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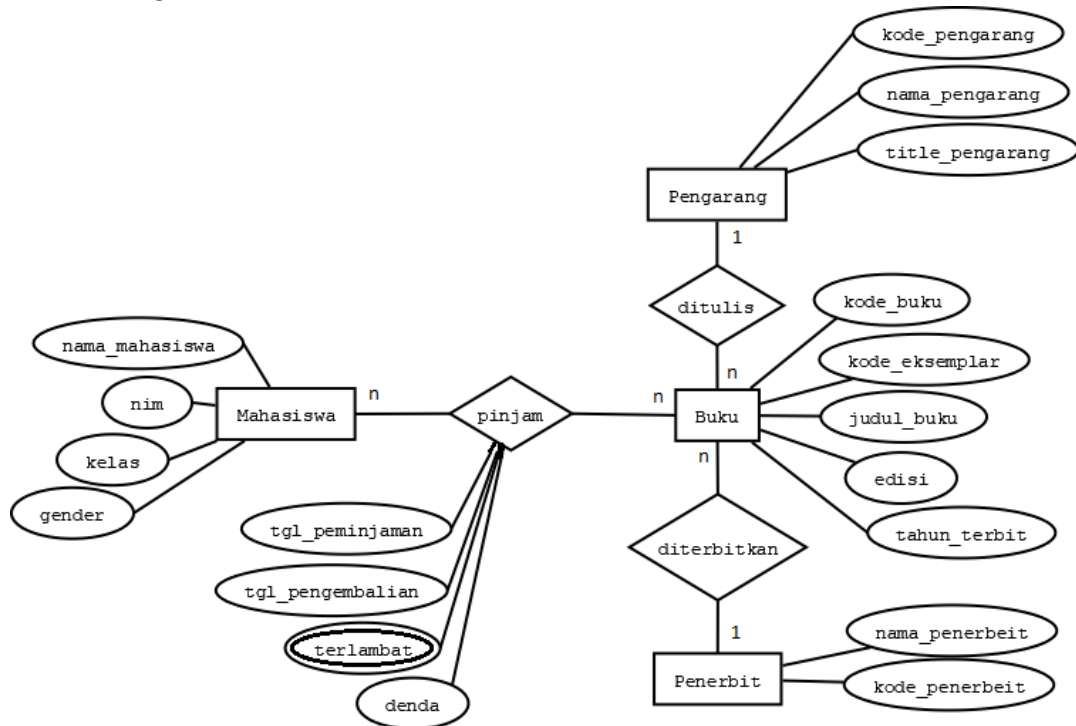
Kelas : A

