

1. Jalankan XAMPP dan server Apache, mysql

XAMPP Control Panel v3.2.4 [Compiled: Jun 5th 2019]

XAMPP Control Panel v3.2.4

Service	Module	PID(s)	Port(s)	Actions
<input type="checkbox"/>	Apache	8984 6680	80, 443	Stop Admin Config Logs
<input type="checkbox"/>	MySQL	5956	3306	Stop Admin Config Logs
<input type="checkbox"/>	FileZilla			Start Admin Config Logs
<input type="checkbox"/>	Mercury			Start Admin Config Logs
<input type="checkbox"/>	Tomcat			Start Admin Config Logs

Config Netstat Shell Explorer Services Help Quit

```
20:10:29 [main] Initializing Control Panel
20:10:29 [main] Windows Version: Pro 64-bit
20:10:29 [main] XAMPP Version: 7.2.28
20:10:29 [main] Control Panel Version: 3.2.4 [ Compiled: Jun 5th 2019 ]
20:10:29 [main] You are not running with administrator rights! This will work for
20:10:29 [main] most application stuff but whenever you do something with services
20:10:29 [main] there will be a security dialogue or things will break! So think
20:10:29 [main] about running this application with administrator rights!
20:10:29 [main] XAMPP Installation Directory: "c:\xampp\"
20:10:30 [main] Checking for prerequisites
20:10:30 [main] All prerequisites found
20:10:30 [main] Initializing Modules
20:10:30 [main] Starting Check-Timer
20:10:30 [main] Control Panel Ready
20:11:27 [Apache] Attempting to start Apache app...
20:11:27 [Apache] Status change detected: running
20:11:27 [mysql] Attempting to start MySQL app...
20:11:28 [mysql] Status change detected: running
```

2. Command Prompt dan login sebagai root ke MySQL seperti modul 1

```
C:\Users\Win10>cd\
C:\>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 22
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)]> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| phpmyadmin |
| test |
+-----+
5 rows in set (0.001 sec)
```

3. Buat database 'create database perbankan'

```
MariaDB [(none)]> CREATE DATABASE perbankan;  
Query OK, 1 row affected (0.002 sec)
```

5. Hubungkan ke dalam database yang telah dibuat dengan langkah berikut sehingga akan muncul pemberitahuan 'database changed'. Use perbankan.

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

6. Membuat table nasabah dengan script berikut:

```
Command Prompt - mysql -u root -p  
C:\Users>cd..  
C:\>cd C:\xampp\xampp\mysql\bin  
C:\xampp\xampp\mysql\bin>mysql -u root -p  
Enter password:  
Welcome to the MariaDB monitor.  Commands end with ; or \g.  
Your MariaDB connection id is 9  
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)]> 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 (0.425 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 (0.294 sec)  
  
MariaDB [perbankan]>
```

```
Select Command Prompt - mysql -u root -p  
  
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 (0.294 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 (0.244 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 (0.374 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 (0.278 sec)
```

```
Select Command Prompt - mysql -u root -p

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 (0.374 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 (0.278 sec)

MariaDB [perbankan]> show tables;
+-----+
| Tables_in_perbankan |
+-----+
| cabang_bank          |
| nasabah              |
| nasabah_has_rekening |
| rekening             |
| transaksi            |
+-----+
5 rows in set (0.196 sec)

MariaDB [perbankan]>
```

```
Command Prompt - mysql -u root -p

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 (0.278 sec)

MariaDB [perbankan]> show tables;
+-----+
| Tables_in_perbankan |
+-----+
| cabang_bank          |
| nasabah              |
| nasabah_has_rekening |
| rekening             |
| transaksi            |
+-----+
5 rows in set (0.196 sec)

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 (0.118 sec)

MariaDB [perbankan]>
```

