



TUGAS PENDAHULUAN
KONSTRUKSI PERANGKAT LUNAK
MODUL 9

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OLEH :
TIURMA GRACE ANGELINA – 2311104042
S1-SE07-02

Dosen :
YIS

Prodi S1 Rekaya Perangkat Lunak
Direktorat Kampus Purwokerto

1. MELAKUKAN GIT COMMIT PADA PROJECT YANG DIBUAT

Commit pertama :

```
C:\WINDOWS\system32\cmd.exe
*****
** Visual Studio 2022 Developer Command Prompt v17.13.0
** Copyright (c) 2022 Microsoft Corporation
*****

C:\Users\USER\source\repos\KPL_TiurmaGraceA_2311104042_51SE-07-02\09_API_Design_dan_Construction_Using_Swagger\tpmod9_2311104042>git add tpmod9_2311104042

C:\Users\USER\source\repos\KPL_TiurmaGraceA_2311104042_51SE-07-02\09_API_Design_dan_Construction_Using_Swagger\tpmod9_2311104042>git commit -m "up 1 .gitignore"
[main f45863e] up 1 .gitignore
9 files changed, 547 insertions(+)
create mode 100644 09_API_Design_dan_Construction_Using_Swagger/tpmod9_2311104042/tpmod9_2311104042/.gitignore
create mode 100644 09_API_Design_dan_Construction_Using_Swagger/tpmod9_2311104042/tpmod9_2311104042/Controllers/WeatherForecastController.cs
create mode 100644 09_API_Design_dan_Construction_Using_Swagger/tpmod9_2311104042/tpmod9_2311104042/Program.cs
create mode 100644 09_API_Design_dan_Construction_Using_Swagger/tpmod9_2311104042/tpmod9_2311104042/Properties/launchSettings.json
create mode 100644 09_API_Design_dan_Construction_Using_Swagger/tpmod9_2311104042/tpmod9_2311104042/WeatherForecast.cs
create mode 100644 09_API_Design_dan_Construction_Using_Swagger/tpmod9_2311104042/tpmod9_2311104042/appsettings.Development.json
create mode 100644 09_API_Design_dan_Construction_Using_Swagger/tpmod9_2311104042/tpmod9_2311104042/appsettings.json
create mode 100644 09_API_Design_dan_Construction_Using_Swagger/tpmod9_2311104042/tpmod9_2311104042/tpmod9_2311104042.csproj
create mode 100644 09_API_Design_dan_Construction_Using_Swagger/tpmod9_2311104042/tpmod9_2311104042/tpmod9_2311104042.http

C:\Users\USER\source\repos\KPL_TiurmaGraceA_2311104042_51SE-07-02\09_API_Design_dan_Construction_Using_Swagger\tpmod9_2311104042>git push origin main
Enumerating objects: 18, done.
Counting objects: 100% (18/18), done.
Delta compression using up to 12 threads
Compressing objects: 100% (14/14), done.
Writing objects: 100% (16/16), 5.53 KiB | 377.00 KiB/s, done.
Total 16 (delta 2), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (2/2), completed with 1 local object.
To https://github.com/tiurmaGraceA/KPL_TiurmaGraceA_2311104042_51SE-07-02.git
8359a34..18e8492 main -> main

C:\Users\USER\source\repos\KPL_TiurmaGraceA_2311104042_51SE-07-02\09_API_Design_dan_Construction_Using_Swagger\tpmod9_2311104042>_
```

2. IMPLEMENTASI RUNTIME CONFIGURATION

Code Class – Class

1. MahasiswaController.cs

```
using Microsoft.AspNetCore.Mvc;
using System.Collections.Generic;
using tpmodul9_2311104042.Models;

namespace tpmod9_2311104042.Controllers
{
    [ApiController]
    [Route("api/[controller]")]
    public class MahasiswaController : ControllerBase
    {

        private static List<Mahasiswa> daftarMahasiswa = new List<Mahasiswa>
        {
            new Mahasiswa { Nama = "Tiur", Nim = "2311104042" },
            new Mahasiswa { Nama = "farhan", Nim = "2311104016" },
            new Mahasiswa { Nama = "candra", Nim = "2311104020" }
        };

        [HttpGet]
        public ActionResult<List<Mahasiswa>> Get()
```

```
{
    return daftarMahasiswa;
}

[HttpGet("{index}")]
public ActionResult<Mahasiswa> Get(int index)
{
    if (index < 0 || index >= daftarMahasiswa.Count)
        return NotFound();

    return daftarMahasiswa[index];
}

[HttpPost]
public ActionResult<List<Mahasiswa>> Post([FromBody] Mahasiswa mhs)
{
    daftarMahasiswa.Add(mhs);
    return daftarMahasiswa;
}

[HttpDelete("{index}")]
public ActionResult<List<Mahasiswa>> Delete(int index)
{
    if (index < 0 || index >= daftarMahasiswa.Count)
        return NotFound();

    daftarMahasiswa.RemoveAt(index);
    return daftarMahasiswa;
}
```

```
}  
  
}
```

