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## MODUL 4

### TUGAS

### DATABASE UNIVERSITAS

1. Membuat database universitas dan menghubungkannya

```
Select Command Prompt - mysql -u root -p
mysql> create database universitas;
Query OK, 1 row affected (0.00 sec)

mysql> use universitas;
Database changed

mysql> create table mahasiswa(
  -> NIM integer primary key,
  -> nama varchar(45) not null,
  -> alamat varchar(255) not null
  -> );
Query OK, 0 rows affected (0.20 sec)

mysql> create table dosen(
  -> NIP integer primary key,
  -> nama varchar(45) not null,
  -> alamat varchar(255) not null
  -> );
Query OK, 0 rows affected (0.21 sec)

mysql> create table mata_kuliah(
  -> kode_mk varchar(10) primary key,
  -> nama_mk varchar(30) not null
  -> );
Query OK, 0 rows affected (0.30 sec)

mysql> create table ruang_kelas(
  -> kode_ruang varchar(10) primary key,
  -> nama_ruang varchar(30) not null
  -> );
Query OK, 0 rows affected (0.20 sec)
```

2. Membuat tabel

```
Select Command Prompt - mysql -u root -p
mysql> create database universitas;
Query OK, 1 row affected (0.00 sec)

mysql> use universitas;
Database changed

mysql> create table mahasiswa(
  -> NIM integer primary key,
  -> nama varchar(45) not null,
  -> alamat varchar(255) not null
  -> );
Query OK, 0 rows affected (0.20 sec)

mysql> create table dosen(
  -> NIP integer primary key,
  -> nama varchar(45) not null,
  -> alamat varchar(255) not null
  -> );
Query OK, 0 rows affected (0.21 sec)

mysql> create table mata_kuliah(
  -> kode_mk varchar(10) primary key,
  -> nama_mk varchar(30) not null
  -> );
Query OK, 0 rows affected (0.30 sec)

mysql> create table ruang_kelas(
  -> kode_ruang varchar(10) primary key,
  -> nama_ruang varchar(30) not null
  -> );
Query OK, 0 rows affected (0.20 sec)
```

```
Command Prompt - mysql -u root -p
mysql>
mysql> create table mahasiswa_has_dosen(
  -> NIMFK integer references mahasiswa(NIM) on delete cascade on update cascade,
  -> NIPFK integer references dosen(NIP) on delete cascade on update cascade,
  -> primary key(NIMFK, NIPFK)
  -> );
Query OK, 0 rows affected (0.25 sec)

mysql> create table mahasiswa_has_mata_kuliah(
  -> NIMFK integer references mahasiswa(NIM) on delete cascade on update cascade,
  -> kode_mkFK varchar(10) references mata_kuliah(kode_mk) on delete cascade on update cascade,
  -> primary key(NIMFK, kode_mkFK)
  -> );
Query OK, 0 rows affected (0.19 sec)

mysql> create table dosen_has_mata_kuliah(
  -> NIPFK integer references dosen(NIP) on delete cascade on update cascade,
  -> kode_mkFK varchar(10) references mata_kuliah(kode_mk) on delete cascade on update cascade,
  -> primary key(NIPFK, kode_mkFK)
  -> );
Query OK, 0 rows affected (0.27 sec)

mysql> create table dosen_has_ruang_kelas(
  -> NIPFK integer references dosen(NIP) on delete cascade on update cascade,
  -> kode_ruangFK varchar(10) references ruang_kelas(kode_ruang) on delete cascade on update cascade,
  -> primary key(NIPFK, kode_ruangFK)
  -> );
Query OK, 0 rows affected (0.20 sec)

mysql> create table mata_kuliah_has_ruang_kelas(
```

```
Command Prompt - mysql -u root -p
Query OK, 0 rows affected (0.20 sec)

mysql> create table mata_kuliah_has_ruang_kelas(
  -> kode_mkFK varchar(10) references mata_kuliah(kode_mk) on delete cascade on update cascade,
  -> kode_ruangFK varchar(10) references ruang_kelas(kode_ruang) on delete cascade on update cascade,
  -> primary key(kode_mkFK, kode_ruangFK)
  -> );
Query OK, 0 rows affected (0.22 sec)

mysql> show tables;
+-----+
| Tables_in_universitas |
+-----+
| dosen                  |
| dosen_has_mata_kuliah  |
| dosen_has_ruang_kelas  |
| mahasiswa              |
| mahasiswa_has_dosen    |
| mahasiswa_has_mata_kuliah |
| mata_kuliah            |
| mata_kuliah_has_ruang_kelas |
| ruang_kelas            |
+-----+
9 rows in set (0.02 sec)

mysql> describe dosen;
+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+
| NIP   | int(11) | NO   | PRI | NULL    |       |
+-----+
```

