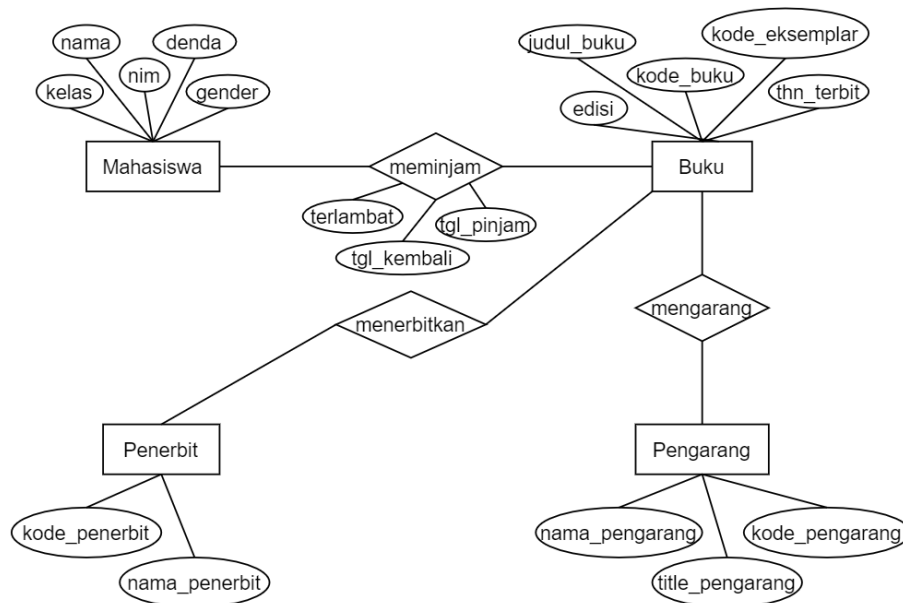**NAMA : DHIYA ULHAQ A**

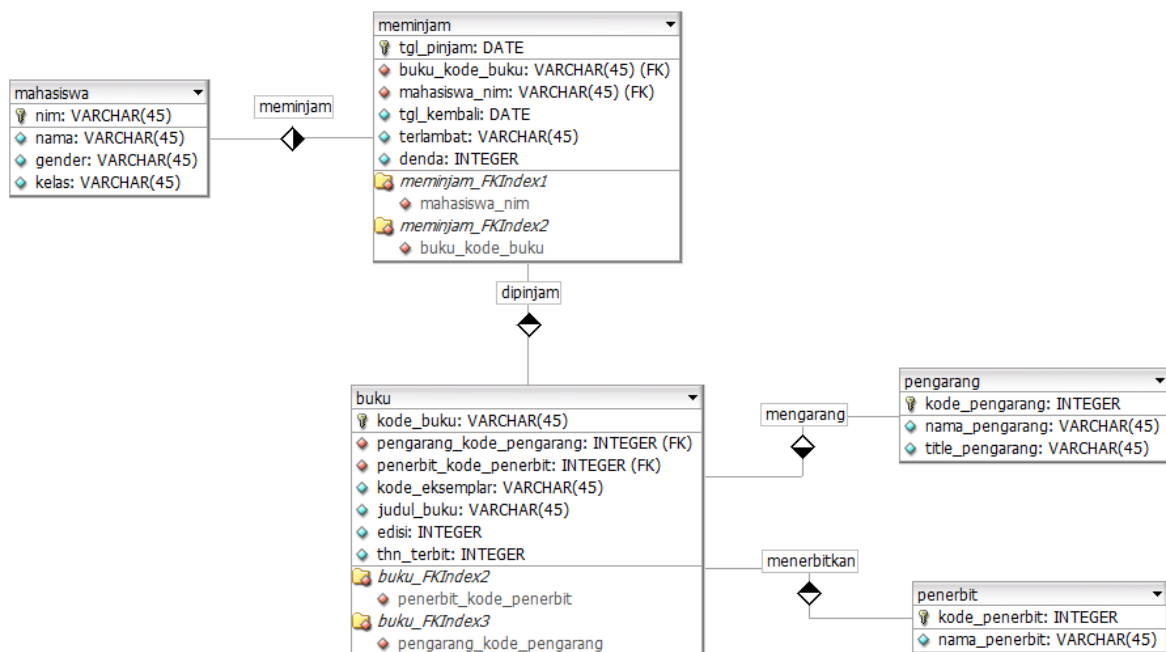**NIM   : L200180009**

UTS Prak. Sistem Basis Data

ER Diagram

Relasi yang dimiliki oleh entitas dari diagram entity relationship

- Mahasiswa meminjam buku : 1:n (one to many)
- Pengarang mengarang buku : 1:n (one to many)
- Penerbit menerbitkan buku : 1:n (one to many)

