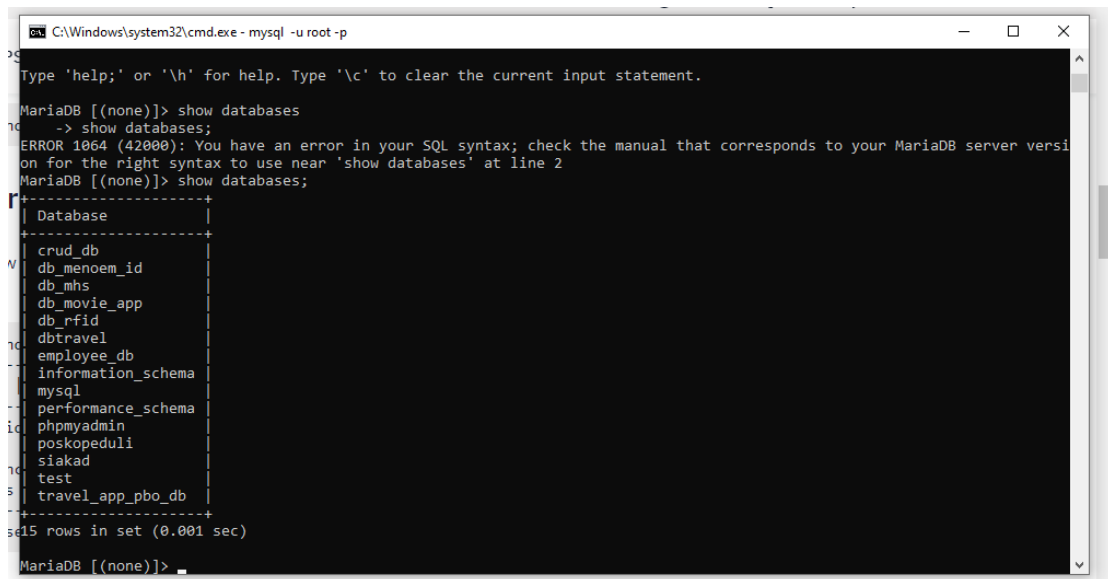


Nama : Umar Sahid
Kelas : K1
NIM : 190511081
Mata Kuliah : Basis Data Lanjut

1. Fungsi Create digunakan untuk membuat table atau database baru.



```
C:\Windows\system32\cmd.exe - mysql -u root -p
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
MariaDB [(none)]> show databases
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 'show databases' at line 2
MariaDB [(none)]> show databases;
+-----+
| Database |
+-----+
| crud_db  |
| db_memoem_id |
| db_mhs   |
| db_movie_app |
| db_rfid  |
| dbtravel |
| employee_db |
| information_schema |
| mysql    |
| performance_schema |
| phpmyadmin |
| poskopeduli |
| siakad   |
| test     |
| travel_app_pbo_db |
+-----+
15 rows in set (0.001 sec)

MariaDB [(none)]>
```

Fungsi membuat database

Create database (nama database);

Contoh

Create database latihanBasisData

```
C:\Windows\system32\cmd.exe - mysql -u root -p

Database
+-----+
crud_db
db_menoem_id
db_mhs
db_movie_app
db_rfid
dbtravel
employee2_db
information_schema
mysql
performance_schema
phpmyadmin
poskopeduli
siakad
test
travel_app_pbo_db
+-----+
15 rows in set (0.001 sec)

MariaDB [(none)]> create database latihanBasisData;
-> create database latihanBasisData;
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 'create database latihanBasisData' at line 2
MariaDB [(none)]> create database latihanBasisData;
Query OK, 1 row affected (0.001 sec)

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

Fungsi membuat table

```
CREATE TABLE Jenjang (
    id_jenang int(11) NOT NULL UNIQUE,
    nama_jenang char(10) NOT NULL,
    PRIMARY KEY(id_jenang)
);
```

```
C:\Windows\system32\cmd.exe - mysql -u root -p

-> create database latihanBasisData;
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 'create database latihanBasisData' at line 2
MariaDB [(none)]> create database latihanBasisData;
Query OK, 1 row affected (0.001 sec)

MariaDB [(none)]> use latihanBasisData;
Database changed
MariaDB [latihanBasisData]> CREATE TABLE Jenjang (
    -> id_jenang int(11) NOT NULL UNIQUE,
    ->
    -> ad
    -> \c
MariaDB [latihanBasisData]> CREATE TABLE Jenjang (
    -> id_jenang int(2) NOT NULL UNIQUE,
    -> nama_jenang char(10) NOT NULL,
    -> PRIMARY KEY (id_jenang)
    -> );
Query OK, 0 rows affected (0.066 sec)

MariaDB [latihanBasisData]> show tables
-> ;
+-----+
| Tables_in_latihanbasisdata |
+-----+
| jenjang                     |
+-----+
1 row in set (0.001 sec)

MariaDB [latihanBasisData]>
```

```
CREATE TABLE Fakultas (
    id_fakultas int(11) NOT NULL UNIQUE,
    nama_fakultas char(225) NOT NULL,
    PRIMARY KEY (id_fakultas)
);
```

```
C:\Windows\system32\cmd.exe - mysql -u root -p
Database changed
MariaDB [latihanBasisData]> CREATE TABLE Jenjang (
-> id_jenjang int(11) NOT NULL UNIQUE,
->
-> ad
-> \c
MariaDB [latihanBasisData]> CREATE TABLE Jenjang (
-> id_jenjang int(2) NOT NULL UNIQUE,
-> nama_jenjang char(10) NOT NULL,
-> PRIMARY KEY (id_jenjang)
-> );
Query OK, 0 rows affected (0.066 sec)