Penjelasan :

File ini adalah inti dari Web API karena menangani semua request HTTP yang berhubungan dengan data mahasiswa. Ada 4 endpoint yang di-handle:

- **[HttpGet]** → Mengembalikan seluruh daftar mahasiswa dari list statis daftarMahasiswa.
- **[HttpGet("{index}")]** → Mengembalikan data mahasiswa berdasarkan index dalam list.
- **[HttpPost]** → Menambahkan mahasiswa baru ke list menggunakan data dari body request.
- **[HttpDelete("{index}")]** → Menghapus data mahasiswa berdasarkan index.

List mahasiswa disimpan secara **in-memory**, artinya tidak menggunakan database, dan menggunakan keyword static supaya nilainya tetap konsisten saat program berjalan.

2. Mahasiswa.cs

```
namespace tpmod9_2311104042.Models
{
    public class Mahasiswa
    {
        public string Nama { get; set; }
        public string Nim { get; set; }
    }
}
```

Penjelasan :

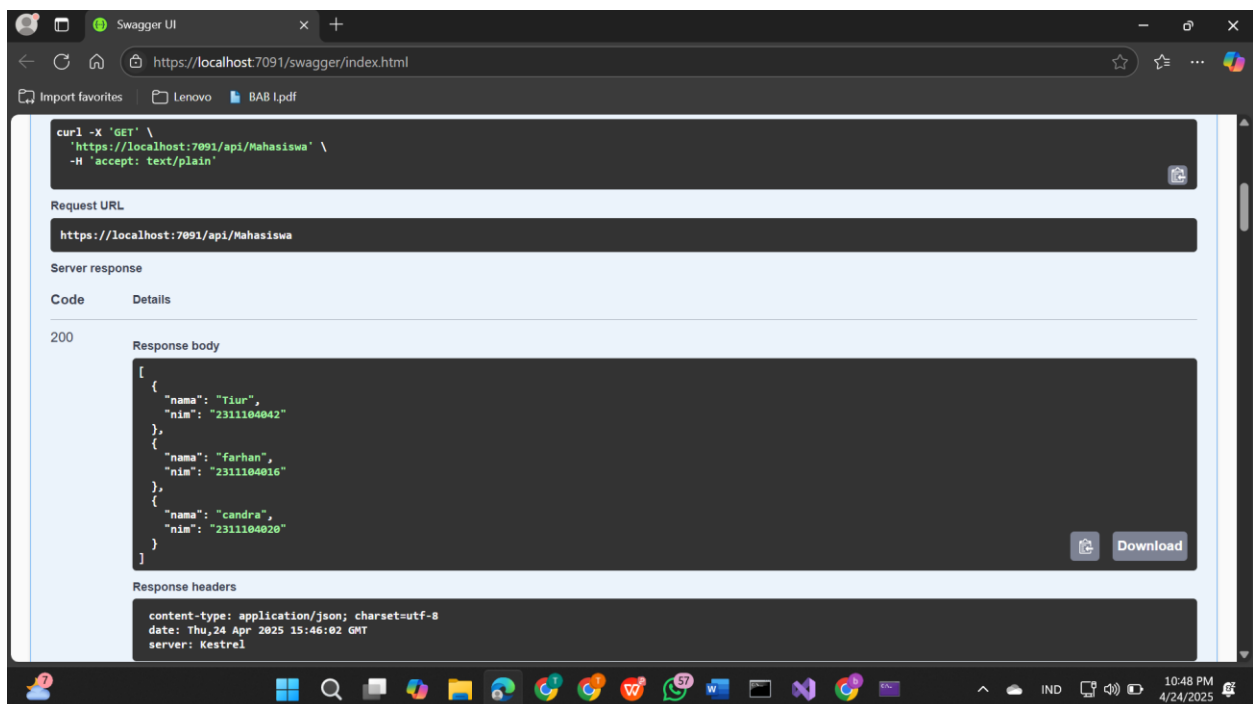
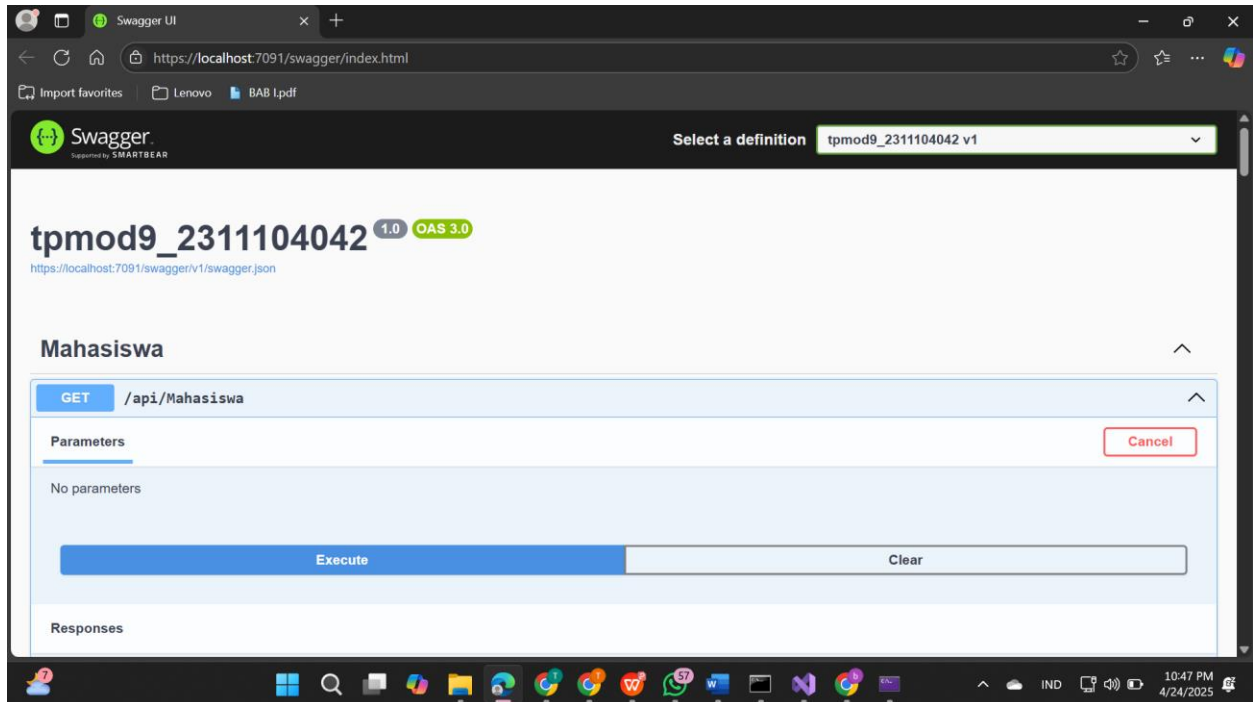
File ini berisi **model data** yang digunakan oleh Web API. Class Mahasiswa hanya punya dua properti:

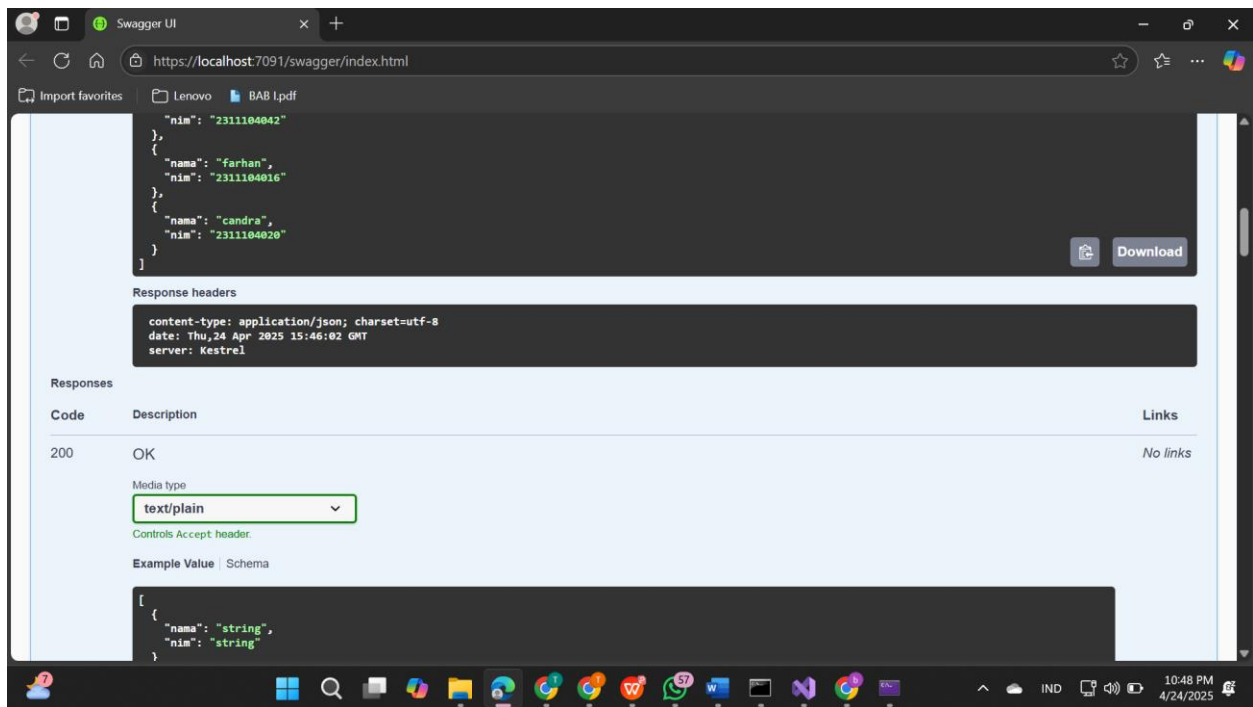
- Nama (string) → Nama mahasiswa
- Nim (string) → Nomor Induk Mahasiswa

Class ini digunakan sebagai struktur data dasar untuk seluruh operasi di controller (GET, POST, DELETE).

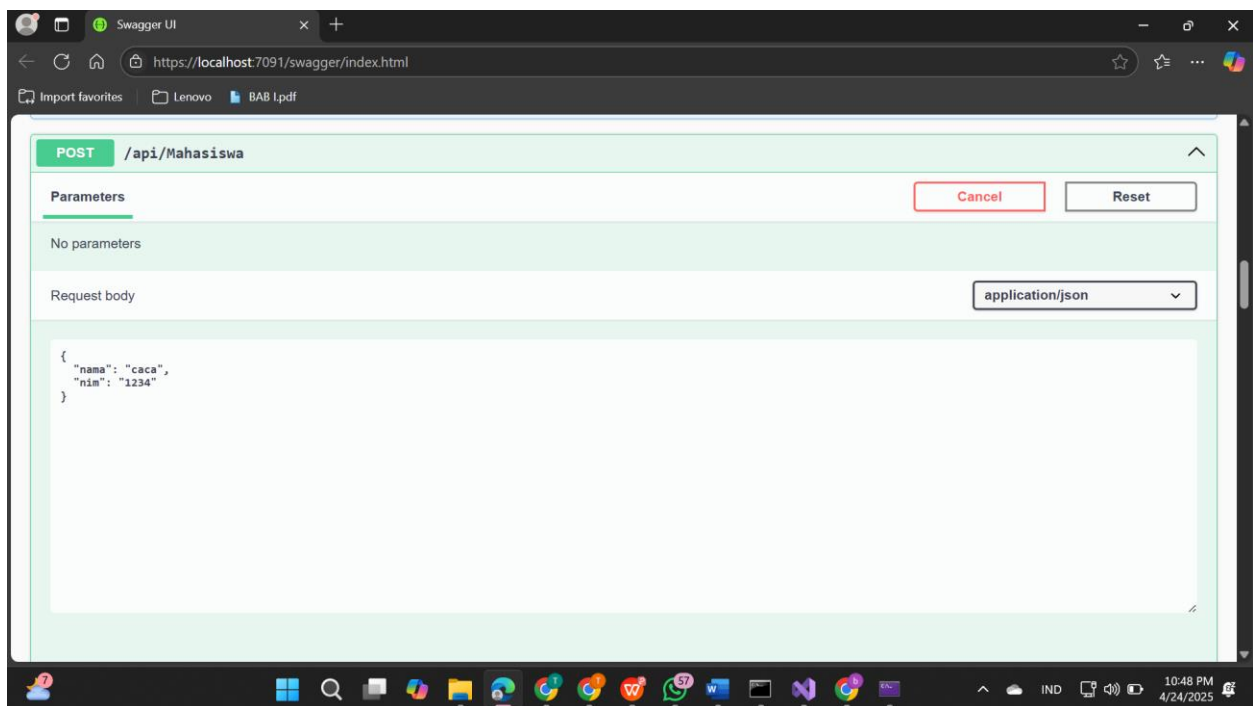
Output :

