DATABASE SYSTEM PRACTICE

ASSIGNMENT

DATA DEFINITION LANGUAGE (DDL)

By :

NUR ANNIDA I'FFAH SUPARDI

L200183147

INFORMATION TECHNOLOGY

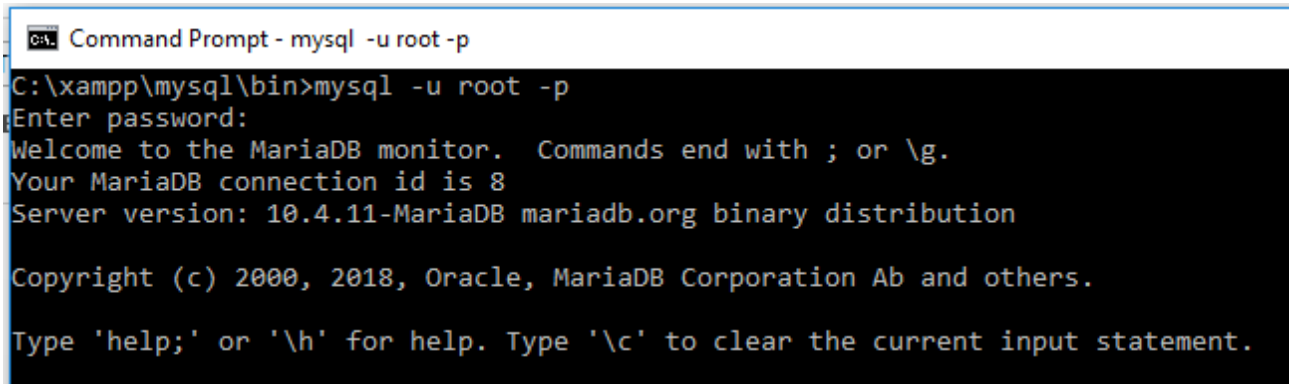
FACULTY OF COMMUNICATION AND INFORMATICS

UNIVERSITY OF MUHAMMADIYAH SURAKARTA

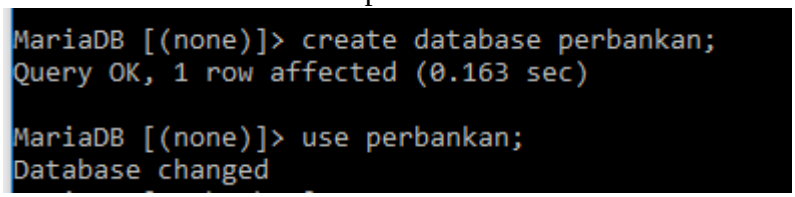
2020

Latihan

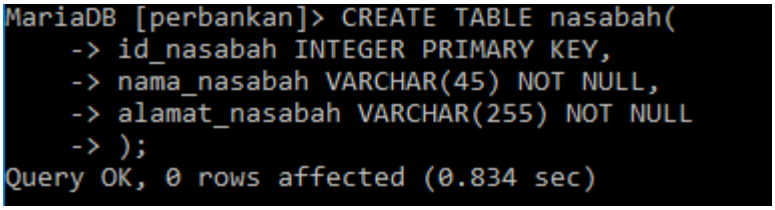
- Login as root to MYSQL via Command Prompt



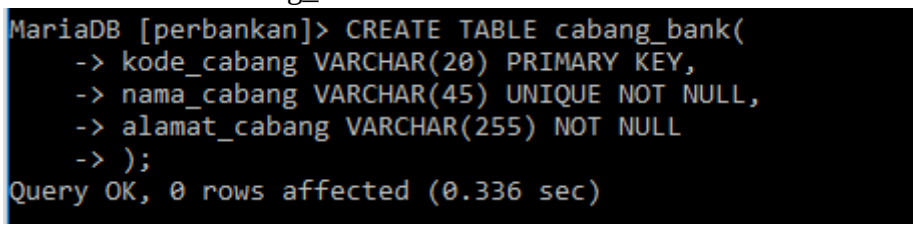
- Create the database and use perbankan's database