MariaDB [latihanBasisData]> show tables
-> ;
+-----+
| Tables_in_latihanbasisdata |
+-----+
| jenjang                     |
+-----+
1 row in set (0.001 sec)

MariaDB [latihanBasisData]> CREATE TABLE Fakultas (
-> id_fakultas int(11) NOT NULL UNIQUE,
-> nama_fakultas char(255) NOT NULL,
-> PRIMARY KEY (id_fakultas)
-> );
Query OK, 0 rows affected (0.024 sec)

MariaDB [latihanBasisData]>
• DISTINCT
```

```
CREATE TABLE Jurusan (
    id_jurusan int(11) NOT NULL UNIQUE,
    nama_jurusan char(225) NOT NULL,
    id_fakultas int(11) NOT NULL,
    id_jenjang int(2) NOT NULL,
    PRIMARY KEY (id_jurusan),
    FOREIGN KEY (id_fakultas) REFERENCES fakultas(id_fakultas),
    FOREIGN KEY (id_jenjang) REFERENCES jenjang(id_jenjang)
);
```

```
C:\Windows\system32\cmd.exe - mysql -u root -p
-> );
Query OK, 0 rows affected (0.024 sec)

MariaDB [latihanBasisData]> show tables;
+-----+
| Tables_in_latihanbasisdata |
+-----+
| fakultas                   |
| jenjang                    |
+-----+
2 rows in set (0.001 sec)

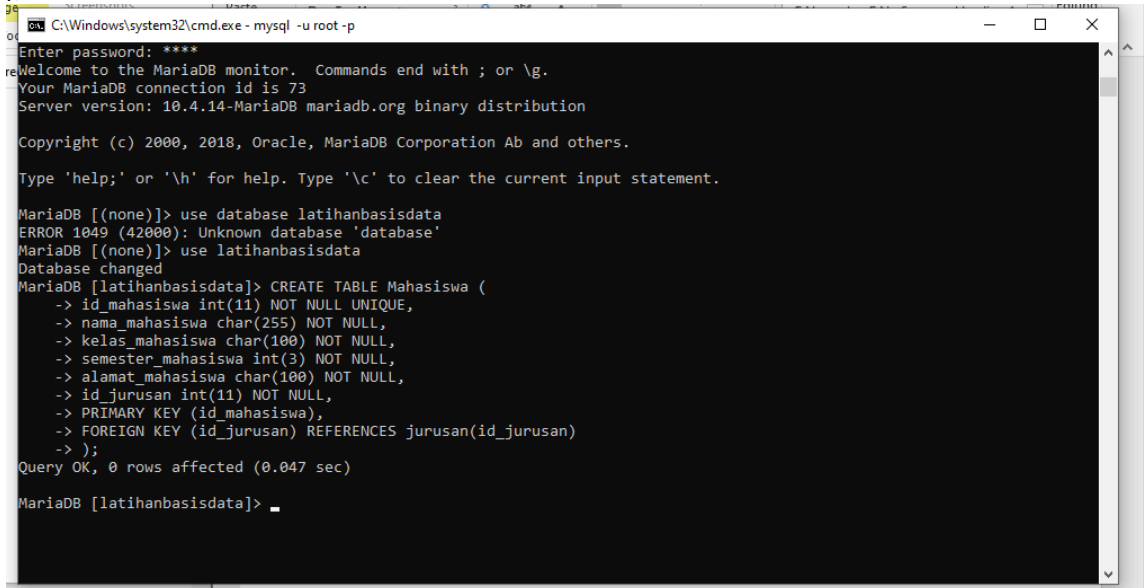
MariaDB [latihanBasisData]> CREATE TABLE Jurusan (
-> id_jurusan int(11) NOT NULL UNIQUE,
-> nama_jurusan char(225) NOT NULL,
-> id_fakultas int(11) NOT NULL,
-> id_jenjang int(2) NOT NULL,
-> PRIMARY KEY (id_jurusan),
-> FOREIGN KEY (id_fakultas) REFERENCES fakultas(id_fakultas),
-> FOREIGN KEY (id_jenjang) REFERENCES jenjang(id_jenjang)
-> );
ERROR 2006 (HY000): MySQL server has gone away
No connection. Trying to reconnect...
Connection id: 36
Current database: latihanBasisData

Query OK, 0 rows affected (0.165 sec)

MariaDB [latihanBasisData]> show databases
-> ;
+-----+
| @ nama_jurusan : char(225) |
+-----+
```

```
CREATE TABLE Mahasiswa (
    id_mahasiswa int(11) NOT NULL UNIQUE,
    nama_mahasiswa char(255) NOT NULL,
    kelas_mahasiswa char(100) NOT NULL,
    semester_mahasiswa int(3) NOT NULL,
```

```
alamat_mahasiswa char(100) NOT NULL,
id_jurusan int(11) NOT NULL,
PRIMARY KEY (id_mahasiswa),
FOREIGN KEY (id_jurusan) REFERENCES jurusan(id_jurusan)
);
```



```
C:\Windows\system32\cmd.exe - mysql -u root -p
Enter password: ****
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 73
Server version: 10.4.14-MariaDB mariadb.org binary distribution

