**PROJECT BASIS DATA**

**PADA SISTEM INFORMASI (APLIKASI)**

**PENJUALAN ALAT TULIS SMKN 1 KARANG BARU**

****

**OLEH:**

**M HAFIDZ RAMADHAN NST**

**NISN. 0083825885**

**REKAYASA PERANGKAT LUNAK**

**SMK NEGERI 1 KARANG BARU**

**PEMERINTAH PROVINSI ACEH**

**2024**

**Langkah-langkah Membuat ERD**

1. Menentukan entitas
2. Menentukan atribut termasuk atribut kunci (Primary key)
3. Identifikasi relasi
4. Menentukan kardinalitas
5. **Menentukan Entitas**

Berdasarkan aturan-aturan yang di definisikan di atas dapat kita tentukan jumlah entitas ada sebanyak 4 yakni:



1. **Menentukan Relasi & Kardinalitasny**



1. **Menentukan Atribut**

Selanjutnya dari Keempat entitas tersebut kita jabarkan atribut-atribut yang melekat pada masing-masing entitas. Atribut yang bersifat unik akan di jadikan sebagai atribut kunci (*primary key*).

**1. Pelanggan (S1)**

**Pelanggan (S1)**

* id\_pelanggan int 11 not null primarykey auto increment
* nama\_pelanggan varchar 30
* desa\_pelanggan varchar 50
* kec\_pelanggan varchar 30
* hp\_pelanggan varchar 30

**2. Petugas (S2)**

* id\_petugas int 11 not null primarykey auto increment
* nama\_petugas varchar 30 not null
* desa\_petugas varchar 50 not null
* kec\_petugas varchar 30 not null
* hp\_petugas varchar 30 not null
* jabatan varchar 30 not null
* username varchar 6
* password varchar 5

**3. Layanan**

* id\_layanan int 11 not null primarykey auto increment
* nama\_layanan varchar 50 not null
* harga int 11 not null

**4. Transaksi**

* id\_transaksi int 11 not null primarykey auto increment
* id\_pelanggan int 11 not null foreignkey
* id\_petugas int 11 not null foreignkey
* id\_barang int 11 not null foreignkey
* tanggal date not null
* jumlah int 11 not null

*Atribut dengan kode (PK) akan menjadi atribut kunci (primary key) pada masing-masing entitas.*

**Hasil ERD Penjualan Layanan Showroom Honda**

Dari tahap-tahap di atas maka dapat di buat rancangan ERD petugasan layanan Bengkel komputer adalah sebagai berikut:

**ERD Showroom Honda Sebelum Normalisasi**



**ERD Showroom Honda Setelah Normalisasi**



**DESAIN LOGIKAL**

Desain logikal yaitu proses pembuatan model dari informasi yang digunakan perusahaan berdasarkan model dan data spesifik. Deskripsi implementasi *database* berdasarkan hasil desain logikal dengan *Entity Relationship Diagram* (ERD) pada *Database Management System* (DBMS) menghasilkan ERT sebagai berikut



**DESAIN FISIKAL & SOURCE SQL**

**Menggambarkan Rancangan Entitas Pada Basisdata Secara Fisikal (Physical Data Disaign) serta Membuat Source SQL pembuatan Masing-Masing Tabel/Entitas**

**Tabel pembeli**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **No** | **Nama kolom** | **Tipe data** | **Lebar** | **Null** | **kunci** | **keterangan** |
| 1 | **Idpembeli** | Int | 11 | not null | Primary key | Auto increment |
| 2 | namapembeli | varchar | 30 |  |  |  |
| 3 | alamatpembeli | varchar | 100 |  |  |  |

create table pembeli (

idpembeli int(11)not null auto\_increment,

namapembeli varchar (30),

alamat varchar (100),

primary key (idpembeli)

);

**Tabel admin**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **No** | **Nama kolom** | **Tipe data** | **Lebar** | **Null** | **kunci** | **keterangan** |
|  | **Idadmin** | Int | 11 |  |  |  |
|  | namaadmin | vachar | 30 |  |  |  |
|  | username | vachar | 100 |  |  |  |
|  | Password | vachar | 30 |  |  |  |
|  | alamat | vachar | 100 |  |  |  |

create table admin (

idadmin int(11)primary key not null auto\_increment,

namaadmin varchar (30),

username varchar (100),

password varchar (30),

alamat varchar (100)not null

);

**Tabel suplier**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **No** | **Nama kolom** | **Tipe data** | **Lebar** | **Null** | **kunci** | **keterangan** |
| 1 | **idsuplier** | Int | 11 | not null | primaryKey | auto increment |
| 2 | namasuplier | vachar | 30 | not null |  |  |
| 3 | alamat | vachar | 100 | not null |  |  |

create table suplier (

idsuplier int(11)not null primary key auto\_increment,

namasuplier varchar (30) not null,

alamat int(20) not null

);

