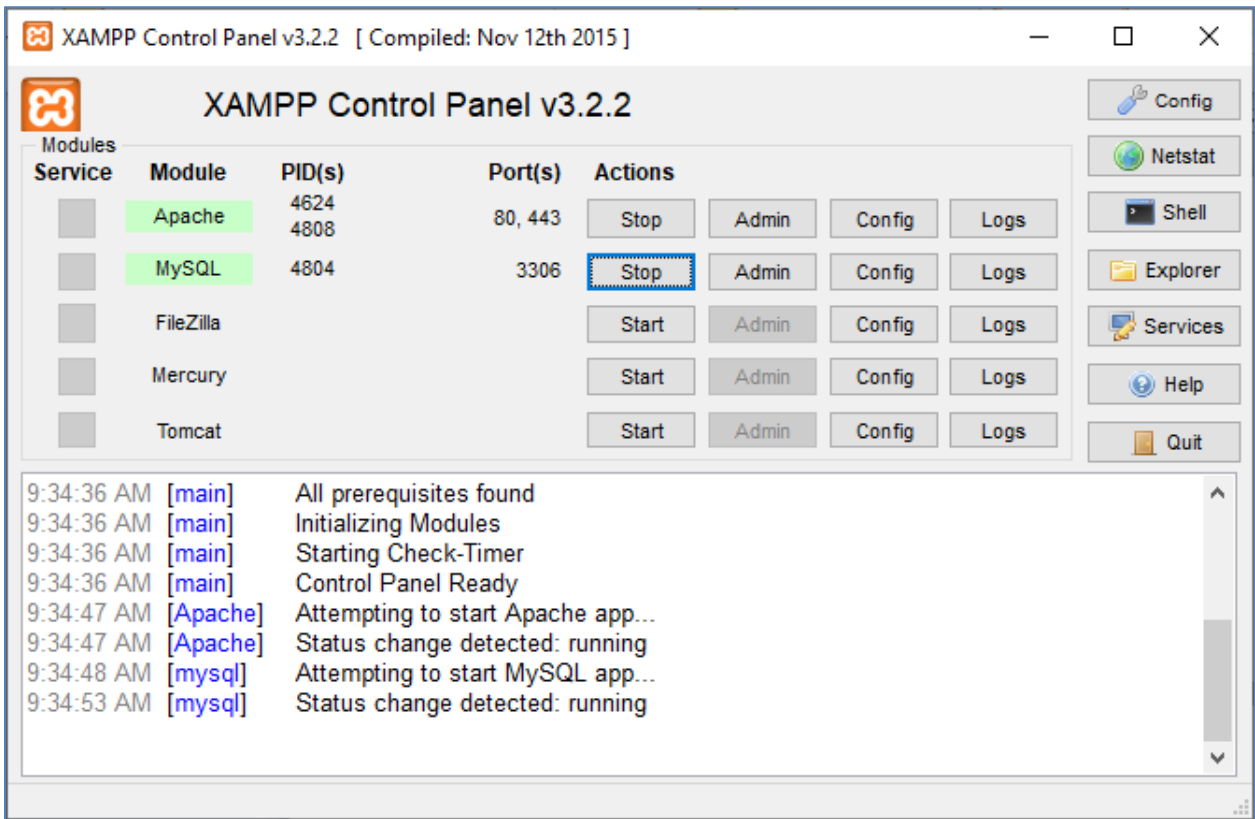


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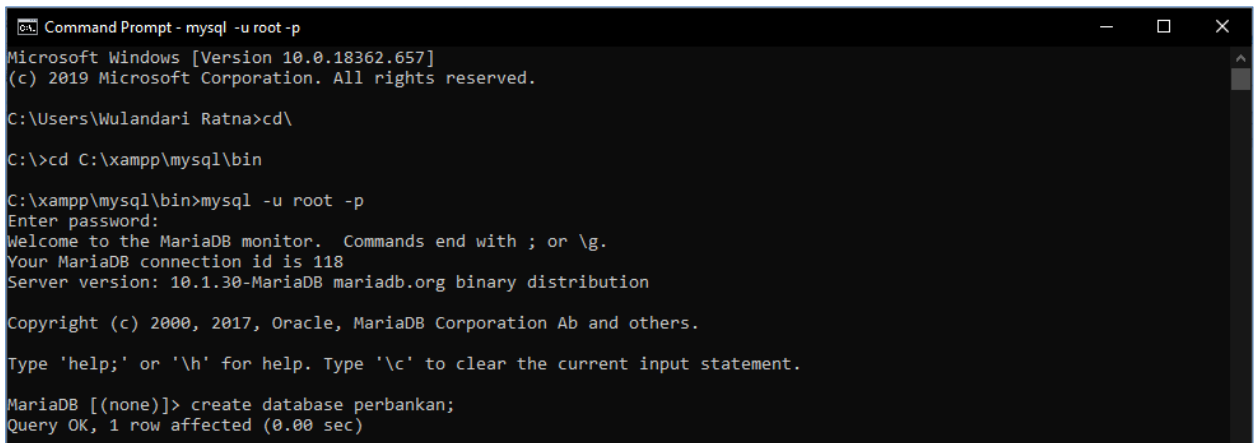
Modul 4
Data Definition Language(DDL)

