NAMA : BAITY JANNATIKA

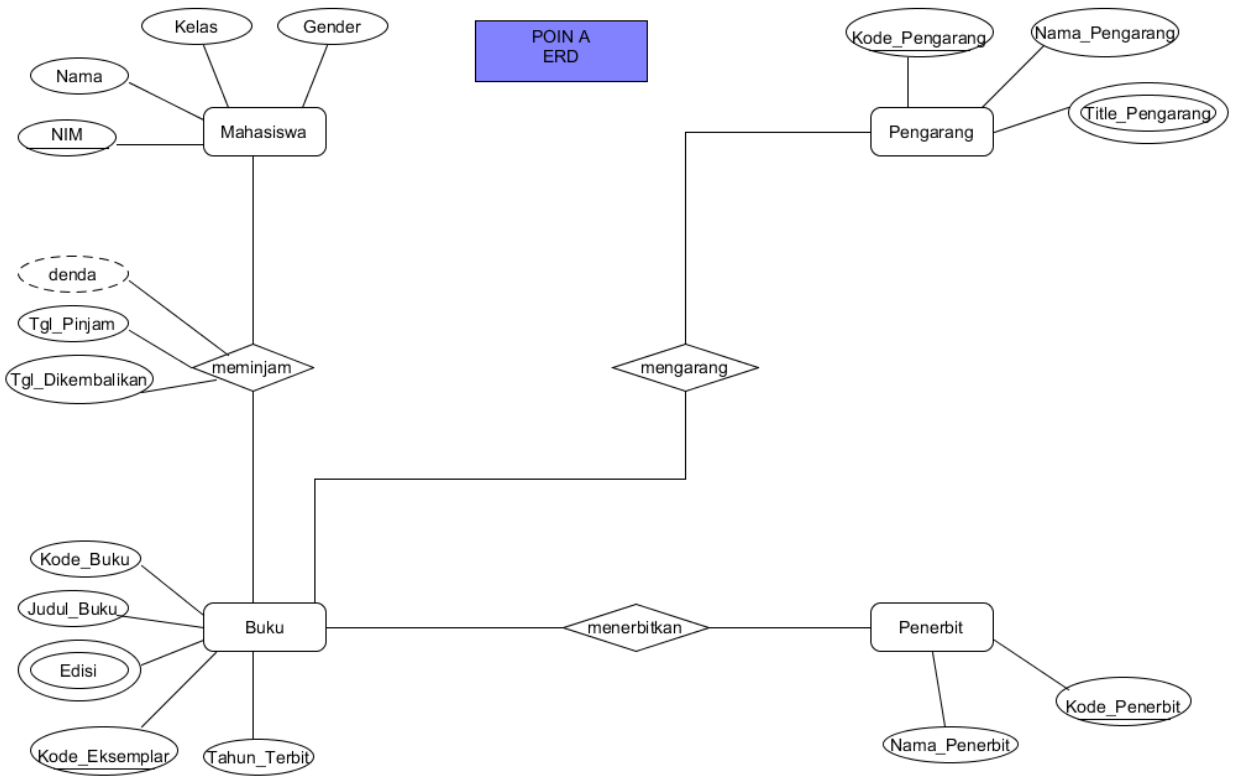
NIM : L200180211

KELAS : H / PRAKTIKUM SISTEM BASIS DATA

UJIAN TENGAH SEMESTER GENAP

KAMIS, 9 APRIL 2020

A. ERD DATABASE SIRKULASI PERPUSTAKAAN

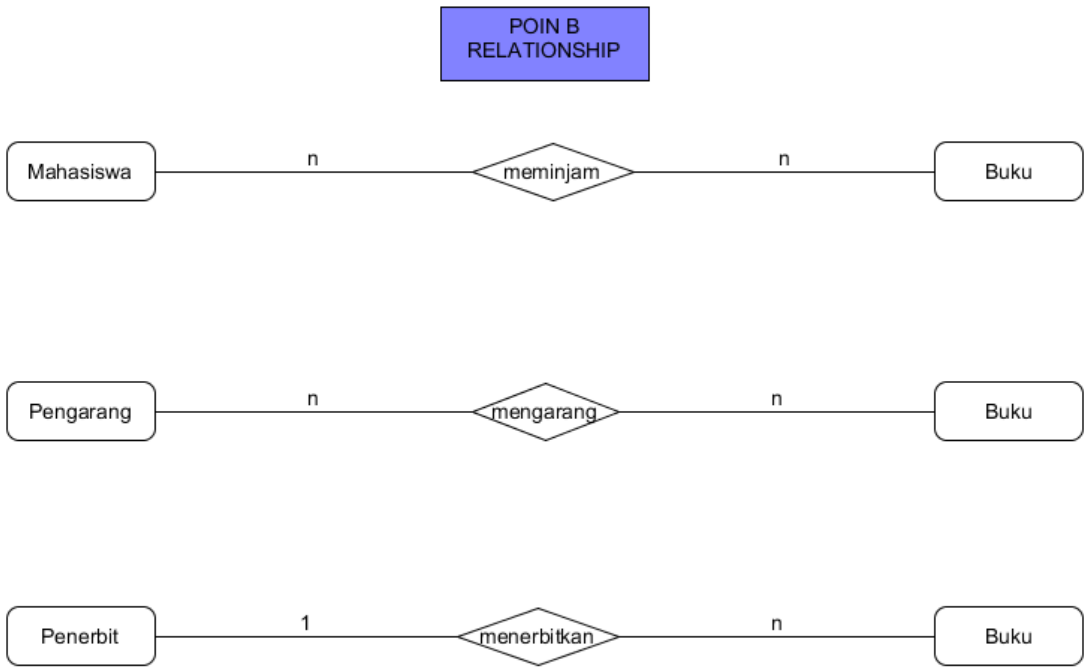


B. RELASI ANTAR ENTITAS

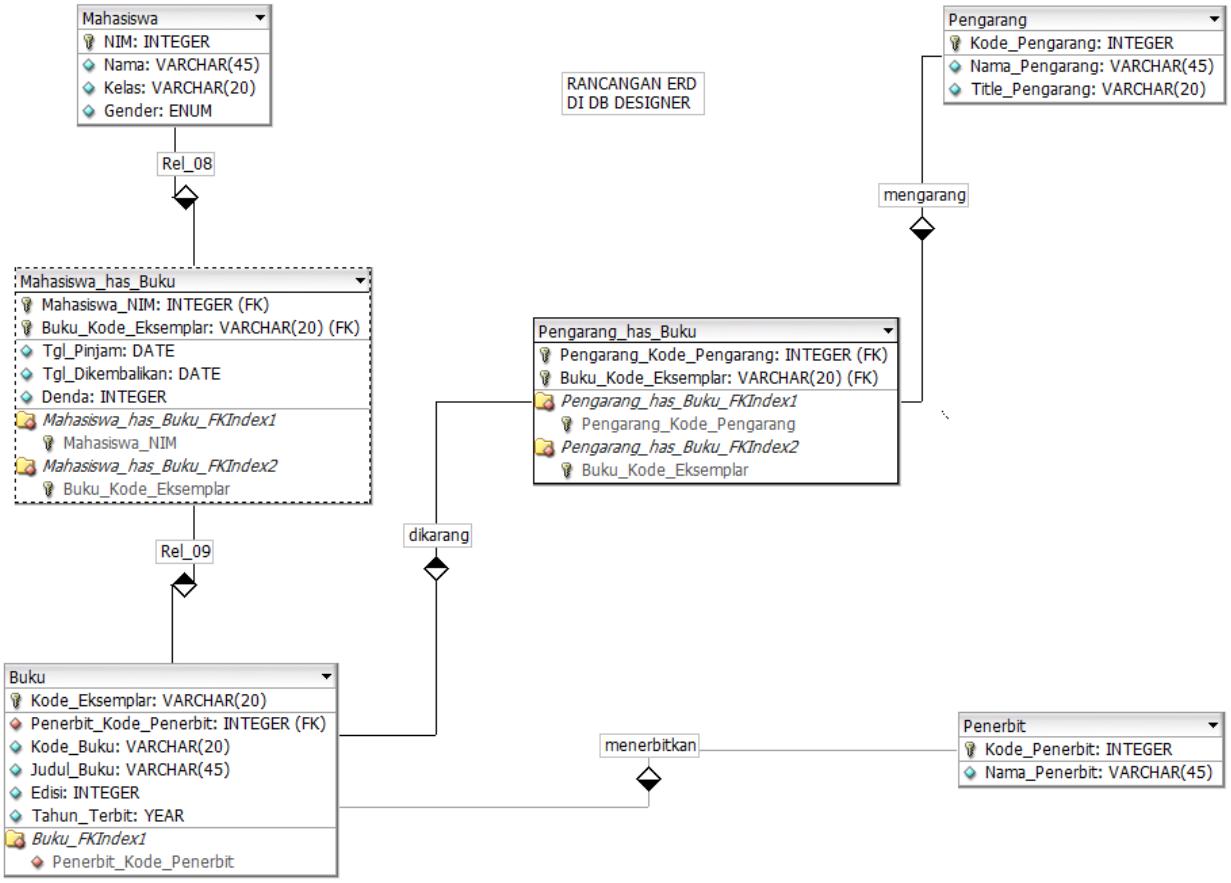
Cardinality

	Mahasiswa	Penerbit	Pengarang	Buku
Mahasiswa	-	-	-	N : N
Pengarang		-	-	N : N
Penerbit				1 : N
Buku				-

- Mahasiswa meminjam Buku (many to many)
- Pengarang mengarang Buku (many to many)
- Penerbit menerbitkan Buku (one to many)



C. RANCANGAN ERD DENGAN MENGGUNAKAN DB DESIGNER



D. RANCANGAN ERD MENGGUNAKAN QUERY SQL (CREATE)

```
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 51
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 (0.033 sec)

MariaDB [(none)]> use perpustakaan;
