

PRACTICAL REPORT

MODUL 4

DATABASE SYSTEMS



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1. Activity 1

```
Command Prompt - mysql -u root
C:\xampp\mysql\bin>mysql -u root -p
Enter password: *****
ERROR 1045 (28000): Access denied for user 'root'@'localhost' (using password: YES)

C:\xampp\mysql\bin>mysql -u root
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 23
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)]> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| phpmyadmin |
| test |
+-----+
5 rows in set (0.002 sec)

MariaDB [(none)]> create database perbankan;
Query OK, 1 row affected (0.036 sec)

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 (0.333 sec)

MariaDB [perbankan]> CREATE TABLE cabang_bank (
  -> kode_cabang VARCHAR(45) UNIQUE NOT NULL,
  -> nama_cabang VARCHAR(45) UNIQUE NOT NULL,
  -> alamat_cabang VARCHAR(255) NOT NULL);
Query OK, 0 rows affected (0.246 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 (0.373 sec)
```

Picture 1.1. Creating new database and create the table

```
Command Prompt - mysql -u root
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>0));
Query OK, 0 rows affected (0.286 sec)

MariaDB [perbankan]> UPDATE cabang_bank (
  -> SET kode_cabang VARCHAR(45) UNIQUE NOT NULL,
  -> WHERE kode_cabang VARCHAR(20) PRIMARY KEY);
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for the right syntax to use near '({
SET kode_cabang VARCHAR(45) UNIQUE NOT NULL,
WHERE kode_cabang VARCHAR(20) PRI' at line 1
MariaDB [perbankan]> UPDATE cabang_bank
  -> SET kode_cabang VARCHAR(45) UNIQUE NOT NULL
  -> WHERE kode_cabang VARCHAR(20) PRIMARY KEY;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for the right syntax to use near 'VARCHAR(45) UNIQUE NOT NULL
WHERE kode_cabang VARCHAR(20) PRIMARY KEY' at line 2
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 (0.302 sec)

MariaDB [perbankan]> ALTER TABLE cabang_bank MODIFY kode_cabang VARCHAR(20) PRIMARY KEY;
Query OK, 0 rows affected (0.873 sec)
Records: 0 Duplicates: 0 Warnings: 0

MariaDB [perbankan]> show tables
  -> ;
+-----+
| Tables_in_perbankan |
+-----+
| cabang_bank         |
| nasabah             |
| nasabah_has_rekening |
| rekening            |
| transaksi           |
+-----+
3 rows in set (0.043 sec)
```

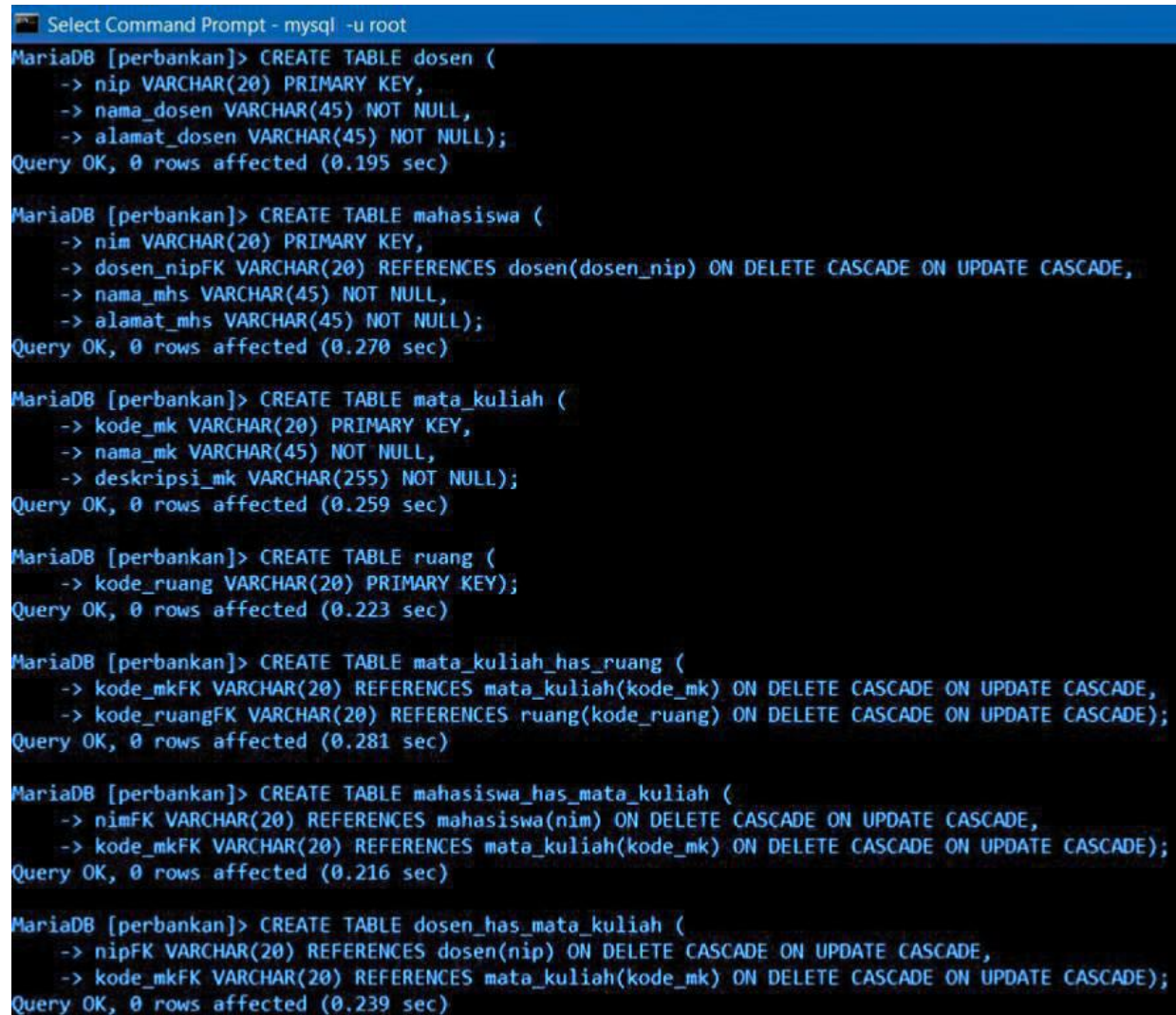
Picture 1.2. Creating the table and show the result of all table

```
Select Command Prompt - mysql -u root
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 (0.086 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 (0.128 sec)
```

