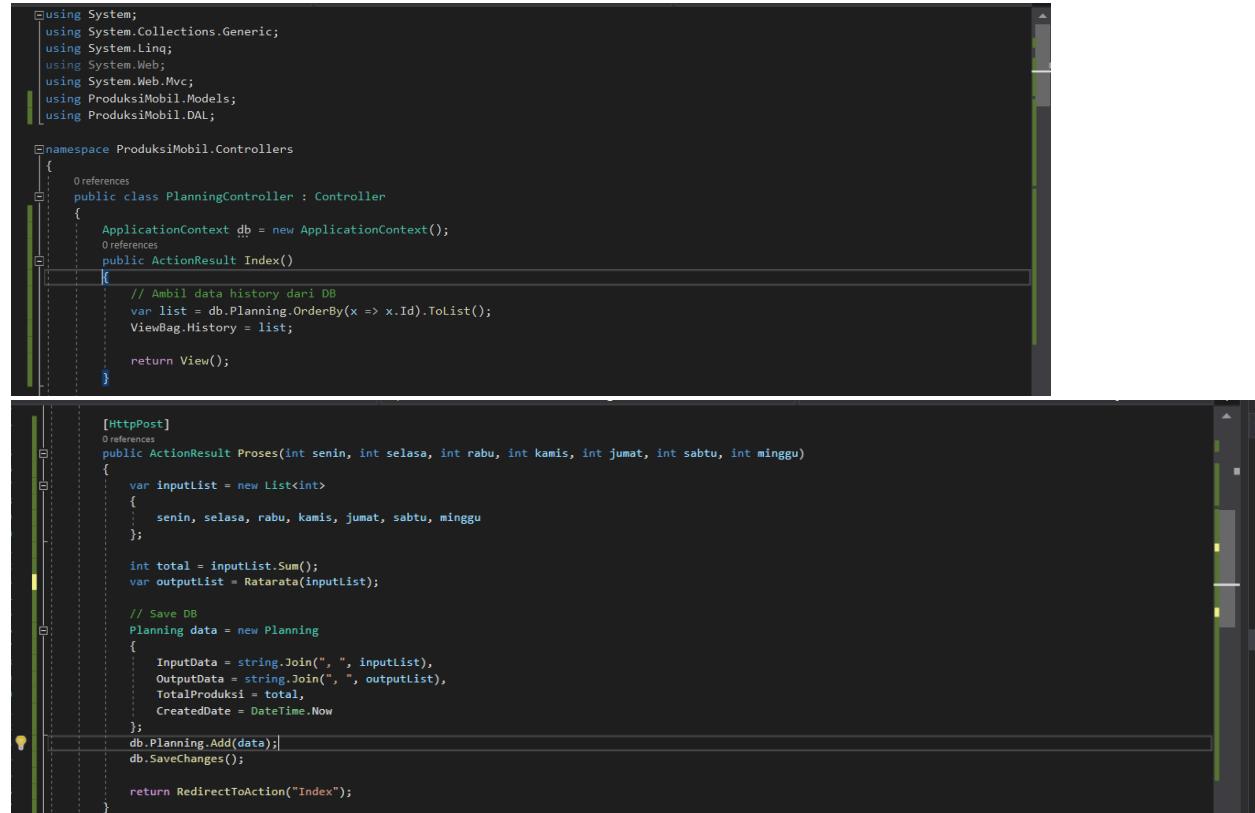# Task 2

Controller

```csharp
using System;
using System.Collections.Generic;
using System.Linq;
using System.Web;
using System.Web.Mvc;
using ProduksiMobil.Models;
using ProduksiMobil.DAL;

namespace ProduksiMobil.Controllers
{
    0 references
    public class PlanningController : Controller
    {
        ApplicationContext db = new ApplicationContext();
        0 references
        public ActionResult Index()
        {
            // Ambil data history dari DB
            var list = db.Planning.OrderBy(x => x.Id).ToList();
            ViewBag.History = list;

            return View();
        }
```

```csharp
        [HttpPost]
        0 references
        public ActionResult Proses(int senin, int selasa, int rabu, int kamis, int jumat, int sabtu, int minggu)
        {
            var inputList = new List<int>
            {
                senin, selasa, rabu, kamis, jumat, sabtu, minggu
            };

            int total = inputList.Sum();
            var outputList = Ratarata(inputList);

            // Save DB
            Planning data = new Planning
            {
                InputData = string.Join(", ", inputList),
                OutputData = string.Join(", ", outputList),
                TotalProduksi = total,
                CreatedDate = DateTime.Now
            };
            db.Planning.Add(data);
            db.SaveChanges();

            return RedirectToAction("Index");
        }
```

```csharp
        1 reference
        private List<int> Ratarata(List<int> input)
        {
            int total = 0;
            int hariKerja = 0;

            foreach (var x in input)
            {
                if (x > 0)
                {