Database changed
MariaDB [perpustakaan]> create table Mahasiswa(
    -> NIM integer primary key,
    -> Nama varchar(45) not null,
    -> Kelas varchar(20) not null,
    -> Gender enum('Laki-laki', 'Perempuan')
    -> );
Query OK, 0 rows affected (0.375 sec)
```

```
MariaDB [perpustakaan]> create table Buku(
    -> Kode_Eksemplar varchar(20) primary key,
    -> Kode_PenerbitFK integer references Penerbit(Kode_Penerbit)
    -> on delete set null on update cascade,
    -> Kode_Buku varchar(20) not null,
    -> Judul_Buku varchar(45) not null,
    -> Edisi integer not null,
    -> Tahun_Terbit year(4) not null
    -> );
Query OK, 0 rows affected (1.911 sec)

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 (0.278 sec)
```

```
MariaDB [perpustakaan]> create table Penerbit(
    -> Kode_Penerbit integer primary key,
    -> Nama_Penerbit varchar(45) unique not null
    -> );
Query OK, 0 rows affected (0.453 sec)
```

```
MariaDB [perpustakaan]> create table Mahasiswa_meminjam_Buku(
    -> NIMFK integer references Mahasiswa(NIM)
    -> on delete cascade on update cascade,
    -> Kode_EksemplarFK varchar(20) references Buku(Kode_Eksemplar)
    -> on delete cascade on update cascade,
    -> Tgl_Pinjam date not null,
    -> Tgl_Dikembalikan date not null,
    -> Denda integer
    -> );
Query OK, 0 rows affected (0.499 sec)
```

```
MariaDB [perpustakaan]> create table Pengarang_mengarang_Buku(
    -> Kode_PengarangFK integer references Pengarang(Kode_Pengarang)
    -> on delete cascade on update cascade,
    -> Kode_EksemplarFK varchar(20) references Buku(Kode_Eksemplar)
    -> on delete cascade on update cascade
    -> );
Query OK, 0 rows affected (0.363 sec)
```

