By Galih Hermawan
Teknik Informatika
UNIKOM

4. PENGELOLAAN DATABASE, TABEL, DAN INDEX

Membuat Database

- Sintaks:

```
<definisi database>::=
CREATE DATABASE [IF NOT EXISTS] <nama database>
[[DEFAULT] CHARACTER SET <nama character set>]
[[DEFAULT] COLLATE <nama collation>]
```

- Contoh

```
mysql> CREATE DATABASE mahasiswa;
```

```
mysql> CREATE DATABASE IF NOT EXIST mahasiswa;
```

Menghapus Database

- Sintaks:

```
DROP DATABASE [IF EXISTS] <nama database>
```

- Contoh

```
mysql> DROP DATABASE mahasiswa;
```

```
mysql> DROP DATABASE IF EXIST mahasiswa;
```

Membuat Tabel

<definisi tabel>::=
CREATE [TEMPORARY] TABLE [IF NOT EXISTS] <nama tabel>
(<elemen tabel> [{, < elemen tabel >}...])
[<opsi tabel> [<opsi tabel >...]]

<elemen tabel>::=
<definisi kolom>
| {[CONSTRAINT <nama constraint>] PRIMARY KEY
(<nama kolom> [{, < nama kolom >}...])}
| {[CONSTRAINT < nama constraint >] FOREIGN KEY [<nama indeks>]
(<nama kolom > [{, < nama kolom >}...]) <definisi referensi>}
| {[CONSTRAINT < nama constraint >] UNIQUE [INDEX] [<nama indeks>]
(<nama kolom > [{, < nama kolom >}...])}
| {{INDEX | KEY} [<nama indeks>] (<nama kolom > [{, < nama kolom >}...])}
| {FULLTEXT [INDEX] [<nama indeks >] (<nama kolom > [{, < nama kolom >}...])}

<definisi kolom>::=
<nama kolom> <type> [NOT NULL | NULL] [DEFAULT <value>] [AUTO_INCREMENT]
[PRIMARY KEY] [COMMENT '<string>'] [<definisi referensi >]

Membuat Tabel (2)

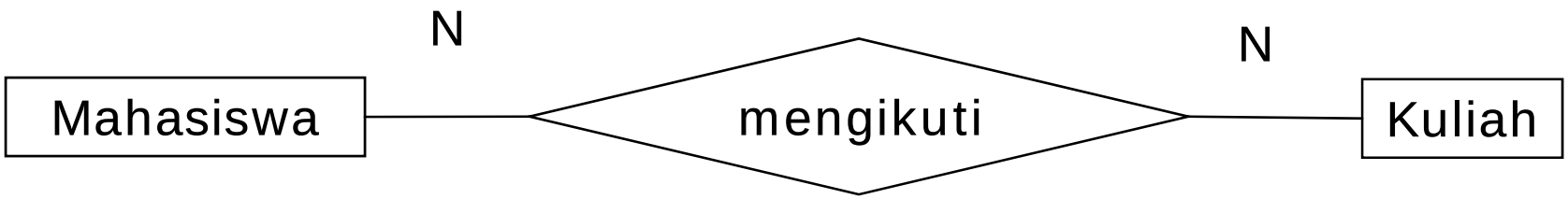
<type>::=
<tipe data numerik>
| <tipe data string>
| <tipe data tanggal/waktu>

<definisi referensi>::=
REFERENCES <nama tabel> [(<nama kolom > [{, < nama kolom >}...])]
[ON DELETE {RESTRICT | CASCADE | SET NULL | NO ACTION | SET DEFAULT }]
[ON UPDATE {RESTRICT | CASCADE | SET NULL | NO ACTION | SET DEFAULT }]
[MATCH FULL | MATCH PARTIAL]

<opsi tabel>::=
{ENGINE = {BDB | MEMORY | ISAM | INNODB | MERGE | MYISAM}}
| <opsi tabel tambahan>

