

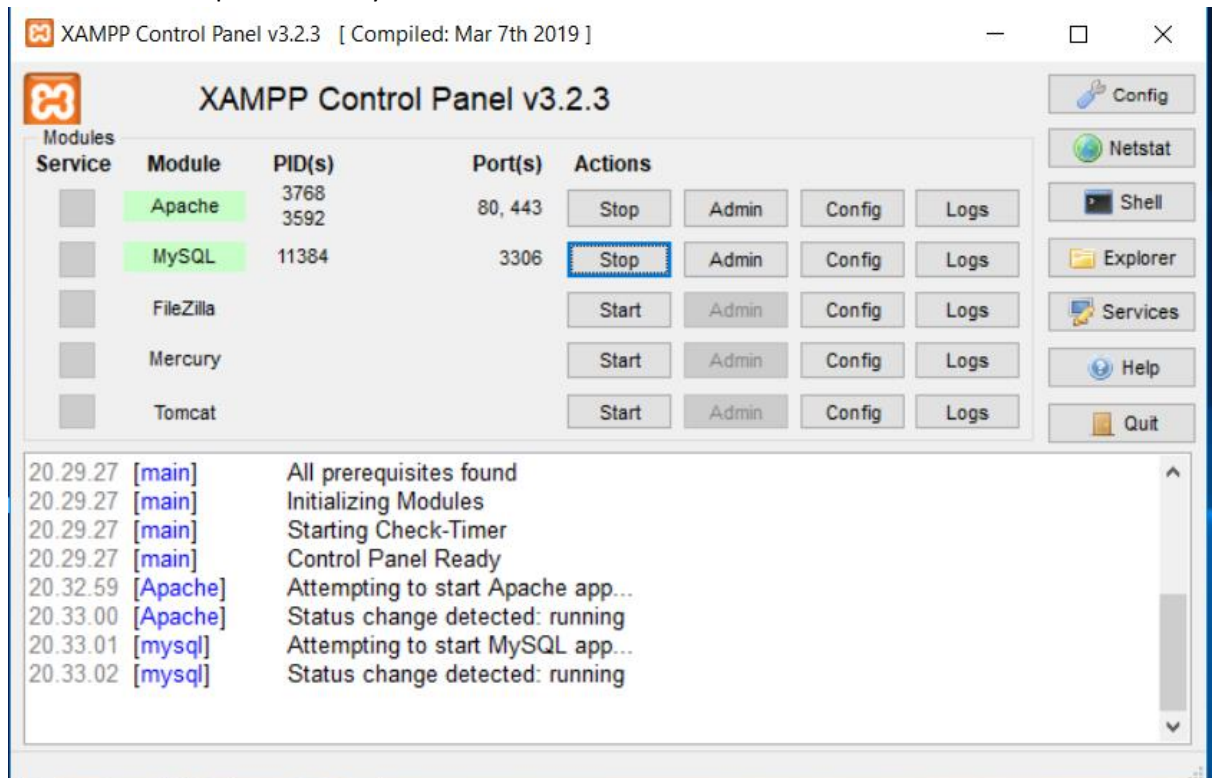
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MODUL04

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



3. Buka Command Prompt dan login sebagai root ke MySQL
4. Buat database baru dengan perintah create database perbankan;
5. Hubungkan ke dalam database yang telah dibuat dengan perintah berikut. Sehingga akan muncul pemberitahuan "database changed". Use perbankan;

```
Command Prompt - mysql -u root -p
Microsoft Windows [Version 10.0.17134.648]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\ASUS-USER>cd/

C:\>cd 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 3
Server version: 10.1.38-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 perbankan;
Query OK, 1 row affected (0.04 sec)

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

6. Membuat tabel nasabah, cabang_bank, rekening dengan script berikut

```
Command Prompt - mysql -u root -p
Query OK, 1 row affected (0.04 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 (0.30 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 (0.25 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 (0.23 sec)

MariaDB [perbankan]>
```

7. Membuat tabel transaksi dan nasabah_has_rekening dengan script berikut
8. Untuk mengecek hasil pembuatan database gunakan perintah show tables;