**Tabel barang**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **No** | **Nama kolom** | **Tipe data** | **Lebar** | **Null** | **kunci** | **keterangan** |
| 1 | **idbarang** | Int | 11 | not null | primaryKey | auto increment |
| 2 | idsuplier | Int | 11 | not null | fk |  |
| 3 | Namabarang | varchar | 100 |  |  |  |
| 4 | Harga | Float | 15 |  |  |  |
| 5 | stok | Int | 11 |  |  |  |

create table barang (

idbarang int(11)not null primary key auto\_increment,

idsuplier int (11),

namabarang varchar (100),

harga float (15),

stok int (11),

constraint idsuplier foreign key (idsuplier) references suplier (idsuplier)

);

**Tabel transaksi**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **No** | **Nama kolom** | **Tipe data** | **Lebar** | **Null** | **kunci** | **keterangan** |
| 1 | **Idtransaksi** | Int | 11 | not null | primarykey | auto increment |
| 2 | *Idbarang* | Int | 11 | not null | foreignkey |  |
| 3 | *Idadmin* | Int | 11 | not null | foreignkey |  |
| 4 | jumlah | Int | 11 |  |  |  |

create table transaksi (

idtransaksi int(11)not null auto\_increment,

idbarang int(11),

idadmin int(11),

jumlah int (11),

constraint idbarang foreign key (idbarang) references barang (idbarang),

constraint idadmin foreign key (idadmin) references admin (idadmin)

);

**Tabel detiltransaksi**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **No** | **Nama kolom** | **Tipe data** | **Lebar** | **Null** | **kunci** | **keterangan** |
| **1** | **iddetiltransaksi** | **Int** | **11** | not null | **primarykey** | **auto inrement** |
| 2 | *Idtransaksi* | Int | 11 | not null | foreignKey |  |
| 3 | *Idpembeli* | Int | 11 | not null | foreignKey |  |
| 4 | total | Float | 15 |  |  |  |
| 5 | tanggal | Date |  |  |  |  |

create table detiltransaksi (

iddetiltransaksi int(11)primary key not null auto\_increment,

idtransaksi int(11),

idpembeli int(11),

total float (15),

taanggal date,

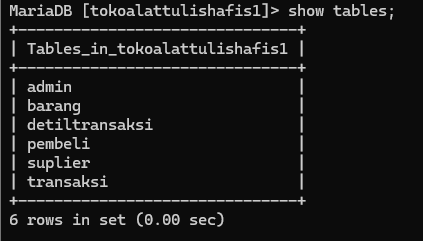
constraint idtransaksi foreign key (idtransaksi) references transaksi (idtransaksi),

constraint idpembeli foreign key (idpembeli) references pembeli (idpembeli)

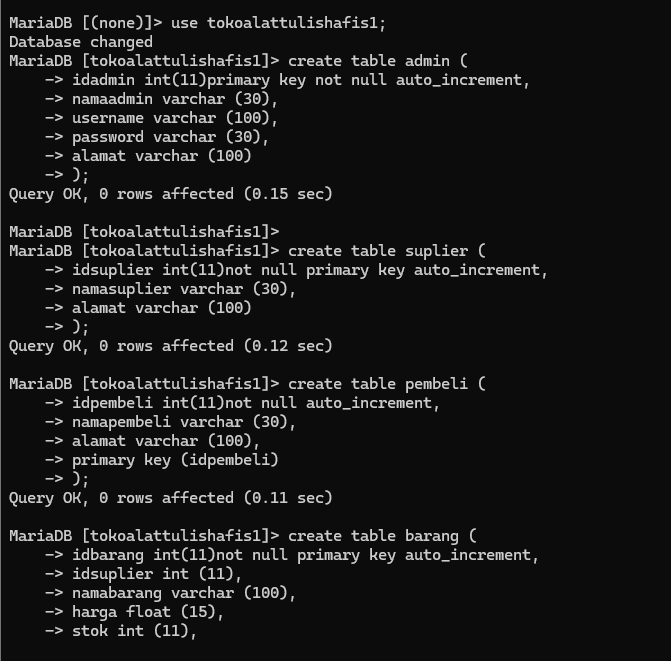
);

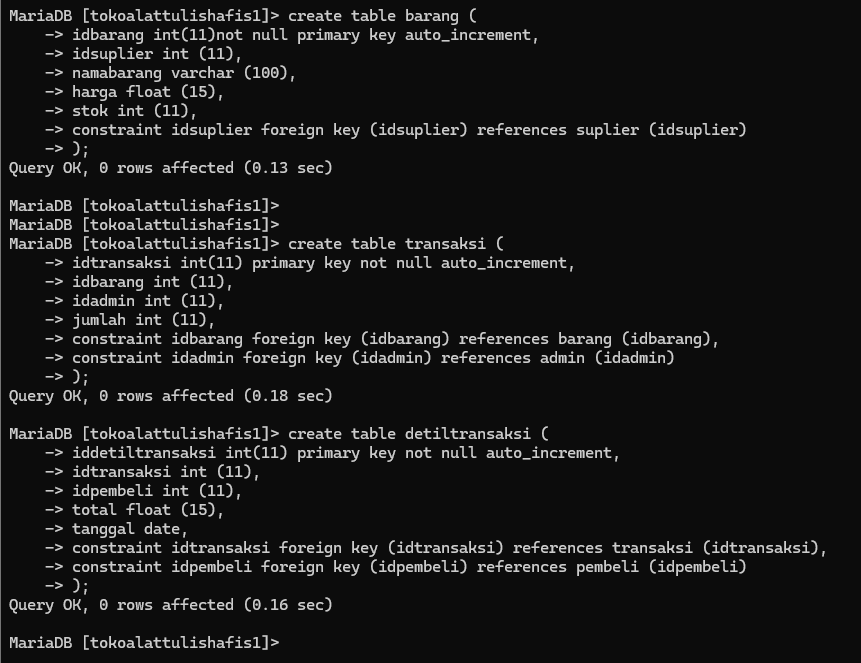
**Implementasi Syntax Sql Database Melalui Cmd**

