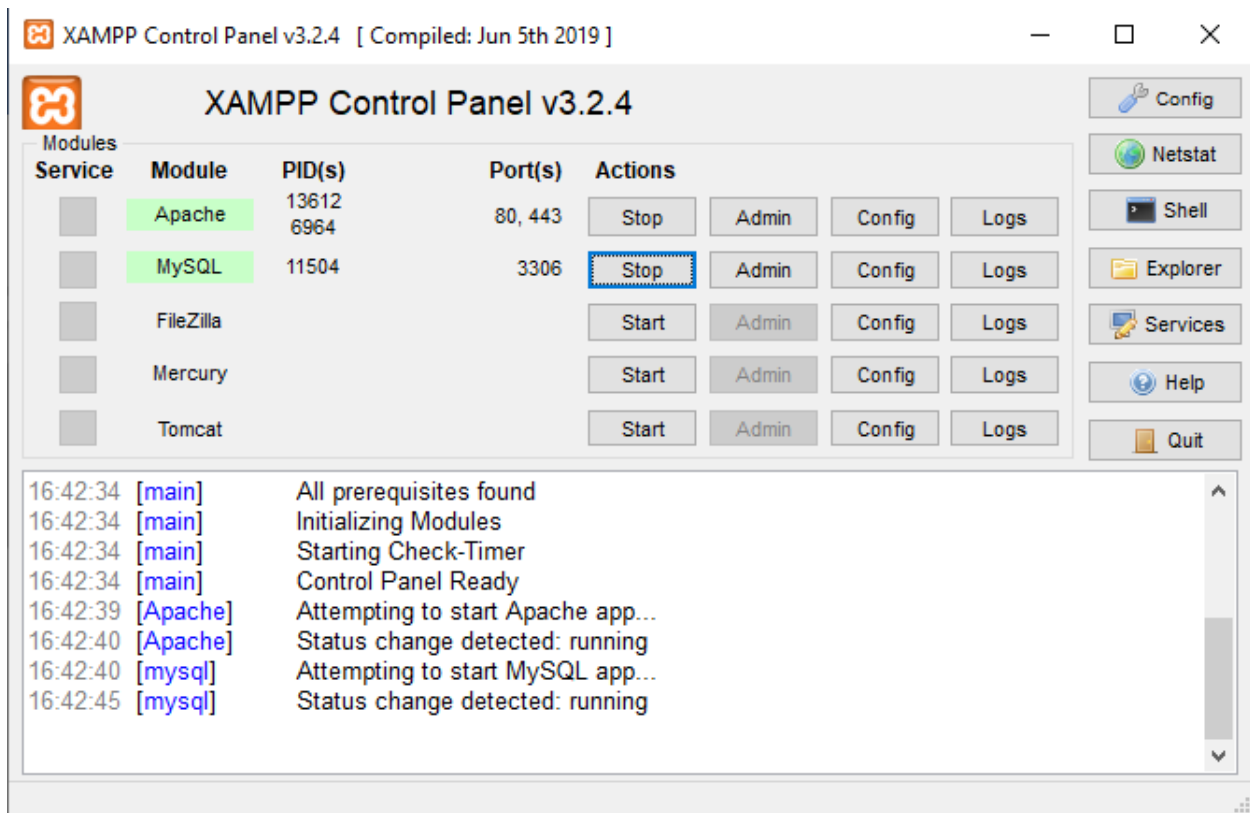Nama : Arindita Prihastama
NIM : L200180058
Kelas : C

TUGAS MODUL 4

Data Definition Language(DDL)

1. Jalankan XAMPP Control Panel.
2. Jalankan server Apache dan MySQL.

3. Buka Command Prompt dan login sebagai root ke MySQL seperti di Modul 1.

```
C:\Users\Lenovo>cd/

C:\>cd C:xampp\mysql\bin

C:\xampp\mysql\bin>mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 8
Server version: 10.4.11-MariaDB mariadb.org binary distribution

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]>
```

4. Buat database baru dengan perintah berikut ini :
   create database tugasm4;

```
MariaDB [(none)]> create database tugasm4
    -> ;
Query OK, 1 row affected (0.019 sec)
```

5. Hubungkan ke dalam database yang telah dibuat dengan perintah berikut. Sehingga akan muncul pemberitahuan "database changed".
   use tugasm4;

```
MariaDB [(none)]> use tugasm4;
Database changed
```

