1. Jalankan XAMPP dan server Apache, mysql

2. Command Prompt dan login sebagai root ke MySQL seperti modul 1

3. Buat database ' create database perbankan'

```
MariaDB [(none)]> CREATE DATABASE perbankan;
Query OK, 1 row affected (0.002 sec)
```

5. Hubungkan ke dalam database yang telah dibuat dengan langkah berikut sehingga akan muncul pemberitahuan 'database changed'. Use perbankan.

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

6. Membuat table nasabah dengan script berikut:

```
C:\Users>cd..

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

C:\xampp\xampp\mysql\bin>mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 9
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.

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 (0.425 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 (0.294 sec)

MariaDB [perbankan]>
```

```
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 (0.294 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 (0.244 sec)

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 (0.374 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 (0.278 sec)
```

```
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 (0.374 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 (0.278 sec)

MariaDB [perbankan]> show tables;
+---------------------+
| Tables_in_perbankan |
+---------------------+
| cabang_bank         |
| nasabah             |
| nasabah_has_rekening|
| rekening            |
| transaksi           |
+---------------------+
5 rows in set (0.196 sec)

MariaDB [perbankan]>
```



```
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 (0.278 sec)

MariaDB [perbankan]> show tables;
+---------------------+
| Tables_in_perbankan |
+---------------------+
| cabang_bank         |
| nasabah             |
| nasabah_has_rekening|
| rekening            |
| transaksi           |
+---------------------+
5 rows in set (0.196 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 (0.118 sec)

MariaDB [perbankan]>
```

TUGAS

1.


```
Microsoft Windows [Version 10.0.18362.720]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\ASUS>cd..

C:\Users>cd..

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

C:\xampp\xampp\mysql\bin>mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 24
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.

MariaDB [(none)]> CREATE DATABASE kuliah;
Query OK, 1 row affected (0.001 sec)

MariaDB [(none)]> use kuliah;
Database changed
MariaDB [kuliah]> CREATE TABLE dosen(
    -> nip_dosen INTEGER PRIMARY KEY,
    -> nama_dosen VARCHAR(45) NOT NULL,
    -> alamat_dosen VARCHAR(45) NOT NULL);
Query OK, 0 rows affected (0.203 sec)
```

```
      -> 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)
```
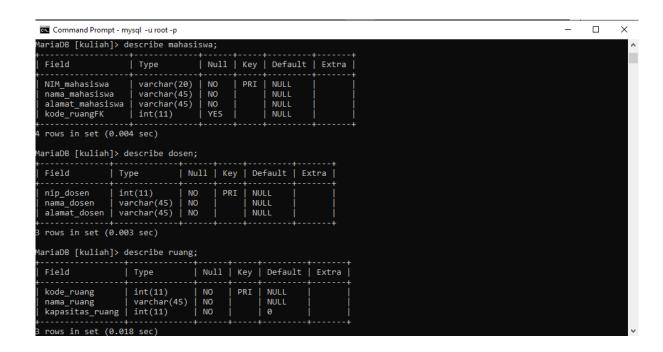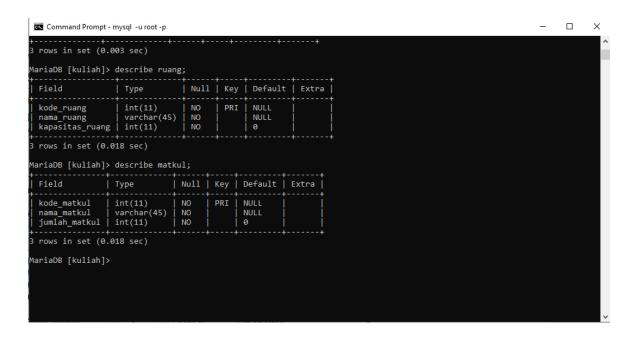
```
      -> kode_matkulFK INTEGER REFERENCES matkul(kode_matkul) ON DELETE SET NULL ON UPDATE CASCADE);
Query OK, 0 rows affected (0.293 sec)

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]>
```

Command Prompt - mysql -u root -p

```
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]> describe dosen;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| nip_dosen    | int(11)     | NO   | PRI | NULL    |       |
| nama_dosen   | varchar(45) | NO   |     | NULL    |       |
| alamat_dosen | varchar(45) | NO   |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
3 rows in set (0.003 sec)

MariaDB [kuliah]> describe ruang;
+----------------+-------------+------+-----+---------+-------+
| Field          | Type        | Null | Key | Default | Extra |
+----------------+-------------+------+-----+---------+-------+
| kode_ruang     | int(11)     | NO   | PRI | NULL    |       |
| nama_ruang     | varchar(45) | NO   |     | NULL    |       |
| kapasitas_ruang| int(11)     | NO   |     | 0       |       |
+----------------+-------------+------+-----+---------+-------+
3 rows in set (0.018 sec)
```

