PRAKTIKUM BASIS DATA
DASAR MYSQL

TI-1B
FARREL AUGUSTA DINATA / 2341720081

D-IV TEKNIK INFORMATIKA
POLITEKNIK NEGERI MALANG

A. PRAKTIKUM

1. Buka terminal dan jalankan perintah berikut ini:

   C:\>Program Files\xampp\mysql\bin>mysql -u root -p

   Karena xampp saya ada di direktori C langsung, maka saya akan masuk ke alamat direktori ini:

   Saya masuk ke MySQL dengan tanpa password

2. Membuat database dengan nama **db_polinema**


```
MariaDB [(none)]> create database db_polinema;
Query OK, 1 row affected (0.002 sec)

MariaDB [(none)]> show databases;
+--------------------+
| Database           |
+--------------------+
| data_pegawai       |
| db_polinema        |
| information_schema |
| lat_mstojava       |
| mysql              |
| penjualan_produk   |
| performance_schema |
| phpmyadmin         |
| sophia_library     |
| test               |
+--------------------+
10 rows in set (0.002 sec)

MariaDB [(none)]>
```

3. Menggunakan database **db_polinema**

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

4. Membuat tabel **prodi**

```
MariaDB [db_polinema]> create table prodi (kode_prodi char(6) primary key, nama_prodi char(30));
Query OK, 0 rows affected (0.018 sec)
```

```
MariaDB [db_polinema]> SHOW COLUMNS FROM prodi;
+------------+----------+------+-----+---------+-------+
| Field      | Type     | Null | Key | Default | Extra |
+------------+----------+------+-----+---------+-------+
| kode_prodi | char(6)  | NO   | PRI | NULL    |       |
| nama_prodi | char(30) | YES  |     | NULL    |       |
+------------+----------+------+-----+---------+-------+
2 rows in set (0.081 sec)
```

Query **show columns** berfungsi untuk menampilkan identitas masing-masing
kolom dari suatu tabel.

5. Membuat tabel **mahasiswa**

```
MariaDB [db_polinema]> create table mahasiswa (nim int(8) primary key, nama_mhs varchar(50), jenis_kelamin
enum('L', 'P') default 'L', alamat varchar(50), kota varchar(20) default 'Malang', asal_sma varchar(30), no
_hp varchar(12), umur integer, kode_prodi varchar(6), foreign key (kode_prodi) references prodi(kode_prodi)
);
Query OK, 0 rows affected (0.049 sec)

MariaDB [db_polinema]>
```

```
MariaDB [db_polinema]> SHOW COLUMNS FROM mahasiswa;
+---------------+--------------+------+-----+---------+-------+
| Field         | Type         | Null | Key | Default | Extra |
+---------------+--------------+------+-----+---------+-------+
| nim           | int(8)       | NO   | PRI | NULL    |       |
| nama_mhs      | varchar(50)  | YES  |     | NULL    |       |
| jenis_kelamin | enum('L','P')| YES  |     | L       |       |
| alamat        | varchar(50)  | YES  |     | NULL    |       |
| kota          | varchar(20)  | YES  |     | Malang  |       |
| asal_sma      | varchar(30)  | YES  |     | NULL    |       |
| no_hp         | varchar(12)  | YES  |     | NULL    |       |
| umur          | int(11)      | YES  |     | NULL    |       |
| kode_prodi    | varchar(6)   | YES  | MUL | NULL    |       |
```

6. Membuat tabel **mata_kuliah**

```
MariaDB [db_polinema]> create table mata_kuliah (mk_id char(10) primary key, nama_mk char(50), jumlah_jam f
loat(4, 2), sks integer);
Query OK, 0 rows affected (0.036 sec)

MariaDB [db_polinema]>
```

```
MariaDB [db_polinema]> SHOW COLUMNS FROM mata_kuliah;
+------------+------------+------+-----+---------+-------+
| Field      | Type       | Null | Key | Default | Extra |
+------------+------------+------+-----+---------+-------+
| mk_id      | char(10)   | NO   | PRI | NULL    |       |
| nama_mk    | char(50)   | YES  |     | NULL    |       |
| jumlah_jam | float(4,2) | YES  |     | NULL    |       |
| sks        | int(11)    | YES  |     | NULL    |       |
+------------+------------+------+-----+---------+-------+
4 rows in set (0.081 sec)
```

7. Membuat tabel **ruang**

```
MariaDB [db_polinema]> create table ruang (ruang_id char(3) primary key, nama_ruang char(20), kapasistas in
teger);
Query OK, 0 rows affected (0.081 sec)
```

```
MariaDB [db_polinema]> SHOW COLUMNS FROM ruang;
+------------+-----------+------+-----+---------+-------+
| Field      | Type      | Null | Key | Default | Extra |
+------------+-----------+------+-----+---------+-------+
| ruang_id   | char(3)   | NO   | PRI | NULL    |       |
| nama_ruang | char(20)  | YES  |     | NULL    |       |
| kapasitas  | int(11)   | YES  |     | NULL    |       |
+------------+-----------+------+-----+---------+-------+
3 rows in set (0.075 sec)
```

8. Membuat tabel **dosen**

```
MariaDB [db_polinema]> create table dosen (nidn integer(20) primary key, nama_dosen char(50), status enum (
'PNS', 'KONTRAK') default 'PNS', jenis_kelamin enum ('L', 'P') default 'L', no_hp varchar(15));
Query OK, 0 rows affected (0.019 sec)
```

```
MariaDB [db_polinema]> SHOW COLUMNS FROM dosen;
+---------------+---------------------+------+-----+---------+-------+
| Field         | Type                | Null | Key | Default | Extra |
+---------------+---------------------+------+-----+---------+-------+
| nidn          | int(20)             | NO   | PRI | NULL    |       |
| nama_dosen    | char(50)            | YES  |     | NULL    |       |
| status        | enum('PNS','KONTRAK')| YES  |     | PNS     |       |
| jenis_kelamin | enum('L','P')       | YES  |     | L       |       |
| no_hp         | varchar(15)         | YES  |     | NULL    |       |
```

9. Menambahkan kolom **agama** pada tabel **mahasiswa**

```
MariaDB [db_polinema]> ALTER TABLE mahasiswa ADD COLUMN agama varchar(10);
Query OK, 0 rows affected (0.015 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

```
MariaDB [db_polinema]> show columns from mahasiswa;
+---------------+--------------+------+-----+---------+-------+
| Field         | Type         | Null | Key | Default | Extra |
+---------------+--------------+------+-----+---------+-------+
| nim           | int(8)       | NO   | PRI | NULL    |       |
| nama_mhs      | varchar(50)  | YES  |     | NULL    |       |
| jenis_kelamin | enum('L','P')| YES  |     | L       |       |
| alamat        | varchar(50)  | YES  |     | NULL    |       |
| kota          | varchar(20)  | YES  |     | Malang  |       |
| asal_sma      | varchar(30)  | YES  |     | NULL    |       |
| no_hp         | varchar(12)  | YES  |     | NULL    |       |
| umur          | int(11)      | YES  |     | NULL    |       |
| kode_prodi    | varchar(6)   | YES  | MUL | NULL    |       |
| agama         | varchar(10)  | YES  |     | NULL    |       |
+---------------+--------------+------+-----+---------+-------+
10 rows in set (0.051 sec)