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

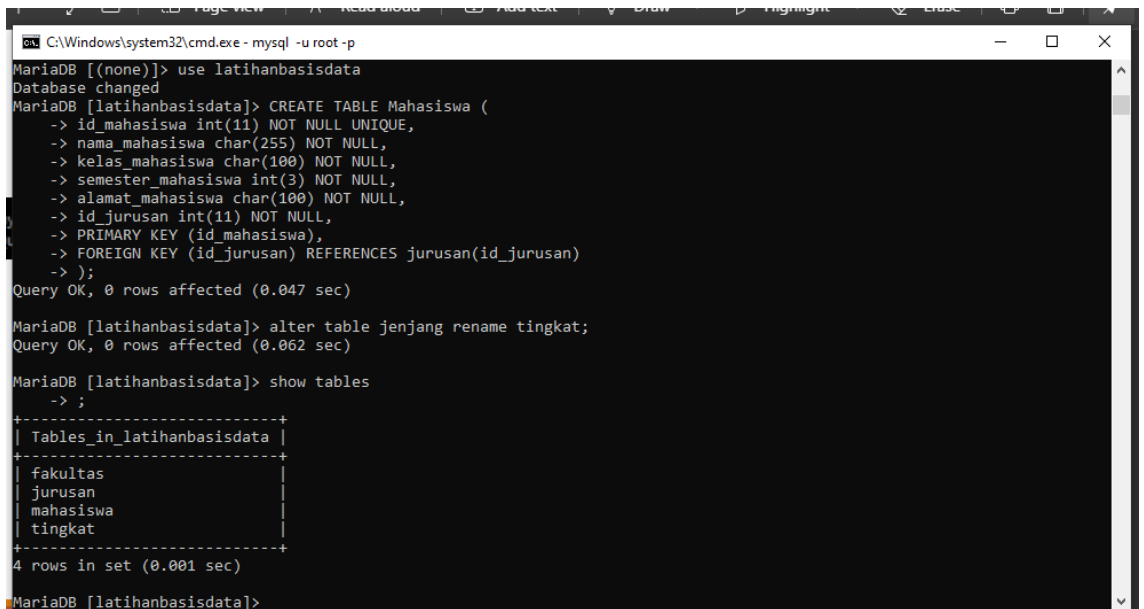
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> use database latihanbasisdata
ERROR 1049 (42000): Unknown database 'database'
MariaDB [(none)]> use latihanbasisdata
Database changed
MariaDB [latihanbasisdata]> CREATE TABLE Mahasiswa (
  -> id_mahasiswa int(11) NOT NULL UNIQUE,
  -> nama_mahasiswa char(255) NOT NULL,
  -> kelas_mahasiswa char(100) NOT NULL,
  -> semester_mahasiswa int(3) NOT NULL,
  -> alamat_mahasiswa char(100) NOT NULL,
  -> id_jurusan int(11) NOT NULL,
  -> PRIMARY KEY (id_mahasiswa),
  -> FOREIGN KEY (id_jurusan) REFERENCES jurusan(id_jurusan)
  -> );
Query OK, 0 rows affected (0.047 sec)

MariaDB [latihanbasisdata]>
```

2. Alter digunakan untuk memofikasi Table

ALTER TABLE jenjang rename tingkat;



```
C:\Windows\system32\cmd.exe - mysql -u root -p
MariaDB [(none)]> use latihanbasisdata
Database changed
MariaDB [latihanbasisdata]> CREATE TABLE Mahasiswa (
  -> id_mahasiswa int(11) NOT NULL UNIQUE,
  -> nama_mahasiswa char(255) NOT NULL,
  -> kelas_mahasiswa char(100) NOT NULL,
  -> semester_mahasiswa int(3) NOT NULL,
  -> alamat_mahasiswa char(100) NOT NULL,
  -> id_jurusan int(11) NOT NULL,
  -> PRIMARY KEY (id_mahasiswa),
  -> FOREIGN KEY (id_jurusan) REFERENCES jurusan(id_jurusan)
  -> );
Query OK, 0 rows affected (0.047 sec)

MariaDB [latihanbasisdata]> alter table jenjang rename tingkat;
Query OK, 0 rows affected (0.062 sec)

MariaDB [latihanbasisdata]> show tables
-> ;
+-----+
| Tables_in_latihanbasisdata |
+-----+
| fakultas                    |
| jurusan                     |
| mahasiswa                   |
| tingkat                     |
+-----+
4 rows in set (0.001 sec)

MariaDB [latihanbasisdata]>
```

ALTER TABLE jurusan ADD akreditasi_jurusan char(10) AFTER nama_jurusan;

```

C:\Windows\system32\cmd.exe - mysql -u root -p
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 'jurusan' at line 1
MariaDB [latihanbasisdata]> show columns from jurusan;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| id_jurusan | int(11) | NO | PRI | NULL | |
| nama_jurusan | char(225) | NO | | NULL | |
| id_fakultas | int(11) | NO | MUL | NULL | |
| id_jenjang | int(2) | NO | MUL | NULL | |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.011 sec)

MariaDB [latihanbasisdata]> ALTER TABLE jurusan ADD akreditasi_jurusan CHAR(10) AFTER nama_jurusan;
Query OK, 0 rows affected (0.153 sec)
Records: 0 Duplicates: 0 Warnings: 0

MariaDB [latihanbasisdata]> show columns from jurusan;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| id_jurusan | int(11) | NO | PRI | NULL | |
| nama_jurusan | char(225) | NO | | NULL | |
| akreditasi_jurusan | char(10) | YES | | NULL | |
| id_fakultas | int(11) | NO | MUL | NULL | |
| id_jenjang | int(2) | NO | MUL | NULL | |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.009 sec)

MariaDB [latihanbasisdata]>

```

- Untuk memasukan data ke dalam table menggunakan INSERT INTO nama table VALUES isi

Mengisi data di dalam table fakultas

INSERT INTO fakultas

VALUES ("1", "Fakultas MIPA"), ("2", "Fakultas Teknik"), ("3", "Fakultas Ilmu Sosial dan Politik);

