

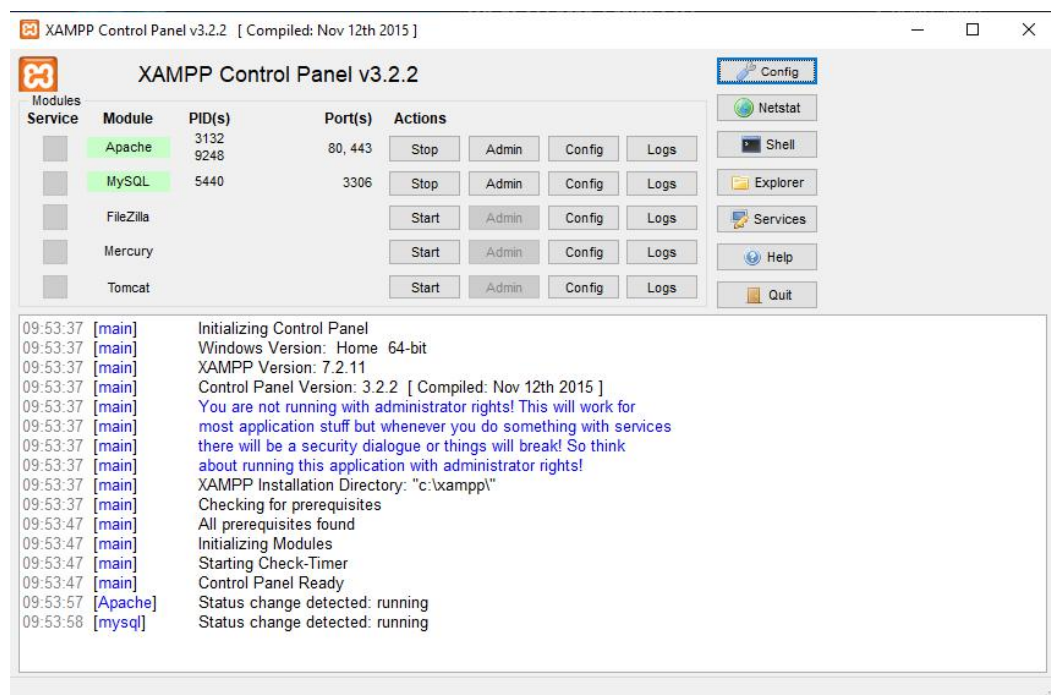
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## **SISTEM BASIS DATA**

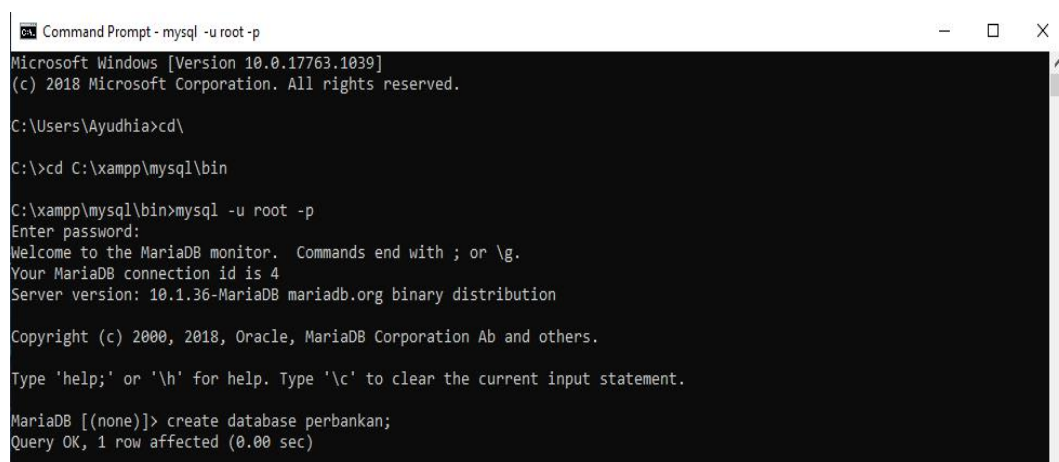
### **Modul 4**

#### **Kegiatan.**

1. Jalankan XAMPP Control Panel, kemudian jalankan server Apache dan MySQL.



2. Buka Command Prompt dan login sebagai root ke MySQL. Serta mebuat database perbankan dan menghubungkannya.



3. Membuat berbagai macam tabel sebagai berikut:

a) Tabel nasabah

```
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 (0.27 sec)
```