                    total += x;
                    hariKerja++;
                }
            }

            if (hariKerja == 0)
                return new List<int>(input);

            int rata = total / hariKerja;
            int sisa = total % hariKerja;

            var result = new List<int>();

            var prioritas = new List<int>(input);
            prioritas.Sort((a, b) => b.CompareTo(a));

            int threshold = prioritas[Math.Max(0, sisa - 1)];

            foreach (var x in input)
            {
                if (x == 0)
                    result.Add(0);
                else if (sisa > 0 && x >= threshold)
                {
                    result.Add(rata + 1);
                    sisa--;
                }
                else
                {
                    result.Add(rata);
                }
            }

            return result;
        }
    }
}
```
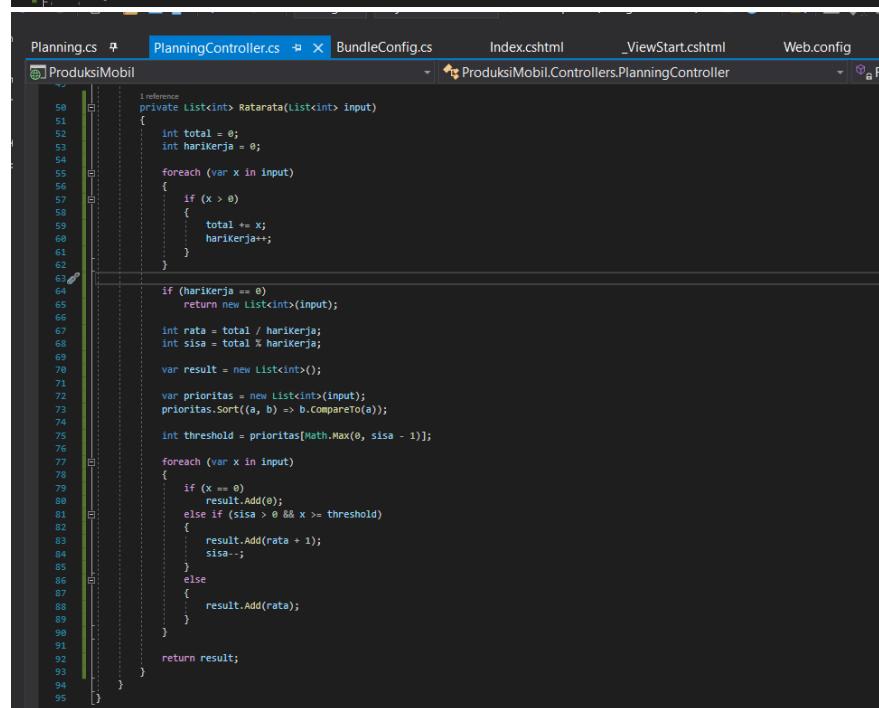
Models


```csharp
using System;
using System.Collections.Generic;
using System.Linq;
using System.Web;
using System.Data.Entity;
using ProduksiMobil.Models;

namespace ProduksiMobil.DAL
{
    public class ApplicationContext : DbContext
    {
        public ApplicationContext() : base("name=ApplicationContext")
        {
        }

        public DbSet<Planning> Planning { get; set; }
    }
}
```



```csharp
using System;
using System.Collections.Generic;
using System.Linq;
using System.Web;

namespace ProduksiMobil.Models
{
    public class Planning
    {
        public int Id { get; set; }
        public string InputData { get; set; }
        public string OutputData { get; set; }
        public int TotalProduksi { get; set; }
        public DateTime CreatedDate { get; set; }
    }
}
```