MariaDB [db_polinema]>
```

10. Menambahkan kolom **alamat** pada tabel dosen

```
MariaDB [db_polinema]> ALTER TABLE dosen ADD COLUMN alamat varchar(50);
Query OK, 0 rows affected (0.038 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

```
MariaDB [db_polinema]> show columns from dosen;
+---------------+----------------------+------+-----+---------+-------+
| Field         | Type                 | Null | Key | Default | Extra |
+---------------+----------------------+------+-----+---------+-------+
| nidn          | int(20)              | NO   | PRI | NULL    |       |
| nama_dosen    | char(50)             | YES  |     | NULL    |       |
| status        | enum('PNS','KONTRAK')| YES  |     | PNS     |       |
| jenis_kelamin | enum('L','P')        | YES  |     | L       |       |
| no_hp         | varchar(15)          | YES  |     | NULL    |       |
| alamat        | varchar(50)          | YES  |     | NULL    |       |
+---------------+----------------------+------+-----+---------+-------+
6 rows in set (0.051 sec)

MariaDB [db_polinema]>
```

11. Melakukan insert data ke dalam tabel-tabel yang ada pada database dengan field, tipe data dan panjang datanya.

Tabel dosen:

```
MariaDB [db_polinema]> INSERT INTO dosen (nidn, nama_dosen, status, jenis_kelamin, no_hp, alamat) VALUES (2147483647, 'B
udi Santoso', 'PNS', 'L', 08123456789, 'Jl. Melati No. 10, Jakarta');
Query OK, 1 row affected (0.053 sec)
```

```
MariaDB [db_polinema]> INSERT INTO dosen (nidn, nama_dosen, status, jenis_kelamin, no_hp, alamat) VALUES (1728127763, 'A
lexandro', 'KONTRAK', 'L', 081298127638, 'Jl. Belimbing No. 89, Surabaya');
Query OK, 1 row affected (0.066 sec)

MariaDB [db_polinema]> SELECT * FROM dosen;
+------------+--------------+---------+---------------+-------------+-------------------------------+
| nidn       | nama_dosen   | status  | jenis_kelamin | no_hp       | alamat                        |
+------------+--------------+---------+---------------+-------------+-------------------------------+
| 1728127763 | Alexandro    | KONTRAK | L             | 81298127638 | Jl. Belimbing No. 89, Surabaya |
| 2147483647 | Budi Santoso | PNS     | L             | 08123456789 | Jl. Melati No. 10, Jakarta    |
+------------+--------------+---------+---------------+-------------+-------------------------------+
2 rows in set (0.001 sec)
```

Karena pada tabel mahasiswa terdapat foreign key dari tabel prodi, maka tabel prodi harus diisi terlebih dahulu

```
MariaDB [db_polinema]> INSERT INTO prodi (kode_prodi, nama_prodi) VALUES ('D4TIKA', 'D4 Teknik Informatika'), ('D4SIB', 'D4 Sistem Informa
si Bisnis');
Query OK, 2 rows affected (0.066 sec)
Records: 2  Duplicates: 0  Warnings: 0

MariaDB [db_polinema]> SELECT * FROM prodi;
+------------+--------------------------+
| kode_prodi | nama_prodi               |
+------------+--------------------------+
| D4SIB      | D4 Sistem Informasi Bisnis |
| D4TIKA     | D4 Teknik Informatika    |
+------------+--------------------------+
2 rows in set (0.000 sec)
```

Tabel mahasiswa:

```
MariaDB [db_polinema]> INSERT INTO mahasiswa (nim, nama_mhs, jenis_kelamin, alamat, kota, asal_sma, no_hp, umur, kode_prodi, agama) VALUES
 (23417201, 'Ivansyah Setiawan', 'L', 'Jl. Anggrek No. 3, Surabaya', 'Surabaya', 'SMA 1 Gresik', '0812918217', 20, 'D4TIKA', 'Islam'), (22
318901, 'Putriani Hartatik', 'P', 'Jl. Sigura-Gura, No. 10, Situbondo', 'Situbondo', 'SMA 1 Situbondo', '0812918256', 23, 'D4SIB', 'Hindu'
);
Query OK, 2 rows affected (0.065 sec)
Records: 2  Duplicates: 0  Warnings: 0

MariaDB [db_polinema]> SELECT * FROM mahasiswa;
+----------+-------------------+---------------+-----------------------------------+-----------+-----------------+------------+------+------------+-------+
| nim      | nama_mhs          | jenis_kelamin | alamat                            | kota      | asal_sma        | no_hp      | umur | kode_prodi | agama |
+----------+-------------------+---------------+-----------------------------------+-----------+-----------------+------------+------+------------+-------+
| 22318901 | Putriani Hartatik | P             | Jl. Sigura-Gura, No. 10, Situbondo | Situbondo | SMA 1 Situbondo | 0812918256 | 23   | D4SIB      | Hindu |
| 23417201 | Ivansyah Setiawan | L             | Jl. Anggrek No. 3, Surabaya       | Surabaya  | SMA 1 Gresik    | 0812918217 | 20   | D4TIKA     | Islam |
+----------+-------------------+---------------+-----------------------------------+-----------+-----------------+------------+------+------------+-------+
2 rows in set (0.000 sec)
```

Tabel mata_kuliah:

```
MariaDB [db_polinema]> INSERT INTO mata_kuliah (mk_id, nama_mk, jumlah_jam, sks) VALUES ('BD24', 'Basis Data', 4, 2), ('ASD24', 'Algoritma dan Struktur Dat
a', 4, 2), ('DA24', 'Desain Antarmuka', 4, 2);
Query OK, 3 rows affected (0.064 sec)
Records: 3  Duplicates: 0  Warnings: 0

MariaDB [db_polinema]> SELECT * FROM mata_kuliah;
+-------+---------------------------+------------+------+
| mk_id | nama_mk                   | jumlah_jam | sks  |
+-------+---------------------------+------------+------+
| ASD24 | Algoritma dan Struktur Data |     4.00 |    2 |
| BD24  | Basis Data                |       4.00 |    2 |
| DA24  | Desain Antarmuka          |       4.00 |    2 |
+-------+---------------------------+------------+------+
3 rows in set (0.061 sec)
```

Tabel ruang:

```
MariaDB [db_polinema]> INSERT INTO ruang (ruang_id, nama_ruang, kapasitas) VALUES ('RT1', 'Ruang Teori', 50), ('LPR', 'Laboratorium Pemprograman', 32), ('LK
J', 'Laboratorium Komputer dan Jaringan', 30);
Query OK, 3 rows affected, 2 warnings (0.067 sec)
Records: 3  Duplicates: 0  Warnings: 2

MariaDB [db_polinema]> SELECT * FROM ruang;
+----------+---------------------+-----------+
| ruang_id | nama_ruang          | kapasitas |
+----------+---------------------+-----------+
| LKJ      | Laboratorium Kompute |       30 |
| LPR      | Laboratorium Pemrogr |       32 |
| RT1      | Ruang Teori         |       50 |
+----------+---------------------+-----------+
3 rows in set (0.001 sec)
```