E. MENAMBAHKAN RECORD PADA SETIAP TABLE (INSERT, MINIMAL 10 RECORD)

```
MariaDB [perpustakaan]> insert into Mahasiswa(NIM, Nama, Kelas, Gender)values
    -> (123001, 'Addina', 'A', 'Perempuan'),
    -> (123002, 'Azzam', 'I', 'Laki-laki'),
    -> (123003, 'Hanu', 'A', 'Laki-laki'),
    -> (123004, 'Rafa', 'A', 'Laki-laki'),
    -> (123005, 'Zafira', 'A', 'Perempuan'),
    -> (123006, 'Muzakky', 'I', 'Laki-laki'),
    -> (123007, 'Aisyah', 'I', 'Perempuan'),
    -> (123008, 'Halimah', 'I', 'Perempuan'),
    -> (123009, 'Muhammad', 'I', 'Laki-laki'),
    -> (123010, 'Prasetya', 'A', 'Laki-laki')
    -> ;
Query OK, 10 rows affected (0.142 sec)
Records: 10  Duplicates: 0  Warnings: 0
```

```
MariaDB [perpustakaan]> insert into Buku(Kode_Eksemplar, Kode_PenerbitFK, Kode_Buku, Judul_Buku, Edisi, Tahun_Terbit)values
    -> ('001.01/rs/001', 1, '001.01/rs', 'Algooritma', 1, 2010),
    -> ('001.01/rs/002', 1, '001.01/rs', 'Algooritma', 1, 2010),
    -> ('002.01/rs/001', 2, '002.01/rs', 'Pemrograman', 1, 2013),
    -> ('003.01/sm/001', 3, '003.01/sm', 'Basis Data', 1, 2008),
    -> ('003.01/sm/002', 3, '003.01/sm', 'Basis Data', 1, 2008),
    -> ('003.01/sm/003', 3, '003.01/sm', 'Basis Data', 1, 2008),
    -> ('004.02/tw/001', 5, '004.02/tw', 'Windows', 3, 2017),
    -> ('005.01/dm/001', 4, '005.01/dm', 'Linux', 2, 2012),
    -> ('006.01/sz/001', 1, '006.01/sz', 'Web', 1, 2013),
    -> ('007.02/vs/001', 7, '007.02/vs', 'Corel Draw', 2, 2015),
    -> ('008.01/tp/001', 9, '008.01/tp', 'Komputer', 4, 2018),
    -> ('009.01/ws/001', 10, '009.01/ws', 'Jaringan', 2, 2014),
    -> ('009.01/ws/002', 10, '009.01/ws', 'Jaringan', 2, 2014),
    -> ('010.02/vs/001', 8, '010.02/vs', 'Photoshop', 5, 2019),
    -> ('011.01/tp/001', 5, '011.01/tp', 'Microsoft', 4, 2020),
    -> ('011.01/tp/002', 5, '011.01/tp', 'Microsoft', 4, 2020);
Query OK, 16 rows affected (0.114 sec)
Records: 16  Duplicates: 0  Warnings: 0
```

```
MariaDB [perpustakaan]> insert into Buku(Kode_Eksemplar, Kode_PenerbitFK, Kode_Buku, Judul_Buku, Edisi, Tahun_Terbit)values
    -> ('012.01/sz, ws/001', 1, '012.01/sz, ws', 'Internet', 1, 2019),
    -> ('012.01/sz, ws/002', 1, '012.01/sz, ws', 'Internet', 1, 2019),
    -> ('013.01/sz, ws/001', 9, '013.01/tp, sm', 'Teknologi', 2, 2011),
    -> ('014.01/rs, ws, ba, tk/001', 6, '014.01/rs, ws, ba, tk', 'Java Srcipt', 4, 2013);
Query OK, 4 rows affected, 2 warnings (1.674 sec)
Records: 4  Duplicates: 0  Warnings: 2
```

```