Ujian Tengah Semester

Praktikum Basis Data

1. Soal nomor 1

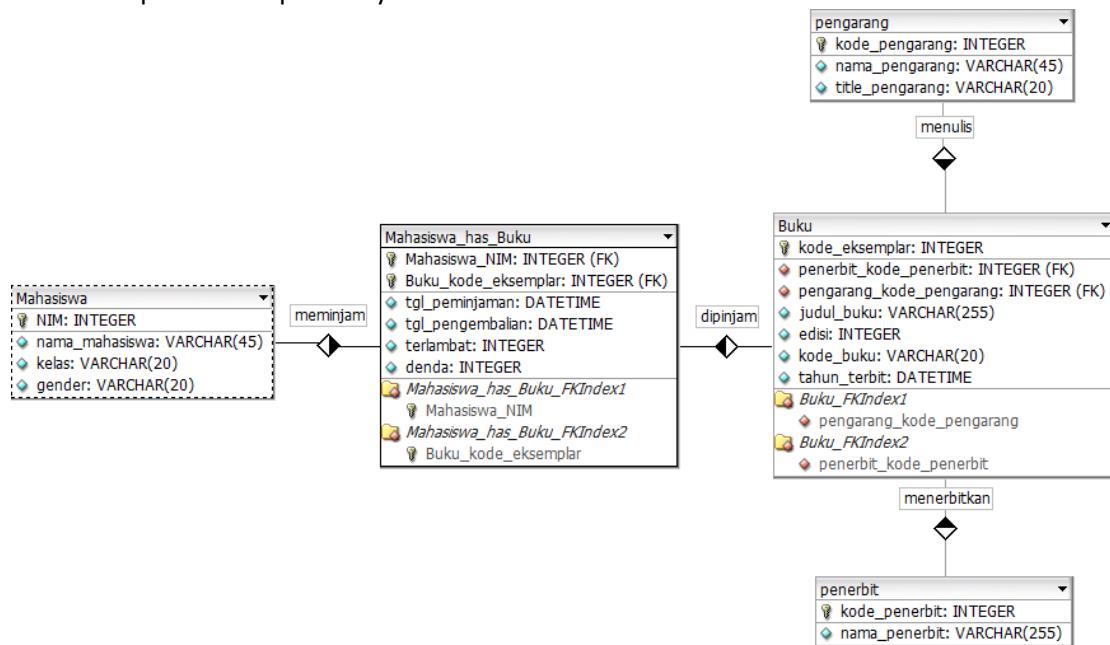
a. ER Diagram



b. Cardinality ER Diagram:

1. Mahasiswa meminjam buku (many-to-many)
2. Buku ditulis pengarang (many-to-one)
3. Buku diterbitkan penerbit (many-to-one)

c. Implementasi pada Physical model



d. Implementasi ke dalam database menggunakan query sql menggunakan SQL: CREATE

- Membuat database bernama perpustakaan

```

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 8
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 perpustakaan;
Query OK, 1 row affected (0.008 sec)

MariaDB [(none)]> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| perbankaan |
| performance_schema |
| perpustakaan |
| phpmyadmin |
| po_bus |
| test |
+-----+
8 rows in set (0.025 sec)

MariaDB [(none)]>
  
```

- Membuat tabel mahasiswa

```

MariaDB [(none)]> use perpustakaan;
Database changed
MariaDB [perpustakaan]> create table mahasiswa(
  -> nim integer primary key,
  -> nama mahasiswa varchar(45) not null,
  -> kelas varchar(20) not null,
  -> gender varchar(20) not null);
Query OK, 0 rows affected (0.032 sec)

MariaDB [perpustakaan]>
  
```

- Membuat tabel buku

```
MariaDB [perpustakaan]> create table buku(
  -> kode_eksemplar integer primary key,
  -> judul_buku varchar(255) not null,
  -> edisi integer not null,
  -> kode_buku varchar(20) not null,
  -> tahun_terbit datetime not null default current_timestamp);
Query OK, 0 rows affected (0.029 sec)
```

- Membuat tabel penerbit

```
MariaDB [perpustakaan]> create table penerbit(
  -> kode_penerbit integer primary key,
  -> nama_penerbit varchar(255) not null);
Query OK, 0 rows affected (0.034 sec)
```

- Membuat tabel pengarang

```
MariaDB [perpustakaan]> create table pengarang(
  -> kode_pengarang integer primary key,
  -> nama_pengarang varchar(45) not null,
  -> title_pengarang varchar(20) not null);
Query OK, 0 rows affected (0.033 sec)
```

- Membuat tabel mahasiswa_has_buku

```
MariaDB [perpustakaan]> create table mahasiswa_has_buku(
  -> nimFK integer references mahasiswa(nim)
  -> on delete cascade on update cascade,
  -> kode_eksemplarFK integer references buku(kode_eksemplar)
  -> on delete cascade on update cascade,
  -> tgl_peminjaman datetime not null default current_timestamp,
  -> tgl_pengembalian datetime not null default current_timestamp,
  -> terlambat integer not null,
  -> denda integer not null);
Query OK, 0 rows affected (0.035 sec)
MariaDB [perpustakaan]> _
```

e. Memasukkan data dengan perintah insert

- Memasukan data mahasiswa

```
Select Command Prompt - mysql -u root -p
MariaDB [perpustakaan]> insert into mahasiswa values(1, "Riski", "C", "Laki-laki"),
  -> (2, "Ahmad", "B", "Laki-laki"),
  -> (3, "Yuda", "B", "Laki-laki"),
  -> (9, "Erin", "A", "Perempuan"),
  -> (21, "Yati", "A", "Perempuan"),
  -> (28, "Reni", "C", "Perempuan"),
  -> (42, "Maya", "D", "Perempuan"),
  -> (35, "Dea", "C", "Perempuan"),
  -> (16, "Juli", "D", "Laki-laki"),
  -> (14, "Ida", "B", "Perempuan");
Query OK, 10 rows affected (0.053 sec)
Records: 10 Duplicates: 0 Warnings: 0

MariaDB [perpustakaan]> select*from mahasiswa;
+----+-----+-----+-----+
| nim | nama_mahasiswa | kelas | gender |
+----+-----+-----+-----+
| 1   | Riski          | C     | Laki-laki |
| 2   | Ahmad          | B     | Laki-laki |
| 3   | Yuda           | B     | Laki-laki |
| 9   | Erin           | A     | Perempuan |
| 21  | Yati           | A     | Perempuan |
| 28  | Reni           | C     | Perempuan |
| 42  | Maya           | D     | Perempuan |
| 35  | Dea            | C     | Perempuan |
| 16  | Juli           | D     | Laki-laki |
| 14  | Ida            | B     | Perempuan |
+----+-----+-----+-----+
10 rows in set (0.000 sec)

MariaDB [perpustakaan]> _
```