Command Prompt - mysql -u root -p

```
3 rows in set (0.003 sec)

MariaDB [kuliah]> describe ruang;
+----------------+-------------+------+-----+---------+-------+
| Field          | Type        | Null | Key | Default | Extra |
+----------------+-------------+------+-----+---------+-------+
| kode_ruang     | int(11)     | NO   | PRI | NULL    |       |
| nama_ruang     | varchar(45) | NO   |     | NULL    |       |
| kapasitas_ruang| int(11)     | NO   |     | 0       |       |
+----------------+-------------+------+-----+---------+-------+
3 rows in set (0.018 sec)

MariaDB [kuliah]> describe matkul;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| kode_matkul  | int(11)     | NO   | PRI | NULL    |       |
| nama_matkul  | varchar(45) | NO   |     | NULL    |       |
| jumlah_matkul| int(11)     | NO   |     | 0       |       |
+--------------+-------------+------+-----+---------+-------+
3 rows in set (0.018 sec)

MariaDB [kuliah]>
```

TUGAS

2. **database perpustakaan**

```
MariaDB [(none)]> CREATE DATABASE perpustakaan;
Query OK, 1 row affected (0.002 sec)

MariaDB [(none)]> use perpustakaan;
Database changed
MariaDB [perpustakaan]> CREATE TABLE peminjam(
    -> id_peminjam INTEGER PRIMARY KEY,
    -> nama_peminjam VARCHAR(45) NOT NULL,
    -> alamat_peminjam VARCHAR(255) NOT NULL,
    -> no_hp INTEGER DEFAULT 0 NOT NULL
    -> );
Query OK, 0 rows affected (0.703 sec)

MariaDB [perpustakaan]> CREATE TABLE pegawai(
    -> id_pegawai INTEGER PRIMARY KEY,
    -> nama_pegawai VARCHAR(45) NOT NULL,
    -> alamat_pegawai VARCHAR(255) NOT NULL,
    -> jabatan VARCHAR(45) NOT NULL
    -> );
Query OK, 0 rows affected (0.238 sec)

MariaDB [perpustakaan]> CREATE TABLE suplier(
    -> nama_perusahaan VARCHAR(45) NOT NULL,
    -> alamat_perusahaan VARCHAR(255) NOT NULL
    -> );
Query OK, 0 rows affected (0.614 sec)

MariaDB [perpustakaan]> CREATE TABLE buku(
    -> kode_buku VARCHAR(20) PRIMARY KEY,
    -> genre_buku VARCHAR(20) NOT NULL,
    -> tahun_terbit VARCHAR(20) NOT NULL,
    -> pengarang VARCHAR(45) NOT NULL
    -> );
Query OK, 0 rows affected (0.244 sec)
```

```
MariaDB [perpustakaan]> show tables;
+----------------------+
| Tables_in_perpustakaan |
+----------------------+
| buku                 |
| pegawai              |
| peminjam             |
| suplier              |
+----------------------+
4 rows in set (0.001 sec)
```

```
MariaDB [perpustakaan]> describe pegawai;
+----------------+--------------+------+-----+---------+-------+
| Field          | Type         | Null | Key | Default | Extra |
+----------------+--------------+------+-----+---------+-------+
| id_pegawai     | int(11)      | NO   | PRI | NULL    |       |
| nama_pegawai   | varchar(45)  | NO   |     | NULL    |       |
| alamat_pegawai | varchar(255) | NO   |     | NULL    |       |
| jabatan        | varchar(45)  | NO   |     | NULL    |       |
+----------------+--------------+------+-----+---------+-------+
4 rows in set (0.009 sec)
```

```
MariaDB [perpustakaan]> describe buku;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| kode_buku    | varchar(20) | NO   | PRI | NULL    |       |
| genre_buku   | varchar(20) | NO   |     | NULL    |       |
| tahun_terbit | varchar(20) | NO   |     | NULL    |       |
| pengarang    | varchar(45) | NO   |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
4 rows in set (0.009 sec)
```

```
MariaDB [perpustakaan]> describe peminjam
    -> ;
+-----------------+--------------+------+-----+---------+-------+
| Field           | Type         | Null | Key | Default | Extra |
+-----------------+--------------+------+-----+---------+-------+
| id_peminjam     | int(11)      | NO   | PRI | NULL    |       |
| nama_peminjam   | varchar(45)  | NO   |     | NULL    |       |
| alamat_peminjam | varchar(255) | NO   |     | NULL    |       |
| no_hp           | int(11)      | NO   |     | 0       |       |
+-----------------+--------------+------+-----+---------+-------+
4 rows in set (0.009 sec)
```

```
MariaDB [perpustakaan]> describe suplier;
+-------------------+--------------+------+-----+---------+-------+
| Field             | Type         | Null | Key | Default | Extra |
+-------------------+--------------+------+-----+---------+-------+
| nama_perusahaan   | varchar(45)  | NO   |     | NULL    |       |
| alamat_perusahaan | varchar(255) | NO   |     | NULL    |       |
+-------------------+--------------+------+-----+---------+-------+
2 rows in set (0.009 sec)
```