MariaDB [perpustakaan]> insert into Pengarang(Kode_Pengarang, Nama_Pengarang, Title_Pengarang) values
    -> (1, 'Rosa Salmania', 'S.Kom'),
    -> (2, 'Sani Muhammad', 'S.T'),
    -> (3, 'Tiwi Wulandari', 'S.Kom'),
    -> (4, 'Dwi Mardiyah', 'S.Kom, M.Kom'),
    -> (5, 'Sofi Zaitun', 'S.T'),
    -> (6, 'Vincent Sinanggar', 'Dr, S.T, M.T'),
    -> (7, 'Toni Putra', 'S.Kom, M.T'),
    -> (8, 'Wahyu Saputra', 'Prof, S.T, M.T'),
    -> (9, 'Baity Ananda', 'Drs, S.T, M.T'),
    -> (10, 'Tika Kartika', 'S.T, M.T')
    -> ;
Query OK, 10 rows affected (0.088 sec)
Records: 10  Duplicates: 0  Warnings: 0
```

```
MariaDB [perpustakaan]> insert into Penerbit(Kode_Penerbit, Nama_Penerbit) values
    -> (1, 'Gramedia Pustaka Utama'),
    -> (2, 'Erlangga'),
    -> (3, 'Tiga Serangkai'),
    -> (4, 'Empat Sekawan'),
    -> (5, 'Benteng Pustaka'),
    -> (6, 'Java Books Indonesia'),
    -> (7, 'Mandiri Semesta'),
    -> (8, 'Bumi Aksara'),
    -> (9, 'Samudra Buku'),
    -> (10, 'Intermedia Group')
    -> ;
Query OK, 10 rows affected (0.115 sec)
Records: 10  Duplicates: 0  Warnings: 0
```

```
MariaDB [perpustakaan]> insert into Mahasiswa_meminjam_Buku(NIMFK, Kode_EksemplarFK, Tgl_Pinjam, Tgl_Dikembalikan, Denda) values
    -> (123001, '001.01/rs/001', '2020-03-02', '2020-03-09', 0),
    -> (123002, '001.01/rs/001', '2020-03-04', '2020-04-11', 0),
    -> (123002, '014.01/rs, ws, ba, tk/001', '2020-03-11', '2020-03-20', 10000),
    -> (123004, '003.01/sm/001', '2020-03-21', '2020-03-26', 0),
    -> (123005, '011.01/tp/001', '2020-03-25', '2020-04-02', 5000),
    -> (123006, '011.01/tp/002', '2020-04-01', '2020-04-06', 0),
    -> (123007, '008.01/tp/001', '2020-04-01', '2020-04-09', 5000),
    -> (123008, '006.01/sz/001', '2020-04-01', '2020-04-10', 10000),
    -> (123009, '012.01/sz, ws/002', '2020-04-01', '2020-04-08', 0),
    -> (123009, '013.01/sz, ws/001', '2020-04-08', '2020-02-16', 5000)
    -> ;
Query OK, 10 rows affected, 1 warning (0.190 sec)
Records: 10  Duplicates: 0  Warnings: 1
```

```
MariaDB [perpustakaan]> insert into Pengarang_mengarang_Buku(Kode_PengarangFK, Kode_EksemplarFK) values
    -> (1, '001.01/rs/001'),
    -> (1, '002.01/rs/001'),
    -> (2, '003.01/sm/001'),
    -> (3, '004.02/tw/001'),
    -> (4, '005.01/dm/001'),
    -> (5, '006.01/sz/001'),
    -> (6, '007.02/vs/001'),
    -> (7, '008.01/tp/001'),
    -> (8, '009.01/ws/001'),
    -> (7, '011.01/tp/001')
    -> ;
Query OK, 10 rows affected (0.625 sec)
Records: 10  Duplicates: 0  Warnings: 0
```