12. Tampilkan semua tabel yang ada di dalam database **db_polinema**

```
MariaDB [db_polinema]> SHOW TABLES;
+-----------------------+
| Tables_in_db_polinema |
+-----------------------+
| dosen                 |
| mahasiswa             |
| mata_kuliah           |
| prodi                 |
| ruang                 |
+-----------------------+
5 rows in set (0.001 sec)
```

13. Tampilkan semua isi tabel yang ada di dalam tabel mahasiswa

```
MariaDB [db_polinema]> SELECT * FROM mahasiswa;
+----------+-----------------+---------------+----------------------------------+-----------+----------------+------------+------+------------+-------+
| nim      | nama_mhs        | jenis_kelamin | alamat                           | kota      | asal_sma       | no_hp      | umur | kode_prodi | agama |
+----------+-----------------+---------------+----------------------------------+-----------+----------------+------------+------+------------+-------+
| 22318901 | Putriani Hartatik | P           | Jl. Sigura-Gura, No. 10, Situbondo | Situbondo | SMA 1 Situbondo | 0812918256 |   23 | D4SIB      | Hindu |
| 23417201 | Ivansyah Setiawan | L           | Jl. Anggrek No. 3, Surabaya      | Surabaya  | SMA 1 Gresik   | 0812918217 |   20 | D4TIKA     | Islam |
+----------+-----------------+---------------+----------------------------------+-----------+----------------+------------+------+------------+-------+
2 rows in set (0.001 sec)
```

14. Tampilkan struktur (metadata) tabel mahasiswa

```
MariaDB [db_polinema]> DESCRIBE mahasiswa;
+---------------+---------------+------+-----+---------+-------+
| Field         | Type          | Null | Key | Default | Extra |
+---------------+---------------+------+-----+---------+-------+
| nim           | int(8)        | NO   | PRI | NULL    |       |
| nama_mhs      | varchar(50)   | YES  |     | NULL    |       |
| jenis_kelamin | enum('L','P') | YES  |     | L       |       |
| alamat        | varchar(50)   | YES  |     | NULL    |       |
| kota          | varchar(20)   | YES  |     | Malang  |       |
| asal_sma      | varchar(30)   | YES  |     | NULL    |       |
| no_hp         | varchar(12)   | YES  |     | NULL    |       |
| umur          | int(11)       | YES  |     | NULL    |       |
| kode_prodi    | varchar(6)    | YES  | MUL | NULL    |       |
| agama         | varchar(10)   | YES  |     | NULL    |       |
+---------------+---------------+------+-----+---------+-------+
10 rows in set (0.021 sec)

MariaDB [db_polinema]> SHOW COLUMNS FROM mahasiswa;
+---------------+---------------+------+-----+---------+-------+
| Field         | Type          | Null | Key | Default | Extra |
+---------------+---------------+------+-----+---------+-------+
| nim           | int(8)        | NO   | PRI | NULL    |       |
| nama_mhs      | varchar(50)   | YES  |     | NULL    |       |
| jenis_kelamin | enum('L','P') | YES  |     | L       |       |
| alamat        | varchar(50)   | YES  |     | NULL    |       |
| kota          | varchar(20)   | YES  |     | Malang  |       |
| asal_sma      | varchar(30)   | YES  |     | NULL    |       |
| no_hp         | varchar(12)   | YES  |     | NULL    |       |
| umur          | int(11)       | YES  |     | NULL    |       |
| kode_prodi    | varchar(6)    | YES  | MUL | NULL    |       |
| agama         | varchar(10)   | YES  |     | NULL    |       |
+---------------+---------------+------+-----+---------+-------+
10 rows in set (0.078 sec)
```

Perintah DESCRIBE dan SHOW COLUMNS FROM akan menampilkan struktur tabel yang sedang digunakan. Data yang ditampilkan: nama kolom, tipe data kolom, status null, status primary key dan foreign key, default value, dan extra.

15. Hilangkan kolom asal_sma yang terdapat di dalam tabel mahasiswa
Kondisi sebelumnya:

```
MariaDB [db_polinema]> show columns from mahasiswa;
+---------------+---------------+------+-----+---------+-------+
| Field         | Type          | Null | Key | Default | Extra |
+---------------+---------------+------+-----+---------+-------+
| nim           | int(8)        | NO   | PRI | NULL    |       |
| nama_mhs      | varchar(50)   | YES  |     | NULL    |       |
| jenis_kelamin | enum('L','P') | YES  |     | L       |       |
| alamat        | varchar(50)   | YES  |     | NULL    |       |
| kota          | varchar(20)   | YES  |     | Malang  |       |
| asal_sma      | varchar(30)   | YES  |     | NULL    |       |
| no_hp         | varchar(12)   | YES  |     | NULL    |       |
| umur          | int(11)       | YES  |     | NULL    |       |
| kode_prodi    | varchar(6)    | YES  | MUL | NULL    |       |
| agama         | varchar(10)   | YES  |     | NULL    |       |
+---------------+---------------+------+-----+---------+-------+
10 rows in set (0.082 sec)
```

Kondisi setelahnya:

```
MariaDB [db_polinema]> ALTER TABLE mahasiswa DROP COLUMN asal_sma;
Query OK, 0 rows affected (0.073 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [db_polinema]> SHOW COLUMNS FROM mahasiswa;
+---------------+---------------+------+-----+---------+-------+
| Field         | Type          | Null | Key | Default | Extra |
+---------------+---------------+------+-----+---------+-------+
| nim           | int(8)        | NO   | PRI | NULL    |       |
| nama_mhs      | varchar(50)   | YES  |     | NULL    |       |
| jenis_kelamin | enum('L','P') | YES  |     | L       |       |
| alamat        | varchar(50)   | YES  |     | NULL    |       |
| kota          | varchar(20)   | YES  |     | Malang  |       |
| no_hp         | varchar(12)   | YES  |     | NULL    |       |
| umur          | int(11)       | YES  |     | NULL    |       |
| kode_prodi    | varchar(6)    | YES  | MUL | NULL    |       |
| agama         | varchar(10)   | YES  |     | NULL    |       |
+---------------+---------------+------+-----+---------+-------+
9 rows in set (0.086 sec)
```

B. TUGAS

1. Terdapat basis data Akademik berikut:

No_Mhs	Nama_mhs	Jurusan	Kd_MK	Nama_mk	Kd_Dosen	Nm_Dosen	nilai
1921001	Aminah	MI	MI350	Basis Data	B104	Ati	85
1921001	Budiman	MI	MI465	Pemrograman	B105	Dita	87
1921002	Carina	MI	MI465	Pemrograman	B105	Dita	85
1921003	Della	TI	TI201	Mobile	C102	Leo	78
1921004	Firda	TI	TI201	Mobile	C102	Leo	80

a. Deskripsikan struktur data dari tabel-tabel berikut serta isikan datanya:
   - Tabel mahasiswa (no_mhs, nama_mhs)
   - Tabel mata_kuliah (kd_mk, nama_mk)
   - Tabel nilai (no_mhs, kode_mk)

   Tambahkan kolom jurusan pada tabel mahasiswa di kolom terakhir!

