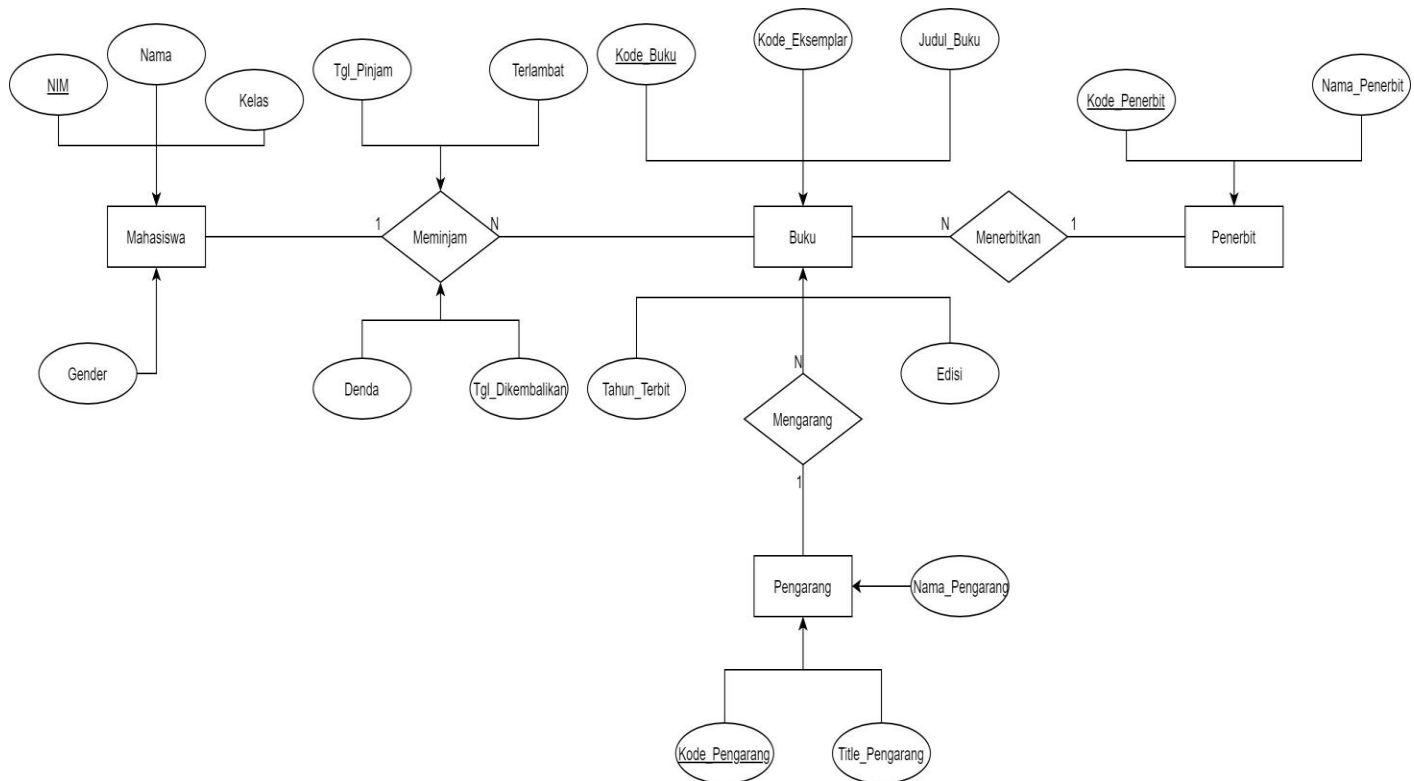


Nama : Kevin Hansa Wardhana
 NIM : L200180004
 Kelas : A
 Mata Kuliah: Praktikum Sistem Basis Data

