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Modul 4

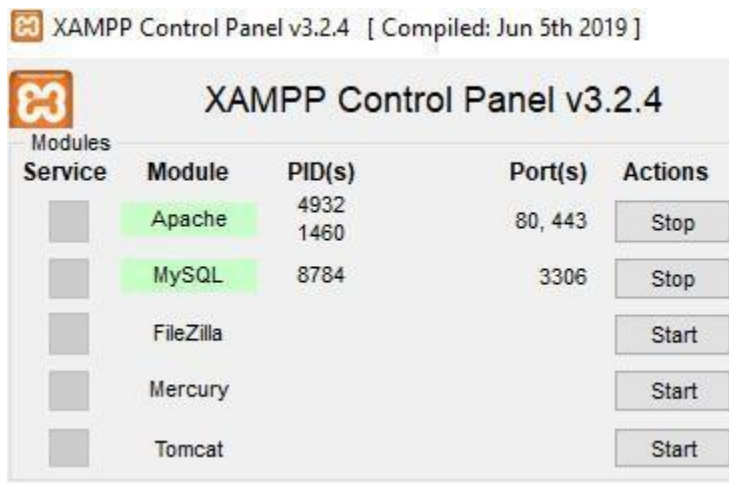
Data Definition Language (DDL)

C. Alat dan Bahan :

1. Komputer dengan system operasi Windows XP.
2. Program aplikasi XAMPP dengan PhpMyAdmin.
3. Modul praktikum system berkas dan basis data.

D. Langkah Praktikum :

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



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

```
C:\Windows\system32\cmd.exe - mysql -u root
Microsoft Windows [Version 10.0.18362.720]
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C:\Users\HP-DESKTOP>cd\

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

C:\xampp\mysql\bin>mysql -u root
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 26
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.
```

4. Buat database baru dengan perintah berikut. Create database perbankan;
5. hubungkan kedalam database yang telah dibuat dengan perintah berikut. Sehingga akan mmuncul pemberitahuan “database changed”.
Use perbankan;
6. Membuat table nasabah dengan script berikut. CREATE TABLE nasabah (
id_nasabah INTEGER PRIMARY KEY,
nama_nasabah VARCHAR(45) NOT
NULL,
alamat_nasabah VARCHAR(255) NOT NULL,);
7. Membuat table cabang_bank dengan script berikut.
CREATE TABLE(
Kode_cabang VARCHAR(20) PRIMARY KEY,
Nama_cabang VARCHAR(45) UNIQUE NOT
NULL,
Alamat_cabang VARCHAR(255) NOT NULL,
8. Membuat table rekening dengan script berikut. 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
);
9. Membuat table transaksi dengan script berikut
ini. CREATE TABLE transaksi(
No_transaksi SERIAL PRIMARY KEY,

Id_nasabahFK INTEGER REFERENCES nasabah(id_nasabah)

```

ON DELETE SET NULL ON UPDATE CASCADE,
No_rekening 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));

```

10. Membuat table nasabah_has_rekening dengan script berikut

```

ini. CREATE TABLE nasabah_has_rekening(
Id_nasabahFK INTEGER REFERENCES
nasabah(id_nasabah) ON DELETE CASHCADE ON
UPDATE CASCADE,
No_rekeningFK INTEGER REFERENCES rekening(no_rekening)
ON DELETE CASHCADE ON UPDATE CASCADE, PRIMARY
KEY(id_nasabahFK, no_rekeningFK));

```

```
MariaDB [perbangkan]> 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 (0.438 sec)  
  
MariaDB [perbangkan]> 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 (0.320 sec)  
  
MariaDB [perbangkan]> 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  
  -> );  
  
MariaDB [perbangkan]> create table transaksi (  
  -> no_transaksi SERIAL PRIMARY KEY,  
  -> 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,  
  -> 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 (0.560 sec)  
  
MariaDB [perbangkan]> 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 (0.432 sec)
```

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

```
MariaDB [perbankan]> show tables;
+-----+
| Tables_in_perbankan |
+-----+
| cabang_bank         |
| nasabah             |
| nasabah_has_rekening |
| rekening            |
| transaksi           |
+-----+
5 rows in set (0.137 sec)
```

12. Kemudian untuk melihat struktur tiap table dapat dilakukan dengan perintah scribe. Misalkan untuk melihat struktur table nasabah dapat dilakukan dengan perintah describe nasabah;

```
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 (0.257 sec)
```