Design DBDesigner

Implementasi query SQL : CREATE

```
MariaDB [(none)]> create database perpustakaan;
Query OK, 1 row affected (0.11 sec)

MariaDB [(none)]> show databases;
+--------------------+
| Database           |
+--------------------+
| bioskop            |
| information_schema |
| mahasiswa          |
| mahasiswa2         |
| mysql              |
| perbankan          |
| performance_schema |
| perkuliahan        |
| perpustakaan       |
| phpmyadmin         |
| rumahsakit         |
| test               |
+--------------------+
12 rows in set (0.23 sec)

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

```
MariaDB [perpustakaan]> create table mahasiswa(
    -> nim VARCHAR(45) PRIMARY KEY,
    -> nama VARCHAR(45) NOT NULL,
    -> gender VARCHAR(45) NOT NULL,
    -> kelas VARCHAR(45) NOT NULL);
Query OK, 0 rows affected (0.06 sec)

MariaDB [perpustakaan]> desc mahasiswa;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| nim    | varchar(45) | NO   | PRI | NULL    |       |
| nama   | varchar(45) | NO   |     | NULL    |       |
| gender | varchar(45) | NO   |     | NULL    |       |
| kelas  | varchar(45) | NO   |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
4 rows in set (0.03 sec)
```

```
MariaDB [perpustakaan]> create table buku(
    -> kode_buku VARCHAR(45) PRIMARY KEY,
    -> pengarang_kode_pengarang INTEGER NOT NULL,
    -> penerbit_kode_penerbit INTEGER NOT NULL,
    -> kode_eksemplar VARCHAR(45) NOT NULL,
    -> judul_buku VARCHAR(45) NOT NULL,
    -> edisi INTEGER NOT NULL,
    -> thn_terbit INTEGER NOT NULL);
Query OK, 0 rows affected (0.16 sec)

MariaDB [perpustakaan]> desc buku;
+--------------------------+-------------+------+-----+---------+-------+
| Field                    | Type        | Null | Key | Default | Extra |
+--------------------------+-------------+------+-----+---------+-------+
| kode_buku                | varchar(45) | NO   | PRI | NULL    |       |
| pengarang_kode_pengarang | int(11)     | NO   |     | NULL    |       |
| penerbit_kode_penerbit   | int(11)     | NO   |     | NULL    |       |
| kode_eksemplar           | varchar(45) | NO   |     | NULL    |       |
| judul_buku               | varchar(45) | NO   |     | NULL    |       |
| edisi                    | int(11)     | NO   |     | NULL    |       |
| thn_terbit               | int(11)     | NO   |     | NULL    |       |
+--------------------------+-------------+------+-----+---------+-------+
7 rows in set (0.02 sec)
```

```
MariaDB [perpustakaan]> create table pengarang(
    -> kode_pengarang INTEGER NOT NULL AUTO_INCREMENT,
    -> nama_pengarang VARCHAR(45) NOT NULL,
    -> title_pengarang VARCHAR(45) NOT NULL,
    -> PRIMARY KEY(kode_pengarang));
Query OK, 0 rows affected (0.15 sec)

MariaDB [perpustakaan]> desc pengarang;
+-----------------+-------------+------+-----+---------+----------------+
| Field           | Type        | Null | Key | Default | Extra          |
+-----------------+-------------+------+-----+---------+----------------+
| kode_pengarang  | int(11)     | NO   | PRI | NULL    | auto_increment |
| nama_pengarang  | varchar(45) | NO   |     | NULL    |                |
| title_pengarang | varchar(45) | NO   |     | NULL    |                |
+-----------------+-------------+------+-----+---------+----------------+
3 rows in set (0.14 sec)
```

```
MariaDB [perpustakaan]> create table penerbit(
    -> kode_penerbit INTEGER PRIMARY KEY,
    -> nama_penerbit VARCHAR(45) NOT NULL);
Query OK, 0 rows affected (0.18 sec)

MariaDB [perpustakaan]> desc penerbit;
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| kode_penerbit | int(11)     | NO   | PRI | NULL    |       |
| nama_penerbit | varchar(45) | NO   |     | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
2 rows in set (0.12 sec)
```