Studi Kasus

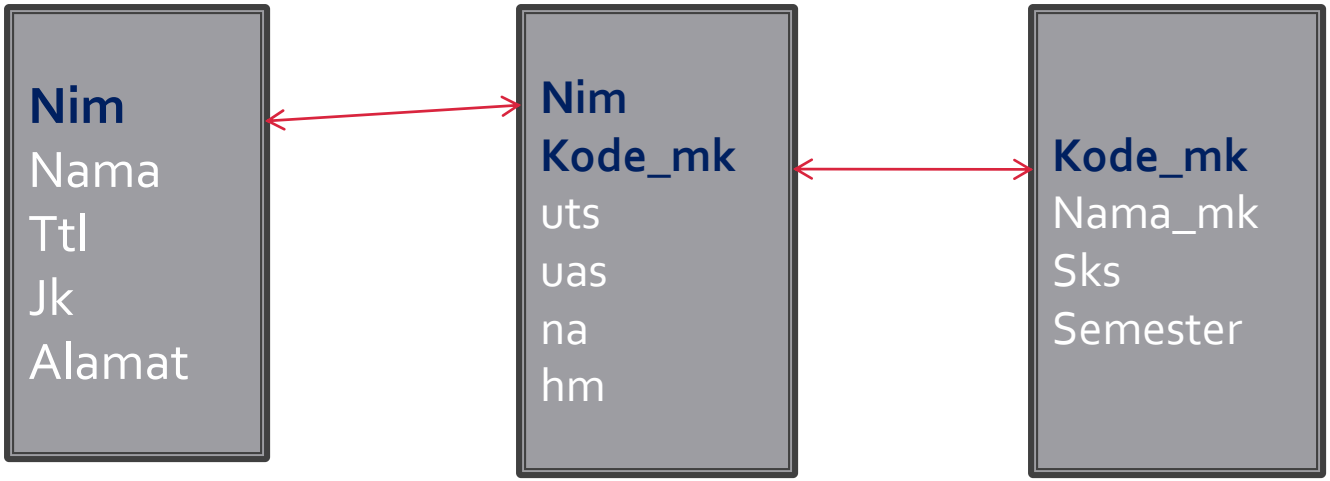
- Setiap mahasiswa bisa mengambil beberapa mata kuliah sekaligus
- Setiap mata kuliah bisa diambil oleh beberapa mahasiswa sekaligus



Gambar ERD Perkuliahan

Studi Kasus (2)

- Skema relasi



Studi Kasus (3)

- SQL tabel mahasiswa

```
Create table mahasiswa
(
        nim char(8) not null,
        nama varchar(30),
        ttl date,
        jk char(1) not null,
        alamat varchar(30),
        primary key (nim)
)
ENGINE=InnoDb;
```

Studi Kasus (4)

- SQL tabel kuliah

```
Create table kuliah
(
        kode_mk char(8) not null,
        nama_mk varchar(30),
        sks smallint,
        semester smallint,
        primary key (kode_mk)
)
ENGINE=InnoDb;
```

Studi Kasus (5)

- SQL tabel nilai

```
Create table nilai
(
        nim char(8) not null,
        kode_mk varchar(30) not null,
        uts smallint,
        uas smallint,
        na float(2),
        hm char(1) default 'T',
        foreign key (nim) references mahasiswa(nim),
        foreign key (kode_mk) references kuliah(kode_mk)
)
ENGINE=InnoDb;
```

Modifikasi Tabel

```
ALTER TABLE <nama tabel>
<opsi alter> [{, <opsi alter>}...]

< opsi alter >::=
{ADD [COLUMN] <definisi kolom> [FIRST | AFTER <nama kolom>]}
| {ADD [COLUMN] (<elemen tabel> [{, <elemen tabel>}...])}
| {ADD [CONSTRAINT <nama batasan>] PRIMARY KEY
        (<nama kolom > [{, < nama kolom >}...])}
| {ADD [CONSTRAINT < nama batasan >] FOREIGN KEY [<nama indeks>]
        (<nama kolom > [{, < nama kolom >}...]) <definisi referensi>}
| {ADD [CONSTRAINT < nama batasan >] UNIQUE [<nama indeks >]
        (<nama kolom > [{, < nama kolom >}...])}
| {ADD INDEX [<nama indeks >] (<nama kolom > [{, < nama kolom >}...])}
| {ADD FULLTEXT [<nama indeks >] (<nama kolom > [{, < nama kolom >}...])}
| {ALTER [COLUMN] < nama kolom > {SET DEFAULT <nilai> | DROP DEFAULT}}
| {CHANGE [COLUMN] <nama kolom> <definisi kolom> [FIRST | AFTER <nama kolom>]}
| {MODIFY [COLUMN] < definisi kolom > [FIRST | AFTER < nama kolom >]}
| {DROP [COLUMN] < nama kolom >}
| {DROP PRIMARY KEY}
| {DROP INDEX < nama indeks >}
| {DROP FOREIGN KEY < nama batasan >}
| {RENAME [TO] <nama tabel baru>}
| {ORDER BY <nama kolom> [{, < nama kolom >}...]}
| {<opsi tabel> [<opsi tabel>...]}
```

- Baca dan latihan di modul.