### 3. Menampilkan tabel pada database universitas

```
Command Prompt - mysql -u root -p
Query OK, 0 rows affected (0.20 sec)

mysql> create table mata_kuliah_has_ruang_kelas(
  -> kode_mkFK varchar(10) references mata_kuliah(kode_mk) on delete cascade on update cascade,
  -> kode_ruangFK varchar(10) references ruang_kelas(kode_ruang) on delete cascade on update cascade,
  -> primary key(kode_mkFK, kode_ruangFK)
  -> );
Query OK, 0 rows affected (0.22 sec)

mysql> show tables;
+-----+
| Tables_in_universitas |
+-----+
| dosen                  |
| dosen_has_mata_kuliah  |
| dosen_has_ruang_kelas  |
| mahasiswa              |
| mahasiswa_has_dosen    |
| mahasiswa_has_mata_kuliah |
| mata_kuliah            |
| mata_kuliah_has_ruang_kelas |
| ruang_kelas            |
+-----+
9 rows in set (0.02 sec)

mysql> describe dosen;
+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+
| NIP   | int(11) | NO   | PRI | NULL    |       |
+-----+
```

### 4. Melihat struktur tiap tabel pada database universitas

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

mysql> describe dosen;
+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+
| NIP   | int(11) | NO   | PRI | NULL    |       |
| nama  | varchar(45) | NO   |     | NULL    |       |
| alamat | varchar(255) | NO   |     | NULL    |       |
+-----+
3 rows in set (0.00 sec)

mysql> describe mahasiswa;
+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+
| NIM   | int(11) | NO   | PRI | NULL    |       |
| nama  | varchar(45) | NO   |     | NULL    |       |
| alamat | varchar(255) | NO   |     | NULL    |       |
+-----+
3 rows in set (0.01 sec)

mysql> describe mata_kuliah;
+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+
| kode_mk | varchar(10) | NO   | PRI | NULL    |       |
| nama_mk | varchar(30) | NO   |     | NULL    |       |
+-----+
2 rows in set (0.01 sec)
```

```
Command Prompt - mysql -u root -p
Query OK, 0 rows affected (0.20 sec)

mysql> create table mata_kuliah_has_ruang_kelas(
  -> kode_mkFK varchar(10) references mata_kuliah(kode_mk) on delete cascade on update cascade,
  -> kode_ruangFK varchar(10) references ruang_kelas(kode_ruang) on delete cascade on update cascade,
  -> primary key(kode_mkFK, kode_ruangFK)
  -> );
Query OK, 0 rows affected (0.22 sec)

mysql> show tables;
+-----+
| Tables_in_universitas |
+-----+
| dosen                  |
| dosen_has_mata_kuliah  |
| dosen_has_ruang_kelas  |
| mahasiswa              |
| mahasiswa_has_dosen    |
| mahasiswa_has_mata_kuliah |
| mata_kuliah            |
| mata_kuliah_has_ruang_kelas |
| ruang_kelas            |
+-----+
9 rows in set (0.02 sec)

mysql> describe dosen;
+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+
| NIP   | int(11) | NO   | PRI | NULL    |       |
+-----+
```

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

mysql> describe mahasiswa_has_dosen;
+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+
| NIMFK | int(11) | NO   | PRI | NULL    |       |
| NIPFK | int(11) | NO   | PRI | NULL    |       |
+-----+
2 rows in set (0.00 sec)

mysql> describe mahasiswa_has_mata_kuliah;
+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+
| NIMFK | int(11) | NO   | PRI | NULL    |       |
| kode_mkFK | varchar(10) | NO   | PRI | NULL    |       |
+-----+
2 rows in set (0.01 sec)

mysql> describe mata_kuliah_has_ruang_kelas;
+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+
| kode_mkFK | varchar(10) | NO   | PRI | NULL    |       |
| kode_ruangFK | varchar(10) | NO   | PRI | NULL    |       |
+-----+
2 rows in set (0.03 sec)

mysql>
```

# DATABASE PERPUSTAKAAN

## 1. Membuat database perpustakaan dan menghubungkannya

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

mysql> create database perpustakaan;
Query OK, 1 row affected (0.00 sec)

mysql> use perpustakaan;
Database changed

mysql> create table buku(
  -> no_buku integer primary key,
  -> judul varchar(45) not null,
  -> pengarang varchar(45) not null,
  -> thn_terbit integer not null,
  -> penerbit varchar(45) not null
  -> );
Query OK, 0 rows affected (0.35 sec)

mysql> create table pegawai(
  -> no_pegawai integer primary key,
  -> nama varchar(45) not null,
  -> alamat varchar(255) not null,
  -> no_tlp integer not null,
  -> jabatan varchar(45) unique not null
  -> );
Query OK, 0 rows affected (0.23 sec)

mysql> create table denda(
  -> kode_denda integer primary key,
  -> no_anggotaFK integer references anggota(no_anggota) on delete cascade on update cascade,
  -> tarif_denda varchar(45) not null,
  -> jenis_denda varchar(45) not null,
  -> tgl_pinjam varchar(45) not null
  -> );
```

## 2. Membuat tabel

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

mysql> create database perpustakaan;
Query OK, 1 row affected (0.00 sec)

mysql> use perpustakaan;
Database changed

mysql> create table buku(
  -> no_buku integer primary key,
  -> judul varchar(45) not null,
  -> pengarang varchar(45) not null,
  -> thn_terbit integer not null,
  -> penerbit varchar(45) not null
  -> );
Query OK, 0 rows affected (0.35 sec)

mysql> create table pegawai(
  -> no_pegawai integer primary key,
  -> nama varchar(45) not null,
  -> alamat varchar(255) not null,
  -> no_tlp integer not null,
  -> jabatan varchar(45) unique not null
  -> );
Query OK, 0 rows affected (0.23 sec)

mysql> create table denda(
  -> kode_denda integer primary key,
  -> no_anggotaFK integer references anggota(no_anggota) on delete cascade on update cascade,
  -> tarif_denda varchar(45) not null,
  -> jenis_denda varchar(45) not null,
  -> tgl_pinjam varchar(45) not null
  -> );
```