6. Membuat tabel nasabah dengan script berikut.
   CREATE TABLE mahasiwa (
   nim_mhs VARCHAR(20) PRIMARY KEY,
   nip_dosenFK INTEGER REFERENCES dosen (nip_dosen)
   ON DELETE CASCADE ON UPDATE CASCADE,
   nama_mhs VARCHAR(45) UNIQUE NOT NULL,
   alamat_mhs VARCHAR(255) NOT NULL
   );

```
MariaDB [tugasm4]> CREATE TABLE mahasiswa (
    -> nim_mhs VARCHAR(20) PRIMARY KEY,
    -> nip_dosenFK INTEGER REFERENCES dosen (nip_dosen)
    -> ON DELETE CASCADE ON UPDATE CASCADE,
    -> nama_mhs VARCHAR(45) UNIQUE NOT NULL,
    -> alamat_mhs VARCHAR(255) NOT NULL
    -> );
Query OK, 0 rows affected (0.371 sec)
```

7. Membuat tabel nasabah dengan script berikut.
   CREATE TABLE dosen (
   nip_dosen INTEGER PRIMARY KEY,
   nama_dosen VARCHAR(45) UNIQUE NOT NULL,
   );

```
MariaDB [tugasm4]> CREATE TABLE dosen (
    -> nip_dosen INTEGER PRIMARY KEY,
    -> nama_dosen VARCHAR(45) UNIQUE NOT NULL
    -> );
Query OK, 0 rows affected (0.429 sec)
```

8. Membuat tabel nasabah dengan script berikut.
   CREATE TABLE matakuliah(
   kode_mk VARCHAR(20) PRIMARY KEY,
   kode_ruangFK INTEGER REFERENCES ruangkelas (kode_ruang)
   ON DELETE CASCADE ON UPDATE CASCADE,
   nip_dosenFK INTEGER REFERENCES dosen (nip_dosen)
   ON DELETE CASCADE ON UPDATE CASCADE,
   nama_mk VARCHAR(45) UNIQUE NOT NULL,
   smt_mk INTEGER NOT NULL
   );

```
MariaDB [tugasm4]> CREATE TABLE matakuliah (
    -> kode_mk VARCHAR(20) PRIMARY KEY,
    -> kode_ruangFK INTEGER REFERENCES ruangkelas (kode_ruang)
    -> ON DELETE CASCADE ON UPDATE CASCADE,
    -> nip_dosenFK INTEGER REFERENCES dosen (nip_dosen)
    -> ON DELETE CASCADE ON UPDATE CASCADE,
    -> nama_mk VARCHAR(45) UNIQUE NOT NULL,
    -> smt_mk INTEGER NOT NULL
    -> );
Query OK, 0 rows affected (0.429 sec)
```

9. Membuat tabel nasabah dengan script berikut.
   CREATE TABLE ruangkelas (
   kode_ruang INTEGER PRIMARY KEY,
   nama_ruang VARCHAR(20) UNIQUE NOT NULL
   );

```
MariaDB [tugasm4]> CREATE TABLE ruangkelas (
    -> kode_ruang INTEGER PRIMARY KEY,
    -> nama_ruang VARCHAR(20) UNIQUE NOT NULL
    -> );
Query OK, 0 rows affected (0.365 sec)
```

10. Membuat tabel nasabah dengan script berikut.

```
CREATE TABLE mahasiswa_has_matakuliah(
nim_mhsFK VARCHAR(20) REFERENCES mahasiswa (nim_mhs)
ON DELETE CASCADE ON UPDATE CASCADE,
kode_mk VARCHAR(20) REFERENCES matakuliah (kode_mk)
ON DELETE CASCADE ON UPDATE CASCADE,
PRIMARY KEY (nim_mhsFK, kode_mkFK)
);
```

```
MariaDB [tugasm4]> CREATE TABLE mahasiswa_has_matakuliah (
    -> nim_mhsFK VARCHAR(20) REFERENCES mahasiswa (nim_mhs)
    -> ON DELETE CASCADE ON UPDATE CASCADE,
    -> kode_mkFK VARCHAR(20) REFERENCES matakuliah (kode_mk)
    -> ON DELETE CASCADE ON UPDATE CASCADE,
    -> PRIMARY KEY (nim_mhsFK, kode_mkFK)
    -> );
Query OK, 0 rows affected (0.445 sec)
```