```

C:\Windows\system32\cmd.exe - mysql -u root -p
2 rows in set (0.012 sec)

MariaDB [latihanbasisdata]> INSERT INTO fakultas VALUES ("","Fakultas MIPA");
Query OK, 1 row affected, 1 warning (0.008 sec)

MariaDB [latihanbasisdata]> select * from fakultas;
+-----+-----+
| id_fakultas | nama_fakultas |
+-----+-----+
| 0 | Fakultas MIPA |
+-----+-----+
1 row in set (0.000 sec)

MariaDB [latihanbasisdata]> INSERT INTO fakultas Values ("1","Fakultas MIPA"), ("2", "Fakultas Teknik"), ("3", "Fakultas Ilmu Sosial dan Politik");
Query OK, 3 rows affected (0.001 sec)
Records: 3 Duplicates: 0 Warnings: 0

MariaDB [latihanbasisdata]> select * from fakultas
-> ;
+-----+-----+
| id_fakultas | nama_fakultas |
+-----+-----+
| 1 | Fakultas MIPA |
| 2 | Fakultas Teknik |
| 3 | Fakultas Ilmu Sosial dan Politik |
+-----+-----+
3 rows in set (0.000 sec)

MariaDB [latihanbasisdata]>

```

Mengisi data di dalam table jenjang

INSERT INTO tingkat VALUES ("1", "D1"), ("2", "D3"), ("3", "S1");

```

C:\Windows\system32\cmd.exe - mysql -u root -p
-----+-----+
3 rows in set (0.000 sec)

MariaDB [latihanbasisdata]> show columns from jenjang
-> ;
ERROR 1146 (42S02): Table 'latihanbasisdata.jenjang' doesn't exist
MariaDB [latihanbasisdata]> show columns from tingkat;
-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
-----+-----+
| id_jenjang | int(2)    | NO   | PRI | NULL    |       |
| nama_jenjang | char(10)  | NO   |     | NULL    |       |
-----+-----+
2 rows in set (0.011 sec)

MariaDB [latihanbasisdata]> INSERT INTO tingkat VALUES ("1", "D1"), ("2", "D3"), ("3", "S1");
Query OK, 3 rows affected (0.001 sec)
Records: 3 Duplicates: 0 Warnings: 0

MariaDB [latihanbasisdata]> select * from tingkat;
-----+-----+
| id_jenjang | nama_jenjang |
-----+-----+
| 1          | D1           |
| 2          | D3           |
| 3          | S1           |
-----+-----+
3 rows in set (0.000 sec)

MariaDB [latihanbasisdata]>

```

Mengisi data di dalam table jurusan

INSERT INTO jurusan VALUES ("1", "Matematika", "A", "1","3"), ("2", "Fisika", "B","1","3"), ("3", "Teknik Informatika", "A", "2","3"), ("4", "Teknik Informatika","A","2","2"), ("5", "Ilmu Komunikasi", "B", "3", "3");

```

C:\Windows\system32\cmd.exe - mysql -u root -p
-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
-----+-----+
| id_jurusan | int(11)   | NO   | PRI | NULL    |       |
| nama_jurusan | char(225) | NO   |     | NULL    |       |
| akreditasi_jurusan | char(10) | YES  |     | NULL    |       |
| id_fakultas | int(11)   | NO   | MUL | NULL    |       |
| id_jenjang | int(2)    | NO   | MUL | NULL    |       |
-----+-----+
5 rows in set (0.011 sec)

MariaDB [latihanbasisdata]> INSERT INTO jurusan VALUES ("1", "Matematika", "A", "1","3"), ("2", "Fisika", "B","1","3"), ("3", "Teknik Informatika", "A", "2","3"), ("4", "Teknik Informatika","A","2","2"), ("5", "Ilmu Komunikasi", "B", "3", "3");
Query OK, 5 rows affected (0.002 sec)
Records: 5 Duplicates: 0 Warnings: 0

MariaDB [latihanbasisdata]> select * from jurusan
-> ;
-----+-----+
| id_jurusan | nama_jurusan | akreditasi_jurusan | id_fakultas | id_jenjang |
-----+-----+
| 1          | Matematika   | A                  | 1           | 3          |
| 2          | Fisika       | B                  | 1           | 3          |
| 3          | Teknik Informatika | A                  | 2           | 3          |
| 4          | Teknik Informatika | A                  | 2           | 2          |
| 5          | Ilmu Komunikasi | B                  | 3           | 3          |
-----+-----+
5 rows in set (0.000 sec)

MariaDB [latihanbasisdata]>

```

Mengisi data table mahasiswa

INSERT INTO mahasiswa VALUES ("1", "Umar Sahid", "Karyawan", "5", "Jakarta", "3"), ("2", "Indah Permata Sari", "Regular", "5", "Bandung", "1"), ("3", "Gustian Rekt", "Regular", "3", "Kuningan", "2"), ("4", "Dede Islamiati", "Karyawan", "5", "Kuningan", "5"), ("5", "Khoirunnisa Asri", "Regular", "7", "Cirebon", "3");

```

C:\Windows\system32\cmd.exe - mysql -u root -p

+----+-----+-----+-----+-----+
| id_mahasiswa | int(11) | NO | PRI | NULL |
| nama_mahasiswa | char(255) | NO | NULL |
| kelas_mahasiswa | char(100) | NO | NULL |
| semester_mahasiswa | int(3) | NO | NULL |
| alamat_mahasiswa | char(100) | NO | NULL |
| id_jurusan | int(11) | NO | MUL | NULL |
+----+-----+-----+-----+-----+
6 rows in set (0.013 sec)