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

  -> jenis_denda varchar(45) not null,
  -> tgl_pinjam varchar(45) not null
  -> );
Query OK, 0 rows affected (0.33 sec)

mysql> create table anggota(
  -> no_anggota integer primary key,
  -> no_pegawaiFK integer references pegawai(no_pegawai) on delete cascade on update cascade,
  -> nama varchar(45) not null,
  -> alamat varchar(255) not null,
  -> tgl_lahir varchar(45) not null,
  -> jurusan varchar(45) not null
  -> );
Query OK, 0 rows affected (0.36 sec)

mysql> create table anggota_has_buku(
  -> no_anggotaFK integer references anggota(no_anggota) on delete cascade on update cascade,
  -> no_bukuFK integer references buku(no_buku) on delete cascade on update cascade,
  -> primary key(no_anggotaFK, no_bukuFK)
  -> );
Query OK, 0 rows affected (0.62 sec)

mysql>
mysql> create table buku_has_pegawai(
  -> no_bukuFK integer references buku(no_buku) on delete cascade on update cascade,
  -> no_pegawaiFK integer references pegawai(no_pegawai) on delete cascade on update cascade,
  -> primary key(no_bukuFK, no_pegawaiFK)
  -> );
Query OK, 0 rows affected (0.23 sec)
```

### 3. Menampilkan tabel pada database perpustakaan

```
Command Prompt - mysql -u root -p
mysql> show tables;
+-----+
| Tables_in_perpustakaan |
+-----+
| anggota                 |
| anggota_has_buku        |
| buku                    |
| buku_has_pegawai        |
| denda                   |
| pegawai                 |
+-----+
6 rows in set (0.00 sec)

mysql>
```

### 4. Melihat struktur tiap tabel pada database perpustakaan

```
Command Prompt - mysql -u root -p
mysql> describe anggota;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| no_anggota | int(11) | NO | PRI | NULL | |
| no_pegawaiFK | int(11) | YES | | NULL | |
| nama | varchar(45) | NO | | NULL | |
| alamat | varchar(255) | NO | | NULL | |
| tgl_lahir | varchar(45) | NO | | NULL | |
| jurusan | varchar(45) | NO | | NULL | |
+-----+-----+-----+-----+-----+-----+
6 rows in set (0.00 sec)

mysql> describe buku;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| no_buku | int(11) | NO | PRI | NULL | |
| judul | varchar(45) | NO | | NULL | |
| pengarang | varchar(45) | NO | | NULL | |
| thn_terbit | int(11) | NO | | NULL | |
| penerbit | varchar(45) | NO | | NULL | |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.01 sec)

mysql> describe denda;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| no_anggotaFK | int(11) | YES | | NULL | |
| no_bukuFK | int(11) | YES | | NULL | |
| no_pegawaiFK | int(11) | YES | | NULL | |
| no_tipeFK | int(11) | YES | | NULL | |
| no_anggotaFK | int(11) | YES | | NULL | |
| no_bukuFK | int(11) | YES | | NULL | |
| no_pegawaiFK | int(11) | YES | | NULL | |
| no_tipeFK | int(11) | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
8 rows in set (0.01 sec)
```

```
Command Prompt - mysql -u root -p
mysql> describe denda;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| kode_denda | int(11) | NO | PRI | NULL | |
| no_anggotaFK | int(11) | YES | | NULL | |
| tarif_denda | varchar(45) | NO | | NULL | |
| jenis_denda | varchar(45) | NO | | NULL | |
| tgl_pinjam | varchar(45) | NO | | NULL | |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.01 sec)

mysql> describe pegawai;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| no_pegawai | int(11) | NO | PRI | NULL | |
| nama | varchar(45) | NO | | NULL | |
| alamat | varchar(255) | NO | | NULL | |
| no_tlp | int(11) | NO | | NULL | |
| jabatan | varchar(45) | NO | UNI | NULL | |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)

mysql> describe anggota_has_buku;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| no_anggotaFK | int(11) | NO | PRI | NULL | |
| no_bukuFK | int(11) | NO | PRI | NULL | |
| no_pegawaiFK | int(11) | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

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

mysql> describe anggota_has_buku;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| no_anggotaFK | int(11) | NO | PRI | NULL | |
| no_bukuFK | int(11) | NO | PRI | NULL | |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql> describe buku_has_pegawai;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| no_bukuFK | int(11) | NO | PRI | NULL | |
| no_pegawaiFK | int(11) | NO | PRI | NULL | |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.01 sec)

mysql> _
```