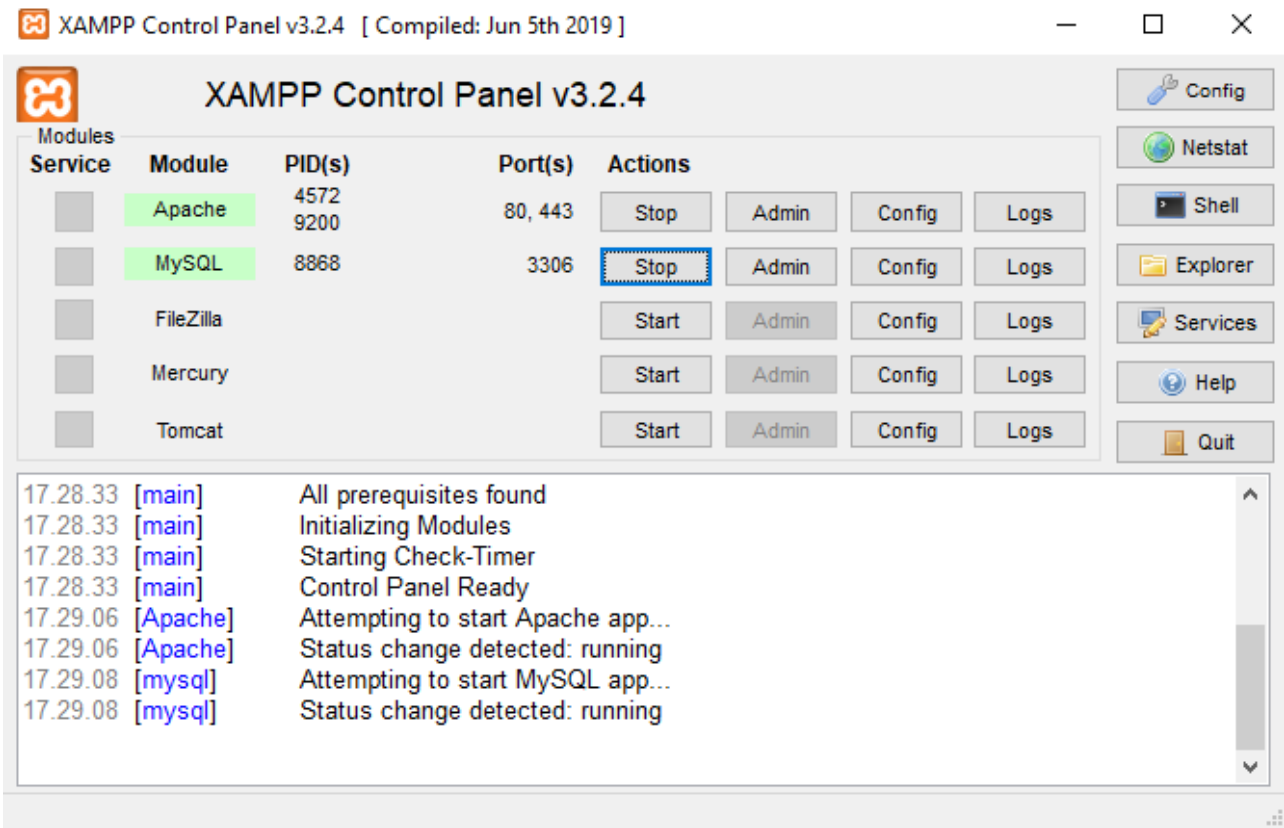**Nama** : **Berlian Vidia Puspa**

NIM : **L200180107**

Kelas : **D**

Modul 4
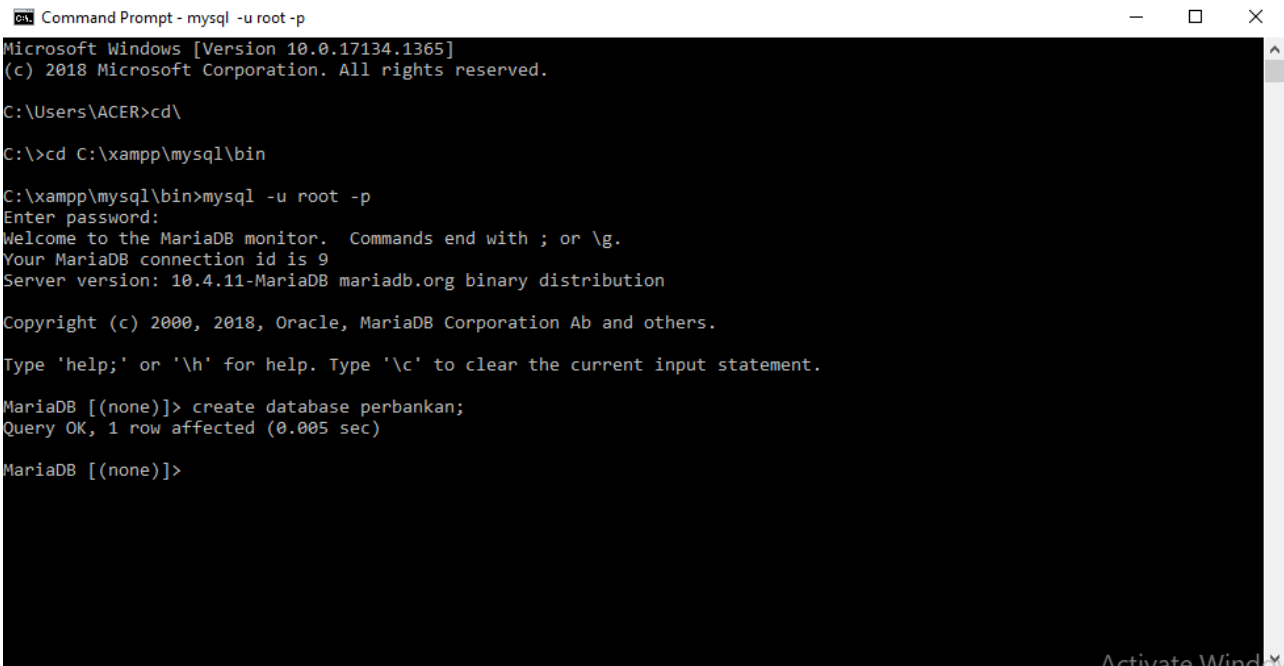# Data Definition Language(DDL)

Kegiatan Praktikum.

1. Jalankan XAMPP Control Panel. Jalankan server Apache danMySQL.

2. Buka Command Prompt masuk ke direktori C:\xampp\mysql\bin dan login sebagai root ke MySQL (mysql –u root–p). Dan membuat database perbankan dan menghubungkannya.

3. Membuat tabel nasabah, cabang_bank, rekening, transaksi, dan nasabah_has_rekening (karena m:n).

```
Command Prompt - mysql -u root -p                                          —    □    ×
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 (0.364 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 (0.520 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 (0.404 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 (0.260 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 (0.280 sec)           Activate Window
                                                Go to Settings to activ
MariaDB [perbankan]>
```

4. Mengecek hasil pembuatan database.

```
Command Prompt - mysql -u root -p                                          —    □    ×
MariaDB [perbankan]> show tables;
+---------------------+
| Tables_in_perbankan |
+---------------------+
| cabang_bank         |
| nasabah             |
| nasabah_has_rekening|
| rekening            |
| transaksi           |
+---------------------+
5 rows in set (0.001 sec)

MariaDB [perbankan]>
```

5. Melihat struktur tiap tabel.

```
Command Prompt - mysql -u root -p                                          —   □   ×

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 (0.160 sec)

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 (0.072 sec)

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 (0.055 sec)

MariaDB [perbankan]> describe transaksi;
+----------------+-------------------+------+-----+-------------------+----------------+
| Field          | Type              | Null | Key | Default           | Extra          |
+----------------+-------------------+------+-----+-------------------+----------------+
| no_transaksi   | 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 (0.074 sec)

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 (0.108 sec)
```

Tugas.