   Jawab:
   - Membuat tabel mahasiswa

```
MariaDB [db_akademik]> CREATE TABLE mahasiswa (no_mhs int(7) not null primary key, nama_mhs varchar(20) not
Query OK, 0 rows affected (0.033 sec)

MariaDB [db_akademik]> SHOW TABLES;
+----------------------+
| Tables_in_db_akademik |
+----------------------+
| mahasiswa            |
+----------------------+
1 row in set (0.002 sec)

MariaDB [db_akademik]> SHOW COLUMNS FROM mahasiswa;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| no_mhs   | int(7)      | NO   | PRI | NULL    |       |
| nama_mhs | varchar(20) | NO   |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
2 rows in set (0.039 sec)

MariaDB [db_akademik]> INSERT INTO mahasiswa (no_mhs, nama_mhs) VALUES (1921000, 'Aminah'), (1921001, 'Budi
arina'), (1921003, 'Delia'), (1921004, 'Firda');
Query OK, 5 rows affected (0.007 sec)
Records: 5  Duplicates: 0  Warnings: 0

MariaDB [db_akademik]> SELECT * FROM mahasiswa;
+---------+----------+
| no_mhs  | nama_mhs |
+---------+----------+
| 1921000 | Aminah   |
| 1921001 | Budiman  |
| 1921002 | Carina   |
| 1921003 | Delia    |
| 1921004 | Firda    |
+---------+----------+
5 rows in set (0.000 sec)
```

Dan juga menambahkan kolom jurusan di bagian akhir tabel
mahasiswa

```
MariaDB [db_akademik]> ALTER TABLE mahasiswa ADD COLUMN jurusan enum('TI', 'MI') not null AFTER n
Query OK, 0 rows affected (0.012 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [db_akademik]> SHOW COLUMNS FROM mahasiswa;
+----------+---------------+------+-----+---------+-------+
| Field    | Type          | Null | Key | Default | Extra |
+----------+---------------+------+-----+---------+-------+
| no_mhs   | int(7)        | NO   | PRI | NULL    |       |
| nama_mhs | varchar(20)   | NO   |     | NULL    |       |
| jurusan  | enum('TI','MI')| NO  |     | NULL    |       |
+----------+---------------+------+-----+---------+-------+
3 rows in set (0.035 sec)

MariaDB [db_akademik]> SELECT * FROM mahasiswa;
+---------+----------+---------+
| no_mhs  | nama_mhs | jurusan |
+---------+----------+---------+
| 1921000 | Aminah   | TI      |
| 1921001 | Budiman  | TI      |
| 1921002 | Carina   | TI      |
| 1921003 | Delia    | TI      |
| 1921004 | Firda    | TI      |
+---------+----------+---------+
5 rows in set (0.001 sec)
```

Di sini saya menggunakan enum karena dari data yang tersedia
hanya ada dua jenis jurusan. Karena data jurusan masih belum
sesuai, maka saya perbarui data jurusan masing-masing
mahasiswa.

```
MariaDB [db_akademik]> UPDATE mahasiswa SET jurusan = 'MI' WHERE nama_mhs IN ('Aminah', 'Budiman
Query OK, 3 rows affected (0.010 sec)
Rows matched: 3  Changed: 3  Warnings: 0

MariaDB [db_akademik]> SELECT * FROM mahasiswa;
+---------+----------+---------+
| no_mhs  | nama_mhs | jurusan |
+---------+----------+---------+
| 1921000 | Aminah   | MI      |
| 1921001 | Budiman  | MI      |
| 1921002 | Carina   | MI      |
| 1921003 | Delia    | TI      |
| 1921004 | Firda    | TI      |
+---------+----------+---------+
5 rows in set (0.001 sec)
```

- Membuat tabel mata_kuliah

```
MariaDB [db_akademik]> CREATE TABLE mata_kuliah (kd_mk varchar(10) not null PRIMARY KEY, nama_mk varchar(2
Query OK, 0 rows affected (0.018 sec)

MariaDB [db_akademik]> SHOW TABLES;
+----------------------+
| Tables_in_db_akademik |
+----------------------+
| mahasiswa            |
| mata_kuliah          |
+----------------------+
2 rows in set (0.002 sec)

MariaDB [db_akademik]> SELECT * FROM mata_kuliah;
Empty set (0.002 sec)

MariaDB [db_akademik]> INSERT INTO mata_kuliah (kd_mk, nama_mk) VALUES ('MI350', 'Basis Data'), ('MI465',
201', 'Mobile');
Query OK, 3 rows affected (0.005 sec)
Records: 3  Duplicates: 0  Warnings: 0

MariaDB [db_akademik]> SELECT * FROM mata_kuliah;
+-------+-------------+
| kd_mk | nama_mk     |
+-------+-------------+
| MI350 | Basis Data  |
| MI465 | Pemrograman |
| TI201 | Mobile      |
+-------+-------------+
3 rows in set (0.001 sec)
```

- Membuat tabel nilai

```
MariaDB [db_akademik]> CREATE TABLE nilai (no_mhs int(7) NOT NULL, kode_mk varchar(20) NOT NULL, PRIMARY KEY (no
_mhs, kode_mk));
Query OK, 0 rows affected (0.019 sec)

MariaDB [db_akademik]> SHOW TABLES;
+----------------------+
| Tables_in_db_akademik |
+----------------------+
| mahasiswa            |
| mata_kuliah          |
| nilai                |
+----------------------+
3 rows in set (0.001 sec)

MariaDB [db_akademik]> INSERT INTO nilai (no_mhs, kode_mk) VALUES (1921000, 'MI350'), (1921001, 'MI465'), (19210
02, 'MI465'), (1921003, 'TI201'), (1921004, 'TI201');
Query OK, 5 rows affected (0.010 sec)
Records: 5  Duplicates: 0  Warnings: 0

MariaDB [db_akademik]> SELECT * FROM nilai;
+---------+---------+
| no_mhs  | kode_mk |
+---------+---------+
| 1921000 | MI350   |
| 1921001 | MI465   |
| 1921002 | MI465   |
| 1921003 | TI201   |
| 1921004 | TI201   |
+---------+---------+
5 rows in set (0.001 sec)

MariaDB [db_akademik]> SHOW COLUMNS FROM nilai;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| no_mhs  | int(7)      | NO   | PRI | NULL    |       |
| kode_mk | varchar(20) | NO   | PRI | NULL    |       |
+---------+-------------+------+-----+---------+-------+
2 rows in set (0.028 sec)
```