A. ERD sirkulasi perpustakaan



B. Cardinality

-Mahasiswa meminjam Buku = 1:n

One to Many

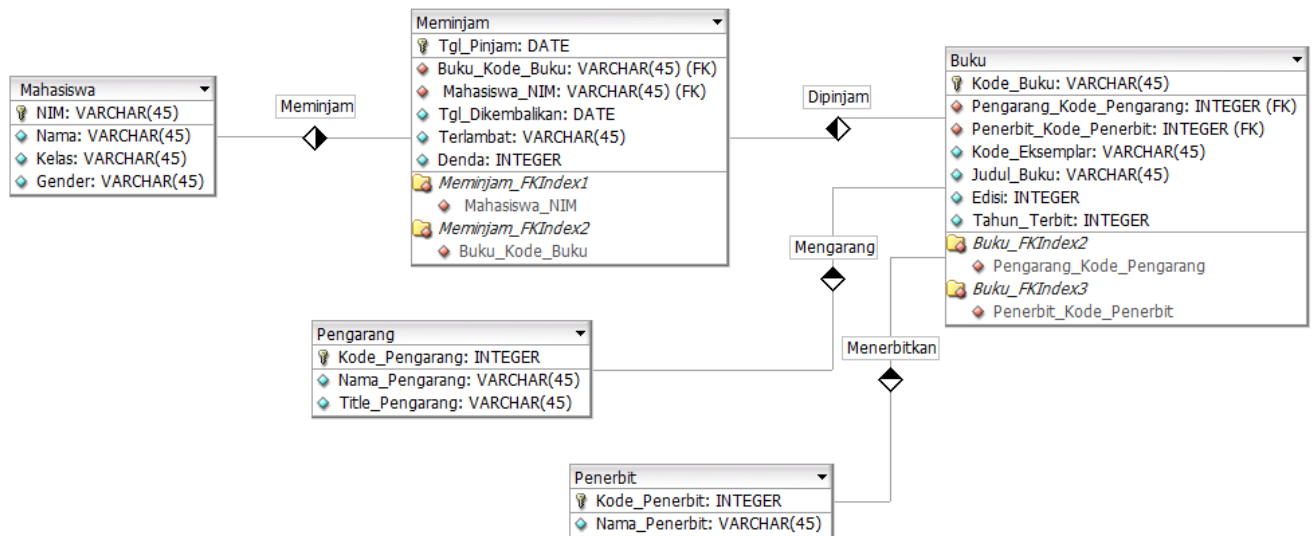
-Pengarang mengarang Buku = 1:n

One to many

-Penerbit menerbitkan Buku = 1:n

One to Many

C. Desain DBDesigner



D. Implementasi query SQL : CREATE

Membuat Database Perpustakaan dan menggunakannya

```

MariaDB [(none)]> create database perpustakaan;
Query OK, 1 row affected (0.08 sec)

MariaDB [(none)]> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| perbankan |
| performance_schema |
| perkuliahan |
| perpustakaan |
| phpmyadmin |
| rumah_sakit |
| test |
+-----+
9 rows in set (0.09 sec)

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

Membuat Table Mahasiswa

```
MariaDB [perpustakaan]> CREATE TABLE Mahasiswa (  
  -> NIM VARCHAR(45) NOT NULL,  
  -> Nama VARCHAR(45) NOT NULL,  
  -> Kelas VARCHAR(45) NOT NULL,  
  -> Gender VARCHAR(45) NOT NULL,  
  -> PRIMARY KEY(NIM)  
  -> );  
Query OK, 0 rows affected (0.34 sec)  
  
MariaDB [perpustakaan]> desc Mahasiswa;  
+-----+-----+-----+-----+-----+-----+  
| Field | Type          | Null | Key | Default | Extra |  
+-----+-----+-----+-----+-----+-----+  
| NIM   | varchar(45)   | NO   | PRI | NULL    |       |  
| Nama  | varchar(45)   | NO   |     | NULL    |       |  
| Kelas | varchar(45)   | NO   |     | NULL    |       |  
| Gender | varchar(45)   | NO   |     | NULL    |       |  
+-----+-----+-----+-----+-----+-----+  
4 rows in set (0.11 sec)
```

Membuat Table Pengarang

```
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 (0.27 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 (0.02 sec)
```

Membuat Table Penerbit