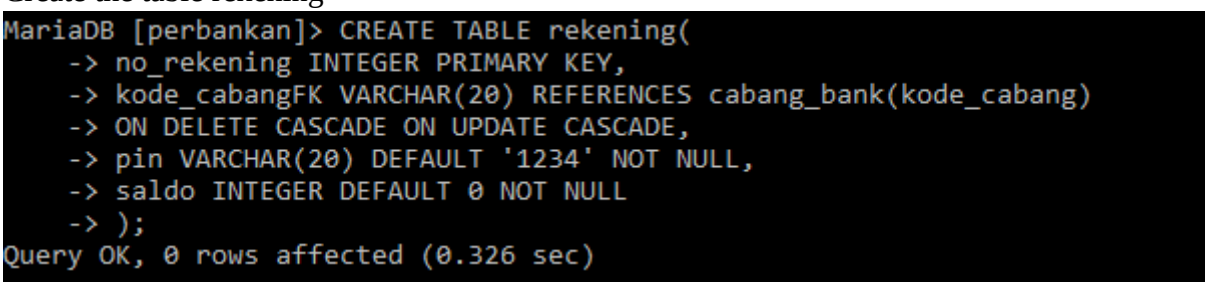
- Create the table nasabah



- Create the table cabang_bank



- Create the table rekening



- Create the table transaksi

```
MariaDB [perbankan]> CREATE TABLE transaksi(
    -> no_rekening 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 (0.460 sec)
```

- Create the table nasabah_has rekening

```
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 (0.325 sec)
```

- Checking database creation results

```
MariaDB [perbankan]> show tables;
+----------------------+
| Tables_in_perbankan  |
+----------------------+
| cabang_bank          |
| nasabah              |
| nasabah_has_rekening |
| rekening             |
| transaksi            |
+----------------------+
5 rows in set (0.245 sec)
```

- Describe the table of 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 (0.101 sec)
```

- Describe the table of cabang_bank

```
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 (0.118 sec)
```

- Describe the table of rekening

```
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 (0.049 sec)
```

- Describe the table of transaksi

```
MariaDB [perbankan]> describe transaksi;
+----------------+--------------------+------+-----+--------------------+----------------+
| Field          | Type               | Null | Key | Default            | Extra          |
+----------------+--------------------+------+-----+--------------------+----------------+
| no_rekening    | 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 (0.085 sec)
```

- Describe the table of nasabah_has_rekening

```
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 (0.026 sec)
```

Tugas

- Data for lecture database
  a. Mahasiswa
     - ♣ nama_mhs : Nama lengkap mahasiswa (varchar(45))
     - ♣ NIM_mhs : NIM mahasiswa (integer) PK
     - ♣ jurusan_mhs : jurusan mahasiswa (varchar(45))
  b. Dosen
     - ♣ nama_dosen : Nama lengkap dosen (varchar(45))

- ♣ id_dosen : Nomor id dosen (integer) PK
- ♣ alamat_dosen : Alamat lengkap dosen (varchar(45))

c. Mata_Kuliah
- ♣ nama_mk : nama mata kuliah (varchar(45))
- ♣ kode_mk : kode mata kuliah (varchar(20) PK
- ♣ dosen_pengampu : dosen pengampu mata kuliah (varchar(20))

d. Ruang_Kelas
- ♣ nama_ruangan : Nama ruangan (varchar(20))
- ♣ kode_ruangan : Kode ruangan kelas (integer) PK
- ♣ daya_tampung : Banyaknya mahasiswa yang dapat ditampung (integer)

	mahasiswa	**dosen**	**mata_kuliah**	**ruang_kelas**
mahasiswa	-	m:n	m:n	-
dosen		-	m:n	-
mata_kuliah			-	m:n
ruang_kelas				-

- Create the database university and use university database

```
MariaDB [(none)]> create database university;
Query OK, 1 row affected (0.007 sec)