GET /api/Mahasiswa





POST/ api/Mahasiswa



Swagger UI

https://localhost:7091/swagger/index.html

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Execute Clear

Responses

Curl

```
curl -X 'POST' \
  https://localhost:7091/api/Mahasiswa \
  -H 'accept: text/plain' \
  -H 'Content-Type: application/json' \
  -d '{
    "nama": "caca",
    "nim": "1234"
  }'
```

Request URL

https://localhost:7091/api/Mahasiswa

Server response

Code	Details
200	<p>Response body</p> <pre>[</pre>

10:48 PM 4/24/2025

Swagger UI

https://localhost:7091/swagger/index.html

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https://localhost:7091/api/Mahasiswa

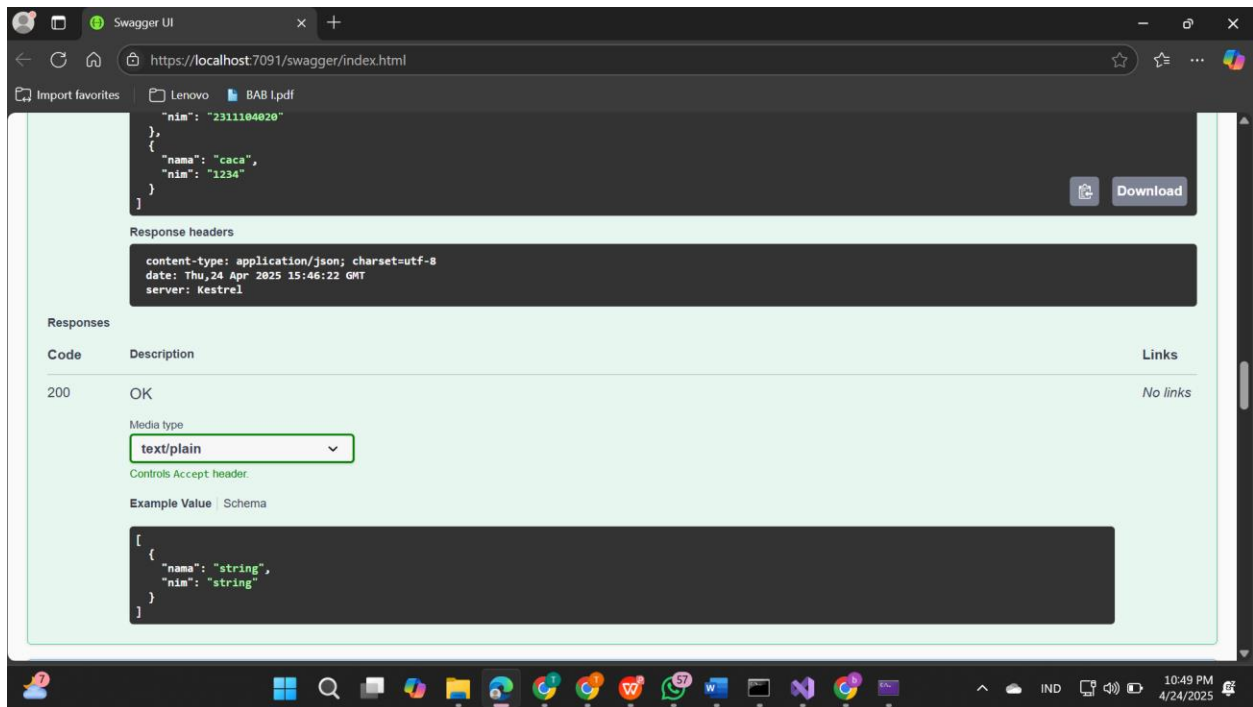
Server response

Code	Details
200	<p>Response body</p> <pre>[{ "nama": "Tiur", "nim": "2311104042" }, { "nama": "farhan", "nim": "2311104016" }, { "nama": "candra", "nim": "2311104020" }, { "nama": "caca", "nim": "1234" }]</pre> <p>Download</p> <p>Response headers</p> <pre>content-type: application/json; charset=utf-8 date: Thu, 24 Apr 2025 15:46:22 GMT server: Kestrel</pre>