1. **Membuat Basisdata**

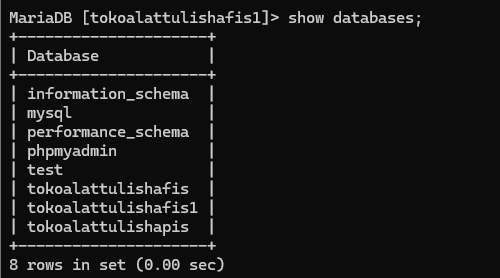
****

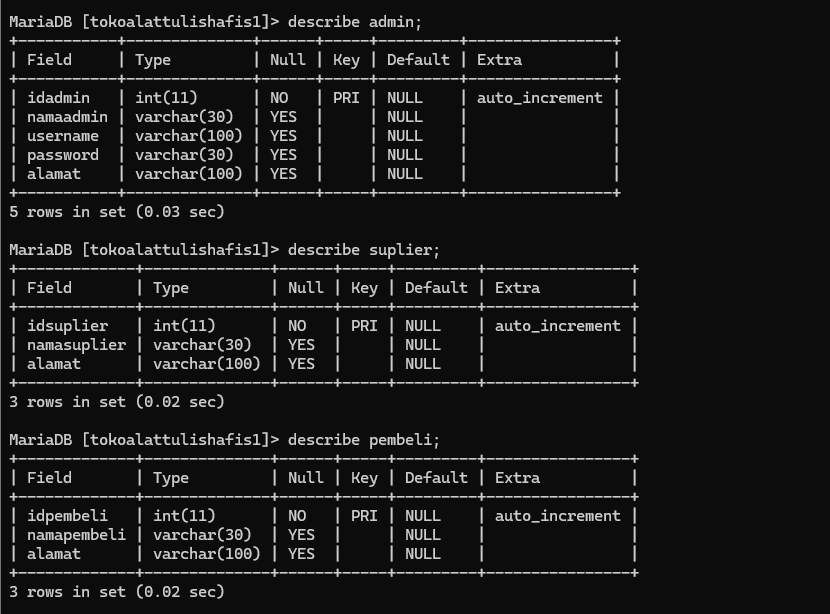
1. **Membuat Tabel**

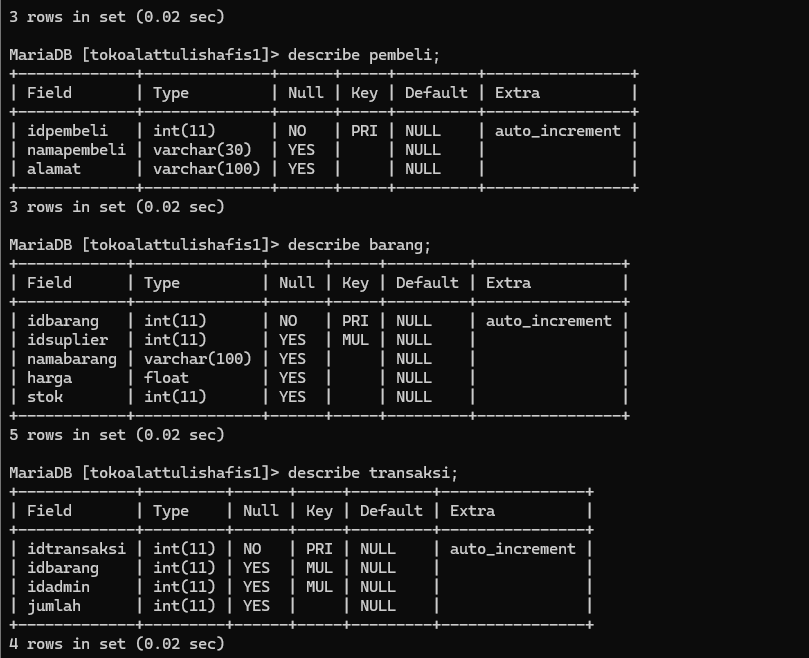




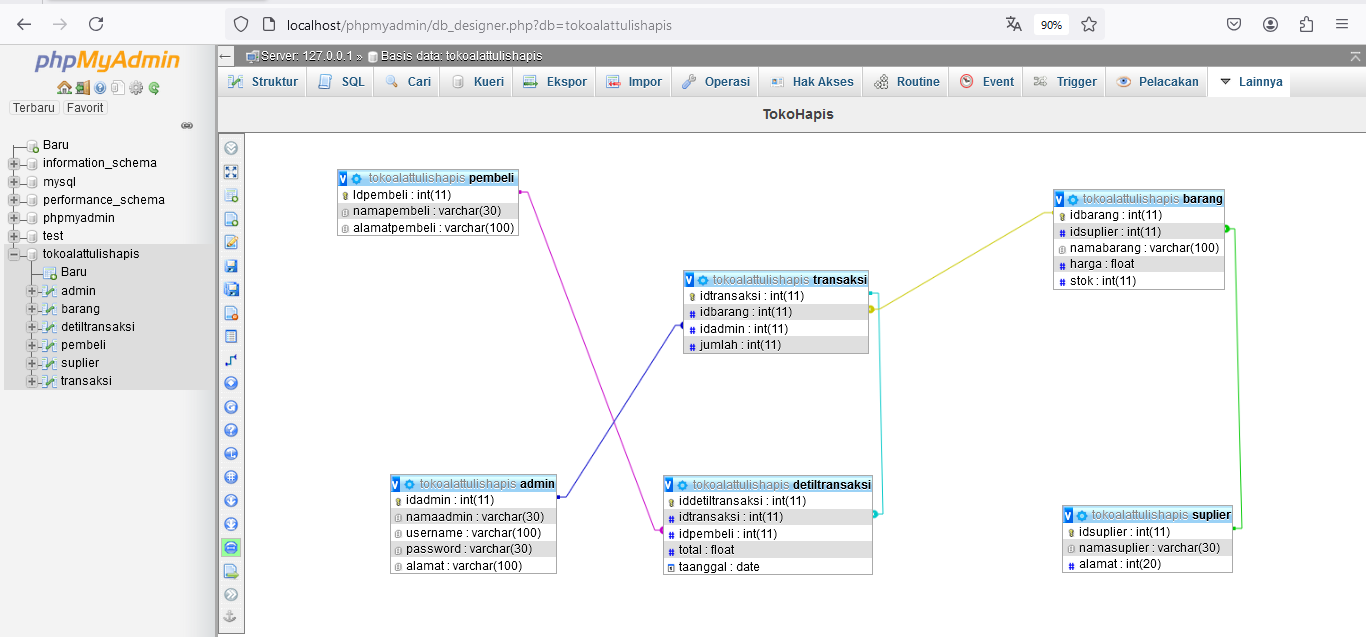
1. **Medeskripsikan tabel**

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****

****

**Hasil Desain Konseptual Skema Relasi Database Di Phpmyadmin**

****

**MENGISI DATA RECORD**

**Cara Manual Dengan Source Code**

Memasukkan data dalam jumlah banyak

Insert into namatabel1

Values

(‘variable1’,’variable2’,’variabel3’,’dst’),

(‘variable1’,’variable2’,’variabel3’,’dst’),

(‘variable1’,’variable2’,’variabel3’,’dst’),

(‘variable1’,’variable2’,’variabel3’,’dst’);

**Tabel pembeli**

INSERT INTO `pembeli` (`idpembeli`, `namapembeli`, `alamat`)