Di sini tabel nilai masih belum terhubung ke tabel mahasiswa
dan tabel mata_kuliah. Jadi, data antara ketiga tabel itu bisa
saja tidak saling berkaitan.

b. Tambahkan kolom kode dosen pada tabel mata_kuliah!
   Jawab:
   - Menambahkan kolom baru bernama kode_dosen

```
MariaDB [db_akademik]> ALTER TABLE mata_kuliah ADD COLUMN kode_dosen varchar(10) NOT NULL;
Query OK, 0 rows affected (0.010 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [db_akademik]> SHOW COLUMNS FROM mata_kuliah;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| kd_mk      | varchar(10) | NO   | PRI | NULL    |       |
| nama_mk    | varchar(20) | NO   |     | NULL    |       |
| kode_dosen | varchar(10) | NO   |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
3 rows in set (0.037 sec)
```

```
MariaDB [db_akademik]> SELECT * FROM mata_kuliah;
+-------+-------------+------------+
| kd_mk | nama_mk     | kode_dosen |
+-------+-------------+------------+
| MI350 | Basis Data  |            |
| MI465 | Pemrograman |            |
| TI201 | Mobile      |            |
+-------+-------------+------------+
3 rows in set (0.001 sec)
```
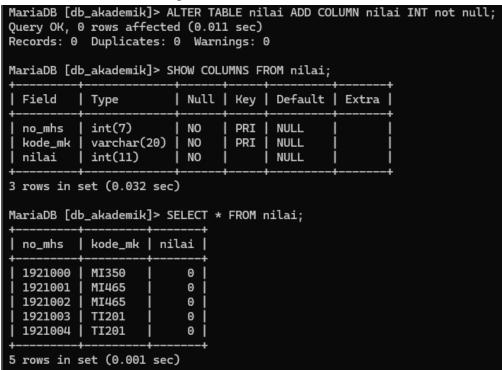
- Menambahkan data kolom kode_dosen

```
MariaDB [db_akademik]> UPDATE mata_kuliah SET kode_dosen = 'B104' WHERE kd_mk = 'MI350';
Query OK, 1 row affected (0.007 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [db_akademik]> UPDATE mata_kuliah SET kode_dosen = 'B105' WHERE kd_mk = 'MI465';
Query OK, 1 row affected (0.006 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [db_akademik]> UPDATE mata_kuliah SET kode_dosen = 'C102' WHERE kd_mk = 'TI201';
Query OK, 1 row affected (0.066 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [db_akademik]> SELECT * FROM mata_kuliah;
+-------+------------+------------+
| kd_mk | nama_mk    | kode_dosen |
+-------+------------+------------+
| MI350 | Basis Data | B104       |
| MI465 | Pemrograman| B105       |
| TI201 | Mobile     | C102       |
+-------+------------+------------+
3 rows in set (0.001 sec)
```

c. Tambahkan kolom nilai pada tabel nilai serta berikanlah kunci foreign key!

Jawab:

- Menambahkan kolom **nilai** pada tabel **nilai**

```
MariaDB [db_akademik]> ALTER TABLE nilai ADD COLUMN nilai INT not null;
Query OK, 0 rows affected (0.011 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [db_akademik]> SHOW COLUMNS FROM nilai;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| no_mhs  | int(7)      | NO   | PRI | NULL    |       |
| kode_mk | varchar(20) | NO   | PRI | NULL    |       |
| nilai   | int(11)     | NO   |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
3 rows in set (0.032 sec)

MariaDB [db_akademik]> SELECT * FROM nilai;
+---------+---------+-------+
| no_mhs  | kode_mk | nilai |
+---------+---------+-------+
| 1921000 | MI350   |     0 |
| 1921001 | MI465   |     0 |
| 1921002 | MI465   |     0 |
| 1921003 | TI201   |     0 |
| 1921004 | TI201   |     0 |
+---------+---------+-------+
5 rows in set (0.001 sec)
```

- Memberikan foreign key pada tabel **nilai**

```
MariaDB [db_akademik]> ALTER TABLE nilai ADD FOREIGN KEY (no_mhs) REFERENCES mahasiswa(no_mhs);
Query OK, 5 rows affected (0.099 sec)
Records: 5  Duplicates: 0  Warnings: 0
```

```
MariaDB [db_akademik]> ALTER TABLE nilai ADD FOREIGN KEY (kode_mk) REFERENCES mata_kuliah(kd_mk);
Query OK, 5 rows affected (0.139 sec)
Records: 5  Duplicates: 0  Warnings: 0
```

```
MariaDB [db_akademik]> UPDATE nilai SET nilai = 85 WHERE no_mhs = 1921000 AND kode_mk = 'MI350';
Query OK, 1 row affected (0.008 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [db_akademik]> SELECT * FROM nilai;
+---------+---------+-------+
| no_mhs  | kode_mk | nilai |
+---------+---------+-------+
| 1921000 | MI350   |    85 |
| 1921001 | MI465   |     0 |
| 1921002 | MI465   |     0 |
| 1921003 | TI201   |     0 |
| 1921004 | TI201   |     0 |
+---------+---------+-------+
5 rows in set (0.003 sec)
```

```
MariaDB [db_akademik]> UPDATE nilai SET nilai = 87 WHERE no_mhs = 1921001 AND kode_mk = 'MI465';
Query OK, 1 row affected (0.008 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

```
MariaDB [db_akademik]> UPDATE nilai SET nilai = 85 WHERE no_mhs = 1921002 AND kode_mk = 'MI465';
Query OK, 1 row affected (0.009 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [db_akademik]> UPDATE nilai SET nilai = 78 WHERE no_mhs = 1921003 AND kode_mk = 'TI201';
Query OK, 1 row affected (0.007 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [db_akademik]> UPDATE nilai SET nilai = 80 WHERE no_mhs = 1921004 AND kode_mk = 'TI201';
Query OK, 1 row affected (0.010 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [db_akademik]> SELECT * FROM nilai;
+---------+---------+-------+
| no_mhs  | kode_mk | nilai |
+---------+---------+-------+
| 1921000 | MI350   |    85 |
| 1921001 | MI465   |    87 |
| 1921002 | MI465   |    85 |
| 1921003 | TI201   |    78 |
| 1921004 | TI201   |    80 |
+---------+---------+-------+
5 rows in set (0.001 sec)
```

Karena sudah ada kolom nilai pada tabel nilai, maka sekalian
saja menambahkan isi data nilainya dengan menggunakan
query UPDATE.

d. Tambahkan tabel dosen dengan atributnya kd_dosen dan nama dosen!
    Jawab:
    -   Membuat tabel **dosen**

```
MariaDB [db_akademik]> CREATE TABLE dosen (kd_dosen varchar(10) NOT NULL, nm_dosen varchar(20) NOT NULL, PRIMARY KEY (kd_dosen
, nm_dosen));
Query OK, 0 rows affected (0.023 sec)