MariaDB [latihanbasisdata]> INSERT INTO mahasiswa VALUES ("1", "Umar Sahid", "Karyawan", "5", "Jakarta", "3"), ("2", "Indah Permata Sari", "Regular", "5", "Bandung", "1"), ("3", "Gustian Rekt", "Regular", "3", "Kuningan", "2"), ("4", "Dede Islamiati", "Karyawan", "5", "Kuningan", "5"), ("5", "Khoirunnisa Asri", "Regular", "7", "Cirebon", "3");
Query OK, 5 rows affected (0.002 sec)
Records: 5 Duplicates: 0 Warnings: 0

MariaDB [latihanbasisdata]> select * from mahasiswa
-> ;
+----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+----+-----+-----+-----+-----+
| 1 | Umar Sahid | Karyawan | 5 | Jakarta | 3 |
| 2 | Indah Permata Sari | Regular | 5 | Bandung | 1 |
| 3 | Gustian Rekt | Regular | 3 | Kuningan | 2 |
| 4 | Dede Islamiati | Karyawan | 5 | Kuningan | 5 |
| 5 | Khoirunnisa Asri | Regular | 7 | Cirebon | 3 |
+----+-----+-----+-----+-----+
5 rows in set (0.000 sec)

MariaDB [latihanbasisdata]>

```

4. SELECT merupakan DML (Data Manipulation Language) perintah ini digunakan untuk menampilkan data yang di dalam table.

SELECT * FROM mahasiswa;

Menampilkan seluruh data dalam table mahasiswa

```

C:\Windows\system32\cmd.exe - mysql -u root -p

+----+-----+-----+-----+-----+
| id_mahasiswa | int(11) | NO | PRI | NULL |
| nama_mahasiswa | char(255) | NO | NULL |
| kelas_mahasiswa | char(100) | NO | NULL |
| semester_mahasiswa | int(3) | NO | NULL |
| alamat_mahasiswa | char(100) | NO | NULL |
| id_jurusan | int(11) | NO | MUL | NULL |
+----+-----+-----+-----+-----+
6 rows in set (0.013 sec)

MariaDB [latihanbasisdata]> INSERT INTO mahasiswa VALUES ("1", "Umar Sahid", "Karyawan", "5", "Jakarta", "3"), ("2", "Indah Permata Sari", "Regular", "5", "Bandung", "1"), ("3", "Gustian Rekt", "Regular", "3", "Kuningan", "2"), ("4", "Dede Islamiati", "Karyawan", "5", "Kuningan", "5"), ("5", "Khoirunnisa Asri", "Regular", "7", "Cirebon", "3");
Query OK, 5 rows affected (0.002 sec)
Records: 5 Duplicates: 0 Warnings: 0

MariaDB [latihanbasisdata]> select * from mahasiswa
-> ;
+----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+----+-----+-----+-----+-----+
| 1 | Umar Sahid | Karyawan | 5 | Jakarta | 3 |
| 2 | Indah Permata Sari | Regular | 5 | Bandung | 1 |
| 3 | Gustian Rekt | Regular | 3 | Kuningan | 2 |
| 4 | Dede Islamiati | Karyawan | 5 | Kuningan | 5 |
| 5 | Khoirunnisa Asri | Regular | 7 | Cirebon | 3 |
+----+-----+-----+-----+-----+
5 rows in set (0.000 sec)

MariaDB [latihanbasisdata]>

```

SELECT * FROM mahasiswa WHERE kelas_mahasiswa="Karyawan";

Menampilkan data didalam table mahasiswa dengan syarat kelas_mahasiswa sama dengan Karyawan.

```

C:\Windows\system32\cmd.exe - mysql -u root -p

MariaDB [latihanbasisdata]> INSERT INTO mahasiswa VALUES ("1", "Umar Sahid", "Karyawan", "5", "Jakarta", "3"), ("2", "Indah Permata Sari", "Regular", "5", "Bandung", "1"), ("3", "Gustian Rekt", "Regular", "3", "Kuningan", "2"), ("4", "Dede Islamiati", "Karyawan", "5", "Kuningan", "5"), ("5", "Khoirunnisa Asri", "Regular", "7", "Cirebon", "3");
Query OK, 5 rows affected (0.002 sec)
Records: 5 Duplicates: 0 Warnings: 0

MariaDB [latihanbasisdata]> select * from mahasiswa
-> ;
+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 1 | Umar Sahid | Karyawan | 5 | Jakarta | 3 |
| 2 | Indah Permata Sari | Regular | 5 | Bandung | 1 |
| 3 | Gustian Rekt | Regular | 3 | Kuningan | 2 |
| 4 | Dede Islamiati | Karyawan | 5 | Kuningan | 5 |
| 5 | Khoirunnisa Asri | Regular | 7 | Cirebon | 3 |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.000 sec)

MariaDB [latihanbasisdata]> SELECT * FROM mahasiswa WHERE kelas_mahasiswa="Karyawan";
+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 1 | Umar Sahid | Karyawan | 5 | Jakarta | 3 |
| 4 | Dede Islamiati | Karyawan | 5 | Kuningan | 5 |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.001 sec)

MariaDB [latihanbasisdata]>

```

SELECT * FROM mahasiswa WHERE semester_mahasiswa >= "5";
Menampilkan seluruh data di dalam table mahasiswa yang memiliki semester lebih besar dari sama dengan 5.