MENAMPILKAN TABEL SEKEDAR UNTUK MENGECEK

```
MariaDB [perpustakaan]> select*from Mahasiswa;
+--------+----------+-------+-----------+
| NIM    | Nama     | Kelas | Gender    |
+--------+----------+-------+-----------+
| 123001 | Addina   | A     | Perempuan |
| 123002 | Azzam    | I     | Laki-laki |
| 123003 | Hanu     | A     | Laki-laki |
| 123004 | Rafa     | A     | Laki-laki |
| 123005 | Zafira   | A     | Perempuan |
| 123006 | Muzakky  | I     | Laki-laki |
| 123007 | Aisyah   | I     | Perempuan |
| 123008 | Halimah  | I     | Perempuan |
| 123009 | Muhammad | I     | Laki-laki |
| 123010 | Prasetya | A     | Laki-laki |
+--------+----------+-------+-----------+
10 rows in set (0.001 sec)

MariaDB [perpustakaan]> select*from Buku;
+----------------------+-----------------+----------------------+-------------+-------+--------------+
| Kode_Eksemplar       | Kode_PenerbitFK | Kode_Buku            | Judul_Buku  | Edisi | Tahun_Terbit |
+----------------------+-----------------+----------------------+-------------+-------+--------------+
| 001.01/rs/001        |               1 | 001.01/rs            | Algooritma  |     1 |         2010 |
| 001.01/rs/002        |               1 | 001.01/rs            | Algooritma  |     1 |         2010 |
| 002.01/rs/001        |               2 | 002.01/rs            | Pemrograman |     1 |         2013 |
| 003.01/sm/001        |               3 | 003.01/sm            | Basis Data  |     1 |         2008 |
| 003.01/sm/002        |               3 | 003.01/sm            | Basis Data  |     1 |         2008 |
| 003.01/sm/003        |               3 | 003.01/sm            | Basis Data  |     1 |         2008 |
| 004.02/tw/001        |               5 | 004.02/tw            | Windows     |     3 |         2017 |
| 005.01/dm/001        |               4 | 005.01/dm            | Linux       |     2 |         2012 |
| 006.01/sz/001        |               1 | 006.01/sz            | Web         |     1 |         2013 |
| 007.02/vs/001        |               7 | 007.02/vs            | Corel Draw  |     2 |         2015 |
| 008.01/tp/001        |               9 | 008.01/tp            | Komputer    |     4 |         2018 |
| 009.01/ws/001        |              10 | 009.01/ws            | Jaringan    |     2 |         2014 |
| 009.01/ws/002        |              10 | 009.01/ws            | Jaringan    |     2 |         2014 |
| 010.02/vs/001        |               8 | 010.02/vs            | Photoshop   |     5 |         2019 |
| 011.01/tp/001        |               5 | 011.01/tp            | Microsoft   |     4 |         2020 |
| 011.01/tp/002        |               5 | 011.01/tp            | Microsoft   |     4 |         2020 |
| 012.01/sz, ws/001    |               1 | 012.01/sz, ws        | Internet    |     1 |         2019 |
| 012.01/sz, ws/002    |               1 | 012.01/sz, ws        | Internet    |     1 |         2019 |
| 013.01/sz, ws/001    |               9 | 013.01/tp, sm        | Teknologi   |     2 |         2011 |
| 014.01/rs, ws, ba, t |               6 | 014.01/rs, ws, ba, t | Java Srcipt |     4 |         2013 |
+----------------------+-----------------+----------------------+-------------+-------+--------------+
20 rows in set (0.002 sec)
```

```
MariaDB [perpustakaan]> select*from Pengarang;
