

PRACTICUM DATABASE SYSTEM

MODUL 4

DATABASE SYSTEM



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#Kegiatan

Make a simple design on DBDesigner4 from the following table

Nasabah	
Coloumn Name	Data Type
id_nasabah	Integer
nama_nasabah	varchar(45)
alamat_nasabah	varchar(255)

Transaksi	
Coloumn Name	Data Type
no_transaksi	Integer
Jenis_transaksi	Varchar(20)
tanggal	Date
Jumlah	Integer

Cabang_bank	
Coloumn Name	Data Type
kode_cabang	Varchar(20)
nama_cabang	Varchar(20)
alamat_cabang	Varchar(255)

Rekening	
Coloumn Name	Data Type
no_rekening	Integer
pin	Varchar(20)
Saldo	integer

```
XAMPP for Windows - mysql -u root -p
# mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 32
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 perbankan;
-> ;
Query OK, 1 row affected (0.007 sec)

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

Pict 1. Create the database and use perbankan's database

```
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 (0.030 sec)
```

Pict 2. Create the table nasabah

```
MariaDB [perbankan]> create table cabang_bank(
-> kode_cabang varchar(20) primary key,
-> nama_cabang varchar(45) not null,
-> alamat_cabang varchar(255) not null
-> );
Query OK, 0 rows affected (0.031 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 (0.025 sec)
```

Pict 3. Create the table cabang_bank and rekening

```

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 (0.029 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 (0.025 sec)

```

Pict 4. Create the table transaksi and nasabah_has_rekening

```

MariaDB [perbankan]> show tables;
+-----+
| Tables_in_perbankan |
+-----+
| cabang_bank          |
| nasabah              |
| nasabah_has_rekening |
| rekening             |
| transaksi            |
+-----+
5 rows in set (0.001 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 (0.018 sec)

```

Pict 5. Show the tables, and describe every of them

```

MariaDB [perbankan]> describe cabang_bank;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| kode_cabang | varchar(20) | NO | PRI | NULL | |
| nama_cabang | varchar(45) | NO | | NULL | |
| alamat_cabang | varchar(255) | NO | | NULL | |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.055 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 (0.054 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 (0.046 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 (0.056 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 (0.047 sec)

```

Pict 6. Describe all of them.

#Tugas nomer 1

Make the data structure manually in cmd :

- Mahasiswa :
 - NIM : Nomor identitas mahasiswa (Integer) PK
 - Nama : Nama mahasiswa tersebut (varchar(45))
 - Alamat : Alamat masing-masing rumah mahasiswa (varchar(225))
 - Major : Informasi jurusan mahasiswa (varchar(20))
- Dosen :
 - NIP : Nomor Induk Staff (Integer) PK
 - Nama : Nama dosen tersebut (varchar(45))
 - Alamat : Alamat rumah dosen (varchar(255))
- Mata_Kuliah :
 - Kode_MK : Kode untuk mata kuliah (varchar(10))
 - Nama_MK : Nama untuk mata kuliah (varchar(45))
- Ruang_Kelas :
 - Kode_Ruang : Kode ruangan untuk kelas (varchar(10))
 - Nama_Ruang : Kode ruang kelas (Integer) PK

Menentukan relationship (hubungan) antar entitas.

	Mahasiswa	Dosen	Mata_Kuliah	Ruang_Kelas
Mahasiswa	-	m:n	m:n	-
Dosen		-	m:n	-
Mata_Kuliah			-	m:n
Ruang_Kelas				-

#Result

```
XAMPP for Windows - mysql -u root -p

donny@DONNY c:\xampp
# mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 73
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)]>
MariaDB [(none)]> drop database university;
Query OK, 4 rows affected (0.097 sec)

MariaDB [(none)]> create database university;
Query OK, 1 row affected (0.002 sec)

MariaDB [(none)]> use university;
Database changed
MariaDB [university]> create table dosen(
  -> nip integer primary key,
  -> nama varchar(45) not null,
  -> alamat varchar(225) not null);
Query OK, 0 rows affected (0.048 sec)

MariaDB [university]> create table mahasiswa(
  -> nim integer primary key,
  -> nama varchar(45) not null,
  -> alamat varchar(225) not null,
  -> major varchar(20) not null);
Query OK, 0 rows affected (0.039 sec)
```

Pict 7. Create the database university and table dosen also table mahasiswa

```

MariaDB [university]> create table mata_kuliah(
  -> kode_mk varchar(20) primary key,
  -> nama_mk varchar(20) not null);
Query OK, 0 rows affected (0.034 sec)

```

```

MariaDB [university]> create table ruang_kelas(
  -> kode_ruang varchar(20) primary key,
  -> nama_ruang varchar(45) not null);
Query OK, 0 rows affected (0.038 sec)

```

Pict 8. Create table mata_kuliah and ruang_kelas