```

C:\Windows\system32\cmd.exe - mysql -u root -p

+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 1 | Umar Sahid | Karyawan | 5 | Jakarta | 3 |
| 2 | Indah Permata Sari | Regular | 5 | Bandung | 1 |
| 3 | Gustian Rekt | Regular | 3 | Kuningan | 2 |
| 4 | Dede Islamiati | Karyawan | 5 | Kuningan | 5 |
| 5 | Khoirunnisa Asri | Regular | 7 | Cirebon | 3 |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.000 sec)

MariaDB [latihanbasisdata]> SELECT * FROM mahasiswa WHERE kelas_mahasiswa="Karyawan";
+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 1 | Umar Sahid | Karyawan | 5 | Jakarta | 3 |
| 4 | Dede Islamiati | Karyawan | 5 | Kuningan | 5 |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.001 sec)

MariaDB [latihanbasisdata]> SELECT * FROM mahasiswa WHERE semester_mahasiswa >= "5";
+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 1 | Umar Sahid | Karyawan | 5 | Jakarta | 3 |
| 2 | Indah Permata Sari | Regular | 5 | Bandung | 1 |
| 4 | Dede Islamiati | Karyawan | 5 | Kuningan | 5 |
| 5 | Khoirunnisa Asri | Regular | 7 | Cirebon | 3 |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.012 sec)

MariaDB [latihanbasisdata]>

```

SELECT nama_mahasiswa FROM mahasiswa WHERE alamat_mahasiswa="Kuningan";
Menampilkan seluruh data dalam table mahasiswa yang memiliki alamat di Kuningan.


```

C:\Windows\system32\cmd.exe - mysql -u root -p
MariaDB [latihanbasisdata]> SELECT * FROM mahasiswa WHERE kelas_mahasiswa="Karyawan";
+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 1 | Umar Sahid | Karyawan | 5 | Jakarta | 3 |
| 4 | Dede Islamiati | Karyawan | 5 | Kuningan | 5 |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.001 sec)

MariaDB [latihanbasisdata]> SELECT * FROM mahasiswa WHERE semester_mahasiswa >= "5";
+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 1 | Umar Sahid | Karyawan | 5 | Jakarta | 3 |
| 2 | Indah Permata Sari | Regular | 5 | Bandung | 1 |
| 4 | Dede Islamiati | Karyawan | 5 | Kuningan | 5 |
| 5 | Khoirunnisa Asri | Regular | 7 | Cirebon | 3 |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.012 sec)

MariaDB [latihanbasisdata]> SELECT nama_mahasiswa FROM mahasiswa WHERE alamat_mahasiswa="Kuningan";
+-----+
| nama_mahasiswa |
+-----+
| Gustian Rekt |
| Dede Islamiati |
+-----+
2 rows in set (0.001 sec)

MariaDB [latihanbasisdata]>

```

- Update merupakan perintah SQL untuk memperbarui isi data di dalam table.

UPDATE mahasiswa SET semester_mahasiswa = "9" WHERE id_mahasiswa = "5";

```

C:\Windows\system32\cmd.exe - mysql -u root -p
4 rows in set (0.012 sec)

MariaDB [latihanbasisdata]> SELECT nama_mahasiswa FROM mahasiswa WHERE alamat_mahasiswa="Kuningan";
+-----+
| nama_mahasiswa |
+-----+
| Gustian Rekt |
| Dede Islamiati |
+-----+
2 rows in set (0.001 sec)

MariaDB [latihanbasisdata]> UPDATE mahasiswa SET semester_mahasiswa = "9" WHERE id_mahasiswa = "5";
Query OK, 1 row affected (0.001 sec)
Rows matched: 1 Changed: 1 Warnings: 0

MariaDB [latihanbasisdata]> select * from mahasiswa
->
-> ;
+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 1 | Umar Sahid | Karyawan | 5 | Jakarta | 3 |
| 2 | Indah Permata Sari | Regular | 5 | Bandung | 1 |
| 3 | Gustian Rekt | Regular | 3 | Kuningan | 2 |
| 4 | Dede Islamiati | Karyawan | 5 | Kuningan | 5 |
| 5 | Khoirunnisa Asri | Regular | 9 | Cirebon | 3 |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.000 sec)

MariaDB [latihanbasisdata]>

```

- Delete merupakan fungsi SQL untuk menghapus data dalam table.

Menghapus data dalam table mahasiswa dengan id sama dengan 3.

DELETE FROM mahasiswa WHERE id_mahasiswa = "3";

```
C:\Windows\system32\cmd.exe - mysql -u root -p

MariaDB [latihanbasisdata]> select * from mahasiswa
->
-> ;
+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 1 | Umar Sahid | Karyawan | 5 | Jakarta | 3 |
| 2 | Indah Permata Sari | Regular | 5 | Bandung | 1 |
| 3 | Gustian Rekt | Regular | 3 | Kuningan | 2 |
| 4 | Dede Islamiati | Karyawan | 5 | Kuningan | 5 |
| 5 | Khoirunnisa Asri | Regular | 9 | Cirebon | 3 |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.000 sec)

MariaDB [latihanbasisdata]> DELETE FROM mahasiswa WHERE id_mahasiswa = "3";
Query OK, 1 row affected (0.001 sec)

MariaDB [latihanbasisdata]> select * from mahasiswa;
+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 1 | Umar Sahid | Karyawan | 5 | Jakarta | 3 |
| 2 | Indah Permata Sari | Regular | 5 | Bandung | 1 |
| 4 | Dede Islamiati | Karyawan | 5 | Kuningan | 5 |
| 5 | Khoirunnisa Asri | Regular | 9 | Cirebon | 3 |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.000 sec)