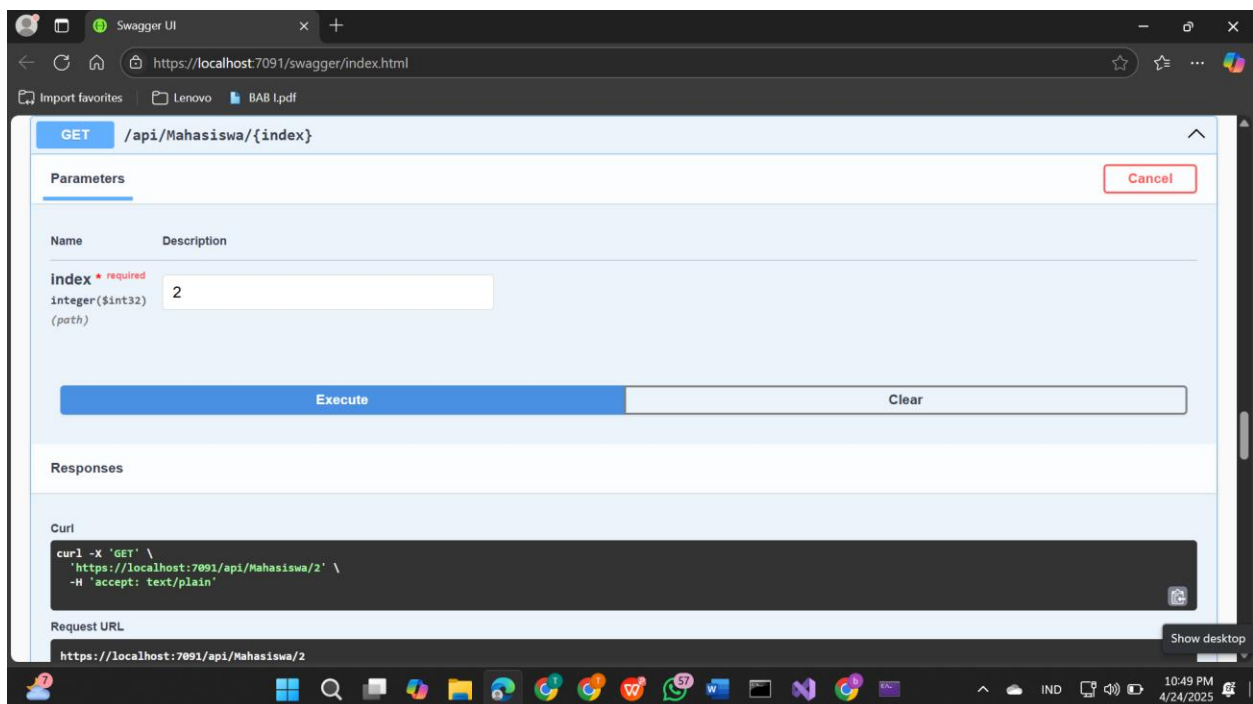
Responses

Code	Description	Links
------	-------------	-------

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GET /api/Mahasiswa/{index}



Swagger UI

https://localhost:7091/swagger/index.html

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Responses

Curl

```
curl -X 'GET' \
  https://localhost:7091/api/Mahasiswa/2 \
  -H 'accept: text/plain'
```

Request URL

https://localhost:7091/api/Mahasiswa/2

Server response

Code	Details
200	<p>Response body</p> <pre>{ "nama": "candra", "nim": "2311104020" }</pre> <p>Response headers</p> <pre>content-type: application/json; charset=utf-8 date: Thu, 24 Apr 2025 15:47:02 GMT server: Kestrel</pre>

Responses

Code	Description	Links
------	-------------	-------

Swagger UI

https://localhost:7091/swagger/index.html

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200

Response body

```
{
  "nama": "candra",
  "nim": "2311104020"
}
```

Response headers

```
content-type: application/json; charset=utf-8
date: Thu, 24 Apr 2025 15:47:02 GMT
server: Kestrel

Responses



| Code | Description | Links    |
|------|-------------|----------|
| 200  | OK          | No links |



Media type



text/plain



Controls Accept header.



Example Value | Schema



