaView {

    public static void main(String[] args) {
        MahasiswaDAO mahasiswaDAO = new MahasiswaDAO();
        MahasiswaController mahasiswaController = new MahasiswaController(mahasiswaDAO);

        Scanner scanner = new Scanner(System.in);
        int pilihan;

        while(true){
            System.out.println("Menu : ");
            System.out.println("1. Tampilkan Semua Mahasiswa");
            System.out.println("2. Tambah Mahasiswa");
            System.out.println("3. Update Mahasiswa");
            System.out.println("4. Hapus Mahasiswa");
            System.out.println("5. Cek Koneksi Database");
            System.out.println("6. Keluar");
            System.out.println("Masukkan pilihan : ");
        }
    }

    com.mahasiswa.view.MahasiswaView >

```

OUTPUT

```
com.mahasiswa.view.MahasiswaView >
Output - Run (RPL2_Pet3_51421182) ...X
cd C:\Users\puput\OneDrive\Documents\NetBeansProjects\RPL2_Pet3_51421182; "JAVA_HOME=C:\\Program Files\\Java\\jdk-22" cmd /c
Scanning for projects...
-----< com.mahasiswa:RPL2_Pet3_51421182 >-----
Building RPL2_Pet3_51421182 1.0-SNAPSHOT
from pom.xml
-----[ jar ]-----
The artifact mysql:mysql-connector-java:jar:8.0.33 has been relocated to com.mysql:mysql-connector-j:jar:8.0.33: MySQL Connec
--- resources:3.3.1:resources (default-resources) @ RPL2_Pet3_51421182 ---
skip non existing resourceDirectory C:\Users\puput\OneDrive\Documents\NetBeansProjects\RPL2_Pet3_51421182\src\main\resources
--- compiler:3.11.0:compile (default-compile) @ RPL2_Pet3_51421182 ---
Nothing to compile - all classes are up to date

--- exec:3.1.0:exec (default-cli) @ RPL2_Pet3_51421182 ---
Menu :
1. Tampilkan Semua Mahasiswa
2. Tambah Mahasiswa
3. Update Mahasiswa
4. Hapus Mahasiswa
5. Cek Koneksi Database
6. Keluar
PILIH OPSI:
2
```

```
com.mahasiswa.view.MahasiswaView >
Output - Run (RPL2_Pet3_51421182) ...X
Masukan NPM:
51421182
Masukan Nama:
Debby
Masukan Semester:
7
Masukan IPK:
3,66
Mahasiswa berhasil ditambahkan
Menu :
1. Tampilkan Semua Mahasiswa
2. Tambah Mahasiswa
3. Update Mahasiswa
4. Hapus Mahasiswa
5. Cek Koneksi Database
6. Keluar
PILIH OPSI:
1

=====
ID      : 2
NPM    : 51421182
NAMA   : Debby
SEMESTER : 7
IPK    : 3.66
```