```
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 (0.26 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 (0.24 sec)

MariaDB [perbankan]> show tables;
+-----+
| Tables_in_perbankan |
+-----+
| cabang_bank          |
| nasabah              |
| nasabah_has_rekening |
| rekening             |
| transaksi            |
+-----+
5 rows in set (0.00 sec)

MariaDB [perbankan]>
```

9. Kemudian untuk melihat struktur tiap tabel dapat dilakukan dengan perintah describe

```
Command Prompt - mysql -u root -p
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 (0.01 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 (0.02 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 (0.01 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 (0.01 sec)
```

```
Command Prompt - mysql -u root -p
4 rows in set (0.01 sec)

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 (0.01 sec)

MariaDB [perbankan]>
```

Tugas

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

1. Database mahasiswa

```
Command Prompt - mysql -u root -p
Microsoft Windows [Version 10.0.17134.648]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\ASUS-USER>cd/

C:\>cd 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 4
Server version: 10.1.38-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 mahasiswa;
Query OK, 1 row affected (0.00 sec)

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

```
Command Prompt - mysql -u root -p
MariaDB [mahasiswa]> CREATE TABLE mahasiswa(
  -> nim_mahasiswa VARCHAR(20) PRIMARY KEY,
  -> nama_mahasiswa VARCHAR(45) NOT NULL,
  -> alamat_mahasiswa VARCHAR(255) NOT NULL
  -> );
Query OK, 0 rows affected (0.23 sec)

MariaDB [mahasiswa]> CREATE TABLE dosen(
  -> nip_dosen INTEGER PRIMARY KEY,
  -> nama_dosen VARCHAR(45) NOT NULL,
  -> alamat_dosen VARCHAR(255) NOT NULL
  -> );
Query OK, 0 rows affected (0.19 sec)

MariaDB [mahasiswa]> CREATE TABLE mata_kuliah(
  -> kode_mk INTEGER PRIMARY KEY,
  -> nama_mk VARCHAR(45) NOT NULL
  -> );
Query OK, 0 rows affected (0.25 sec)

MariaDB [mahasiswa]> CREATE TABLE ruang_kelas(
  -> kode_ruang INTEGER PRIMARY KEY,
  -> nama_ruang VARCHAR(20) UNIQUE NOT NULL
  -> );
Query OK, 0 rows affected (0.24 sec)

MariaDB [mahasiswa]> CREATE TABLE mahasiswa_has_dosen(
  -> nim_mahasiswaFK VARCHAR(20) REFERENCES mahasiswa(nim_mahasiswa) ON DELETE CASCADE ON UPDATE CASCADE,
  -> nip_dosenFK INTEGER REFERENCES dosen(nip_dosen) ON DELETE CASCADE ON UPDATE CASCADE,
  -> PRIMARY KEY(nim_mahasiswaFK, nip_dosenFK)
  -> );
Query OK, 0 rows affected (0.20 sec)

MariaDB [mahasiswa]> CREATE TABLE mahasiswa_has_ruang_kelas(
  -> nim_mahasiswaFK VARCHAR(20) REFERENCES mahasiswa(nim_mahasiswa) ON DELETE CASCADE ON UPDATE CASCADE,
  -> kode_ruangFK INTEGER REFERENCES ruang_kelas(kode_ruang) ON DELETE CASCADE ON UPDATE CASCADE,
  -> PRIMARY KEY(nim_mahasiswaFK, kode_ruangFK)
  -> );
Query OK, 0 rows affected (0.25 sec)

MariaDB [mahasiswa]> CREATE TABLE mata_kuliah_has_ruang_kelas(
  -> kode_mkFK INTEGER REFERENCES mata_kuliah(kode_mk) ON DELETE CASCADE ON UPDATE CASCADE,
  -> kode_ruangFK INTEGER REFERENCES ruang_kelas(kode_ruang) ON DELETE CASCADE ON UPDATE CASCADE,
  -> PRIMARY KEY(kode_mkFK, kode_ruangFK)
  -> );
Query OK, 0 rows affected (0.22 sec)
```

```
Command Prompt - mysql -u root -p
MariaDB [mahasiswa]> CREATE TABLE dosen_has_mata_kuliah(
  -> nip_dosenFK INTEGER REFERENCES dosen(nip_dosen) ON DELETE CASCADE ON UPDATE CASCADE,
  -> kode_mkFK INTEGER REFERENCES mata_kuliah(kode_mk) ON DELETE CASCADE ON UPDATE CASCADE,
  -> PRIMARY KEY(nip_dosenFK, kode_mkFK)
  -> );
Query OK, 0 rows affected (0.23 sec)

MariaDB [mahasiswa]> show tables;
+-----+
| Tables_in_mahasiswa |
+-----+
| dosen                |
| dosen_has_mata_kuliah |
| mahasiswa            |
| mahasiswa_has_dosen  |
| mahasiswa_has_ruang_kelas |
| mata_kuliah          |
| mata_kuliah_has_ruang_kelas |
| ruang_kelas          |
+-----+
8 rows in set (0.00 sec)

MariaDB [mahasiswa]> describe dosen;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| nip_dosen | int(11) | NO | PRI | NULL | |
| nama_dosen | varchar(45) | NO | | NULL | |
| alamat_dosen | varchar(255) | NO | | NULL | |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.05 sec)

MariaDB [mahasiswa]> describe dosen_has_mata_kuliah;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| nip_dosenFK | int(11) | NO | PRI | NULL | |
| kode_mkFK | int(11) | NO | PRI | NULL | |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.04 sec)

MariaDB [mahasiswa]> describe mahasiswa;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| nim_mahasiswa | varchar(20) | NO | PRI | NULL | |
| nama_mahasiswa | varchar(45) | NO | | NULL | |
| alamat_mahasiswa | varchar(255) | NO | | NULL | |
+-----+-----+-----+-----+-----+-----+
```