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

1. Buka Command Prompt masuk ke direktori C:\xampp\mysql\bin dan login sebagai root ke MySQL (mysql –u root–p).

2. Membuat database datakuliah dan menghubungkannya.

3. Membuat tabel mahasiswa, dosen, matakuliah, kelas, mahasiswa_has_matakuliah, dan dosen_has_matakuliah (karena m:n).

```
MariaDB [data_kuliah]> CREATE TABLE mahasiswa_has_matakuliah(
    -> nim_mahasiswaFK VARCHAR(20) REFERENCES mahasiswa(nim_mahasiswa)
    -> ON DELETE CASCADE ON UPDATE CASCADE,
    -> kode_makulFK VARCHAR(20) REFERENCES mata_kuliah(kode_makul)
    -> ON DELETE CASCADE ON UPDATE CASCADE
    -> );
Query OK, 0 rows affected (0.300 sec)

MariaDB [data_kuliah]> CREATE TABLE dosen_has_matakuliah(
    -> nip_dosenFK VARCHAR(20) REFERENCES dosen(nip_dosen)
    -> ON DELETE CASCADE ON UPDATE CASCADE,
    -> kode_makulFK VARCHAR(20) REFERENCES mata_kuliah(kode_makul)
    -> ON DELETE CASCADE ON UPDATE CASCADE
    -> );
Query OK, 0 rows affected (0.377 sec)

MariaDB [data_kuliah]>
```

4. Mengecek hasil pembuatan database.

Command Prompt - mysql -u root -p

```
MariaDB [data_kuliah]> show tables;
+-------------------------+
| Tables_in_data_kuliah   |
+-------------------------+
| dosen                   |
| dosen_has_matakuliah    |
| mahasiswa               |
| mahasiswa_has_matakuliah |
| mata_kuliah             |
| ruang_kelas             |
+-------------------------+
6 rows in set (0.001 sec)

MariaDB [data_kuliah]>
```

5. Melihat struktur tiap tabel.

```
Command Prompt - mysql -u root -p                              —   □   ×

MariaDB [data_kuliah]> describe mahasiswa;
+-----------------+--------------+------+-----+---------+-------+
| Field           | Type         | Null | Key | Default | Extra |
+-----------------+--------------+------+-----+---------+-------+
| nim_mahasiswa   | int(11)      | NO   | PRI | NULL    |       |
| nama_mahasiswa  | varchar(20)  | NO   |     | NULL    |       |
| alamat_mahasiswa| varchar(255) | NO   |     | NULL    |       |
+-----------------+--------------+------+-----+---------+-------+
3 rows in set (0.061 sec)

MariaDB [data_kuliah]> describe dosen;
+--------------+--------------+------+-----+---------+-------+
| Field        | Type         | Null | Key | Default | Extra |
+--------------+--------------+------+-----+---------+-------+
| nip_dosen    | int(11)      | NO   | PRI | NULL    |       |
| nama_dosen   | varchar(20)  | NO   |     | NULL    |       |
| alamat_dosen | varchar(255) | NO   |     | NULL    |       |
+--------------+--------------+------+-----+---------+-------+
3 rows in set (0.019 sec)

MariaDB [data_kuliah]> describe mata_kuliah;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| kode_makul  | varchar(20) | NO   | PRI | NULL    |       |
| jumlah_sks  | int(11)     | NO   |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
2 rows in set (0.018 sec)

MariaDB [data_kuliah]> describe ruang_kelas;
+-----------------+-------------+------+-----+---------+-------+
| Field           | Type        | Null | Key | Default | Extra |
+-----------------+-------------+------+-----+---------+-------+
| kode_ruangkelas | varchar(20) | NO   | PRI | NULL    |       |
| letak_gedung    | varchar(20) | NO   |     | NULL    |       |
+-----------------+-------------+------+-----+---------+-------+
2 rows in set (0.018 sec)

MariaDB [data_kuliah]> describe dosen_has_matakuliah;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| nip_dosenFK  | varchar(20) | YES  |     | NULL    |       |
| kode_makulFK | varchar(20) | YES  |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
2 rows in set (0.059 sec)
MariaDB [data_kuliah]> describe mahasiswa_has_matakuliah;
+-----------------+-------------+------+-----+---------+-------+
| Field           | Type        | Null | Key | Default | Extra |
+-----------------+-------------+------+-----+---------+-------+
| nim_mahasiswaFK | varchar(20) | YES  |     | NULL    |       |
| kode_makulFK    | varchar(20) | YES  |     | NULL    |       |
+-----------------+-------------+------+-----+---------+-------+
2 rows in set (0.017 sec)

MariaDB [data_kuliah]>
```