Kegiatan Praktikum.

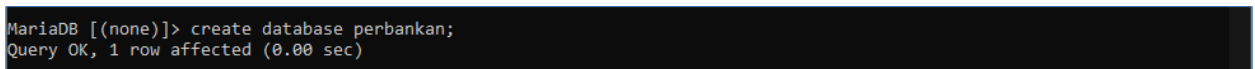
1. Jalankan XAMPP Control Panel. Jalankan server Apache dan MySQL.



2. Buka Command Prompt masuk ke direktori C:\xampp\mysql\bin dan login sebagai root ke MySQL (mysql -u root -p).



3. Membuat database perbankan dan menghubungkannya.



4. Membuat tabel nasabah, cabang_bank, rekening, transaksi, dan nasabah_has_rekening (karena m:n).

```
Command Prompt - mysql -u root -p
MariaDB [(none)]> create database perbankan;
Query OK, 1 row affected (0.00 sec)

MariaDB [(none)]> use perbankan;
Database changed
MariaDB [perbankan]> CREATE TABLE nasabah(
  -> id_nasabah INTEGER PRIMARY KEY,
  -> nama_nasabah VARCHAR(45) NOT NULL,
  -> alamat_nasabah VARCHAR(255) NOT NULL
  -> );
Query OK, 0 rows affected (0.27 sec)

MariaDB [perbankan]> CREATE TABLE cabang_bank(
  -> kode_cabang VARCHAR(20) PRIMARY KEY,
  -> nama_cabang VARCHAR(45) UNIQUE NOT NULL,
  -> alamat_cabang VARCHAR(255) NOT NULL
  -> );
Query OK, 0 rows affected (0.99 sec)

MariaDB [perbankan]> CREATE TABLE rekening(
  -> no_rekening INTEGER PRIMARY KEY,
  -> kode_cabangFK VARCHAR(20) REFERENCES cabang_bank(kode_cabang)
  -> ON DELETE CASCADE ON UPDATE CASCADE,
  -> pin VARCHAR(20) DEFAULT '1234' NOT NULL,
  -> saldo INTEGER DEFAULT 0 NOT NULL
  -> );
Query OK, 0 rows affected (0.36 sec)
```

```
Command Prompt - mysql -u root -p
MariaDB [perbankan]> CREATE TABLE rekening(
  -> no_rekening INTEGER PRIMARY KEY,
  -> kode_cabangFK VARCHAR(20) REFERENCES cabang_bank(kode_cabang)
  -> ON DELETE CASCADE ON UPDATE CASCADE,
  -> pin VARCHAR(20) DEFAULT '1234' NOT NULL,
  -> saldo INTEGER DEFAULT 0 NOT NULL
  -> );
Query OK, 0 rows affected (0.36 sec)

MariaDB [perbankan]> CREATE TABLE transaksi(
  -> no_transaksi SERIAL PRIMARY KEY,
  -> id_nasabahFK INTEGER REFERENCES nasabah(id_nasabah)
  -> ON DELETE SET NULL ON UPDATE CASCADE,
  -> no_rekeningFK INTEGER REFERENCES rekening(no_rekening)
  -> ON DELETE SET NULL ON UPDATE CASCADE,
  -> jenis_transaksi VARCHAR(20) DEFAULT 'debit' NOT NULL,
  -> tanggal DATETIME NOT NULL DEFAULT CURRENT_TIMESTAMP,
  -> jumlah INTEGER NOT NULL CHECK(jumlah>=20000)
  -> );
Query OK, 0 rows affected (0.32 sec)

MariaDB [perbankan]> CREATE TABLE nasabah_has_rekening(
  -> id_nasabahFK INTEGER REFERENCES nasabah(id_nasabah)
  -> ON DELETE CASCADE ON UPDATE CASCADE,
  -> no_rekeningFK INTEGER REFERENCES rekening(no_rekening)
  -> ON DELETE CASCADE ON UPDATE CASCADE,
  -> PRIMARY KEY(id_nasabahFK, no_rekeningFK)
  -> );
Query OK, 0 rows affected (0.38 sec)
```