MariaDB [db_akademik]> SHOW COLUMNS FROM dosen;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| kd_dosen | varchar(10) | NO   | PRI | NULL    |       |
| nm_dosen | varchar(20) | NO   | PRI | NULL    |       |
+----------+-------------+------+-----+---------+-------+
2 rows in set (0.030 sec)
```

    -   Menambahkan data ke tabel dosen

```
MariaDB [db_akademik]> INSERT INTO dosen (kd_dosenm nm_dosen) VALUES ('B104', 'Ati'), ('B105', 'Dita'), ('C102', 'Leo');
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for
 the right syntax to use near 'nm_dosen) VALUES ('B104', 'Ati'), ('B105', 'Dita'), ('C102', 'Leo')' at line 1
MariaDB [db_akademik]> INSERT INTO dosen (kd_dosen, nm_dosen) VALUES ('B104', 'Ati'), ('B105', 'Dita'), ('C102', 'Leo');
Query OK, 3 rows affected (0.008 sec)
Records: 3  Duplicates: 0  Warnings: 0

MariaDB [db_akademik]> SELECT * FROM dosen;
+----------+----------+
| kd_dosen | nm_dosen |
+----------+----------+
| B104     | Ati      |
| B105     | Dita     |
| C102     | Leo      |
+----------+----------+
3 rows in set (0.001 sec)
```

e. Tampilkan semua data yang ada pada tiap tabel!
   Jawab:
   - Tabel mahasiswa

```
MariaDB [db_akademik]> SELECT * FROM mahasiswa;
+---------+----------+---------+
| no_mhs  | nama_mhs | jurusan |
+---------+----------+---------+
| 1921000 | Aminah   | MI      |
| 1921001 | Budiman  | MI      |
| 1921002 | Carina   | MI      |
| 1921003 | Delia    | TI      |
| 1921004 | Firda    | TI      |
+---------+----------+---------+
5 rows in set (0.001 sec)
```

   - Tabel mata_kuliah

```
MariaDB [db_akademik]> SELECT * FROM mata_kuliah;
+-------+-------------+------------+
| kd_mk | nama_mk     | kode_dosen |
+-------+-------------+------------+
| MI350 | Basis Data  | B104       |
| MI465 | Pemrograman | B105       |
| TI201 | Mobile      | C102       |
+-------+-------------+------------+
3 rows in set (0.001 sec)
```

   - Tabel nilai

```
MariaDB [db_akademik]> SELECT * FROM nilai;
+---------+---------+-------+
| no_mhs  | kode_mk | nilai |
+---------+---------+-------+
| 1921000 | MI350   |    85 |
| 1921001 | MI465   |    87 |
| 1921002 | MI465   |    85 |
| 1921003 | TI201   |    78 |
| 1921004 | TI201   |    80 |
+---------+---------+-------+
5 rows in set (0.001 sec)
```

   - Tabel dosen

```
MariaDB [db_akademik]> SELECT * FROM dosen;
+----------+----------+
| kd_dosen | nm_dosen |
+----------+----------+
| B104     | Ati      |
| B105     | Dita     |
| C102     | Leo      |
+----------+----------+
3 rows in set (0.001 sec)
```

2. Buatlah basis data pegawai yang terdiri dari tabel sebagai berikut!

Noproyek	NamaProyek	Nopegawai	NamaPegawai	Golongan	BesarGaji
NP001	BRR	Peg01	Anton	A	1.000.000
NP001	BRR	Peg02	Paula	B	900.000
NP001	BRR	Peg06	Koko	C	750.000
NP002	PEMDA	Peg01	Anton	A	1.000.000
NP002	PEMDA	Peg12	Sita	B	900.000
NP002	PEMDA	Peg14	Yusni	B	900.000
NP003	CBR	Peg02	Paula	B	900.000
NP003	CBR	Peg03	Daniar	C	750.000
NP003	CBR	Peg04	Lubis	C	750.000
NP004	ASK	Peg07	Keni	B	900.000
NP004	ASK	Peg08	Sofi	B	900.000
NP004	ASK	Peg06	Yuni	C	750.000
NP005	OB	Peg15	Udin	D	500.000
NP005	OB	Peg16	Didit	D	500.000
NP005	OB	Peg17	Dani	D	500.000

a. Deskripsikan struktur data dari tabel-tabel berikut serta isikan datanya:
   - Table Pegawai {Nopegawai, NamaPegawai}
   - Tabel Golongan {Golongan}
   - Tabel Proyek {Noproyek]
   - Tabel Proyekpegawai {Noproyek}

Jawab:
   - Tabel pegawai

```
MariaDB [db_pegawai]> CREATE TABLE pegawai (no_pegawai char(5) NOT NULL PRIMARY KEY, nama_pegawai varchar(20) NOT NULL);
Query OK, 0 rows affected (0.021 sec)

MariaDB [db_pegawai]> SHOW COLUMNS FROM pegawai;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| no_pegawai   | char(5)     | NO   | PRI | NULL    |       |
| nama_pegawai | varchar(20) | NO   |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
2 rows in set (0.043 sec)
```

```
MariaDB [db_pegawai]> INSERT INTO pegawai (no_pegawai, nama_pegawai) VALUES ('Peg01', 'Anton'), ('Peg02', 'Paula')
, ('Peg03', 'Daniar'), ('Peg04', 'Lubis'), ('Peg06', 'Koko'), ('Peg07', 'Keni'), ('Peg08', 'Sofi'), ('Peg12', 'Sit
a'), ('Peg14', 'Yusni'), ('Peg15', 'Udin'), ('Peg16', 'Didit'), ('Peg17', 'Dani');
Query OK, 12 rows affected (0.006 sec)
Records: 12  Duplicates: 0  Warnings: 0

MariaDB [db_pegawai]> SELECT * FROM pegawai;
+------------+--------------+
| no_pegawai | nama_pegawai |
+------------+--------------+
| Peg01      | Anton        |
| Peg02      | Paula        |
| Peg03      | Daniar       |
| Peg04      | Lubis        |
| Peg06      | Koko         |
| Peg07      | Keni         |
| Peg08      | Sofi         |
| Peg12      | Sita         |
| Peg14      | Yusni        |
| Peg15      | Udin         |
| Peg16      | Didit        |
| Peg17      | Dani         |
+------------+--------------+
12 rows in set (0.001 sec)
```

   - Tabel golongan

```
MariaDB [db_pegawai]> CREATE TABLE golongan (golongan enum('A', 'B', 'C', 'D') NOT NULL PRIMARY KE
Query OK, 0 rows affected (0.020 sec)
```

```
MariaDB [db_pegawai]> DESCRIBE golongan;
+----------+----------------------+------+-----+---------+-------+
| Field    | Type                 | Null | Key | Default | Extra |
+----------+----------------------+------+-----+---------+-------+
| golongan | enum('A','B','C','D') | NO   | PRI | NULL    |       |
+----------+----------------------+------+-----+---------+-------+
1 row in set (0.020 sec)