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

- Create the table mahasiswa

```
MariaDB [university]> CREATE TABLE mahasiswa(
    -> NIM_mhs INTEGER PRIMARY KEY,
    -> nama_mhs VARCHAR(45) NOT NULL,
    -> jurusan_mhs VARCHAR(45) NOT NULL
    -> );
Query OK, 0 rows affected (0.650 sec)
```

- Create the table dosen

```
MariaDB [university]> CREATE TABLE dosen(
    -> id_dosen INTEGER PRIMARY KEY,
    -> nama_dosen VARCHAR(45) NOT NULL,
    -> alamat_dosen VARCHAR(255) NOT NULL
    -> );
Query OK, 0 rows affected (0.386 sec)
```

- Create the table mata kuliah

```
MariaDB [university]> CREATE TABLE mata_kuliah(
    -> kode_mk VARCHAR(20) PRIMARY KEY,
    -> nama_mk varchar(20) NOT NULL,
    -> dosen_pengampu VARCHAR(20) NOT NULL
    -> );
Query OK, 0 rows affected (0.342 sec)
```

- Create the table ruang kelas

```
MariaDB [university]> CREATE TABLE ruang_kelas(
    -> kode_ruangan INTEGER PRIMARY KEY,
    -> nama_ruangan VARCHAR(20) NOT NULL,
    -> daya_tampung INTEGER NOT NULL
    -> );
Query OK, 0 rows affected (0.331 sec)
```

- Create the table mahasiswa_has_mataKuliah

```
MariaDB [university]> CREATE TABLE mahasiswa_has_mataKuliah(
    -> NIM_mhsFK INTEGER REFERENCES mahasiswa(NIM_mhs)
    -> ON DELETE CASCADE ON UPDATE CASCADE,
    -> kode_mkFK VARCHAR(20) REFERENCES mata_kuliah(kode_mk)
    -> ON DELETE CASCADE ON UPDATE CASCADE,
    -> PRIMARY KEY(NIM_mhsFK, kode_mkFK)
    -> );
Query OK, 0 rows affected (0.391 sec)
```

- Create the table mahasiswa_has_dosen

```
MariaDB [university]> CREATE TABLE mahasiswa_has_dosen(
    -> NIM_mhsFK INTEGER REFERENCES mahasiswa(NIM_mhs)
    -> ON DELETE CASCADE ON UPDATE CASCADE,
    -> id_dosenFK INTEGER REFERENCES dosen(id_dosen)
    -> ON DELETE CASCADE ON UPDATE CASCADE,
    -> PRIMARY KEY(NIM_mhsFK, id_dosenFK)
    -> );
Query OK, 0 rows affected (0.502 sec)
```

- Create the table mataKuliah_has_dosen

```
MariaDB [university]> CREATE TABLE mataKuliah_has_dosen(
    -> kode_mkFK VARCHAR(20) REFERENCES mata_kuliah(kode_mk)
    -> ON DELETE CASCADE ON UPDATE CASCADE,
    -> id_dosenFK INTEGER REFERENCES dosen(id_dosen)
    -> ON DELETE CASCADE ON UPDATE CASCADE,
    -> PRIMARY KEY (kode_mkFK, id_dosenFK)
    -> );
Query OK, 0 rows affected (0.436 sec)
```

- Create the table ruangKelas_has_mataKuliah

```
MariaDB [university]> CREATE TABLE ruangKelas_has_mataKuliah(
    -> kode_ruanganFK INTEGER REFERENCES ruang_kelas(kode_ruangan)
    -> ON DELETE CASCADE ON UPDATE CASCADE,
    -> kode_mkFK VARCHAR(20) REFERENCES mata_kuliah(kode_mk)
    -> ON DELETE CASCADE ON UPDATE CASCADE,
    -> PRIMARY KEY(kode_ruanganFK, kode_mkFK)
    -> );
Query OK, 0 rows affected (0.385 sec)
```