```

MariaDB [university]> create table dosen_has_mata_kuliah(
  -> nipFK integer references dosen(nip) on delete cascade on update cascade,
  -> kode_mkFK integer references mata_kuliah(kode_mk) on delete cascade on update cascade,
  -> primary key(nipFK, kode_mkFK)
  -> );
Query OK, 0 rows affected (0.046 sec)

```

Pict 9. Create table dosen_has_mata_kuliah

```

XAMPP for Windows - mysql -u root -p
MariaDB [university]> create table dosen_has_mahasiswa(
  -> nipFK integer references dosen(nip) on delete cascade on update cascade,
  -> nimFK integer references mahasiswa(nim) on delete cascade on update cascade,
  -> primary key(nipFK, nimFK));
Query OK, 0 rows affected (0.048 sec)

MariaDB [university]> create table mahasiswa_has_mata_kuliah(
  -> nimFK integer references mahasiswa(nim) on delete cascade on update cascade,
  -> kode_mkFK varchar(20) references mata_kuliah(kode_mk) on delete cascade on update cascade,
  -> primary key(nimFK, kode_mkFK));
Query OK, 0 rows affected (0.049 sec)

MariaDB [university]> create table mata_kuliah_has_ruang_kelas(
  -> kode_mkFK varchar(20) references mata_kuliah(kode_mk) on delete cascade on update cascade,
  -> kode_ruangFK varchar(20) references ruang_kelas(kode_ruang) on delete cascade on update cascade,
  -> primary key(kode_mkFK, kode_ruangFK));
Query OK, 0 rows affected (0.047 sec)

```

Pict 10. Create table dosen_has_mahasiswa, mahasiswa_has_mata_kuliah, mata_kuliah_has_ruang_kelas

```
MariaDB [university]> show tables;
```

Tables_in_university
dosen
dosen_has_mahasiswa
dosen_has_mata_kuliah
mahasiswa
mahasiswa_has_mata_kuliah
mata_kuliah
mata_kuliah_has_ruang_kelas
ruang_kelas

```
8 rows in set (0.001 sec)
```

```
MariaDB [university]> describe dosen;
```

Field	Type	Null	Key	Default	Extra
nip	int(11)	NO	PRI	NULL	
nama	varchar(45)	NO		NULL	
alamat	varchar(225)	NO		NULL	

```
3 rows in set (0.036 sec)
```

```
MariaDB [university]> describe dosen_has_mahasiswa  
-> ;
```

Field	Type	Null	Key	Default	Extra
nipFK	int(11)	NO	PRI	NULL	
nimFK	int(11)	NO	PRI	NULL	

```
2 rows in set (0.037 sec)
```

```
MariaDB [university]> describe mahasiswa;
```

Field	Type	Null	Key	Default	Extra
nim	int(11)	NO	PRI	NULL	
nama	varchar(45)	NO		NULL	
alamat	varchar(225)	NO		NULL	
major	varchar(20)	NO		NULL	

Pict 11. Show and describe

C:\XAMPP for Windows - mysql -u root -p

3 rows in set (0.036 sec)

MariaDB [university]> describe dosen_has_mahasiswa
-> ;

Field	Type	Null	Key	Default	Extra
nipFK	int(11)	NO	PRI	NULL	
nimFK	int(11)	NO	PRI	NULL	

2 rows in set (0.037 sec)

MariaDB [university]> describe mahasiswa;

Field	Type	Null	Key	Default	Extra
nim	int(11)	NO	PRI	NULL	
nama	varchar(45)	NO		NULL	
alamat	varchar(225)	NO		NULL	
major	varchar(20)	NO		NULL	

4 rows in set (0.032 sec)

MariaDB [university]> describe mahasiswa_has_mata_kuliah;

Field	Type	Null	Key	Default	Extra
nimFK	int(11)	NO	PRI	NULL	
kode_mkFK	varchar(20)	NO	PRI	NULL	

2 rows in set (0.030 sec)

MariaDB [university]> describe mata_kuliah;

Field	Type	Null	Key	Default	Extra
kode_mk	varchar(20)	NO	PRI	NULL	
nama_mk	varchar(20)	NO		NULL	

2 rows in set (0.034 sec)

MariaDB [university]> describe mata_kuliah_has_ruang_kuliah;

ERROR 1146 (42S02): Table 'university.mata_kuliah_has_ruang_kul'

MariaDB [university]> describe mata_kuliah_has_ruang_kelas;

Field	Type	Null	Key	Default	Extra
kode_mkFK	varchar(20)	NO	PRI	NULL	
kode_ruangFK	varchar(20)	NO	PRI	NULL	

2 rows in set (0.037 sec)

MariaDB [university]> describe ruang_kelas

-> ;

Field	Type	Null	Key	Default	Extra
kode_ruang	varchar(20)	NO	PRI	NULL	
nama_ruang	varchar(45)	NO		NULL	

2 rows in set (0.037 sec)