View

```cshtml
@{
    ViewBag.Title = "Rencana Produksi";
}

<h2>Rencana Produksi</h2>

<form action="/Planning/Proses" method="post">
    <table border="1" cellpadding="6">
        <tr>
            <th>Hari</th>
            <th>Input</th>
        </tr>
        <tr>
        <td>Senin</td><td><input type="number" name="senin" required /></td>
        </tr>
        <tr>
        <td>Selasa</td><td><input type="number" name="selasa" required /></td>
        </tr>
        <tr>
        <td>Rabu</td><td><input type="number" name="rabu" required /></td>
        </tr>
        <tr>
        <td>Kamis</td><td><input type="number" name="kamis" required /></td>
        </tr>
        <tr>
        <td>Jumat</td><td><input type="number" name="jumat" required /></td>
        </tr>
        <tr>
        <td>Sabtu</td><td><input type="number" name="sabtu" required /></td>
        </tr>
        <tr>
        <td>Minggu</td><td><input type="number" name="minggu" required /></td>
        </tr>
    </table>

    <br />
    <button type="submit">Proses</button>
</form>

<br />
<br />
```

```cshtml
    <button type="submit">Proses</button>
</form>

<br />
<br />

@if (ViewBag.History != null && ViewBag.History.Count > 0)
{
    <h3>Riwayat Proses</h3>

    <table class="table table-bordered table-striped table-hover display">
        <thead class="bg-primary">
            <tr>
                <th>No</th>
                <th>Input</th>
                <th>Output</th>
                <th>Total</th>
                <th>Waktu</th>
            </tr>
        </thead>
        <tbody>
            @{
                var i = 1;
                var number = 0;
            }
            @foreach (var h in ViewBag.History)
            {
                number = i++;
                <tr>
                    <td>@number</td>
                    <td>@h.InputData</td>
                    <td>@h.OutputData</td>
                    <td>@h.TotalProduksi</td>
                    <td>@h.CreatedDate.ToString("dd/MM/yyyy HH:mm")</td>
                </tr>
            }
        </tbody>
    </table>
}
```

Hasil

Rencana Produksi

Hari	Input
Senin	
Selasa	
Rabu	
Kamis	
Jumat	
Sabtu	
Minggu	

Proses

Riwayat Proses

No	Input	Output	Total	Waktu
1	4, 5, 1, 7, 6, 4, 0	4, 5, 4, 5, 5, 4, 0	27	09/12/2025 11:22
2	5, 4, 3, 6, 4, 0, 0	5, 4, 4, 5, 4, 0, 0	22	09/12/2025 11:23
3	4, 1, 0, 1, 1, 1, 0	2, 2, 0, 2, 1, 1, 0	8	09/12/2025 11:32
4	0, 0, 0, 5, 3, 2, 0	0, 0, 0, 4, 3, 3, 0	10	09/12/2025 11:32
5	3, 2, 5, 4, 2, 0, 0	3, 3, 4, 3, 3, 0, 0	16	09/12/2025 11:32
6	4, 3, 4, 3, 4, 3, 0	4, 3, 4, 3, 4, 3, 0	21	09/12/2025 11:33
7	3, 5, 5, 5, 5, 0, 0	4, 5, 5, 5, 4, 0, 0	23	09/12/2025 11:33
8	5, 5, 5, 5, 5, 5, 5	5, 5, 5, 5, 5, 5, 5	35	09/12/2025 11:34
9	2, 5, 3, 4, 3, 5, 0	3, 4, 4, 4, 4, 3, 0	22	09/12/2025 11:34
10	4, 4, 4, 4, 4, 6, 0	5, 5, 4, 4, 4, 4, 0	26	09/12/2025 11:34


```
SELECT TOP (1000) [Id]
      ,[InputData]
      ,[OutputData]
      ,[TotalProduksi]
      ,[CreatedDate]
  FROM [AGIT].[dbo].[Plannings]
```

	Id	InputData	OutputData	TotalProduksi	CreatedDate
1	1	4, 5, 1, 7, 6, 4, 0	4, 5, 4, 5, 5, 4, 0	27	2025-12-09 11:22:13.060
2	2	5, 4, 3, 6, 4, 0, 0	5, 4, 4, 5, 4, 0, 0	22	2025-12-09 11:23:31.097
3	3	4, 1, 0, 1, 1, 1, 0	2, 2, 0, 2, 1, 1, 0	8	2025-12-09 11:32:13.177
4	4	0, 0, 0, 5, 3, 2, 0	0, 0, 0, 4, 3, 3, 0	10	2025-12-09 11:32:40.907
5	5	3, 2, 5, 4, 2, 0, 0	3, 3, 4, 3, 3, 0, 0	16	2025-12-09 11:32:59.607
6	6	4, 3, 4, 3, 4, 3, 0	4, 3, 4, 3, 4, 3, 0	21	2025-12-09 11:33:11.460
7	7	3, 5, 5, 5, 5, 0, 0	4, 5, 5, 5, 4, 0, 0	23	2025-12-09 11:33:31.253
8	8	5, 5, 5, 5, 5, 5, 5	5, 5, 5, 5, 5, 5, 5	35	2025-12-09 11:34:02.950
9	9	2, 5, 3, 4, 3, 5, 0	3, 4, 4, 4, 4, 3, 0	22	2025-12-09 11:34:23.630
10	10	4, 4, 4, 4, 4, 6, 0	5, 5, 4, 4, 4, 4, 0	26	2025-12-09 11:34:36.293

Task 3

1.