VALUES

('null','Ahmad Arjun Trisula','Kebun Tengah'),

('null','M Afriansyah','Sekerak'),

('null','Amellya','Pulau 3'),

('null','Meylisa Eka Putry','Bundar'),

('null','Dewi Puspitasari','Prapen'),

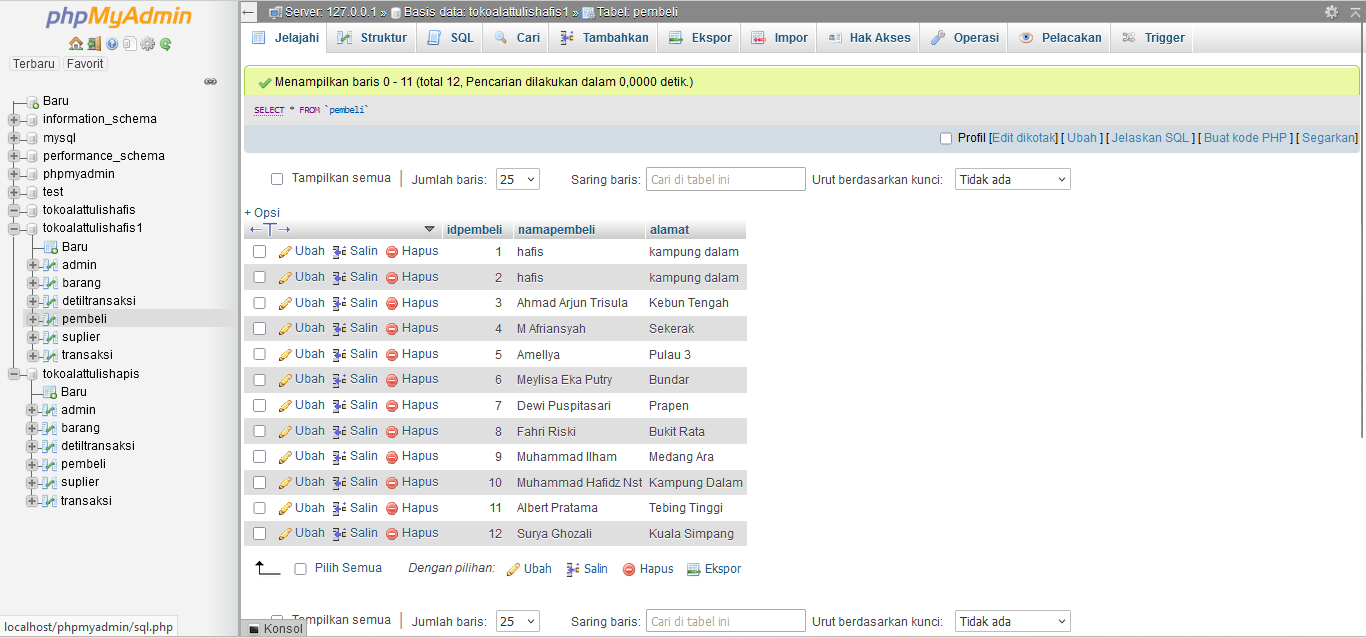
('null','Fahri Riski','Bukit Rata'),

('null','Muhammad Ilham','Medang Ara'),

('null','Muhammad Hafidz Nst','Kampung Dalam'),

('null','Albert Pratama','Tebing Tinggi'),

('null','Surya Ghozali','Kuala Simpang');



**Table admin**

Insert into admin

Values

INSERT INTO `admin` (`idadmin`, `namaadmin`, `username`, `password`, `alamat`)

VALUES

('null','Ahmad Arjun Trisula','Ahma','ahma','Kebun Tengah'),

('null','Amellya','Amel','amel','Pulau 3'),

('null','Dewi Puspitasari','Dewi','dewi','Prapen'),

('null','Fahri Riski','Fahr','fahr','Bukit Rata'),

('null','Meylisa Eka Putry','Meyl','meyl','Bundar'),

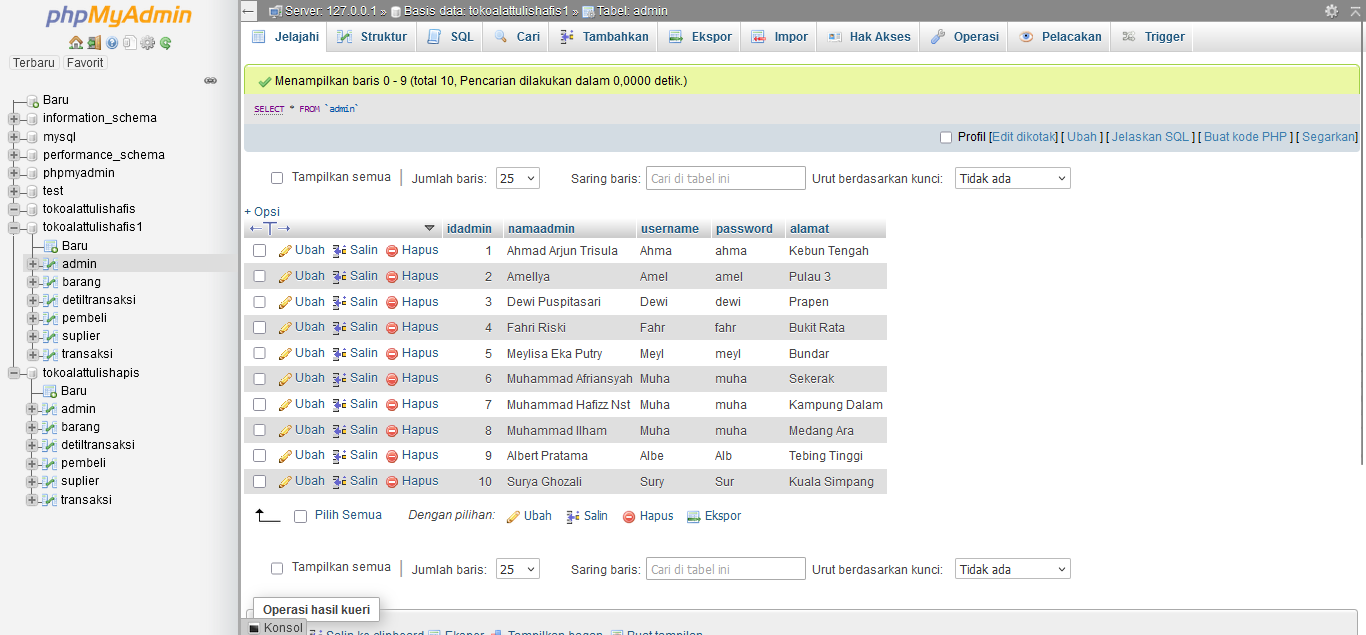
('null','Muhammad Afriansyah','Muha','muha','Sekerak'),

('null','Muhammad Hafizz Nst','Muha','muha','Kampung Dalam'),

('null','Muhammad Ilham','Muha','muha','Medang Ara'),

('null','Albert Pratama','Albe','Alb','Tebing Tinggi'),

('null','Surya Ghozali','Sury','Sur','Kuala Simpang');



**Tabel suplier**

Insert into admin

Values

INSERT INTO `suplier` (`Idsuplier`, `namasuplier`, `alamat`)