TUGAS

1.

```
Command Prompt - mysql -u root -p

Microsoft Windows [Version 10.0.18362.720]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\ASUS>cd..

C:\Users>cd..

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

C:\xampp\xampp\mysql\bin>mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 24
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)]> CREATE DATABASE kuliah;
Query OK, 1 row affected (0.001 sec)

MariaDB [(none)]> use kuliah;
Database changed
MariaDB [kuliah]> CREATE TABLE dosen(
  -> nip_dosen INTEGER PRIMARY KEY,
  -> nama_dosen VARCHAR(45) NOT NULL,
  -> alamat_dosen VARCHAR(45) NOT NULL);
Query OK, 0 rows affected (0.203 sec)
```

```
Command Prompt - mysql -u root -p
-> alamat_dosen VARCHAR(45) NOT NULL);
Query OK, 0 rows affected (0.203 sec)

MariaDB [kuliah]> CREATE TABLE matkul(
-> kode_matkul INTEGER PRIMARY KEY,
-> nama_matkul VARCHAR(45) NOT NULL,
-> jumlah_matkul INTEGER DEFAULT 0 NOT NULL);
Query OK, 0 rows affected (0.293 sec)

MariaDB [kuliah]> CREATE TABLE mahasiswa(
-> NIM_mahasiswa VARCHAR(20) PRIMARY KEY,
-> nama_mahasiswa VARCHAR(45) NOT NULL,
-> alamat_mahasiswa VARCHAR(45) NOT NULL,
-> kode_ruangFK INTEGER REFERENCES ruang(kode_ruang) ON DELETE SET NULL ON UPDATE CASCADE);
Query OK, 0 rows affected (0.444 sec)

MariaDB [kuliah]> CREATE TABLE ruang(
-> kode_ruang INTEGER PRIMARY KEY,
-> nama_ruang VARCHAR(45) NOT NULL,
-> kapasitas_ruang INTEGER DEFAULT 0 NOT NULL);
Query OK, 0 rows affected (0.252 sec)

MariaDB [kuliah]> CREATE TABLE dosen_has_mahasiswa(
-> nip_dosenFK INTEGER REFERENCES dosen(nip_dosen) ON DELETE SET NULL ON UPDATE CASCADE,
-> NIM_mahasiswaFK VARCHAR(20) REFERENCES mahasiswa(NIM_mahasiswa) ON DELETE SET NULL ON UPDATE CASCADE);
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for the right syntax to use near 'NUL ON UPDATE CASCADE)' at line 3
MariaDB [kuliah]> CREATE TABLE dosen_has_mahasiswa(
-> nip_dosenFK INTEGER REFERENCES dosen(nip_dosen) ON DELETE SET NULL ON UPDATE CASCADE,
-> NIM_mahasiswaFK VARCHAR(20) REFERENCES mahasiswa(NIM_mahasiswa) ON DELETE SET NULL ON UPDATE CASCADE);
```

```
Command Prompt - mysql -u root -p

MariaDB [kuliah]> CREATE TABLE dosen_has_mahasiswa(
-> nip_dosenFK INTEGER REFERENCES dosen(nip_dosen) ON DELETE SET NULL ON UPDATE CASCADE,
-> NIM_mahasiswaFK VARCHAR(20) REFERENCES mahasiswa(NIM_mahasiswa) ON DELETE SET NULL ON UPDATE CASCADE);
Query OK, 0 rows affected (0.441 sec)

MariaDB [kuliah]> CREATE TABLE mahasiswa_has_matkul(
-> NIM_mahasiswaFK VARCHAR(20) REFERENCES mahasiswa(NIM_mahasiswa) ON DELETE SET NULL ON UPDATE CASCADE,
-> kode_matkulFK INTEGER REFERENCES matkul(kode_matkul) ON DELETE SET NULL ON UPDATE CASCADE);
Query OK, 0 rows affected (0.400 sec)

MariaDB [kuliah]> CREATE TABLE dosen_has_matkul(
-> nip_dosenFK INTEGER REFERENCES dosen(nip_dosen) ON DELETE SET NULL ON UPDATE CASCADE;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for the right syntax to use near '' at line 2
MariaDB [kuliah]> CREATE TABLE dosen_has_mahasiswa(
-> nip_dosenFK INTEGER REFERENCES dosen(nip_dosen) ON DELETE SET NULL ON UPDATE CASCADE)
-> );
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for the right syntax to use near '):' at line 3
MariaDB [kuliah]> CREATE TABLE dosen_has_matkul(
-> nip_dosenFK INTEGER REFERENCES dosen(nip_dosen) ON DELETE SET NULL ON UPDATE CASCADE,
-> kode_matkulFK INTEGER REFERENCES matkul(kode_matkul) ON DELETE SET NULL ON UPDATE CASCADE);
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for the right syntax to use near ')' at line 3
MariaDB [kuliah]> CREATE TABLE dosen_has_matkul(
-> nip_dosenFK INTEGER REFERENCES dosen(nip_dosen) ON DELETE SET NULL ON UPDATE CASCADE,
-> kode_matkulFK INTEGER REFERENCES matkul(kode_matkul) ON DELETE SET NULL ON UPDATE CASCADE);
Query OK, 0 rows affected (0.293 sec)
```

```
Command Prompt - mysql -u root -p
-> kode_matkulFK INTEGER REFERENCES matkul(kode_matkul) ON DELETE SET NULL ON UPDATE CASCADE);
Query OK, 0 rows affected (0.293 sec)

MariaDB [kuliah]> show tables;
+-----+
| Tables_in_kuliah |
+-----+
| dosen             |
| dosen_has_mahasiswa |
| dosen_has_matkul  |
| mahasiswa         |
| mahasiswa_has_matkul |
| matkul            |
| ruang             |
+-----+
7 rows in set (0.001 sec)

MariaDB [kuliah]> describe mahasiswa;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| NIM_mahasiswa  | varchar(20)   | NO   | PRI | NULL    |       |
| nama_mahasiswa | varchar(45)   | NO   |     | NULL    |       |
| alamat_mahasiswa | varchar(45)   | NO   |     | NULL    |       |
| kode_ruangFK   | int(11)       | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.004 sec)

MariaDB [kuliah]>
```

```
Command Prompt - mysql -u root -p

MariaDB [kuliah]> describe mahasiswa;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| NIM_mahasiswa  | varchar(20)   | NO   | PRI | NULL    |       |
| nama_mahasiswa | varchar(45)   | NO   |     | NULL    |       |
| alamat_mahasiswa | varchar(45)   | NO   |     | NULL    |       |
| kode_ruangFK    | int(11)       | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.004 sec)

MariaDB [kuliah]> describe dosen;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| nip_dosen      | int(11)       | NO   | PRI | NULL    |       |
| nama_dosen     | varchar(45)   | NO   |     | NULL    |       |
| alamat_dosen   | varchar(45)   | NO   |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.003 sec)

MariaDB [kuliah]> describe ruang;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| kode_ruang     | int(11)       | NO   | PRI | NULL    |       |
| nama_ruang     | varchar(45)   | NO   |     | NULL    |       |
| kapasitas_ruang | int(11)       | NO   |     | 0       |       |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.018 sec)
```

```
Command Prompt - mysql -u root -p

3 rows in set (0.003 sec)

MariaDB [kuliah]> describe ruang;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| kode_ruang     | int(11)       | NO   | PRI | NULL    |       |
| nama_ruang     | varchar(45)   | NO   |     | NULL    |       |
| kapasitas_ruang | int(11)       | NO   |     | 0       |       |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.018 sec)

MariaDB [kuliah]> describe matkul;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| kode_matkul    | int(11)       | NO   | PRI | NULL    |       |
| nama_matkul    | varchar(45)   | NO   |     | NULL    |       |
| jumlah_matkul  | int(11)       | NO   |     | 0       |       |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.018 sec)

MariaDB [kuliah]>
```