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

| alamat_mahasiswa | varchar(255) | NO | | NULL | |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)

MariaDB [mahasiswa]> describe mahasiswa_has_dosen;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| nim_mahasiswaFK | varchar(20) | NO | PRI | NULL | |
| nip_dosenFK | int(11) | NO | PRI | NULL | |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.03 sec)

MariaDB [mahasiswa]> describe mahasiswa_has_ruang_kelas;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| nim_mahasiswaFK | varchar(20) | NO | PRI | NULL | |
| kode_ruangFK | int(11) | NO | PRI | NULL | |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.01 sec)

MariaDB [mahasiswa]> describe mata_kuliah;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| kode_mk | int(11) | NO | PRI | NULL | |
| nama_mk | varchar(45) | NO | | NULL | |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.01 sec)

MariaDB [mahasiswa]> describe mata_kuliah_has_ruang_kelas;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| kode_mkFK | int(11) | NO | PRI | NULL | |
| kode_ruangFK | int(11) | NO | PRI | NULL | |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.02 sec)

MariaDB [mahasiswa]> describe ruang_kelas;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| kode_ruang | int(11) | NO | PRI | NULL | |
| nama_ruang | varchar(20) | NO | UNI | NULL | |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

2. Database Perusahaan

```
Command Prompt - mysql -u root -p
Microsoft Windows [Version 10.0.17134.648]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\ASUS-USER>cd/

C:\>cd 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: 10.1.38-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 perusahaan;
Query OK, 1 row affected (0.00 sec)

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

```
Command Prompt - mysql -u root -p
MariaDB [perusahaan]> CREATE TABLE client(
  -> id_client INTEGER PRIMARY KEY,
  -> nama_client VARCHAR(45) NOT NULL,
  -> alamat_client VARCHAR(255) NOT NULL
  -> );
Query OK, 0 rows affected (0.30 sec)

MariaDB [perusahaan]> CREATE TABLE karyawan(
  -> id_karyawan INTEGER PRIMARY KEY,
  -> nama_karyawan VARCHAR(45) NOT NULL,
  -> alamat_karyawan VARCHAR(255) NOT NULL,
  -> gen_karyawan VARCHAR(10) NOT NULL
  -> );
Query OK, 0 rows affected (0.23 sec)