Column Name	Data Type	Allow Nulls
KodeFakultas	int	☑
NamaFakultas	varchar(30)	☑
NamaDekan	varchar(50)	☑
		☐

2.

```sql
create table Prodi (
KodeProdi Int,
KodeFakultas Int,
NamaProdi varchar(30),
NamaKetuaProdi varchar(50)
)
```

Commands completed successfully.

Completion time: 2025-12-08T23:29:05.6933694+07:00

3.

```sql
CREATE TABLE  Mahasiswa (
NPM varchar(8),
KodeProdi int ,
NamaMahasiswa varchar(50),
TempatLahir varchar(30),
TanggalLahir date,
Alamat varchar(100),
 CONSTRAINT PK_Mahasiswa PRIMARY KEY CLUSTERED
(
    NPM  ASC
)
)
```

Commands completed successfully.

Completion time: 2025-12-08T23:37:16.6245551+07:00

```
ALTER TABLE Fakultas
ADD CONSTRAINT PK_KodeFakultas PRIMARY KEY (KodeFakultas);
```

195 %

Messages

Commands completed successfully.

Completion time: 2025-12-08T23:42:23.2033166+07:00

4.

```
ALTER TABLE Prodi
ADD CONSTRAINT PK_KodeProdi PRIMARY KEY (KodeProdi, KodeFakultas);
```

195 %

Messages

Commands completed successfully.

Completion time: 2025-12-08T23:51:35.9788148+07:00

5.

```
Insert into Fakultas (NamaFakultas, NamaDekan) values
('Teknik', 'Ahmad Riyadi'),
('Pertanian', 'Paiman'),
('Ekonomi', 'Sukhemi'),
('Keguruan', 'Suharni');
```

214 %

Messages

```
(4 rows affected)

Completion time: 2025-12-09T00:00:38.4337862+07:00
```

6.

```
SELECT TOP (1000) [KodeFakultas]
        ,[NamaFakultas]
        ,[NamaDekan]
  FROM [AGIT].[dbo].[Fakultas]
```

214 %

Results   Messages

	KodeFakultas	NamaFakultas	NamaDekan
1	1	Teknik	Ahmad Riyadi
2	2	Pertanian	Paiman
3	3	Ekonomi	Sukhemi
4	4	Keguruan	Suharni

```sql
INSERT INTO Prodi (KodeProdi, KodeFakultas, NamaProdi, NamaKetuaProdi) VALUES
(11, 1, 'Teknik Informatika', 'Bachtiar Dwi Effendi'),
(21, 2, 'Agroteknologi', 'Bahrum'),
(31, 3, 'Manajemen', 'Vita'),
(32, 3, 'Akintansi', 'Siti Maisaroh'),
(41, 4, 'PPKN', 'Sigit'),
(42, 4, 'Sejarah', 'Gunawan'),
(43, 4, 'Pendidikan Matematika', 'Tri'),
(44, 4, 'Bimbingan Konseling', 'Siswanti'),
(45, 4, 'PGSD', 'Haniek');
```

```
(9 rows affected)

Completion time: 2025-12-09T00:05:14.9526863+07:00
```

```sql
SELECT TOP (1000) [KodeProdi]
      ,[KodeFakultas]
      ,[NamaProdi]
      ,[NamaKetuaProdi]
  FROM [AGIT].[dbo].[Prodi]
```