```
MariaDB [perpustakaan]> CREATE TABLE Penerbit (  
  -> Kode_Penerbit INTEGER NOT NULL,  
  -> Nama_Penerbit VARCHAR(45) NOT NULL,  
  -> PRIMARY KEY(Kode_Penerbit)  
  -> );
```

Query OK, 0 rows affected (0.29 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 (0.11 sec)

Membuat Table Buku

```
MariaDB [perpustakaan]> CREATE TABLE Buku (  
  -> Kode_Buku VARCHAR(45) NOT NULL,  
  -> 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,  
  -> Tahun_Terbit INTEGER NOT NULL,  
  -> PRIMARY KEY(Kode_Buku),  
  -> FOREIGN KEY(Pengarang_Kode_Pengarang) REFERENCES Pengarang(Kode_Pengarang) ON DELETE CASCADE ON UPDATE CASCADE,  
  -> FOREIGN KEY(Penerbit_Kode_Penerbit) REFERENCES Penerbit(Kode_Penerbit) ON DELETE CASCADE ON UPDATE CASCADE  
  -> );
```

Query OK, 0 rows affected (0.27 sec)

```
MariaDB [perpustakaan]> desc Buku;
```

Field	Type	Null	Key	Default	Extra
Kode_Buku	varchar(45)	NO	PRI	NULL	
Pengarang_Kode_Pengarang	int(11)	NO	MUL	NULL	
Penerbit_Kode_Penerbit	int(11)	NO	MUL	NULL	
Kode_Eksemplar	varchar(45)	NO		NULL	
Judul_Buku	varchar(45)	NO		NULL	
Edisi	int(11)	NO		NULL	
Tahun_Terbit	int(11)	NO		NULL	

7 rows in set (0.12 sec)

Membuat Table Meminjam

```
MariaDB [perpustakaan]> CREATE TABLE Meminjam (  
  -> Tgl_Pinjam DATE NOT NULL,  
  -> Buku_Kode_Buku VARCHAR(45) NOT NULL,  
  -> Mahasiswa_NIM VARCHAR(45) NOT NULL,  
  -> Tgl_Dikembalikan DATE NOT NULL,  
  -> Terlambat VARCHAR(45) NOT NULL,  
  -> Denda INTEGER NOT NULL,  
  -> PRIMARY KEY(Buku_Kode_Buku, Mahasiswa_NIM),  
  -> 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 (0.26 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	PRI	NULL	
Tgl_Dikembalikan	date	NO		NULL	
Terlambat	varchar(45)	NO		NULL	
Denda	int(11)	NO		NULL	

6 rows in set (0.02 sec)

Menampilkan semua Table

```
MariaDB [perpustakaan]> show tables;
```

Tables_in_perpustakaan
buku
mahasiswa
meminjam
penerbit
pengarang

5 rows in set (0.00 sec)

E. Menambahkan Record/data pada tiap Table dengan insert

Menambah record di Table Mahasiswa

```
MariaDB [perpustakaan]> INSERT INTO Mahasiswa VALUES('L200180001','Nini','A','Perempuan'),
-> ('L200180002','Rini','B','Perempuan'),
-> ('L200180003','Susi','C','Perempuan'),
-> ('L200180004','Aji','A','Laki-Laki'),
-> ('L200180005','Ririn','C','Perempuan'),
-> ('L200180006','Linda','B','Perempuan'),
-> ('L200180007','kevin','A','Laki-Laki'),
-> ('L200180008','Dika','A','Laki-Laki'),
-> ('L200180009','Dias','A','Laki-Laki'),
-> ('L200180010','Siti','B','Perempuan');
Query OK, 10 rows affected (0.11 sec)
Records: 10 Duplicates: 0 Warnings: 0

MariaDB [perpustakaan]> select * from Mahasiswa;
+-----+-----+-----+-----+
| NIM      | Nama  | Kelas | Gender |
+-----+-----+-----+-----+
| L200180001 | Nini  | A      | Perempuan |
| L200180002 | Rini  | B      | Perempuan |
| L200180003 | Susi  | C      | Perempuan |
| L200180004 | Aji   | A      | Laki-Laki |
| L200180005 | Ririn | C      | Perempuan |
| L200180006 | Linda | B      | Perempuan |
| L200180007 | kevin | A      | Laki-Laki |
| L200180008 | Dika  | A      | Laki-Laki |
| L200180009 | Dias  | A      | Laki-Laki |
| L200180010 | Siti  | B      | Perempuan |
+-----+-----+-----+-----+
10 rows in set (0.00 sec)
```