Tugas

```
C:\Windows\system32\cmd.exe - mysql -u root -p
MariaDB [perbankan]> create database data_kuliah;
Query OK, 1 row affected (0.384 sec)

MariaDB [perbankan]> show database
+-----+
| Database |
+-----+
| data_kuliah |
| information_schema |
| mysql |
| perbankan |
| performance_schema |
| phpmyadmin |
| test |
+-----+
7 rows in set (0.400 sec)

MariaDB [perbankan]> use kuliah;
ERROR 1049 (42000): Unknown database 'kuliah'
MariaDB [perbankan]> use data_kuliah;
Database changed
MariaDB [data_kuliah]> CREATE TABLE mahasiswa (
  -> nim VARCHAR(20) PRIMARY KEY,
  -> nama_mahasiswa VARCHAR(45) NOT NULL,
  -> alamat_mahasiswa VARCHAR(255) NOT NULL
  -> );
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 'VARCHAR(255) NOT NULL' at line 4
MariaDB [data_kuliah]> CREATE TABLE mahasiswa (
  -> nim VARCHAR(20) PRIMARY KEY,
  -> nama_mahasiswa VARCHAR(45) NOT NULL,
  -> alamat_mahasiswa VARCHAR(255) NOT NULL
  -> );
Query OK, 0 rows affected (0.496 sec)

MariaDB [data_kuliah]> CREATE TABLE dosen (
  -> id_dosen VARCHAR(20) PRIMARY KEY,
  -> nama_dosen VARCHAR(45) NOT NULL,
  -> alamat_dosen VARCHAR(255) NOT NULL
  -> );
```

```
C:\Windows\system32\cmd.exe - mysql -u root -p
MariaDB [data_kuliah]> CREATE TABLE dosen (
  -> id_dosen VARCHAR(20) PRIMARY KEY,
  -> nama_dosen VARCHAR(45) NOT NULL,
  -> alamat_dosen VARCHAR(255) NOT NULL
  -> );
Query OK, 0 rows affected (0.132 sec)

MariaDB [data_kuliah]> CREATE TABLE mata_kuliah (
  -> id_makul VARCHAR(20) PRIMARY KEY,
  -> nama_makul VARCHAR(20) NOT NULL,
  -> jadwal_makul VARCHAR(20) NOT NULL
  -> );
Query OK, 0 rows affected (0.123 sec)

MariaDB [data_kuliah]> CREATE TABLE ruang_kuliah (
  -> kode_ruang VARCHAR(20) PRIMARY KEY,
  -> lokasi_ruang VARCHAR(255) NOT NULL
  -> );
Query OK, 0 rows affected (0.094 sec)

MariaDB [data_kuliah]> CREATE TABLE mahasiswa_has_dosen (
  -> nimFK VARCHAR(20) REFERENCES mahasiswa(nim)
  -> ON DELETE CASCADE ON UPDATE CASCADE,
  -> id_dosenFK VARCHAR(20) REFERENCES dosen(id_dosen)
  -> ON DELETE CASCADE ON UPDATE CASCADE
  -> );
Query OK, 0 rows affected (0.193 sec)

MariaDB [data_kuliah]> CREATE TABLE dosen_has_makul (
  -> id_dosenFK VARCHAR(20) REFERENCES dosen(id_dosen)
  -> ON DELETE CASCADE ON UPDATE CASCADE,
  -> id_makulFK VARCHAR(20) REFERENCES mata_kuliah(id_makul)
  -> ON DELETE CASCADE ON UPDATE CASCADE
  -> );
Query OK, 0 rows affected (0.148 sec)

MariaDB [data_kuliah]> CREATE TABLE mata_kuliah_has_ruang_kuliah (
  -> id_makulFK VARCHAR(20) REFERENCES mata_kuliah(id_makul)
  -> ON DELETE CASCADE ON UPDATE CASCADE,
  -> kode_ruangFK VARCHAR(20) REFERENCES ruang_kuliah(kode_ruang)
  -> ON DELETE CASCADE ON UPDATE CASCADE
  -> );
Query OK, 0 rows affected (0.136 sec)
```

```
C:\Windows\system32\cmd.exe - mysql -u root -p
MariaDB [data_kuliah]> show tables;
+-----+
Tables_in_data_kuliah
+-----+
dosen
dosen_has_makul
mahasiswa
mahasiswa_has_dosen
mata_kuliah
mata_kuliah_has_ruang_kuliah
ruang_kuliah
7 rows in set (0.020 sec)

MariaDB [data_kuliah]> describe ruang_kuliah;
+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+
| kode_ruang | varchar(20)   | NO   | PRI | NULL    |       |
| lokasi_ruang | varchar(255) | NO   |     | NULL    |       |
+-----+
2 rows in set (0.128 sec)

MariaDB [data_kuliah]> describe mahasiswa_has_dosen
-> );
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 [data_kuliah]> describe mahasiswa_has_dosen;
+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+
| nimFK      | varchar(20)   | YES  |     | NULL    |       |
| id_dosenFK | varchar(20)   | YES  |     | NULL    |       |
+-----+
2 rows in set (0.005 sec)

MariaDB [data_kuliah]> describe dosen;
+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+
| id_dosen   | varchar(20)   | NO   | PRI | NULL    |       |
| nama_dosen | varchar(45)   | NO   |     | NULL    |       |
| alamat_dosen | varchar(255) | NO   |     | NULL    |       |
+-----+
```