- Memasukkan data buku

```

Command Prompt - mysql -u root -p
MariaDB [perpustakaan]> insert into buku values(001, "Belajar Java", 3, "001/as", "2010-11-5"),
-> (002, "Belajar Java", 3, "001/as", "2010-11-5"),
-> (003, "Belajar Java", 3, "001/as", "2010-11-5"),
-> (004, "Harry Potter", 5, "003/jr", "2014-1-27"),
-> (005, "Harry Potter", 5, "003/jr", "2014-1-27"),
-> (006, "Harry Potter", 5, "003/jr", "2014-1-27"),
-> (007, "Belajar Web", 2, "005/ts", "2011-3-17"),
-> (008, "Belajar Web", 2, "005/ts", "2011-3-17"),
-> (009, "Hujan", 1, "008/tl", "2017-2-14"),
-> (010, "Hujan", 1, "008/tl", "2017-2-14");
Query OK, 10 rows affected (0.006 sec)
Records: 10 Duplicates: 0 Warnings: 0

MariaDB [perpustakaan]> select*from buku;
+-----+-----+-----+-----+-----+
| kode_eksemplar | judul_buku | edisi | kode_buku | tahun_terbit |
+-----+-----+-----+-----+-----+
| 1 | Belajar Java | 3 | 001/as | 2010-11-05 00:00:00 |
| 2 | Belajar Java | 3 | 001/as | 2010-11-05 00:00:00 |
| 3 | Belajar Java | 3 | 001/as | 2010-11-05 00:00:00 |
| 4 | Harry Potter | 5 | 003/jr | 2014-01-27 00:00:00 |
| 5 | Harry Potter | 5 | 003/jr | 2014-01-27 00:00:00 |
| 6 | Harry Potter | 5 | 003/jr | 2014-01-27 00:00:00 |
| 7 | Belajar Web | 2 | 005/ts | 2011-03-17 00:00:00 |
| 8 | Belajar Web | 2 | 005/ts | 2011-03-17 00:00:00 |
| 9 | Hujan | 1 | 008/tl | 2017-02-14 00:00:00 |
| 10 | Hujan | 1 | 008/tl | 2017-02-14 00:00:00 |
+-----+-----+-----+-----+-----+
10 rows in set (0.000 sec)

MariaDB [perpustakaan]>

```

- Memasukkan data penerbit

```

Command Prompt - mysql -u root -p
MariaDB [perpustakaan]> insert into penerbit values(1, "Gramedia"),
-> (2, "Sinar Jaya"),
-> (3, "Sinar Terang"),
-> (4, "Jaya Pustaka"),
-> (5, "Ikhlas"),
-> (6, "Bintang Timur"),
-> (7, "Subur Berlian"),
-> (8, "Mutiana Pustaka"),
-> (9, "Buana"),
-> (10, "Arindo");
Query OK, 10 rows affected (0.005 sec)
Records: 10 Duplicates: 0 Warnings: 0

MariaDB [perpustakaan]> select*from penerbit;
+-----+-----+
| kode_penerbit | nama_penerbit |
+-----+-----+
| 1 | Gramedia |
| 2 | Sinar Jaya |
| 3 | Sinar Terang |
| 4 | Jaya Pustaka |
| 5 | Ikhlas |
| 6 | Bintang Timur |
| 7 | Subur Berlian |
| 8 | Mutiana Pustaka |
| 9 | Buana |
| 10 | Arindo |
+-----+-----+
10 rows in set (0.000 sec)

MariaDB [perpustakaan]>

