

LAPORAN PRAKTIKUM
SISTEM BASIS DATA
MODUL 4
DATA DEFINITION LANGUAGE (DDL)

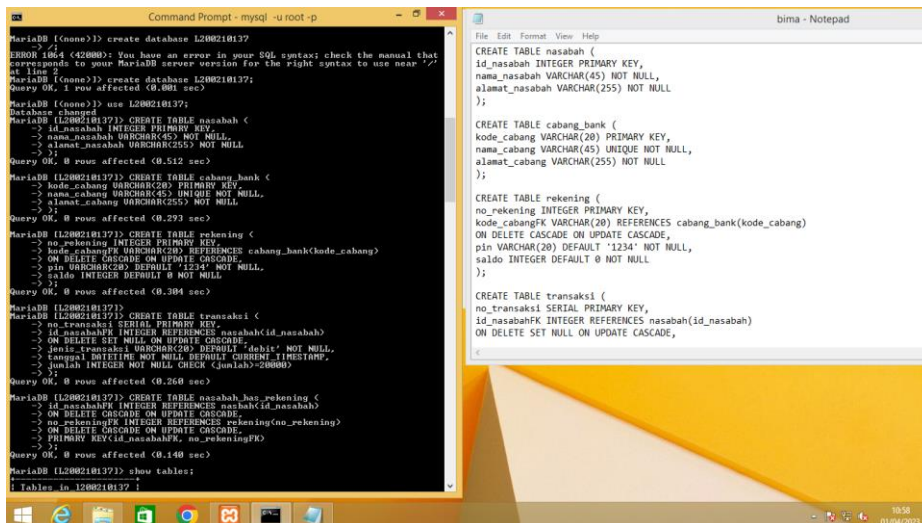


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FAKULTAS KOMUNIKASI DAN INFORMATIKA
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2022/2023

D. Langkah-langkah Praktikum

1. Jalankan XAMPP Control Panel.
2. Jalankan server Apache dan MySQL.
3. Buka Command Prompt dan login sebagai root ke MySQL seperti dilangkah pada Modul 1.
4. Buat database baru dengan perintah berikut ini. create database perbankan; (diganti dengan NIM mahasiswa).
5. Hubungkan ke dalam database yang telah dibuat dengan perintah berikut. Sehingga akan muncul pemberitahuan "database changed". use perbankan;
6. Membuat tabel nasabah sesuai dengan script pada modul.
7. Membuat tabel cabang_bank sesuai dengan script pada modul.
8. Membuat tabel rekening sesuai dengan script pada modul.
9. Membuat tabel transaksi sesuai dengan script pada modul.
10. Membuat tabel nasabah_has_rekening sesuai dengan script pada modul.



```
Command Prompt - mysql -u root -p
MariaDB [(none)]> create database L200210137;
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 [(none)]> create database L200210137;
Query OK, 1 row affected (0.001 sec)

MariaDB [(none)]> use L200210137;
Database changed

MariaDB [L200210137]> 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 (0.512 sec)

MariaDB [L200210137]> 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 (0.293 sec)

MariaDB [L200210137]> 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 (0.304 sec)

MariaDB [L200210137]> CREATE TABLE transaksi (
  no_transaksi SERIAL PRIMARY KEY,
  id_nasabahFK INTEGER REFERENCES nasabah(id_nasabah)
ON DELETE SET NULL ON UPDATE CASCADE,
jenis_transaksi VARCHAR(20) DEFAULT 'debit' NOT NULL,
tanggal_bertindak NOT NULL DEFAULT CURRENT_TIMESTAMP,
jumlah INTEGER NOT NULL CHECK (jumlah>0)
);
Query OK, 0 rows affected (0.268 sec)

MariaDB [L200210137]> 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 (0.140 sec)

MariaDB [L200210137]> show tables;
Tables in L200210137:
+-----+
| cabang_bank |
| nasabah |
| nasabah_has_rekening |
| rekening |
| transaksi |
+-----+
5 rows in set (0.000 sec)
```

```
bima - Notepad
File Edit Format View Help

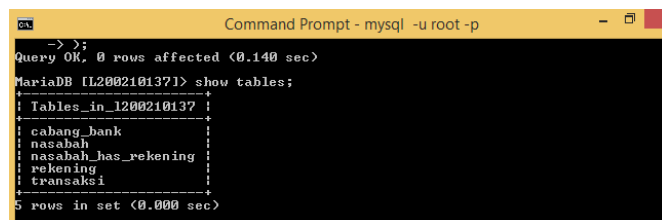
CREATE TABLE nasabah (
  id_nasabah INTEGER PRIMARY KEY,
  nama_nasabah VARCHAR(45) NOT NULL,
  alamat_nasabah VARCHAR(255) NOT NULL
);

CREATE TABLE cabang_bank (
  kode_cabang VARCHAR(20) PRIMARY KEY,
  nama_cabang VARCHAR(45) UNIQUE NOT NULL,
  alamat_cabang VARCHAR(255) NOT NULL
);

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
);

CREATE TABLE transaksi (
  no_transaksi SERIAL PRIMARY KEY,
  id_nasabahFK INTEGER REFERENCES nasabah(id_nasabah)
ON DELETE SET NULL ON UPDATE CASCADE,
);
```