VALUES

('null','Ahmad Arjun Trisula','Kebun Tengah'),

('null','M Afriansyah','Sekerak'),

('null','Amellya','Pulau 3'),

('null','Meylisa Eka Putry','Bundar'),

('null','Dewi Puspitasari','Prapen'),

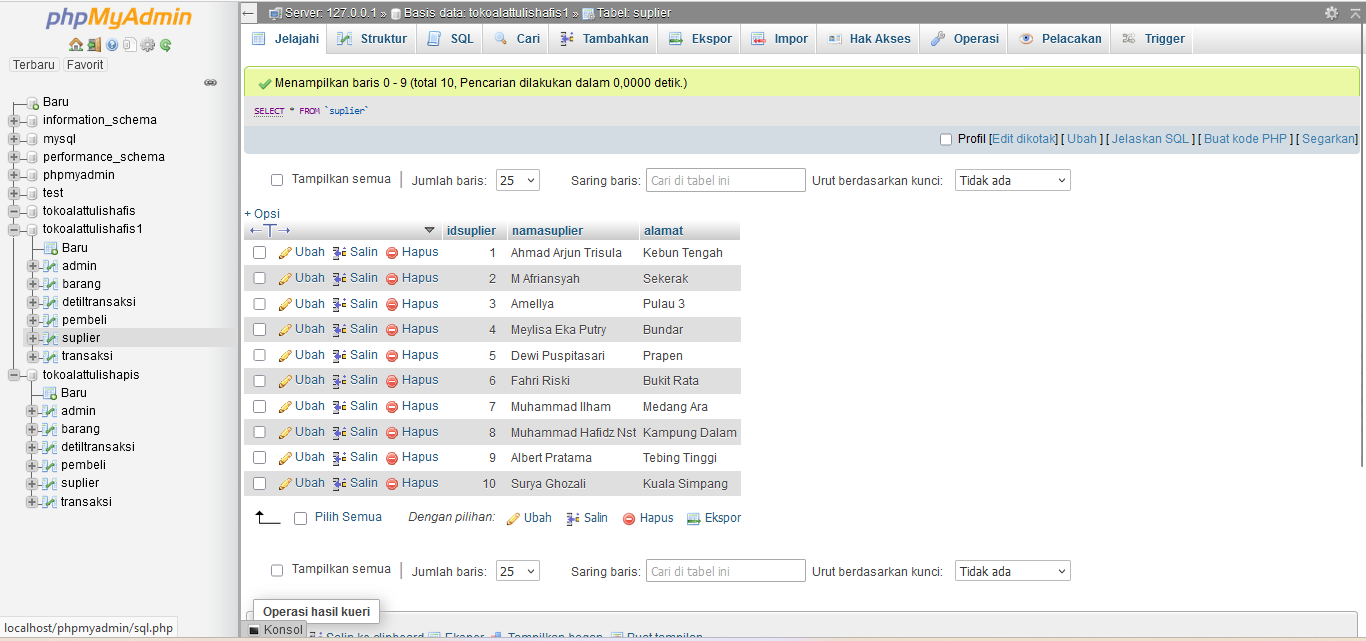
('null','Fahri Riski','Bukit Rata'),

('null','Muhammad Ilham','Medang Ara'),

('null','Muhammad Hafidz Nst','Kampung Dalam'),

('null','Albert Pratama','Tebing Tinggi'),

('null','Surya Ghozali','Kuala Simpang');



**Tabel barang**

Insert into admin

INSERT INTO `barang` (`idbarang`, `idsuplier`, `namabarang`, `harga`, `stok`)

VALUES

('null','1','pulpen','2000','100'),

('null','2','pengaris','2000','150'),

('null','3','penghapus','1000','155'),

('null','4','buku big boos','55000','160'),

('null','5','buku biasa','35000','120'),

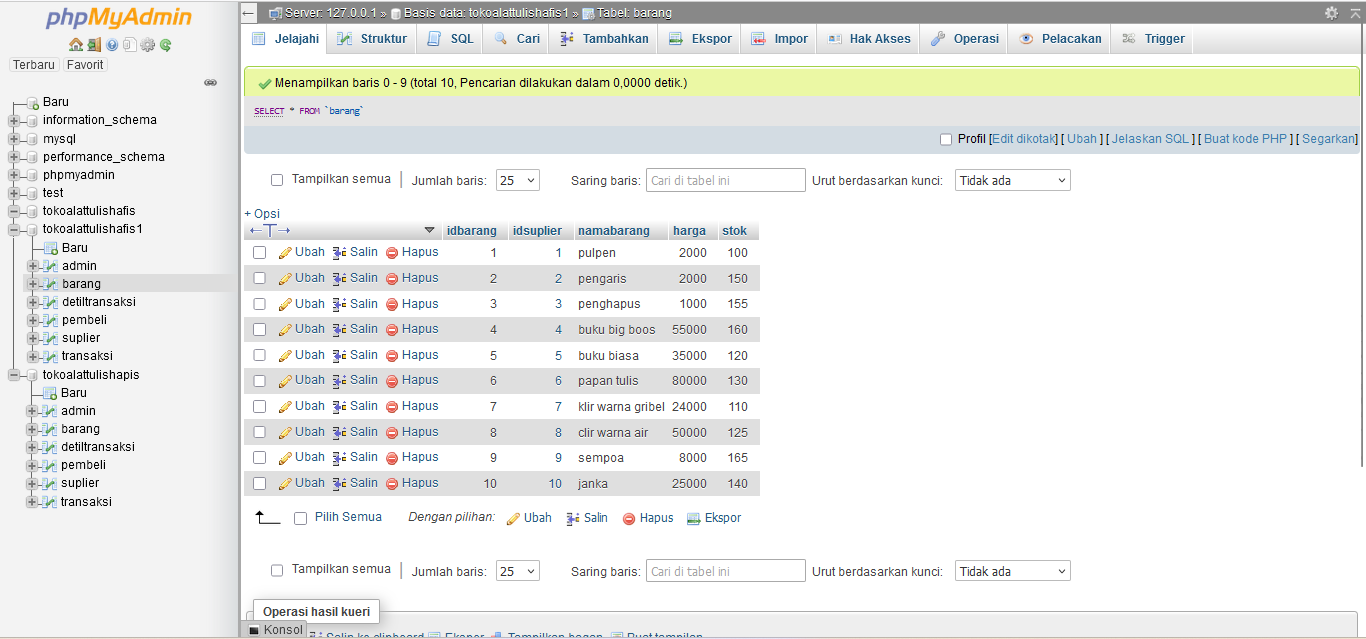
('null','6','papan tulis','80000','130'),