MariaDB [db_pegawai]> INSERT INTO golongan (golongan) VALUES ('A'), ('B'), ('C'), ('D');
Query OK, 4 rows affected (0.004 sec)
Records: 4  Duplicates: 0  Warnings: 0

MariaDB [db_pegawai]> SELECT * FROM golongan;
+----------+
| golongan |
+----------+
| A        |
| B        |
| C        |
| D        |
+----------+
4 rows in set (0.000 sec)
```

- Tabel proyek

```
MariaDB [db_pegawai]> CREATE TABLE proyek (no_proyek char(5) NOT NULL PRIMARY KEY);
Query OK, 0 rows affected (0.019 sec)

MariaDB [db_pegawai]> DESCRIBE proyek;
+-----------+---------+------+-----+---------+-------+
| Field     | Type    | Null | Key | Default | Extra |
+-----------+---------+------+-----+---------+-------+
| no_proyek | char(5) | NO   | PRI | NULL    |       |
+-----------+---------+------+-----+---------+-------+
1 row in set (0.021 sec)

MariaDB [db_pegawai]> INSERT INTO proyek (no_proyek) VALUES ('NP001'), ('NP002'), ('NP003'), ('NP004'), ('NP005');
                                                                                                              Q
uery OK, 5 rows affected (0.007 sec)
Records: 5  Duplicates: 0  Warnings: 0

MariaDB [db_pegawai]> SELECT * FROM proyek;
+-----------+
| no_proyek |
+-----------+
| NP001     |
| NP002     |
| NP003     |
| NP004     |
| NP005     |
+-----------+
5 rows in set (0.011 sec)
```

- Tabel proyek_pegawai

```
MariaDB [db_pegawai]> CREATE TABLE proyek_pegawai (no_proyek varchar(10) NOT NULL PRIMARY KEY);
Query OK, 0 rows affected (0.019 sec)

MariaDB [db_pegawai]> DESCRIBE proyek_pegawai;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| no_proyek | varchar(10) | NO   | PRI | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
1 row in set (0.150 sec)
```

b. Tambahkan kolom Golongan pada tabel Pegawai di kolom terakhir!

Jawab:

```
MariaDB [db_pegawai]> ALTER TABLE pegawai ADD COLUMN golongan enum('A', 'B', 'C', 'D') NOT NULL, ADD FOREIGN KEY (
golongan) REFERENCES golongan(golongan);
Query OK, 12 rows affected (0.150 sec)
Records: 12  Duplicates: 0  Warnings: 0
```

Memperbarui nilai golongan

```
MariaDB [db_pegawai]> UPDATE pegawai SET golongan = 'B' WHERE no_pegawai IN ('Peg02', 'Peg12', 'Peg14', 'Peg07', '
Peg08');
Query OK, 5 rows affected (0.004 sec)
Rows matched: 5  Changed: 5  Warnings: 0

MariaDB [db_pegawai]> UPDATE pegawai SET golongan = 'C' WHERE no_pegawai IN ('Peg06', 'Peg03', 'Peg04', 'Peg06')
Query OK, 3 rows affected (0.006 sec)
Rows matched: 3  Changed: 3  Warnings: 0

MariaDB [db_pegawai]> UPDATE pegawai SET golongan = 'D' WHERE no_pegawai IN ('Peg15', 'Peg16', 'Peg17')
Query OK, 3 rows affected (0.006 sec)
Rows matched: 3  Changed: 3  Warnings: 0
```

```
MariaDB [db_pegawai]> SELECT * FROM pegawai;
+------------+--------------+-----------+
| no_pegawai | nama_pegawai | golongan  |
+------------+--------------+-----------+
| Peg01      | Anton        | A         |
| Peg02      | Paula        | B         |
| Peg03      | Daniar       | C         |
| Peg04      | Lubis        | C         |
| Peg06      | Koko         | C         |
| Peg07      | Keni         | B         |
| Peg08      | Sofi         | B         |
| Peg12      | Sita         | B         |
| Peg14      | Yusni        | B         |
| Peg15      | Udin         | D         |
| Peg16      | Didit        | D         |
| Peg17      | Dani         | D         |
+------------+--------------+-----------+
12 rows in set (0.000 sec)
```

c. Tambahkan kolom BesarGaji pada tabel Golongan di kolom terakhir!

Jawab:

Menambahkan kolom besar_gaji

```
MariaDB [db_pegawai]> ALTER TABLE golongan ADD COLUMN besar_gaji int NOT NULL;
Query OK, 0 rows affected (0.088 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [db_pegawai]> DESCRIBE golongan;
+------------+-------------------------+------+-----+---------+-------+
| Field      | Type                    | Null | Key | Default | Extra |
+------------+-------------------------+------+-----+---------+-------+
| golongan   | enum('A','B','C','D')   | NO   | PRI | NULL    |       |
| besar_gaji | int(11)                 | NO   |     | NULL    |       |
+------------+-------------------------+------+-----+---------+-------+
2 rows in set (0.053 sec)
```

```
MariaDB [db_pegawai]> SELECT * FROM golongan;
+----------+------------+
| golongan | besar_gaji |
+----------+------------+
| A        |          0 |
| B        |          0 |
| C        |          0 |
| D        |          0 |
+----------+------------+
4 rows in set (0.000 sec)
```
,

Memperbarui nilai yang ada di kolom besar_gaji

```
MariaDB [db_pegawai]> UPDATE golongan SET besar_gaji = 1000000 WHERE golongan = 'A';
Query OK, 1 row affected (0.005 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [db_pegawai]> UPDATE golongan SET besar_gaji = 900000 WHERE golongan = 'B';
Query OK, 1 row affected (0.004 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [db_pegawai]> UPDATE golongan SET besar_gaji = 750000 WHERE golongan = 'C';
Query OK, 1 row affected (0.063 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [db_pegawai]> UPDATE golongan SET besar_gaji = 500000 WHERE golongan = 'D';
Query OK, 1 row affected (0.006 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [db_pegawai]> SELECT * FROM golongan;
+----------+------------+
| golongan | besar_gaji |
+----------+------------+
| A        |    1000000 |
| B        |     900000 |
| C        |     750000 |
| D        |     500000 |
+----------+------------+
4 rows in set (0.000 sec)
```

d. Tambahkan kolom NamaProyek pada table Proyek!

Jawab:

Menambahkan kolom nama_proyek ke tabel proyek

```
MariaDB [db_pegawai]> ALTER TABLE proyek ADD COLUMN nama_proyek varchar(20) NOT NULL
Query OK, 0 rows affected (0.011 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [db_pegawai]> DESCRIBE proyek;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| no_proyek   | char(5)     | NO   | PRI | NULL    |       |
| nama_proyek | varchar(20) | NO   |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
2 rows in set (0.039 sec)

MariaDB [db_pegawai]> SELECT * FROM proyek;
+-----------+-------------+
| no_proyek | nama_proyek |
+-----------+-------------+
| NP001     |             |
| NP002     |             |
| NP003     |             |
| NP004     |             |
| NP005     |             |
+-----------+-------------+
5 rows in set (0.001 sec)
```

Memperbarui isi kolom nama_proyek