11. Untuk mengecek hasil pembuatan database gunakan perintah showtables;



```
Command Prompt - mysql -u root -p
->
Query OK, 0 rows affected (0.140 sec)

MariaDB [L200210137]> show tables;
Tables in L200210137:
+-----+
| cabang_bank |
| nasabah |
| nasabah_has_rekening |
| rekening |
| transaksi |
+-----+
5 rows in set (0.000 sec)
```

- Kemudian untuk melihat struktur tiap tabel dapat dilakukan dengan perintah describe. Misalkan untuk melihat struktur tabel nasabah dapat dilakukan dengan perintah describe nasabah;

The screenshot shows a MySQL Command Prompt window with the following commands and output:

```

mysql> show tables;
+-----+
| Tables_in_120802101371 |
+-----+
| cabang_bank |
| nasabah |
| nasabah_has_rekening |
| rekening |
| transaksi |
+-----+

mysql> 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 | |
+-----+

mysql> 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 | |
+-----+

mysql> 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 | |
+-----+

mysql> describe transaksi;
+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+
| no_transaksi | serial | NO | PRI | NULL | |
| id_nasabahFK | int(11) | YES | | NULL | |
+-----+

```

The Notepad window shows the following SQL code:

```

CREATE TABLE nasabah (
  id_nasabah INTEGER PRIMARY KEY,
  nama_nasabah VARCHAR(45) NOT NULL,
  alamat_nasabah VARCHAR(255) NOT NULL
);

CREATE TABLE cabang_bank (
  kode_cabang VARCHAR(20) PRIMARY KEY,
  nama_cabang VARCHAR(45) UNIQUE NOT NULL,
  alamat_cabang VARCHAR(255) NOT NULL
);

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
);

CREATE TABLE transaksi (
  no_transaksi SERIAL PRIMARY KEY,
  id_nasabahFK INTEGER REFERENCES nasabah(id_nasabah)
  ON DELETE SET NULL ON UPDATE CASCADE,

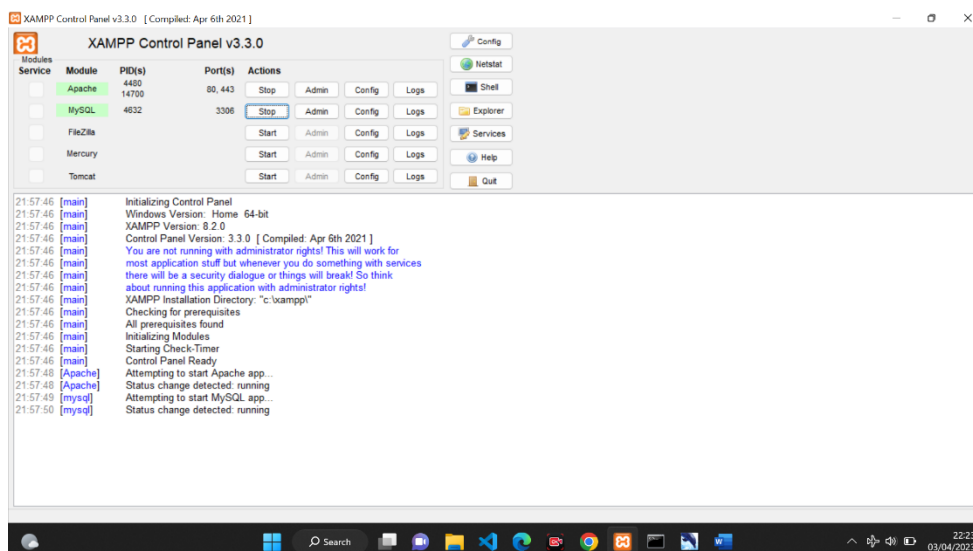
```