Menambah record di Table Pengarang

```
MariaDB [perpustakaan]> INSERT INTO Pengarang VALUES(111,'Yuji',''),
-> (112,'Lukman','S.I.Kom.'),
-> (113,'Galih','M.Kom.'),
-> (114,'Ayu','Dr.'),
-> (115,'Andhika','S.T, Dr'),
-> (116,'Budi','S.I.Kom.'),
-> (117,'Tomo',''),
-> (118,'Fifi','Dr. H.'),
-> (119,'Puji',''),
-> (120,'Tini','M.Si. ');
Query OK, 10 rows affected (0.15 sec)
Records: 10 Duplicates: 0 Warnings: 0

MariaDB [perpustakaan]> select* from Pengarang;
+-----+-----+-----+
| Kode_Pengarang | Nama_Pengarang | Title_Pengarang |
+-----+-----+-----+
| 111 | Yuji |  |
| 112 | Lukman | S.I.Kom. |
| 113 | Galih | M.Kom. |
| 114 | Ayu | Dr. |
| 115 | Andhika | S.T, Dr |
| 116 | Budi | S.I.Kom. |
| 117 | Tomo |  |
| 118 | Fifi | Dr. H. |
| 119 | Puji |  |
| 120 | Tini | M.Si. |
+-----+-----+-----+
10 rows in set (0.00 sec)
```

Menambah record di Table Penerbit

```
MariaDB [perpustakaan]> INSERT INTO Penerbit VALUES(10001, 'Airlangga'),
-> (10002, 'Balai Pustaka'),
-> (10003, 'Erlangga'),
-> (10004, 'Aditya Media'),
-> (10005, 'AKY Press'),
-> (10006, 'Alfa Media'),
-> (10007, 'Amara Books'),
-> (10008, 'Bina Kasih'),
-> (10009, 'Bumi Aksara'),
-> (10010, 'Pustaka Zahra ');
```

Query OK, 10 rows affected (0.12 sec)

Records: 10 Duplicates: 0 Warnings: 0

```
MariaDB [perpustakaan]> select * from Penerbit;
```

Kode_Penerbit	Nama_Penerbit
10001	Airlangga
10002	Balai Pustaka
10003	Erlangga
10004	Aditya Media
10005	AKY Press
10006	Alfa Media
10007	Amara Books
10008	Bina Kasih
10009	Bumi Aksara
10010	Pustaka Zahra

10 rows in set (0.00 sec)

Menambah record di Table Buku

```
MariaDB [perpustakaan]> INSERT INTO Buku VALUES('001.01/ws',115,10001,'001.01/ws/001','The Tempest', 1997, 1),
-> ('001.02/wr',115,10001,'001.02/wr/001','Sistem Basis Data', 1999, 1),
-> ('001.04/ww',114,10003,'001.04/ww/001','CMS OpenCart untuk E-Commerce', 2019, 1),
-> ('001.06/wx',112,10004,'001.06/wx/001','Mengubah Kepribadian Melalui Tulisan Tangan', 2009, 2),
-> ('001.08/ws',111,10006,'001.08/ws/001','ATHEIS', 1949, 1),
-> ('001.10/wi',116,10005,'001.10/wi/001','Pengantar Filsafat Pendidikan', 2004, 2),
-> ('001.12/wb',117,10002,'001.12/wb/001','Pantai dan Kehidupannya', 1996, 1),
-> ('001.11/we',119,10009,'001.11/we/001','Keretakan dan Ketegangan', 1956, 1),
-> ('002.01/er',118,10008,'002.01/er/001','ASnimasi Pendidikan Menggunakan Flash', 2011, 1),
-> ('003.01/et',112,10010,'003.01/et/001','Menguasai Efek Khusus dengan Photoshop', 2015, 1);
```