5. Mengecek hasil pembuatan database.

```
Command Prompt - mysql -u root -p
MariaDB [perbankan]> show tables;
+-----+
| Tables_in_perbankan |
+-----+
| cabang_bank          |
| nasabah              |
| nasabah_has_rekening |
| rekening             |
| transaksi            |
+-----+
5 rows in set (0.00 sec)

MariaDB [perbankan]>
```

6. Melihat struktur tiap tabel.

```
Command Prompt - mysql -u root -p
MariaDB [perbankan]> describe nasabah;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| id_nasabah | int(11)   | NO   | PRI | NULL    |       |
| nama_nasabah | varchar(45) | NO   |     | NULL    |       |
| alamat_nasabah | varchar(255) | NO   |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.02 sec)

MariaDB [perbankan]> describe cabang_bank;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| kode_cabang | varchar(20) | NO   | PRI | NULL    |       |
| nama_cabang | varchar(45) | NO   | UNI | NULL    |       |
| alamat_cabang | varchar(255) | NO   |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.02 sec)

MariaDB [perbankan]> describe rekening;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| no_rekening | int(11)   | NO   | PRI | NULL    |       |
| kode_cabangFK | varchar(20) | YES  |     | NULL    |       |
| pin         | varchar(20) | NO   |     | 1234    |       |
| saldo       | int(11)   | NO   |     | 0       |       |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.16 sec)

Command Prompt - mysql -u root -p
MariaDB [perbankan]> describe transaksi;
+-----+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+-----+
| no_transaksi | bigint(20) unsigned | NO   | PRI | NULL    | auto_increment |
| id_nasabahFK | int(11)   | YES  |     | NULL    |               |
| no_rekeningFK | int(11)   | YES  |     | NULL    |               |
| jenis_transaksi | varchar(20) | NO   |     | debit   |               |
| tanggal      | datetime  | NO   |     | CURRENT_TIMESTAMP |               |
| jumlah        | int(11)   | NO   |     | NULL    |               |
+-----+-----+-----+-----+-----+-----+-----+
6 rows in set (0.02 sec)

MariaDB [perbankan]> describe nasabah_has_rekening;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| id_nasabahFK | int(11) | NO   | PRI | NULL    |       |
| no_rekeningFK | int(11) | NO   | PRI | NULL    |       |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.02 sec)

MariaDB [perbankan]>
```

Tugas.

Implementasikan hasil rancangan database yang menangani data kuliah pada tugas modul 2 ke dalam program mysql.

- 1. Buka Command Prompt masuk ke direktori C:\xampp\mysql\bin dan login sebagai root ke MySQL (mysql –u root –p).

```
Command Prompt - mysql -u root -p
Microsoft Windows [Version 10.0.18362.657]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\Wulandari Ratna>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 123
Server version: 10.1.30-MariaDB mariadb.org binary distribution

Copyright (c) 2000, 2017, Oracle, MariaDB Corporation Ab and others.

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

- 2. Membuat database datakuliah dan menghubungkannya.

```
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 123
Server version: 10.1.30-MariaDB mariadb.org binary distribution

Copyright (c) 2000, 2017, Oracle, MariaDB Corporation Ab and others.

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

MariaDB [(none)]> create database data_kuliah
-> ;
Query OK, 1 row affected (0.28 sec)
```

- 3. Membuat tabel mahasiswa, dosen, matakuliah, kelas, mahasiswa_has_matakuliah, dan dosen_has_matakuliah (karene m:n).