```
MariaDB [perpustakaan]> create table meminjam(
    -> tgl_pinjam DATE NOT NULL,
    -> buku_kode_buku VARCHAR(45) PRIMARY KEY,
    -> mahasiswa_nim VARCHAR(45) NOT NULL,
    -> tgl_kembali DATE NOT NULL,
    -> terlambat VARCHAR(45) NOT NULL,
    -> denda INTEGER NOT NULL,
    -> FOREIGN KEY(buku_kode_buku) REFERENCES buku(kode_buku) ON DELETE CASCADE ON UPDATE CASCADE,
    -> FOREIGN KEY(mahasiswa_nim) REFERENCES mahasiswa(nim) ON DELETE CASCADE ON UPDATE CASCADE);
Query OK, 0 rows affected (0.09 sec)

MariaDB [perpustakaan]> desc meminjam;
+----------------+-------------+------+-----+---------+-------+
| Field          | Type        | Null | Key | Default | Extra |
+----------------+-------------+------+-----+---------+-------+
| tgl_pinjam     | date        | NO   |     | NULL    |       |
| buku_kode_buku | varchar(45) | NO   | PRI | NULL    |       |
| mahasiswa_nim  | varchar(45) | NO   | MUL | NULL    |       |
| tgl_kembali    | date        | NO   |     | NULL    |       |
| terlambat      | varchar(45) | NO   |     | NULL    |       |
| denda          | int(11)     | NO   |     | NULL    |       |
+----------------+-------------+------+-----+---------+-------+
6 rows in set (0.17 sec)

MariaDB [perpustakaan]> show tables;
+-----------------------+
| Tables_in_perpustakaan |
+-----------------------+
| buku                  |
| mahasiswa             |
| meminjam              |
| penerbit              |
| pengarang             |
+-----------------------+
5 rows in set (0.00 sec)
```

Menambahkan Record/data pada tiap Table dengan insert

```
MariaDB [perpustakaan]> insert into mahasiswa(nim, nama, gender, kelas) values
    -> ('0001','Dina','pr','A'),
    -> ('0002','Alan','lk','B'),
    -> ('0003','Ani','pr','D'),
    -> ('0004','Rudi','lk','C'),
    -> ('0005','Asa','lk','A'),
    -> ('0006','Bila','pr','D');
Query OK, 6 rows affected (0.09 sec)
Records: 6  Duplicates: 0  Warnings: 0

MariaDB [perpustakaan]> select * from mahasiswa;
+------+------+--------+-------+
| nim  | nama | gender | kelas |
+------+------+--------+-------+
| 0001 | Dina | pr     | A     |
| 0002 | Alan | lk     | B     |
| 0003 | Ani  | pr     | D     |
| 0004 | Rudi | lk     | C     |
| 0005 | Asa  | lk     | A     |
| 0006 | Bila | pr     | D     |
+------+------+--------+-------+
6 rows in set (0.00 sec)
```

```
MariaDB [perpustakaan]> insert into buku(kode_buku,pengarang_kode_pengarang,penerbit_kode_penerbit, kode_eksemplar,judul_buku,edisi,
thn_terbit) values
    -> ('001.01/wr',111,10001,'001.01/wr/001','Hujan',1,2018),
    -> ('001.02/ws',112,10002,'001.02/ws/002','Rindu',1,2019),
    -> ('001.04/wx',113,10004,'001.04/wx/004','koala kumal',1,2018),
    -> ('001.03/ww',114,10003,'001.03/ww/003','sang pencerah',3,2010),
    -> ('002.05/we',105,10005,'002.05/we/005','Ayah',1,2015),
    -> ('003.02/wb',103,10006,'003.02/wb/006','laskar pelangi',1,2012);
Query OK, 6 rows affected (0.10 sec)
Records: 6  Duplicates: 0  Warnings: 0

MariaDB [perpustakaan]> select * from buku;
+-----------+--------------------------+------------------------+----------------+----------------+-------+------------+
| kode_buku | pengarang_kode_pengarang | penerbit_kode_penerbit | kode_eksemplar | judul_buku     | edisi | thn_terbit |
+-----------+--------------------------+------------------------+----------------+----------------+-------+------------+
| 001.01/wr |                      111 |                  10001 | 001.01/wr/001  | Hujan          |     1 |       2018 |
| 001.02/ws |                      112 |                  10002 | 001.02/ws/002  | Rindu          |     1 |       2019 |
| 001.03/ww |                      114 |                  10003 | 001.03/ww/003  | sang pencerah  |     3 |       2010 |
| 001.04/wx |                      113 |                  10004 | 001.04/wx/004  | koala kumal    |     1 |       2018 |
| 002.05/we |                      105 |                  10005 | 002.05/we/005  | Ayah           |     1 |       2015 |
| 003.02/wb |                      103 |                  10006 | 003.02/wb/006  | laskar pelangi |     1 |       2012 |
+-----------+--------------------------+------------------------+----------------+----------------+-------+------------+
6 rows in set (0.00 sec)
```