Query OK, 10 rows affected (0.23 sec)

Records: 10 Duplicates: 0 Warnings: 0

```
MariaDB [perpustakaan]> select * from Buku
-> ;
```

Kode_Buku	Pengarang_Kode_Pengarang	Penerbit_Kode_Penerbit	Kode_Eksemplar	Judul_Buku	Edisi	Tahun_Terbit
001.01/ws	115	10001	001.01/ws/001	The Tempest	1997	1
001.02/wr	115	10001	001.02/wr/001	Sistem Basis Data	1999	1
001.04/ww	114	10003	001.04/ww/001	CMS OpenCart untuk E-Commerce	2019	1
001.06/wx	112	10004	001.06/wx/001	Mengubah Kepribadian Melalui Tulisan Tangan	2009	2
001.08/ws	111	10006	001.08/ws/001	ATHEIS	1949	1
001.10/wi	116	10005	001.10/wi/001	Pengantar Filsafat Pendidikan	2004	2
001.11/we	119	10009	001.11/we/001	Keretakan dan Ketegangan	1956	1
001.12/wb	117	10002	001.12/wb/001	Pantai dan Kehidupannya	1996	1
002.01/er	118	10008	002.01/er/001	ASnimasi Pendidikan Menggunakan Flash	2011	1
003.01/et	112	10010	003.01/et/001	Menguasai Efek Khusus dengan Photoshop	2015	1

10 rows in set (0.00 sec)

Menambah record di Table Meminjam

```
MariaDB [perpustakaan]>
MariaDB [perpustakaan]> INSERT INTO Meminjam VALUES('2012-04-22','001.01/ws','L200180001','2012-04-25','Tidak',0),
-> ('2012-04-22','001.02/wr','L200180002','2012-04-25','Tidak',0),
-> ('2012-04-22','001.04/ww','L200180003','2012-04-27','Tidak',0),
-> ('2012-04-27','001.06/wx','L200180004','2012-05-02','Ya',2000),
-> ('2012-05-05','001.08/ws','L200180005','2012-05-13','Tidak',0),
-> ('2012-05-08','001.10/wi','L200180006','2012-05-15','Ya',6000),
-> ('2012-05-15','001.12/wb','L200180007','2012-05-21','Tidak',0),
-> ('2012-05-18','001.11/we','L200180008','2012-05-22','Tidak',0),
-> ('2012-05-28','002.01/er','L200180009','2012-06-04','Ya',2000),
-> ('2012-06-02','003.01/et','L200180010','2012-06-08','Ya',10000);
```

Query OK, 10 rows affected (0.43 sec)

Records: 10 Duplicates: 0 Warnings: 0

```
MariaDB [perpustakaan]> select * from Meminjam;
```

Tgl_Pinjam	Buku_Kode_Buku	Mahasiswa_NIM	Tgl_Dikembalikan	Terlambat	Denda
2012-04-22	001.01/ws	L200180001	2012-04-25	Tidak	0
2012-04-22	001.02/wr	L200180002	2012-04-25	Tidak	0
2012-04-22	001.04/ww	L200180003	2012-04-27	Tidak	0
2012-04-27	001.06/wx	L200180004	2012-05-02	Ya	2000
2012-05-05	001.08/ws	L200180005	2012-05-13	Tidak	0
2012-05-08	001.10/wi	L200180006	2012-05-15	Ya	6000
2012-05-18	001.11/we	L200180008	2012-05-22	Tidak	0
2012-05-15	001.12/wb	L200180007	2012-05-21	Tidak	0
2012-05-28	002.01/er	L200180009	2012-06-04	Ya	2000
2012-06-02	003.01/et	L200180010	2012-06-08	Ya	10000

10 rows in set (0.00 sec)