b) Tabel cabang bank

```
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 (0.39 sec)
```

c) Tabel rekening

```
Command Prompt - mysql -u root -p
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 (0.53 sec)
```

d) Tabel transaksi

```
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 (0.16 sec)
```

e) Tabel nasabah has rekening (m:n)

```
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 SET NULL ON UPDATE CASCADE,
  -> PRIMARY KEY(id_nasabahFK, no_rekeningFK)
  -> );
Query OK, 0 rows affected (0.25 sec)
```

4. Mengecek hasil pembuatan database.

```
MariaDB [perbankan]> show tables;
+-----+
| Tables_in_perbankan |
+-----+
| cabang_bank          |
| nasabah              |
| nasabah_has_rekening |
| rekening             |
| transaksi            |
+-----+
5 rows in set (0.00 sec)

MariaDB [perbankan]>
```

5. Melihat struktur tiap tabel.

a) 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 (0.02 sec)

b) Describe cabang\_bank;

```
Command Prompt - mysql -u root -p
```

```
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 (0.07 sec)

c) Describe 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 (0.01 sec)

d) Describe transaksi;

```
Command Prompt - mysql -u root -p
```

```
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 (0.07 sec)

e) Describe 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 (0.03 sec)

```
MariaDB [perbankan]>
```

## Tugas.

1. Buka Command Prompt dan login sebagai root ke MySQL.  
Serta membuat database perbankan dan menghubungkannya.

```
Command Prompt - mysql -u root -p
Microsoft Windows [Version 10.0.17763.1098]
(c) 2018 Microsoft Corporation. All rights reserved.

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

C:\xampp\mysql\bin>mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 2
Server version: 10.1.36-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 data_kuliah;
Query OK, 1 row affected (0.12 sec)
```

2. Membuat berbagai macam tabel sebagai berikut:

a) Tabel mahasiswa

```
MariaDB [(none)]> use data_kuliah;
Database changed
MariaDB [data_kuliah]> CREATE TABLE mahasiswa(
-> nim_mhs VARCHAR(20) PRIMARY KEY,
-> nama_mhs VARCHAR(45) NOT NULL,
-> alamat_mhs VARCHAR(255) NOT NULL,
-> tgl_lahir DATE
-> );
Query OK, 0 rows affected (0.29 sec)
```

b) Tabel dosen

```
Command Prompt - mysql -u root -p
MariaDB [data_kuliah]> CREATE TABLE dosen(
-> nip_dsn VARCHAR(20) PRIMARY KEY,
-> nama_dsn VARCHAR(45) NOT NULL,
-> alamat_dsn VARCHAR(255) NOT NULL,
-> no_hp VARCHAR(20) NOT NULL
-> );
Query OK, 0 rows affected (0.12 sec)
```

c) Tabel matakuliah

```
MariaDB [data_kuliah]> CREATE TABLE matakuliah(
-> kode_mk VARCHAR(20) PRIMARY KEY,
-> nama_mk VARCHAR(45) NOT NULL,
-> semester INTEGER NOT NULL,
-> jml_sks INTEGER NOT NULL
-> );
Query OK, 0 rows affected (0.30 sec)
```

d) Tabel ruang kelas

```
MariaDB [data_kuliah]> CREATE TABLE ruang_kelas(
-> kode_rk VARCHAR(20) PRIMARY KEY,
-> kapasitas INTEGER NOT NULL
-> );
Query OK, 0 rows affected (0.13 sec)
```