```
MariaDB [perpustakaan]> insert into pengarang(kode_pengarang,nama_pengarang,title_pengarang) values
    -> (111,'Tere Liye',''),
    -> (112,'Tere Liye',''),
    -> (114,'Akmal Nasery Basral',''),
    -> (113,'Raditya Dika',''),
    -> (105,'Andrea Hirata',''),
    -> (103,'Andrea Hirata','');
Query OK, 6 rows affected (0.09 sec)
Records: 6  Duplicates: 0  Warnings: 0

MariaDB [perpustakaan]> select * from pengarang;
+---------------+---------------------+-----------------+
| kode_pengarang | nama_pengarang     | title_pengarang |
+---------------+---------------------+-----------------+
|           103 | Andrea Hirata       |                 |
|           105 | Andrea Hirata       |                 |
|           111 | Tere Liye           |                 |
|           112 | Tere Liye           |                 |
|           113 | Raditya Dika        |                 |
|           114 | Akmal Nasery Basral |                 |
+---------------+---------------------+-----------------+
6 rows in set (0.00 sec)
```

```
MariaDB [perpustakaan]> insert into penerbit(kode_penerbit,nama_penerbit) values
    -> (10001,'Gramedia'),
    -> (10002,'Gramedia'),
    -> (10003,'Mizan'),
    -> (10004,'Gagas Media'),
    -> (10005,'Bentang Pustaka'),
    -> (10006,'Bentang Pustaka');
Query OK, 6 rows affected (0.10 sec)
Records: 6  Duplicates: 0  Warnings: 0

MariaDB [perpustakaan]> select * from penerbit;
+---------------+-----------------+
| kode_penerbit | nama_penerbit   |
+---------------+-----------------+
|         10001 | Gramedia        |
|         10002 | Gramedia        |
|         10003 | Mizan           |
|         10004 | Gagas Media     |
|         10005 | Bentang Pustaka |
|         10006 | Bentang Pustaka |
+---------------+-----------------+
6 rows in set (0.00 sec)
```

```
MariaDB [perpustakaan]> insert into meminjam(tgl_pinjam,buku_kode_buku,mahasiswa_nim,tgl_kembali,terlambat,denda) values
    -> ('2019-01-12','001.01/wr','0001','2019-01-20','ya',5000),
    -> ('2019-01-12','001.02/ws','0002','2019-01-15','tidak',0),
    -> ('2019-01-15','001.03/ww','0003','2019-01-30','ya',5000),
    -> ('2019-02-01','001.04/wx','0004','2019-02-05','tidak',0),
    -> ('2019-02-01','002.05/we','0005','2019-02-15','ya',5000),
    -> ('2019-02-05','003.02/wb','0006','2019-02-10','tidak',0);
Query OK, 6 rows affected (0.09 sec)
Records: 6  Duplicates: 0  Warnings: 0

MariaDB [perpustakaan]> select * from meminjam;
+------------+---------------+---------------+-------------+-----------+-------+
| tgl_pinjam | buku_kode_buku | mahasiswa_nim | tgl_kembali | terlambat | denda |
+------------+---------------+---------------+-------------+-----------+-------+
| 2019-01-12 | 001.01/wr     | 0001          | 2019-01-20  | ya        |  5000 |
| 2019-01-12 | 001.02/ws     | 0002          | 2019-01-15  | tidak     |     0 |
| 2019-01-15 | 001.03/ww     | 0003          | 2019-01-30  | ya        |  5000 |
| 2019-02-01 | 001.04/wx     | 0004          | 2019-02-05  | tidak     |     0 |
| 2019-02-01 | 002.05/we     | 0005          | 2019-02-15  | ya        |  5000 |
| 2019-02-05 | 003.02/wb     | 0006          | 2019-02-10  | tidak     |     0 |
+------------+---------------+---------------+-------------+-----------+-------+
6 rows in set (0.00 sec)
```