MariaDB [latihanbasisdata]>
DELETE FROM mahasiswa WHERE id_mahasiswa = "3";
```

Menghapus data dalam table mahasiswa yang memiliki kelas karyawan dan alamat kuningan.

DELETE FROM mahasiswa WHERE kelas_mahasiswa = "Karyawan" AND alamat_mahasiswa = "Kuningan";

```
C:\Windows\system32\cmd.exe - mysql -u root -p

MariaDB [latihanbasisdata]> DELETE FROM mahasiswa WHERE id_mahasiswa = "3";
Query OK, 1 row affected (0.001 sec)

MariaDB [latihanbasisdata]> select * from mahasiswa;
+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 1 | Umar Sahid | Karyawan | 5 | Jakarta | 3 |
| 2 | Indah Permata Sari | Regular | 5 | Bandung | 1 |
| 4 | Dede Islamiati | Karyawan | 5 | Kuningan | 5 |
| 5 | Khoirunnisa Asri | Regular | 9 | Cirebon | 3 |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.000 sec)

MariaDB [latihanbasisdata]> DELETE FROM mahasiswa WHERE kelas_mahasiswa = "Karyawan" AND alamat_mahasiswa = "Kuningan";
Query OK, 1 row affected (0.001 sec)

MariaDB [latihanbasisdata]> select * from mahasiswa
-> ;
+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 1 | Umar Sahid | Karyawan | 5 | Jakarta | 3 |
| 2 | Indah Permata Sari | Regular | 5 | Bandung | 1 |
| 5 | Khoirunnisa Asri | Regular | 9 | Cirebon | 3 |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.000 sec)

MariaDB [latihanbasisdata]>
```

7. Perintah SQL Khusus dengan operator khusus

BETWEEN merupakan fungsi SQL operator khusus yang digunakan untuk menampilkan data dengan range tertentu.

Menampilkan data semester mahasiswa yang memiliki range 1 sampai 3.

SELECT * FROM Mahasiswa WHERE semester_mahasiswa BETWEEN "1" AND "3";

```

C:\Windows\system32\cmd.exe - mysql -u root -p

1 | Umar Sahid | Karyawan | 5 | Jakarta | 3 |
2 | Indah Permata Sari | Regular | 5 | Bandung | 1 |
5 | Khoirunnisa Asri | Regular | 9 | Cirebon | 3 |
3 rows in set (0.000 sec)

MariaDB [latihanbasisdata]> INSERT INTO mahasiswa VALUES ("6", "Rangga Dwi Purnama", "Regular", "1", "Jakarta", "2");
Query OK, 1 row affected (0.001 sec)

MariaDB [latihanbasisdata]> select * from mahasiswa
-> ;
+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 1 | Umar Sahid | Karyawan | 5 | Jakarta | 3 |
| 2 | Indah Permata Sari | Regular | 5 | Bandung | 1 |
| 5 | Khoirunnisa Asri | Regular | 9 | Cirebon | 3 |
| 6 | Rangga Dwi Purnama | Regular | 1 | Jakarta | 2 |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.000 sec)

MariaDB [latihanbasisdata]> SELECT * FROM Mahasiswa WHERE semester_mahasiswa BETWEEN "1" AND "3";
+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 6 | Rangga Dwi Purnama | Regular | 1 | Jakarta | 2 |
+-----+-----+-----+-----+-----+-----+
1 row in set (0.012 sec)

MariaDB [latihanbasisdata]>

```

LIKE merupakan fungsi SQL operator khusus yang digunakan untuk mengecek apakah suatu atribut memiliki karakter atau string yang mirip.

Menampilkan data yang memiliki string atau karakter umar dalam kolom nama mahasiswa
 SELECT * FROM Mahasiswa WHERE nama_mahasiswa LIKE '%Umar%';

```

C:\Windows\system32\cmd.exe - mysql -u root -p

4 rows in set (0.000 sec)

MariaDB [latihanbasisdata]> SELECT * FROM Mahasiswa WHERE semester_mahasiswa BETWEEN "1" AND "3";
+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 6 | Rangga Dwi Purnama | Regular | 1 | Jakarta | 2 |
+-----+-----+-----+-----+-----+-----+
1 row in set (0.012 sec)

MariaDB [latihanbasisdata]> select * from mahasiswa;
+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 1 | Umar Sahid | Karyawan | 5 | Jakarta | 3 |
| 2 | Indah Permata Sari | Regular | 5 | Bandung | 1 |
| 5 | Khoirunnisa Asri | Regular | 9 | Cirebon | 3 |
| 6 | Rangga Dwi Purnama | Regular | 1 | Jakarta | 2 |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.000 sec)

MariaDB [latihanbasisdata]> SELECT * FROM Mahasiswa WHERE nama_mahasiswa LIKE '%Umar%';
+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 1 | Umar Sahid | Karyawan | 5 | Jakarta | 3 |
+-----+-----+-----+-----+-----+-----+
1 row in set (0.000 sec)

MariaDB [latihanbasisdata]>

```

IN merupakan fungsi SQL operator khusus yang digunakan untuk mengecek apakah suatu nilai dalam atribut terdapat dalam suatu himpunan nilai.

Menampilkan data dalam table mahasiswa yang memiliki jurusan didalam himpunan (2, 4, dan 6)

SELECT * FROM mahasiswa WHERE id_jurusan IN (2, 4, 6);

```
C:\Windows\system32\cmd.exe - mysql -u root -p
4 rows in set (0.000 sec)

MariaDB [latihanbasisdata]> SELECT * FROM Mahasiswa WHERE nama_mahasiswa LIKE '%Umar%';
+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 1 | Umar Sahid | Karyawan | 5 | Jakarta | 3 |
+-----+-----+-----+-----+-----+-----+
1 row in set (0.000 sec)