- Checking database creation results

```
MariaDB [university]> show tables;
+---------------------------+
| Tables_in_university      |
+---------------------------+
| dosen                     |
| mahasiswa                 |
| mahasiswa_has_dosen       |
| mahasiswa_has_matakuliah  |
| mata_kuliah               |
| matakuliah_has_dosen      |
| ruang_kelas               |
| ruangkelas_has_matakuliah |
+---------------------------+
8 rows in set (0.123 sec)
```

- Describe the table dosen

```
MariaDB [university]> describe dosen;
+--------------+--------------+------+-----+---------+-------+
| Field        | Type         | Null | Key | Default | Extra |
+--------------+--------------+------+-----+---------+-------+
| id_dosen     | int(11)      | NO   | PRI | NULL    |       |
| nama_dosen   | varchar(45)  | NO   |     | NULL    |       |
| alamat_dosen | varchar(255) | NO   |     | NULL    |       |
+--------------+--------------+------+-----+---------+-------+
3 rows in set (0.128 sec)
```

- Describe the table mahasiswa

```
MariaDB [university]> describe mahasiswa;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| NIM_mhs     | int(11)     | NO   | PRI | NULL    |       |
| nama_mhs    | varchar(45) | NO   |     | NULL    |       |
| jurusan_mhs | varchar(45) | NO   |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
3 rows in set (0.049 sec)
```

- Describe the table mahasiswa_has_dosen

```
MariaDB [university]> describe mahasiswa_has_dosen;
+------------+---------+------+-----+---------+-------+
| Field      | Type    | Null | Key | Default | Extra |
+------------+---------+------+-----+---------+-------+
| NIM_mhsFK  | int(11) | NO   | PRI | NULL    |       |
| id_dosenFK | int(11) | NO   | PRI | NULL    |       |
+------------+---------+------+-----+---------+-------+
2 rows in set (0.038 sec)
```

- Describe the table mahasiswa_has_mataKuliah

```
MariaDB [university]> describe mahasiswa_has_mataKuliah;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| NIM_mhsFK | int(11)     | NO   | PRI | NULL    |       |
| kode_mkFK | varchar(20) | NO   | PRI | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
2 rows in set (0.080 sec)
```

- Describe the table mata_kuliah

```
MariaDB [university]> describe mata_kuliah;
+----------------+-------------+------+-----+---------+-------+
| Field          | Type        | Null | Key | Default | Extra |
+----------------+-------------+------+-----+---------+-------+
| kode_mk        | varchar(20) | NO   | PRI | NULL    |       |
| nama_mk        | varchar(20) | NO   |     | NULL    |       |
| dosen_pengampu | varchar(20) | NO   |     | NULL    |       |
+----------------+-------------+------+-----+---------+-------+
3 rows in set (0.048 sec)
```

- Describe the table matakuliah_has_dosen

```
MariaDB [university]> describe mataKuliah_has_dosen;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| kode_mkFK  | varchar(20) | NO   | PRI | NULL    |       |
| id_dosenFK | int(11)     | NO   | PRI | NULL    |       |
+------------+-------------+------+-----+---------+-------+
2 rows in set (0.033 sec)
```

- Describe the table ruang_kelas

```
MariaDB [university]> describe ruang_kelas;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| kode_ruangan | int(11)     | NO   | PRI | NULL    |       |
| nama_ruangan | varchar(20) | NO   |     | NULL    |       |
| daya_tampung | int(11)     | NO   |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
3 rows in set (0.137 sec)
```

- Describe the table ruangKelas_has_mataKuliah

```
MariaDB [university]> describe ruangKelas_has_mataKuliah;
+----------------+-------------+------+-----+---------+-------+
| Field          | Type        | Null | Key | Default | Extra |
+----------------+-------------+------+-----+---------+-------+
| kode_ruanganFK | int(11)     | NO   | PRI | NULL    |       |
| kode_mkFK      | varchar(20) | NO   | PRI | NULL    |       |
+----------------+-------------+------+-----+---------+-------+
2 rows in set (0.059 sec)
```