TUGAS

2. database perpustakaan

```
MariaDB [(none)]> CREATE DATABASE perpustakaan;  
Query OK, 1 row affected (0.002 sec)
```

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

```
MariaDB [perpustakaan]> CREATE TABLE peminjam(  
  -> id_peminjam INTEGER PRIMARY KEY,  
  -> nama_peminjam VARCHAR(45) NOT NULL,  
  -> alamat_peminjam VARCHAR(255) NOT NULL,  
  -> no_hp INTEGER DEFAULT 0 NOT NULL  
  -> );  
Query OK, 0 rows affected (0.703 sec)
```

```
MariaDB [perpustakaan]> CREATE TABLE pegawai(  
  -> id_pegawai INTEGER PRIMARY KEY,  
  -> nama_pegawai VARCHAR(45) NOT NULL,  
  -> alamat_pegawai VARCHAR(255) NOT NULL,  
  -> jabatan VARCHAR(45) NOT NULL  
  -> );  
Query OK, 0 rows affected (0.238 sec)
```

```
MariaDB [perpustakaan]> CREATE TABLE supplier(  
  -> nama_perusahaan VARCHAR(45) NOT NULL,  
  -> alamat_perusahaan VARCHAR(255) NOT NULL  
  -> );  
Query OK, 0 rows affected (0.614 sec)
```

```
MariaDB [perpustakaan]> CREATE TABLE buku(  
  -> kode_buku VARCHAR(20) PRIMARY KEY,  
  -> genre_buku VARCHAR(20) NOT NULL,  
  -> tahun_terbit VARCHAR(20) NOT NULL,  
  -> pengarang VARCHAR(45) NOT NULL  
  -> );  
Query OK, 0 rows affected (0.244 sec)
```

```
MariaDB [perpustakaan]> show tables;
```

```
+-----+  
| Tables_in_perpustakaan |  
+-----+  
| buku                    |  
| pegawai                 |  
| peminjam                |  
| supplier                |  
+-----+  
4 rows in set (0.001 sec)
```

```
MariaDB [perpustakaan]> describe pegawai;
```

Field	Type	Null	Key	Default	Extra
id_pegawai	int(11)	NO	PRI	NULL	
nama_pegawai	varchar(45)	NO		NULL	
alamat_pegawai	varchar(255)	NO		NULL	
jabatan	varchar(45)	NO		NULL	

4 rows in set (0.009 sec)

```
MariaDB [perpustakaan]> describe buku;
```

Field	Type	Null	Key	Default	Extra
kode_buku	varchar(20)	NO	PRI	NULL	
genre_buku	varchar(20)	NO		NULL	
tahun_terbit	varchar(20)	NO		NULL	
pengarang	varchar(45)	NO		NULL	

4 rows in set (0.009 sec)

```
MariaDB [perpustakaan]> describe peminjam
```

```
-> ;
```

Field	Type	Null	Key	Default	Extra
id_peminjam	int(11)	NO	PRI	NULL	
nama_peminjam	varchar(45)	NO		NULL	
alamat_peminjam	varchar(255)	NO		NULL	
no_hp	int(11)	NO		0	

4 rows in set (0.009 sec)

```
MariaDB [perpustakaan]> describe supplier;
```

Field	Type	Null	Key	Default	Extra
nama_perusahaan	varchar(45)	NO		NULL	
alamat_perusahaan	varchar(255)	NO		NULL	

2 rows in set (0.009 sec)