e) Tabel mahasiswa has matakuliah

```
MariaDB [data_kuliah]> CREATE TABLE mahasiswa_has_matakuliah(
-> nim_mhsFK VARCHAR(20) REFERENCES mahasiswa(nim_mhs)
-> ON DELETE CASCADE ON UPDATE CASCADE,
-> kode_mkFK VARCHAR(20) REFERENCES matakuliah(kode_mk)
-> ON DELETE CASCADE ON UPDATE CASCADE
-> );
Query OK, 0 rows affected (0.60 sec)
```

f) Tabel dosen has matakuliah

```
MariaDB [data_kuliah]> CREATE TABLE dosen_has_matakuliah(
-> nip_dsnFK VARCHAR(20) REFERENCES dosen(nip_dsn)
-> ON DELETE CASCADE ON UPDATE CASCADE,
-> kode_mkFK VARCHAR(20) REFERENCES matakuliah(kode_mk)
-> ON DELETE CASCADE ON UPDATE CASCADE
-> );
Query OK, 0 rows affected (0.12 sec)
```

3. Mengecek hasil pembuatan database.

```
MariaDB [data_kuliah]> show tables;
+-----+
| Tables_in_data_kuliah |
+-----+
| dosen                  |
| dosen_has_matakuliah  |
| mahasiswa              |
| mahasiswa_has_matakuliah |
| matakuliah             |
| ruang_kelas            |
+-----+
6 rows in set (0.10 sec)
```

4. Melihat struktur tiap tabel.

```
Command Prompt - mysql -u root -p

MariaDB [data_kuliah]> describe mahasiswa;
+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+
| nim_mhs    | varchar(20)   | NO   | PRI | NULL    |       |
| nama_mhs   | varchar(45)   | NO   |     | NULL    |       |
| alamat_mhs | varchar(255)  | NO   |     | NULL    |       |
| tgl_lahir  | date          | YES  |     | NULL    |       |
+-----+
4 rows in set (0.09 sec)

MariaDB [data_kuliah]> describe dosen;
+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+
| nip_dsn    | varchar(20)   | NO   | PRI | NULL    |       |
| nama_dsn   | varchar(45)   | NO   |     | NULL    |       |
| alamat_dsn | varchar(255)  | NO   |     | NULL    |       |
| no_hp      | varchar(20)   | NO   |     | NULL    |       |
+-----+
4 rows in set (0.01 sec)
```

```
Command Prompt - mysql -u root -p

MariaDB [data_kuliah]> describe matakuliah;
+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+
| kode_mk    | varchar(20)   | NO   | PRI | NULL    |       |
| nama_mk     | varchar(45)   | NO   |     | NULL    |       |
| semester   | int(11)       | NO   |     | NULL    |       |
| jml_sks    | int(11)       | NO   |     | NULL    |       |
+-----+
4 rows in set (0.07 sec)

MariaDB [data_kuliah]> describe ruang_kelas;
+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+
| kode_rk    | varchar(20)   | NO   | PRI | NULL    |       |
| kapasitas  | int(11)       | NO   |     | NULL    |       |
+-----+
2 rows in set (0.05 sec)

MariaDB [data_kuliah]> describe mahasiswa_has_matakuliah;
+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+
| nim_mhsFK  | varchar(20)   | YES  |     | NULL    |       |
| kode_mkFK  | varchar(20)   | YES  |     | NULL    |       |
+-----+
2 rows in set (0.45 sec)

MariaDB [data_kuliah]> describe dosen_has_matakuliah;
+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+
| nip_dsnFK  | varchar(20)   | YES  |     | NULL    |       |
| kode_mkFK  | varchar(20)   | YES  |     | NULL    |       |
+-----+
2 rows in set (0.02 sec)

MariaDB [data_kuliah]>
```