	KodeProdi	KodeFakultas	NamaProdi	NamaKetuaProdi
1	11	1	Teknik Informatika	Bachtiar Dwi Effendi
2	21	2	Agroteknologi	Bahrum
3	31	3	Manajemen	Vita
4	32	3	Akintansi	Siti Maisaroh
5	41	4	PPKN	Sigit
6	42	4	Sejarah	Gunawan
7	43	4	Pendidikan Matematika	Tri
8	44	4	Bimbingan Konseling	Siswanti
9	45	4	PGSD	Haniek

```sql
INSERT INTO Mahasiswa (NPM, KodeProdi, NamaMahasiswa, TempatLahir, TanggalLahir, Alamat) VALUES
('08110167', 11, 'Andi', 'Jakarta', '1988-03-12', 'Gunung Kidul'),
('08110231', 11, 'Joko', 'Sleman', '1989-02-01', 'Sleman'),
('08210232', 21, 'Budi', 'Bantul', '1988-09-15', 'Bantul'),
('08210233', 21, 'Cici', 'Purwokerto', '1989-02-21', 'Bantul'),
('08320234', 31, 'Didi', 'Bandung', '1987-11-17', 'Kodya'),
('08320235', 32, 'Alfin', 'Makassar', '1986-09-22', 'Kodya'),
('08320236', 32, 'Dodi', 'Gunung Kidul', '1979-03-24', 'Kodya'),
('08320237', 32, 'Derri', 'Pangkal Pinang', '1984-03-09', 'Sleman'),
('08410121', 41, 'Dudung', 'Kebumen', '1985-02-25', 'Sleman'),
('08410122', 41, 'Afgan', 'Palembang', '1986-11-21', 'Kulon Progo'),
('08430124', 42, 'Didi', 'Kutoarjo', '1986-09-11', 'Kulon Progo'),
('08430122', 43, 'Firza', 'Purworejo', '1986-09-11', 'Bantul'),
('08440125', 44, 'Zahir', 'Temom', '1986-09-11', 'Kulon Progo');
```

(13 rows affected)

Completion time: 2025-12-09T00:06:30.7416951+07:00

```sql
SELECT TOP (1000) [NPM]
      ,[KodeProdi]
      ,[NamaMahasiswa]
      ,[TempatLahir]
      ,[TanggalLahir]
      ,[Alamat]
  FROM [AGIT].[dbo].[Mahasiswa]
```

	NPM	KodeProdi	NamaMahasiswa	TempatLahir	TanggalLahir	Alamat
1	08110167	11	Andi	Jakarta	1988-03-12	Gunung Kidul
2	08110231	11	Joko	Sleman	1989-02-01	Sleman
3	08210232	21	Budi	Bantul	1988-09-15	Bantul
4	08210233	21	Cici	Purwokerto	1989-02-21	Bantul
5	08320234	31	Didi	Bandung	1987-11-17	Kodya
6	08320235	32	Alfin	Makassar	1986-09-22	Kodya
7	08320236	32	Dodi	Gunung Kidul	1979-03-24	Kodya
8	08320237	32	Derri	Pangkal Pinang	1984-03-09	Sleman
9	08410121	41	Dudung	Kebumen	1985-02-25	Sleman
10	08410122	41	Afgan	Palembang	1986-11-21	Kulon Progo
11	08430122	43	Firza	Purworejo	1986-09-11	Bantul
12	08430124	42	Didi	Kutoarjo	1986-09-11	Kulon Progo
13	08440125	44	Zahir	Temom	1986-09-11	Kulon Progo

```
ALTER TABLE Mahasiswa
ADD TanggalDaftar DATE
```

214 %

Messages

Commands completed successfully.

Completion time: 2025-12-09T00:08:26.9232708+07:00

7.

```
SELECT NamaMahasiswa, Alamat
FROM Mahasiswa
WHERE YEAR(TanggalLahir) BETWEEN 1970 AND 1979;
```

214 %

Results   Messages

NamaMahasiswa	Alamat
1	Dodi	Kodya

8.

```sql
SELECT M.NamaMahasiswa, P.NamaProdi
FROM Mahasiswa M
JOIN Prodi P ON M.KodeProdi = P.KodeProdi
```

214 %

Results | Messages

	NamaMahasiswa	NamaProdi
1	Andi	Teknik Informatika
2	Joko	Teknik Informatika
3	Budi	Agroteknologi
4	Cici	Agroteknologi
5	Didi	Manajemen
6	Alfin	Akintansi
7	Dodi	Akintansi
8	Derri	Akintansi
9	Dudung	PPKN
10	Afgan	PPKN
11	Firza	Pendidikan Matematika
12	Didi	Sejarah
13	Zahir	Bimbingan Konseling

9.

```sql
SELECT TOP 3 M.NamaMahasiswa, M.Alamat
FROM Mahasiswa M
JOIN Prodi P ON M.KodeProdi = P.KodeProdi
WHERE P.KodeFakultas = 1
ORDER BY M.TanggalLahir ASC
```

214 %

Results | Messages

	NamaMahasiswa	Alamat
1	Andi	Gunung Kidul
2	Joko	Sleman

10.