E. Tugas

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

Jawab :

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



- Buka Command Prompt dan login sebagai root ke MySQL seperti di langkah pada Modul 1.
- Buat database baru dengan perintah berikut ini. create database bima_triadmaja;
- Hubungkan ke dalam database yang telah dibuat dengan perintah berikut. Sehingga akan muncul pemberitahuan "database changed". use bima_triadmaja; Sinkronisasi DBDesigner kedalam mysql lalu execute.

```
Microsoft Windows [Version 10.0.22000.1455]
(c) Microsoft Corporation. All rights reserved.

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

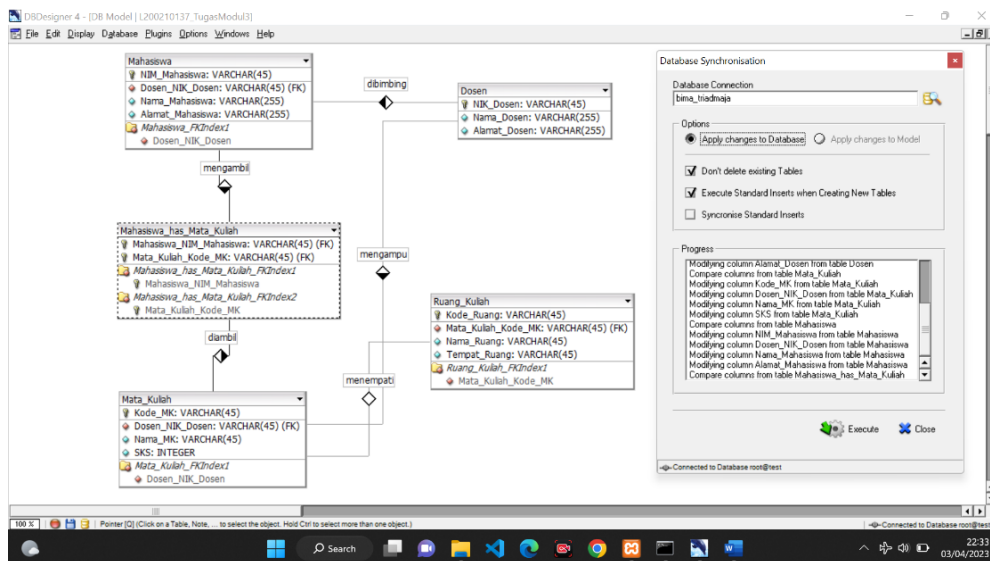
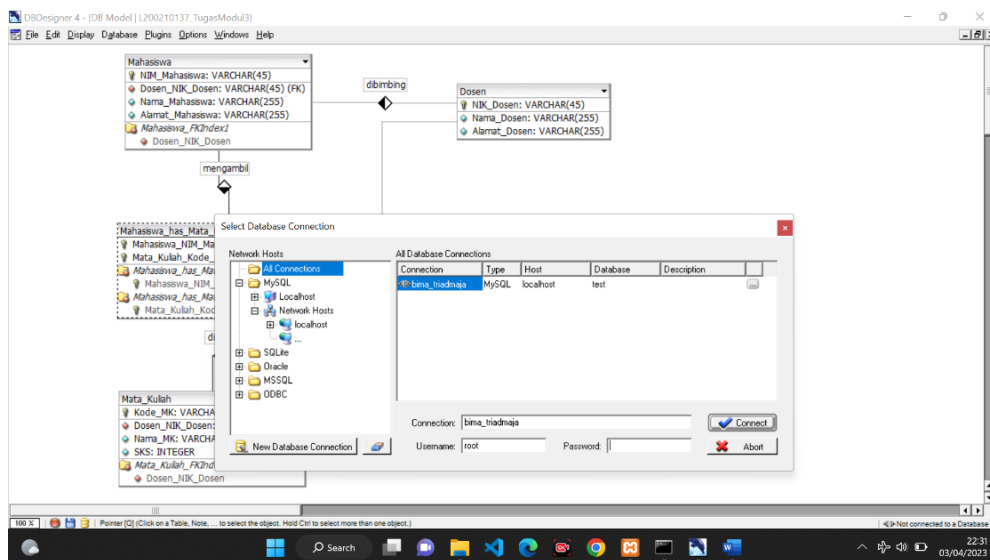
C:\xampp\mysql\bin>mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 8
Server version: 10.4.27-MariaDB mariadb.org binary distribution

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 |
+-----+
| bima_triadmaja |
| informasi |
| information_schema |
| mysql |
| performance_schema |
| phpmyadmin |
| test |
+-----+
8 rows in set (0.013 sec)

MariaDB [(none)]> use bima_triadmaja;
Database changed
MariaDB [bima_triadmaja]> show databases;
+-----+
| Database |
+-----+
| bima_triadmaja |
| informasi |
| information_schema |
| mysql |
| performance_schema |
| phpmyadmin |
| test |
+-----+
8 rows in set (0.013 sec)
```