MariaDB [latihanbasisdata]> select * from mahasiswa;
+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 1 | Umar Sahid | Karyawan | 5 | Jakarta | 3 |
| 2 | Indah Permata Sari | Regular | 5 | Bandung | 1 |
| 5 | Khoirunnisa Asri | Regular | 9 | Cirebon | 3 |
| 6 | Rangga Dwi Purnama | Regular | 1 | Jakarta | 2 |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.000 sec)

MariaDB [latihanbasisdata]> SELECT * FROM mahasiswa WHERE id_jurusan IN (2, 4, 6);
+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 6 | Rangga Dwi Purnama | Regular | 1 | Jakarta | 2 |
+-----+-----+-----+-----+-----+-----+
1 row in set (0.000 sec)

MariaDB [latihanbasisdata]>
```

DISTINCT merupakan fungsi SQL operator khusus yang digunakan untuk menghilangkan duplikasi pada saat menampilkan data.

Menampilkan semester yang ada didalam kolom semester mahasiswa tanpa ada duplikasi.
SELECT DISTINCT semester_mahasiswa FROM mahasiswa;

```
C:\Windows\system32\cmd.exe - mysql -u root -p
MariaDB [latihanbasisdata]> SELECT * FROM mahasiswa WHERE id_jurusan IN (2, 4, 6);
+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 6 | Rangga Dwi Purnama | Regular | 1 | Jakarta | 2 |
+-----+-----+-----+-----+-----+-----+
1 row in set (0.000 sec)

MariaDB [latihanbasisdata]> select * from mahasiswa;
+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 1 | Umar Sahid | Karyawan | 5 | Jakarta | 3 |
| 2 | Indah Permata Sari | Regular | 5 | Bandung | 1 |
| 5 | Khoirunnisa Asri | Regular | 9 | Cirebon | 3 |
| 6 | Rangga Dwi Purnama | Regular | 1 | Jakarta | 2 |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.000 sec)

MariaDB [latihanbasisdata]> SELECT DISTINCT semester_mahasiswa FROM mahasiswa;
+-----+
| semester_mahasiswa |
+-----+
| 5 |
| 9 |
| 1 |
+-----+
3 rows in set (0.011 sec)

MariaDB [latihanbasisdata]>
```

GROUP BY merupakan fungsi SQL operator khusus yang digunakan untuk mengelompokkan data berdasarkan kolom tertentu.

Menampilkan kelas yang tersedia didalam kelas mahasiswa
SELECT kelas_mahasiswa FROM mahasiswa GROUP BY kelas_mahasiswa;

```

C:\Windows\system32\cmd.exe - mysql -u root -p
MariaDB [latihanbasisdata]> select kelas_mahasiswa from mahasiswa GROUP BY kelas_mahasiswa;
+-----+
| kelas_mahasiswa |
+-----+
| Karyawan        |
| Regular         |
+-----+
2 rows in set (0.000 sec)

MariaDB [latihanbasisdata]> select * from mahasiswa;
+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 1            | Umar Sahid     | Karyawan        | 5                  | Jakarta          | 3          |
| 2            | Indah Permata Sari | Regular         | 5                  | Bandung          | 1          |
| 5            | Khoirunnisa Asri | Regular         | 9                  | Cirebon          | 3          |
| 6            | Rangga Dwi Purnama | Regular         | 1                  | Jakarta          | 2          |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.000 sec)

MariaDB [latihanbasisdata]> select kelas_mahasiswa from mahasiswa GROUP BY kelas_mahasiswa;
+-----+
| kelas_mahasiswa |
+-----+
| Karyawan        |
| Regular         |
+-----+
2 rows in set (0.000 sec)

MariaDB [latihanbasisdata]>

```

HAVING merupakan fungsi SQL operator khusus yang digunakan untuk memfilter baris – baris hasil dari pengelompokan.

Menampilkan data didalam table mahasiswa yang mana di group oleh semester mahasiswa yang kemudian difilter dengan syarat semester mahasiswa kurang dari sama dengan 5.
 SELECT semester_mahasiswa FROM mahasiswa GROUP BY semester_mahasiswa HAVING semester_mahasiswa <="5";

```

C:\Windows\system32\cmd.exe - mysql -u root -p
+-----+-----+
| nama_mahasiswa | semester_mahasiswa |
+-----+-----+
| Rangga Dwi Purnama | 1 |
| Umar Sahid        | 5 |
+-----+-----+
2 rows in set (0.012 sec)

MariaDB [latihanbasisdata]> select * from mahasiswa;
+-----+-----+-----+-----+-----+-----+
| id_mahasiswa | nama_mahasiswa | kelas_mahasiswa | semester_mahasiswa | alamat_mahasiswa | id_jurusan |
+-----+-----+-----+-----+-----+-----+
| 1            | Umar Sahid     | Karyawan        | 5                  | Jakarta          | 3          |
| 2            | Indah Permata Sari | Regular         | 5                  | Bandung          | 1          |
| 5            | Khoirunnisa Asri | Regular         | 9                  | Cirebon          | 3          |
| 6            | Rangga Dwi Purnama | Regular         | 1                  | Jakarta          | 2          |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.001 sec)

MariaDB [latihanbasisdata]> SELECT semester_mahasiswa FROM mahasiswa GROUP BY semester_mahasiswa HAVING semester_mahasiswa <="5";
+-----+
| semester_mahasiswa |
+-----+
| 1                  |
| 5                  |
+-----+
2 rows in set (0.000 sec)

MariaDB [latihanbasisdata]>

```