('null','7','klir warna gribel','24000','110'),

('null','8','clir warna air','50000','125'),

('null','9','sempoa','8000','165'),

('null','10','janka','25000','140');



**Tabel transaksi**

INSERT INTO `transaksi` (`idtransaksi`, `idbarang`, `idadmin`, `jumlah`)

VALUES

('null','2','2','1'),

('null','3','3','1'),

('null','5','1','1'),

('null','4','4','1'),

('null','6','1','1'),

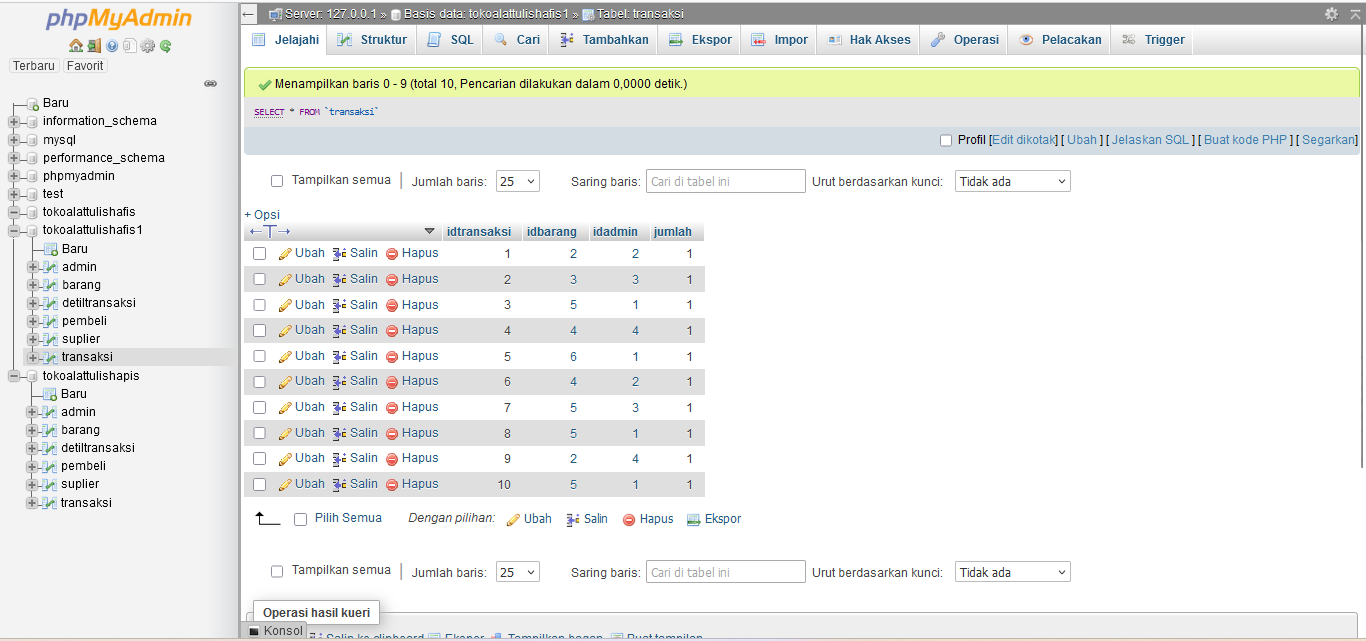
('null','4','2','1'),

('null','5','3','1'),

('null','5','1','1'),

('null','2','4','1'),

('null','5','1','1');



**Tabel detiltransaksi**

INSERT INTO `detiltransaksi` (`iddetiltransaksi`, `idtransaksi`, `idpembeli`, `total`, `tanggal`)

