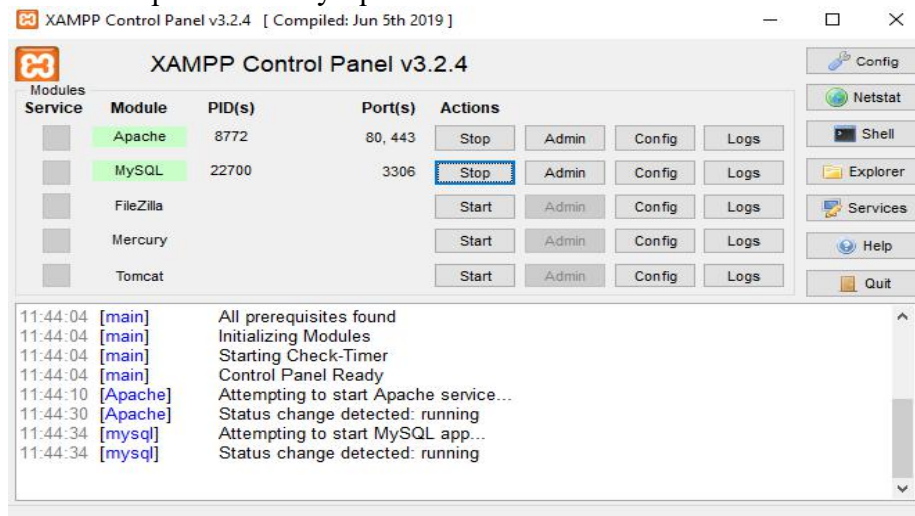Nama   : Amartya Bintang Wijat Ranti
NIM   : L200180193
Kelas   : G
Mata Kuliah : Praktikum Sistem Basis Data

MODUL 4 : Data Definition Language (DDL)

Tugas : Implementasikan hasil rancangan database yang menangani data kuliah pada modul 2 ke dalam program MySql.

Langkah-langkah :
1. Jalankan XAMPP Control Penel
2. Jalankan Apache dan MySql

3. Buka Command Promp dan login sebagai root ke MySql, seperi di langkah pada modul 1
4. Buat database baru dengan perintah berikut :
   Create database kuliah;
5. Hubungkan ke dalam databse yang telah dibuat dengan perintah berikut :
   Sehingga akan muncul pemberitahuan 'databse changed', use kuliah;
6. Membuat tabel dosen
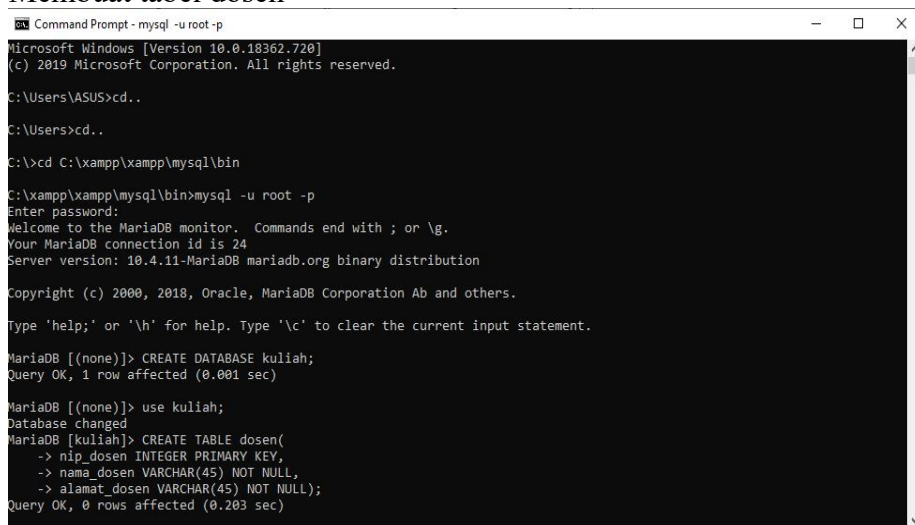
7. Membuat tabel mata kuliah (matkul)
8. Membuat tabel mahasiswa
9. Membuat tabel ruang
10. Membuat tabel dosen has mahasiswa
11. Membuat tabel mahasiswa has matkul
12. Membuat tabel dosen has matkul


```
        -> 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 NUL ON UPDATE CASCADE);
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server versi
on 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);
```



```
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 versi
on 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 versi
on 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);
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server versi
on 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)
```

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


```
    -> 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]>
```

14. Kemudian untuk melihat struktur tiap tabel dapat dilakukan dengan perintah describe. Misalkan untuk melihat struktur tabel mahasiswa dapat dilakukan dengan perintah describe dosen;