```

- Memasukkan data pengarang

```

Command Prompt - mysql -u root -p
MariaDB [perpustakaan]> insert into pengarang values(21, "J.K. Rowling", "MISI"),
-> (22, "Tatang Sutarma", "S.Kom., M.Kom."),
-> (23, "Ahmad Subagyo", "S.Kom., M.Kom."),
-> (24, "Tere Liye", "S.E."),
-> (25, "Rahmat Budiarto", "S.T."),
-> (26, "Doni Kurniawan", "S.Pd."),
-> (27, "Dani Ramadani", "S.I.Kom"),
-> (28, "Candra Kusuma", "S.T."),
-> (29, "Deni Raharjo", "S.E."),
-> (30, "Zainal Fathoni", "S.T.");
Query OK, 10 rows affected (0.027 sec)
Records: 10 Duplicates: 0 Warnings: 0

MariaDB [perpustakaan]> select*from pengarang;
+-----+-----+-----+
| kode_pengarang | nama_pengarang | title_pengarang |
+-----+-----+-----+
| 21 | J.K. Rowling | MISI |
| 22 | Tatang Sutarma | S.Kom., M.Kom. |
| 23 | Ahmad Subagyo | S.Kom., M.Kom. |
| 24 | Tere Liye | S.E. |
| 25 | Rahmat Budiarto | S.T. |
| 26 | Doni Kurniawan | S.Pd. |
| 27 | Dani Ramadani | S.I.Kom |
| 28 | Candra Kusuma | S.T. |
| 29 | Deni Raharjo | S.E. |
| 30 | Zainal Fathoni | S.T. |
+-----+-----+-----+
10 rows in set (0.005 sec)

MariaDB [perpustakaan]>

```

- Memasukkan data mahasiswa_has_buku

```

Command Prompt - mysql -u root -p
MariaDB [perpustakaan]> insert into mahasiswa_has_buku values(35, 003, "2020-3-25", "2020-4-1",0,0),
-> (2, 001, "2020-3-25", "2020-4-5",4,4000),
-> (2, 004, "2020-3-25", "2020-4-5",4,4000),
-> (9, 009, "2020-3-26", "2020-4-2",0,0),
-> (21, 010, "2020-3-26", "2020-4-3",1,1000),
-> (14, 010, "2020-4-6", "2020-4-12",0,0),
-> (14, 000, "2020-4-6", "2020-4-12",0,0),
-> (42, 001, "2020-4-6", "2020-4-14",2,2000),
-> (35, 005, "2020-4-7", "2020-4-14",1,1000),
-> (16, 007, "2020-4-7", "2020-4-13",0,0);
Query OK, 10 rows affected (0.011 sec)
Records: 10 Duplicates: 0 Warnings: 0

MariaDB [perpustakaan]> select*from mahasiswa_has_buku;
+-----+-----+-----+-----+-----+-----+
| nimFK | kode_eksemplarFK | tgl_peminjaman | tgl_pengembalian | terlambat | denda |
+-----+-----+-----+-----+-----+-----+
| 35    | 3                | 2020-03-25 00:00:00 | 2020-04-01 00:00:00 | 0         | 0     |
| 2     | 1                | 2020-03-25 00:00:00 | 2020-04-05 00:00:00 | 4         | 4000  |
| 2     | 4                | 2020-03-25 00:00:00 | 2020-04-05 00:00:00 | 4         | 4000  |
| 9     | 9                | 2020-03-26 00:00:00 | 2020-04-02 00:00:00 | 0         | 0     |
| 21    | 10               | 2020-03-26 00:00:00 | 2020-04-03 00:00:00 | 1         | 1000  |
| 14    | 10               | 2020-04-06 00:00:00 | 2020-04-12 00:00:00 | 0         | 0     |
| 14    | 8                | 2020-04-06 00:00:00 | 2020-04-12 00:00:00 | 0         | 0     |
| 42    | 1                | 2020-04-06 00:00:00 | 2020-04-14 00:00:00 | 2         | 2000  |
| 35    | 5                | 2020-04-07 00:00:00 | 2020-04-14 00:00:00 | 1         | 1000  |
| 16    | 7                | 2020-04-07 00:00:00 | 2020-04-13 00:00:00 | 0         | 0     |
+-----+-----+-----+-----+-----+-----+
10 rows in set (0.001 sec)

MariaDB [perpustakaan]>

```