11.

```sql
SELECT COUNT(1) AS Jumlah
FROM Mahasiswa
WHERE Alamat = 'Sleman'
```

	Jumlah
1	3

12.

```sql
UPDATE Mahasiswa SET TanggalDaftar = '2013-09-03'
```

(13 rows affected)

Completion time: 2025-12-09T00:16:47.7696036+07:00

```sql
SELECT TOP (1000) [NPM]
      ,[KodeProdi]
      ,[NamaMahasiswa]
      ,[TempatLahir]
      ,[TanggalLahir]
      ,[Alamat]
      ,[TanggalDaftar]
  FROM [AGIT].[dbo].[Mahasiswa]
```

	NPM	KodeProdi	NamaMahasiswa	TempatLahir	TanggalLahir	Alamat	TanggalDaftar
1	08110167	11	Andi	Jakarta	1988-03-12	Gunung Kidul	2013-09-03
2	08110231	11	Joko	Sleman	1989-02-01	Sleman	2013-09-03
3	08210232	21	Budi	Bantul	1988-09-15	Bantul	2013-09-03
4	08210233	21	Cici	Purwokerto	1989-02-21	Bantul	2013-09-03
5	08320234	31	Didi	Bandung	1987-11-17	Kodya	2013-09-03
6	08320235	32	Alfin	Makassar	1986-09-22	Kodya	2013-09-03
7	08320236	32	Dodi	Gunung Kidul	1979-03-24	Kodya	2013-09-03
8	08320237	32	Demi	Pangkal Pinang	1984-03-09	Sleman	2013-09-03
9	08410121	41	Dudung	Kebumen	1985-02-25	Sleman	2013-09-03
10	08410122	41	Afgan	Palembang	1986-11-21	Kulon Progo	2013-09-03
11	08430122	43	Firza	Purworejo	1986-09-11	Bantul	2013-09-03
12	08430124	42	Didi	Kutoarjo	1986-09-11	Kulon Progo	2013-09-03
13	08440125	44	Zahir	Temom	1986-09-11	Kulon Progo	2013-09-03

```sql
SELECT * FROM Mahasiswa WHERE NamaMahasiswa LIKE 'D%'
```

	NPM	KodeProdi	NamaMahasiswa	TempatLahir	TanggalLahir	Alamat	TanggalDaftar
1	08320234	31	Didi	Bandung	1987-11-17	Kodya	2013-09-03
2	08320236	32	Dodi	Gunung Kidul	1979-03-24	Kodya	2013-09-03
3	08320237	32	Deni	Pangkal Pinang	1984-03-09	Sleman	2013-09-03
4	08410121	41	Dudung	Kebumen	1985-02-25	Sleman	2013-09-03
5	08430124	42	Didi	Kutoarjo	1986-09-11	Kulon Progo	2013-09-03

13.

```sql
UPDATE Mahasiswa SET TanggalLahir = '1990-01-20' WHERE NamaMahasiswa = 'Joko'

SELECT * FROM Mahasiswa WHERE NamaMahasiswa = 'Joko'
```

(1 row affected)

Completion time: 2025-12-09T00:20:24.4762419+07:00

14.

```sql
UPDATE Mahasiswa SET TanggalLahir = '1990-01-20' WHERE NamaMahasiswa = 'Joko'

SELECT * FROM Mahasiswa WHERE NamaMahasiswa = 'Joko'
```

	NPM	KodeProdi	NamaMahasiswa	TempatLahir	TanggalLahir	Alamat	TanggalDaftar
1	08110231	11	Joko	Sleman	1990-01-20	Sleman	2013-09-03

```sql
SELECT P.NamaProdi, COUNT(M.NPM) AS Jumlah FROM Prodi P
LEFT JOIN Mahasiswa M ON P.KodeProdi = M.KodeProdi
GROUP BY P.NamaProdi
```

214 %

Results | Messages

	NamaProdi	Jumlah
1	Agroteknologi	2
2	Akuntansi	3
3	Bimbingan Konseling	1
4	Manajemen	1
5	Pendidikan Matematika	1
6	PGSD	0
7	PPKN	2
8	Sejarah	1
9	Teknik Informatika	2

15.