11. Untuk mengecek hasil pembuatan database gunakan perintah :
    show tables;

```
MariaDB [tugasm4]> show tables;
+---------------------------+
| Tables_in_tugasm4         |
+---------------------------+
| dosen                     |
| mahasiswa                 |
| mahasiswa_has_matakuliah  |
| matakuliah                |
| ruangkelas                |
+---------------------------+
5 rows in set (0.047 sec)
```

12. Kemudian untuk melihat struktur tiap tabel dapat dilakukan dengan perintah describe.
    - Mahasiswa

```
MariaDB [tugasm4]> describe mahasiswa
    -> ;
+-------------+--------------+------+-----+---------+-------+
| Field       | Type         | Null | Key | Default | Extra |
+-------------+--------------+------+-----+---------+-------+
| nim_mhs     | varchar(20)  | NO   | PRI | NULL    |       |
| nip_dosenFK | int(11)      | YES  |     | NULL    |       |
| nama_mhs    | varchar(45)  | NO   | UNI | NULL    |       |
| alamat_mhs  | varchar(255) | NO   |     | NULL    |       |
+-------------+--------------+------+-----+---------+-------+
4 rows in set (0.082 sec)
```

- Dosen

```
MariaDB [tugasm4]> describe dosen;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| nip_dosen   | int(11)     | NO   | PRI | NULL    |       |
| nama_dosen  | varchar(45) | NO   | UNI | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
2 rows in set (0.027 sec)
```

- Matakuliah

```
MariaDB [tugasm4]> describe matakuliah;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| kode_mk     | varchar(20) | NO   | PRI | NULL    |       |
| kode_ruangFK| int(11)     | YES  |     | NULL    |       |
| nip_dosenFK | int(11)     | YES  |     | NULL    |       |
| nama_mk     | varchar(45) | NO   | UNI | NULL    |       |
| smt_mk      | int(11)     | NO   |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
5 rows in set (0.014 sec)
```

- Ruangkelas

```
MariaDB [tugasm4]> describe ruangkelas;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| kode_ruang  | int(11)     | NO   | PRI | NULL    |       |
| nama_ruang  | varchar(20) | NO   | UNI | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
2 rows in set (0.024 sec)
```

- Mahasiswa_has_matakuliah

```
MariaDB [tugasm4]> describe mahasiswa_has_matakuliah;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| nim_mhsFK | varchar(20) | NO   | PRI | NULL    |       |
| kode_mkFK | varchar(20) | NO   | PRI | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
2 rows in set (0.049 sec)
```

Versi fullnya:

```
5 rows in set (0.047 sec)

MariaDB [tugasm4]> describe mahasiswa
    -> ;
+-------------+---------------+------+-----+---------+-------+
| Field       | Type          | Null | Key | Default | Extra |
+-------------+---------------+------+-----+---------+-------+
| nim_mhs     | varchar(20)   | NO   | PRI | NULL    |       |
| nip_dosenFK | int(11)       | YES  |     | NULL    |       |
| nama_mhs    | varchar(45)   | NO   | UNI | NULL    |       |
| alamat_mhs  | varchar(255)  | NO   |     | NULL    |       |
+-------------+---------------+------+-----+---------+-------+
4 rows in set (0.082 sec)

MariaDB [tugasm4]> describe dosen;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| nip_dosen  | int(11)     | NO   | PRI | NULL    |       |
| nama_dosen | varchar(45) | NO   | UNI | NULL    |       |
+------------+-------------+------+-----+---------+-------+
2 rows in set (0.027 sec)

MariaDB [tugasm4]> describe matakuliah;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| kode_mk     | varchar(20) | NO   | PRI | NULL    |       |
| kode_ruangFK| int(11)     | YES  |     | NULL    |       |
| nip_dosenFK | int(11)     | YES  |     | NULL    |       |
| nama_mk     | varchar(45) | NO   | UNI | NULL    |       |
| smt_mk      | int(11)     | NO   |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
5 rows in set (0.014 sec)

MariaDB [tugasm4]> describe ruangkelas;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| kode_ruang | int(11)     | NO   | PRI | NULL    |       |
| nama_ruang | varchar(20) | NO   | UNI | NULL    |       |
+------------+-------------+------+-----+---------+-------+
2 rows in set (0.024 sec)
```

```
MariaDB [tugasm4]> describe mahasiswa_has_matakuliah;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| nim_mhsFK | varchar(20) | NO   | PRI | NULL    |       |
| kode_mkFK | varchar(20) | NO   | PRI | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
2 rows in set (0.049 sec)

MariaDB [tugasm4]>
```