```
Command Prompt - mysql -u root -p
MariaDB [(none)]> create database data_kuliah
-> ;
Query OK, 1 row affected (0.28 sec)

MariaDB [(none)]> use data_kuliah;
Database changed
MariaDB [data_kuliah]> CREATE TABLE mahasiswa(
-> nim VARCHAR(20) PRIMARY KEY,
-> nama_mhs VARCHAR(45) NOT NULL,
-> alamat_mhs VARCHAR(255) NOT NULL,
-> tgllahir_mhs DATE
-> );
Query OK, 0 rows affected (1.30 sec)

MariaDB [data_kuliah]> CREATE TABLE dosen(
-> nip_dosen VARCHAR(20) PRIMARY KEY,
-> nama_dosen VARCHAR(45) NOT NULL,
-> alamat_dosen VARCHAR(255) NOT NULL,
-> kontak_dosen VARCHAR(20) NOT NULL
-> );
Query OK, 0 rows affected (0.49 sec)

MariaDB [data_kuliah]> CREATE TABLE matakuliah(
-> kode_mk VARCHAR(20) PRIMARY KEY,
-> nama_mk VARCHAR(45) NOT NULL,
-> jml_sks INTEGER NOT NULL,
-> semester INTEGER NOT NULL
-> );
Query OK, 0 rows affected (0.36 sec)
```

```
Command Prompt - mysql -u root -p
MariaDB [data_kuliah]> CREATE TABLE kelas(
  -> kode_ruang VARCHAR(20) PRIMARY KEY,
  -> kapasitas INTEGER NOT NULL
  -> );
Query OK, 0 rows affected (0.33 sec)

MariaDB [data_kuliah]> CREATE TABLE mahasiswa_has_matakuliah(
  -> nimFK VARCHAR(20) REFERENCES mahasiswa(nim)
  -> ON DELETE CASCADE ON UPDATE CASCADE,
  -> kode_mkFK VARCHAR(20) REFERENCES matakuliah(kode_mk)
  -> ON DELETE CASCADE ON UPDATE CASCADE
  -> );
Query OK, 0 rows affected (0.36 sec)

MariaDB [data_kuliah]> CREATE TABLE dosen_has_matakuliah(
  -> nip_dosenFK VARCHAR(20) REFERENCES dosen(nip_dosen)
  -> ON DELETE CASCADE ON UPDATE CASCADE,
  -> kode_mkFK VARCHAR(20) REFERENCES matakuliah(kode_mk)
  -> ON DELETE CASCADE ON UPDATE CASCADE
  -> );
Query OK, 0 rows affected (0.57 sec)
```

4. Mengecek hasil pembuatan database.

```
Command Prompt - mysql -u root -p
MariaDB [data_kuliah]> show tables;
+-----+
| Tables_in_data_kuliah |
+-----+
| dosen                  |
| dosen_has_matakuliah  |
| kelas                  |
| mahasiswa              |
| mahasiswa_has_matakuliah |
| matakuliah             |
+-----+
6 rows in set (0.27 sec)
```

5. Melihat struktur tiap tabel.

```
Command Prompt - mysql -u root -p
MariaDB [data_kuliah]> describe mahasiswa;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| nim   | varchar(20) | NO | PRI | NULL | |
| nama_mhs | varchar(45) | NO | | NULL | |
| alamat_mhs | varchar(255) | NO | | NULL | |
| tgllahir_mhs | date | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.33 sec)

MariaDB [data_kuliah]> describe dosen;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| nip_dosen | varchar(20) | NO | PRI | NULL | |
| nama_dosen | varchar(45) | NO | | NULL | |
| alamat_dosen | varchar(255) | NO | | NULL | |
| kontak_dosen | varchar(20) | NO | | NULL | |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.14 sec)

MariaDB [data_kuliah]> describe matakuliah;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| kode_mk | varchar(20) | NO | PRI | NULL | |
| nama_mk | varchar(45) | NO | | NULL | |
| jml_sks | int(11) | NO | | NULL | |
| semester | int(11) | NO | | NULL | |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.02 sec)
```

Command Prompt - mysql -u root -p

MariaDB [data_kuliah]> describe kelas;

Field	Type	Null	Key	Default	Extra
kode_ruang	varchar(20)	NO	PRI	NULL	
kapasitas	int(11)	NO		NULL	

2 rows in set (0.03 sec)

MariaDB [data_kuliah]> describe mahasiswa_has_matakuliah;

Field	Type	Null	Key	Default	Extra
nimFK	varchar(20)	YES		NULL	
kode_mkFK	varchar(20)	YES		NULL	

2 rows in set (0.05 sec)

MariaDB [data_kuliah]> describe dosen_has_matakuliah;

Field	Type	Null	Key	Default	Extra
nip_dosenFK	varchar(20)	YES		NULL	
kode_mkFK	varchar(20)	YES		NULL	

2 rows in set (0.02 sec)

MariaDB [data_kuliah]>