Picture 1.3. Show data inside of a table

2. Assignment 1



```
Select Command Prompt - mysql -u root
MariaDB [perbankan]> CREATE TABLE dosen (
  -> nip VARCHAR(20) PRIMARY KEY,
  -> nama_dosen VARCHAR(45) NOT NULL,
  -> alamat_dosen VARCHAR(45) NOT NULL);
Query OK, 0 rows affected (0.195 sec)

MariaDB [perbankan]> CREATE TABLE mahasiswa (
  -> nim VARCHAR(20) PRIMARY KEY,
  -> dosen_nipFK VARCHAR(20) REFERENCES dosen(dosen_nip) ON DELETE CASCADE ON UPDATE CASCADE,
  -> nama_mhs VARCHAR(45) NOT NULL,
  -> alamat_mhs VARCHAR(45) NOT NULL);
Query OK, 0 rows affected (0.270 sec)

MariaDB [perbankan]> CREATE TABLE mata_kuliah (
  -> kode_mk VARCHAR(20) PRIMARY KEY,
  -> nama_mk VARCHAR(45) NOT NULL,
  -> deskripsi_mk VARCHAR(255) NOT NULL);
Query OK, 0 rows affected (0.259 sec)

MariaDB [perbankan]> CREATE TABLE ruang (
  -> kode_ruang VARCHAR(20) PRIMARY KEY);
Query OK, 0 rows affected (0.223 sec)

MariaDB [perbankan]> CREATE TABLE mata_kuliah_has_ruang (
  -> kode_mkFK VARCHAR(20) REFERENCES mata_kuliah(kode_mk) ON DELETE CASCADE ON UPDATE CASCADE,
  -> kode_ruangFK VARCHAR(20) REFERENCES ruang(kode_ruang) ON DELETE CASCADE ON UPDATE CASCADE);
Query OK, 0 rows affected (0.281 sec)

MariaDB [perbankan]> CREATE TABLE mahasiswa_has_mata_kuliah (
  -> nimFK VARCHAR(20) REFERENCES mahasiswa(nim) ON DELETE CASCADE ON UPDATE CASCADE,
  -> kode_mkFK VARCHAR(20) REFERENCES mata_kuliah(kode_mk) ON DELETE CASCADE ON UPDATE CASCADE);
Query OK, 0 rows affected (0.216 sec)

MariaDB [perbankan]> CREATE TABLE dosen_has_mata_kuliah (
  -> nipFK VARCHAR(20) REFERENCES dosen(nip) ON DELETE CASCADE ON UPDATE CASCADE,
  -> kode_mkFK VARCHAR(20) REFERENCES mata_kuliah(kode_mk) ON DELETE CASCADE ON UPDATE CASCADE);
Query OK, 0 rows affected (0.239 sec)
```

Picture 2.1. Creating the Table


```
Command Prompt - mysql -u root

MariaDB [perbankan]> show tables;
+-----+
| Tables_in_perbankan |
+-----+
| cabang_bank          |
| dosen                |
| dosen_has_mata_kuliah |
| mahasiswa            |
| mahasiswa_has_mata_kuliah |
| mata_kuliah          |
| mata_kuliah_has_ruang |
| nasabah              |
| nasabah_has_rekening |
| rekening             |
| ruang                |
| transaksi            |
+-----+
12 rows in set (0.001 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 (0.016 sec)

MariaDB [perbankan]> describe dosen;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| nip        | varchar(20) | NO   | PRI | NULL    |       |
| nama_dosen | varchar(45) | NO   |     | NULL    |       |
| alamat_dosen | varchar(45) | NO   |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.017 sec)

MariaDB [perbankan]> describe dosen_has_mata_kuliah;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| nipFK      | varchar(20) | YES  |     | NULL    |       |
| kode_mkFK  | varchar(20) | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.017 sec)
```

Picture 2.2. Showing the Tables and data inside of a Table