+---------------+------------------+-----------------+
| Kode_Pengarang | Nama_Pengarang    | Title_Pengarang |
+---------------+------------------+-----------------+
|              1 | Rosa Salmania     | S.Kom           |
|              2 | Sani Muhammad     | S.T             |
|              3 | Tiwi Wulandari    | S.Kom           |
|              4 | Dwi Mardiyah      | S.Kom, M.Kom    |
|              5 | Sofi Zaitun       | S.T             |
|              6 | Vincent Sinanggar | Dr, S.T, M.T    |
|              7 | Toni Putra        | S.Kom, M.T      |
|              8 | Wahyu Saputra     | Prof, S.T, M.T  |
|              9 | Baity Ananda      | Drs, S.T, M.T   |
|             10 | Tika Kartika      | S.T, M.T        |
+---------------+------------------+-----------------+
10 rows in set (0.002 sec)

MariaDB [perpustakaan]> select*from Penerbit;
+--------------+-----------------------+
| Kode_Penerbit | Nama_Penerbit         |
+--------------+-----------------------+
|             5 | Benteng Pustaka       |
|             8 | Bumi Aksara           |
|             4 | Empat Sekawan         |
|             2 | Erlangga              |
|             1 | Gramedia Pustaka Utama |
|            10 | Intermedia Group      |
|             6 | Java Books Indonesia  |
|             7 | Mandiri Semesta       |
|             9 | Samudra Buku          |
|             3 | Tiga Serangkai        |
+--------------+-----------------------+
10 rows in set (0.001 sec)
```

```
MariaDB [perpustakaan]> select*from Mahasiswa_meminjam_Buku;
+--------+----------------------+------------+------------------+-------+
| NIMFK  | Kode_EksemplarFK     | Tgl_Pinjam | Tgl_Dikembalikan | Denda |
+--------+----------------------+------------+------------------+-------+
| 123001 | 001.01/rs/001        | 2020-03-02 | 2020-03-09       |     0 |
| 123002 | 001.01/rs/001        | 2020-03-04 | 2020-04-11       |     0 |
| 123002 | 014.01/rs, ws, ba, t | 2020-03-11 | 2020-03-20       | 10000 |
| 123004 | 003.01/sm/001        | 2020-03-21 | 2020-03-26       |     0 |
| 123005 | 011.01/tp/001        | 2020-03-25 | 2020-04-02       |  5000 |
| 123006 | 011.01/tp/002        | 2020-04-01 | 2020-04-06       |     0 |
| 123007 | 008.01/tp/001        | 2020-04-01 | 2020-04-09       |  5000 |
| 123008 | 006.01/sz/001        | 2020-04-01 | 2020-04-10       | 10000 |
| 123009 | 012.01/sz, ws/002    | 2020-04-01 | 2020-04-08       |     0 |
| 123009 | 013.01/sz, ws/001    | 2020-04-08 | 2020-02-16       |  5000 |
+--------+----------------------+------------+------------------+-------+
10 rows in set (0.002 sec)

MariaDB [perpustakaan]> select*from Pengarang_mengarang_Buku;
+------------------+------------------+
| Kode_PengarangFK | Kode_EksemplarFK |
+------------------+------------------+
|                1 | 001.01/rs/001    |
|                1 | 002.01/rs/001    |
|                2 | 003.01/sm/001    |
|                3 | 004.02/tw/001    |
|                4 | 005.01/dm/001    |
|                5 | 006.01/sz/001    |
|                6 | 007.02/vs/001    |
|                7 | 008.01/tp/001    |
|                8 | 009.01/ws/001    |
|                7 | 011.01/tp/001    |
+------------------+------------------+
10 rows in set (0.001 sec)
```