6. Ketik `use bima_triadmaja`; kemudian database akan berubah, apabila ingin cek bisa ketik `show tables`, dan `desc (entity)`.

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

MariaDB [(none)]> use bima_triadmaja;
Database changed
MariaDB [bima_triadmaja]> show tables;
+-----+
| Tables_in_bima_triadmaja |
+-----+
| dosen                     |
| mahasiswa                 |
| mahasiswa_has_mata_kuliah |
| mata_kuliah               |
| ruang_kuliah              |
+-----+
5 rows in set (0.001 sec)

MariaDB [bima_triadmaja]> desc dosen;
+----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+----+-----+-----+-----+-----+-----+
| NIK_Dosen | varchar(45) | NO | PRI | NULL | |
| Nama_Dosen | varchar(255) | NO | | NULL | |
| Alamat_Dosen | varchar(255) | NO | | NULL | |
+----+-----+-----+-----+-----+-----+
3 rows in set (0.010 sec)

MariaDB [bima_triadmaja]> desc mahasiswa;
+----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+----+-----+-----+-----+-----+-----+
| NIM_Mahasiswa | varchar(45) | NO | PRI | NULL | |
| Nama_Mahasiswa | varchar(255) | NO | | NULL | |
| Alamat_Mahasiswa | varchar(255) | NO | | NULL | |
+----+-----+-----+-----+-----+-----+
3 rows in set (0.015 sec)

MariaDB [bima_triadmaja]> desc mahasiswa_has_mata_kuliah;
+----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+----+-----+-----+-----+-----+-----+
| NIM_MahasiswaFK | varchar(45) | NO | PRI | NULL | |
+----+-----+-----+-----+-----+-----+
1 rows in set (0.010 sec)
```

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

MariaDB [bima_triadmaja]> desc mahasiswa_has_mata_kuliah;
+----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+----+-----+-----+-----+-----+-----+
| NIM_MahasiswaFK | varchar(45) | NO | PRI | NULL | |
| Kode_MKFK | varchar(45) | NO | PRI | NULL | |
+----+-----+-----+-----+-----+-----+
2 rows in set (0.012 sec)

MariaDB [bima_triadmaja]> desc mata_kuliah;
+----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+----+-----+-----+-----+-----+-----+
| Kode_MK | varchar(45) | NO | PRI | NULL | |
| NIK_DosenFK | varchar(45) | YES | | NULL | |
| Nama_MK | varchar(255) | NO | | NULL | |
| SKS | int(11) | NO | | 0 | |
+----+-----+-----+-----+-----+-----+
4 rows in set (0.018 sec)

MariaDB [bima_triadmaja]> desc ruang_kuliah;
+----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+----+-----+-----+-----+-----+-----+
| Kode_Ruang | varchar(45) | NO | PRI | NULL | |
| Kode_MKFK | varchar(45) | YES | | NULL | |
| Nama_Ruang | varchar(45) | NO | | NULL | |
| Tempat_Ruang | varchar(45) | NO | | NULL | |
+----+-----+-----+-----+-----+-----+
4 rows in set (0.016 sec)

MariaDB [bima_triadmaja]>
```