MariaDB [perusahaan]> CREATE TABLE project(
  -> id_project INTEGER PRIMARY KEY,
  -> keterangan VARCHAR(255) NOT NULL
  -> );
Query OK, 0 rows affected (0.23 sec)

MariaDB [perusahaan]> CREATE TABLE job_project(
  -> id_job INTEGER PRIMARY KEY,
  -> id_clientFK INTEGER REFERENCES client(id_client) ON DELETE CASCADE ON UPDATE CASCADE,
  -> nama_job VARCHAR(45) NOT NULL,
  -> waktu_job VARCHAR(255) NOT NULL
  -> );
Query OK, 0 rows affected (0.21 sec)
```



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

MariaDB [perusahaan]> CREATE TABLE project_has_karyawan(
  -> id_projectFK INTEGER REFERENCES project(id_project) ON DELETE CASCADE ON UPDATE CASCADE,
  -> id_karyawanFK INTEGER REFERENCES karyawan(id_karyawan) ON DELETE CASCADE ON UPDATE CASCADE,
  -> PRIMARY KEY(id_projectFK, id_karyawanFK)
  -> );
Query OK, 0 rows affected (0.29 sec)

MariaDB [perusahaan]> CREATE TABLE job_project_has_project(
  -> id_jobFK INTEGER REFERENCES job_project(id_job) ON DELETE CASCADE ON UPDATE CASCADE,
  -> id_projectFK INTEGER REFERENCES project(id_project) ON DELETE CASCADE ON UPDATE CASCADE,
  -> PRIMARY KEY(id_jobFK,id_projectFK)
  -> );
Query OK, 0 rows affected (0.30 sec)

MariaDB [perusahaan]> show tables;
+-----+
| Tables_in_perusahaan |
+-----+
| client                |
| job_project            |
| job_project_has_project |
| karyawan              |
| project               |
| project_has_karyawan  |
+-----+
6 rows in set (0.00 sec)

MariaDB [perusahaan]> describe client;
+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+
| id_client  | int(11)   | NO   | PRI | NULL    |       |
| nama_client | varchar(45) | NO   |     | NULL    |       |
| alamat_client | varchar(255) | NO   |     | NULL    |       |
+-----+
3 rows in set (0.01 sec)

MariaDB [perusahaan]> describe job_project;
+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+
| id_job     | int(11)   | NO   | PRI | NULL    |       |
| id_clientFK | int(11)   | YES  |     | NULL    |       |
| nama_job   | varchar(45) | NO   |     | NULL    |       |
| waktu_job  | varchar(255) | NO   |     | NULL    |       |
+-----+
4 rows in set (0.01 sec)
```

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

MariaDB [perusahaan]> describe job_project_has_project;
+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+
| id_jobFK   | int(11)   | NO   | PRI | NULL    |       |
| id_projectFK | int(11)   | NO   | PRI | NULL    |       |
+-----+
2 rows in set (0.01 sec)

MariaDB [perusahaan]> describe karyawan;
+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+
| id_karyawan | int(11)   | NO   | PRI | NULL    |       |
| nama_karyawan | varchar(45) | NO   |     | NULL    |       |
| alamat_karyawan | varchar(255) | NO   |     | NULL    |       |
| gen_karyawan | varchar(10) | NO   |     | NULL    |       |
+-----+
4 rows in set (0.01 sec)

MariaDB [perusahaan]> describe project;
+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+
| id_project | int(11)   | NO   | PRI | NULL    |       |
| keterangan | varchar(255) | NO   |     | NULL    |       |
+-----+
2 rows in set (0.01 sec)

MariaDB [perusahaan]> describe project_has_karyawan;
+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+
| id_projectFK | int(11)   | NO   | PRI | NULL    |       |
| id_karyawanFK | int(11)   | NO   | PRI | NULL    |       |
+-----+
2 rows in set (0.01 sec)

MariaDB [perusahaan]>
```