```
MariaDB [db_pegawai]> UPDATE proyek SET nama_proyek = 'BRR' WHERE no_proyek = 'NP001';
Query OK, 1 row affected (0.005 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [db_pegawai]> UPDATE proyek SET nama_proyek = 'PEMDA' WHERE no_proyek = 'NP002
Query OK, 1 row affected (0.008 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [db_pegawai]> UPDATE proyek SET nama_proyek = 'CBR' WHERE no_proyek = 'NP003';
Query OK, 1 row affected (0.005 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [db_pegawai]> UPDATE proyek SET nama_proyek = 'ASK' WHERE no_proyek = 'NP004';
Query OK, 1 row affected (0.006 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [db_pegawai]> UPDATE proyek SET nama_proyek = 'OB' WHERE no_proyek = 'NP005';
Query OK, 1 row affected (0.006 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [db_pegawai]> SELECT * FROM proyek;
+-----------+-------------+
| no_proyek | nama_proyek |
+-----------+-------------+
| NP001     | BRR         |
| NP002     | PEMDA       |
| NP003     | CBR         |
| NP004     | ASK         |
| NP005     | OB          |
+-----------+-------------+
5 rows in set (0.016 sec)
```

e. Tambahkan kolom NoPegawai pada table Proyekpegawai serta berikanlah kunci foreign key!

Jawab:

Menambahkan kolom no_pegawai ke tabel proyek_pegawai

```
MariaDB [db_pegawai]> ALTER TABLE proyek_pegawai ADD COLUMN no_pegawai char(5) NOT NULL;
Query OK, 0 rows affected (0.009 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [db_pegawai]> DESCRIBE proyek_pegawai;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| no_proyek  | varchar(10) | NO   | PRI | NULL    |       |
| no_pegawai | char(5)     | NO   |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
2 rows in set (0.029 sec)
```

Memberikan foreign key

```
MariaDB [db_pegawai]> ALTER TABLE proyek_pegawai ADD FOREIGN KEY (no_proyek) REFERENCES proyek(no_proyek);
Query OK, 0 rows affected (0.057 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [db_pegawai]> ALTER TABLE proyek_pegawai ADD FOREIGN KEY (no_pegawai) REFERENCES pegawai(no_pegawai)
Query OK, 0 rows affected (0.093 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

Karena ini nanti bakal memungkinkan duplikasi jikalau hanya menggunakan primary key pada satu kolom, maka ini saatnya untuk merubah primary key yang dihasilkan dari kombinasi dua kolom, yaitu antara kolom no_proyek dan no_pegawai.

```
MariaDB [db_pegawai]> ALTER TABLE proyek_pegawai DROP PRIMARY KEY, ADD PRIMARY KEY (no_proyek, no_pegawai);
Query OK, 0 rows affected (0.133 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [db_pegawai]> DESCRIBE proyek_pegawai;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| no_proyek  | varchar(10) | NO   | PRI | NULL    |       |
| no_pegawai | char(5)     | NO   | PRI | NULL    |       |
+------------+-------------+------+-----+---------+-------+
2 rows in set (0.043 sec)
```

Memberikan nilai ke tabel proyek_pegawai

```
MariaDB [db_pegawai]> INSERT INTO proyek_pegawai (no_proyek, no_pegawai) VALUES ('NP001', 'Peg01'), ('NP001', 'Peg
02'), ('NP001', 'Peg06'), ('NP002', 'Peg01'), ('NP002', 'Peg12'), ('NP002', 'Peg14'), ('NP003', 'Peg02'), ('NP003'
, 'Peg03'), ('NP003', 'Peg04'), ('NP004', 'Peg07'), ('NP004', 'Peg08'), ('NP004', 'Peg06'), ('NP005', 'Peg15'), ('
NP005', 'Peg16'), ('NP005', 'Peg17');
Query OK, 15 rows affected (0.013 sec)
Records: 15  Duplicates: 0  Warnings: 0

MariaDB [db_pegawai]> SELECT * FROM proyek_pegawai;
+-----------+------------+
| no_proyek | no_pegawai |
+-----------+------------+
| NP001     | Peg01      |
| NP001     | Peg02      |
| NP001     | Peg06      |
| NP002     | Peg01      |
| NP002     | Peg12      |
| NP002     | Peg14      |
| NP003     | Peg02      |
| NP003     | Peg03      |
| NP003     | Peg04      |
| NP004     | Peg06      |
| NP004     | Peg07      |
| NP004     | Peg08      |
| NP005     | Peg15      |
| NP005     | Peg16      |
| NP005     | Peg17      |
+-----------+------------+
15 rows in set (0.003 sec)
```

f. Tampilkan semua data yang ada pada tiap tabel!

Jawab:

- Tabel golongan

```
MariaDB [db_pegawai]> SELECT * FROM golongan;
+-----------+------------+
| golongan  | besar_gaji |
+-----------+------------+
| A         |    1000000 |
| B         |     900000 |
| C         |     750000 |
| D         |     500000 |
+-----------+------------+
4 rows in set (0.001 sec)
```

- Tabel pegawai

```
MariaDB [db_pegawai]> SELECT * FROM pegawai;
+------------+---------------+----------+
| no_pegawai | nama_pegawai  | golongan |
+------------+---------------+----------+
| Peg01      | Anton         | A        |
| Peg02      | Paula         | B        |
| Peg03      | Daniar        | C        |
| Peg04      | Lubis         | C        |
| Peg06      | Koko          | C        |
| Peg07      | Keni          | B        |
| Peg08      | Sofi          | B        |
| Peg12      | Sita          | B        |
| Peg14      | Yusni         | B        |
| Peg15      | Udin          | D        |
| Peg16      | Didit         | D        |
| Peg17      | Dani          | D        |
+------------+---------------+----------+
12 rows in set (0.001 sec)
```

- Tabel proyek

```
MariaDB [db_pegawai]> SELECT * FROM proyek;
+-----------+-------------+
| no_proyek | nama_proyek |
+-----------+-------------+
| NP001     | BRR         |
| NP002     | PEMDA       |
| NP003     | CBR         |
| NP004     | ASK         |
| NP005     | OB          |
+-----------+-------------+
5 rows in set (0.003 sec)
```

- Tabel proyek_pegawai

```
MariaDB [db_pegawai]> SELECT * FROM proyek_pegawai;
+-----------+------------+
| no_proyek | no_pegawai |
+-----------+------------+
| NP001     | Peg01      |
| NP001     | Peg02      |
| NP001     | Peg06      |
| NP002     | Peg01      |
| NP002     | Peg12      |
| NP002     | Peg14      |
| NP003     | Peg02      |
| NP003     | Peg03      |
| NP003     | Peg04      |
| NP004     | Peg06      |
| NP004     | Peg07      |
| NP004     | Peg08      |
| NP005     | Peg15      |
| NP005     | Peg16      |
| NP005     | Peg17      |
+-----------+------------+
15 rows in set (0.005 sec)
```