```
{
 "nama": "string",
 "nim": "string"
}
```


```

DELETE /api/Mahasiswa/{index}

The image shows the Swagger UI interface for a REST API endpoint. The endpoint is **DELETE /api/Mahasiswa/{index}**. The **Parameters** section shows a required path parameter named **index** of type **integer(\$int32)** with a value of **3**. Below the parameters, there are **Execute** and **Clear** buttons. The **Responses** section is currently empty. The **Curl** section shows the command:

```
curl -X 'DELETE' \
'https://localhost:7091/api/Mahasiswa/3' \
-H 'accept: text/plain'
```

 The **Request URL** section shows the URL: `https://localhost:7091/api/Mahasiswa/3`. The browser's taskbar at the bottom shows the time as 10:50 PM on 4/24/2025.

The image shows the Swagger UI interface after the DELETE request has been executed. The **Curl** section shows the same command as before. The **Request URL** section shows the URL: `https://localhost:7091/api/Mahasiswa/3`. The **Server response** section shows a **200** status code. The **Response body** section shows a JSON array of three student objects:

```
[
  {
    "nama": "Tiur",
    "nim": "2311104042"
  },
  {
    "nama": "farhan",
    "nim": "2311104016"
  },
  {
    "nama": "candra",
    "nim": "2311104020"
  }
]
```

 The **Response headers** section shows the following headers: `content-type: application/json; charset=utf-8`, `date: Thu, 24 Apr 2025 15:46:45 GMT`, and `server: Kestrel`. The browser's taskbar at the bottom shows the time as 10:50 PM on 4/24/2025.

Swagger UI

https://localhost:7091/swagger/index.html

Import favoritesLenovoBAB I.pdf

Response headers

```
content-type: application/json; charset=utf-8
date: Thu, 24 Apr 2025 15:46:45 GMT
server: Kestrel
```

Responses

Code	Description	Links
200	OK	No links

Media type

text/plain

Controls Accept header.

Example Value | Schema

```
[
  {
    "nama": "string",
    "nim": "string"
  }
]
```

Schemas

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Windows Taskbar Icons

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10:50 PM 4/24/2025

3. MELAKUKAN COMMIT

```
C:\WINDOWS\system32\cmd.exe

C:\Users\USER\source\repos\KPL_TiurmaGraceA_2311104042_S1SE-07-02\09_API_Design_dan_Construction_Using_Swagger\tpmod9_2311104042>git add tpmod9_2311104042

C:\Users\USER\source\repos\KPL_TiurmaGraceA_2311104042_S1SE-07-02\09_API_Design_dan_Construction_Using_Swagger\tpmod9_2311104042>git commit -m "menambahkan API mahasiswa"
[main dabe9d8] menambahkan API mahasiswa
4 files changed, 55 insertions(+), 45 deletions(-)
create mode 100644 09_API_Design_dan_Construction_Using_Swagger/tpmod9_2311104042/tpmod9_2311104042/Controllers/MahasiswaController.cs
delete mode 100644 09_API_Design_dan_Construction_Using_Swagger/tpmod9_2311104042/tpmod9_2311104042/Controllers/WeatherForecastController.cs
create mode 100644 09_API_Design_dan_Construction_Using_Swagger/tpmod9_2311104042/tpmod9_2311104042/Models/Mahasiswa.cs delete mode 100644 09_API_Design_dan_Construction_Using_Swagger/tpmod9_2311104042/tpmod9_2311104042/WeatherForecast.cs

C:\Users\USER\source\repos\KPL_TiurmaGraceA_2311104042_S1SE-07-02\09_API_Design_dan_Construction_Using_Swagger\tpmod9_2311104042>git push origin main
Enumerating objects: 13, done.
Counting objects: 100% (13/13), done.
Delta compression using up to 12 threads
Compressing objects: 100% (7/7), done.
Writing objects: 100% (9/9), 1.40 KiB | 286.00 KiB/s, done.
Total 9 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/tiurmaGraceA/KPL_TiurmaGraceA_2311104042_S1SE-07-02.git
18e8492..dabe9d8  main -> main

C:\Users\USER\source\repos\KPL_TiurmaGraceA_2311104042_S1SE-07-02\09_API_Design_dan_Construction_Using_Swagger\tpmod9_2311104042>
```