VALUES

('NULL','1','1','200000','2024-11-09'),

('NULL','1','1','400000','2024-11-09'),

('NULL','1','1','500000','2024-11-09'),

('NULL','1','1','600000','2024-11-09'),

('NULL','1','1','600000','2024-11-09'),

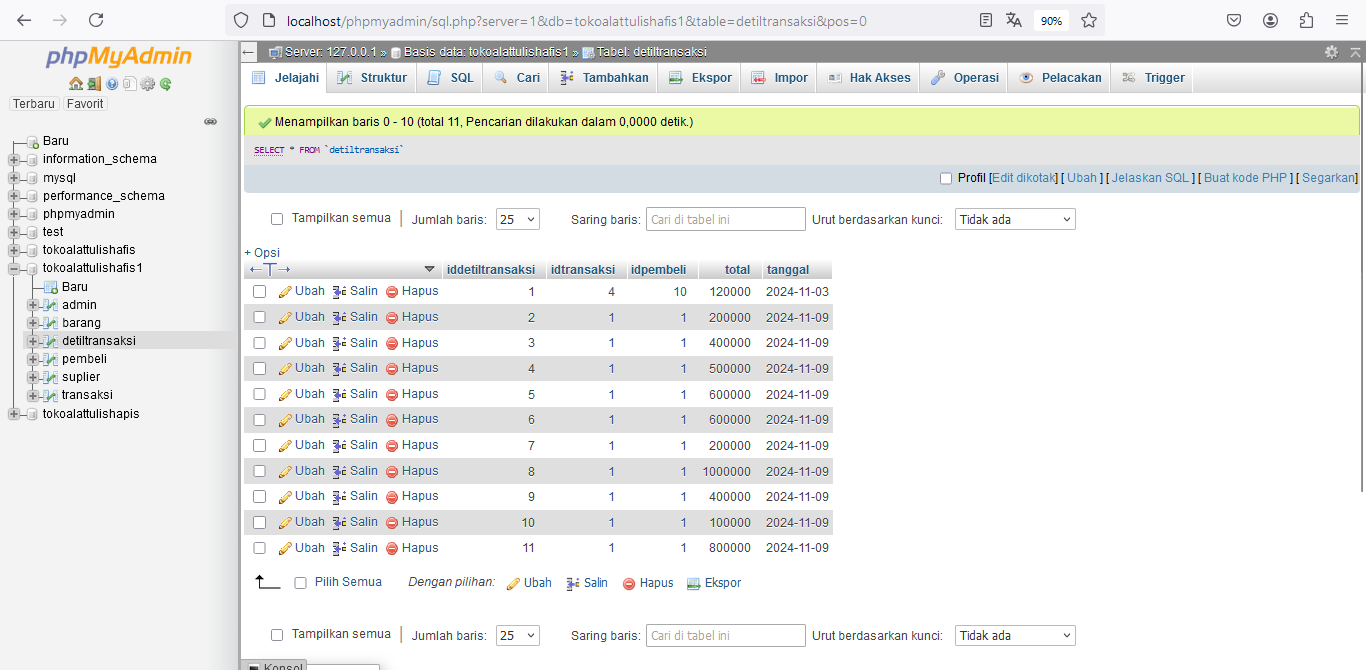
('NULL','1','1','200000','2024-11-09'),

('NULL','1','1','1000000','2024-11-09'),

('NULL','1','1','400000','2024-11-09'),

('NULL','1','1','100000','2024-11-09'),

('NULL','1','1','800000','2024-11-09');

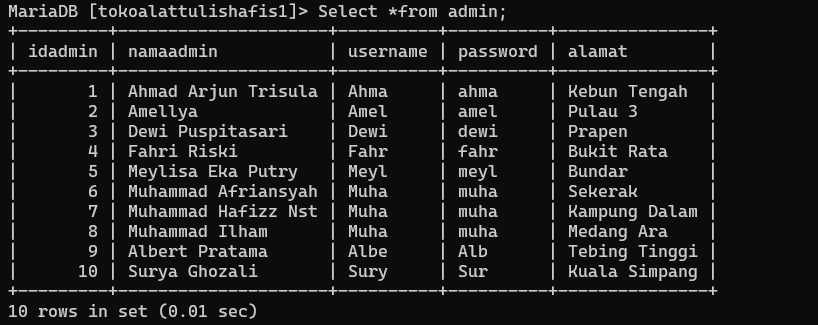


**SELECT:**

Bentuk umum.

Select \*from namatabel1

Select \*from admin;

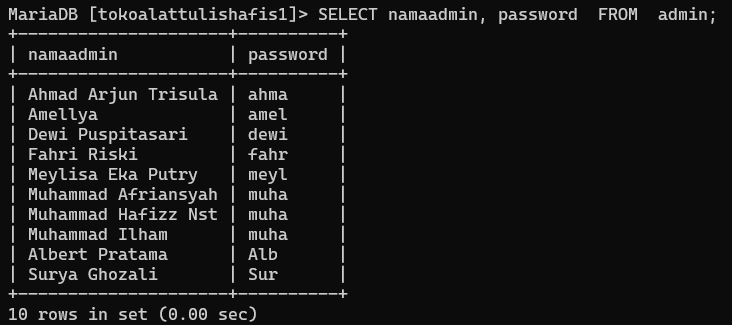


**Output :**

Memilih kolom tertentu.

SELECT nama\_kolom1, nama\_kolom2 FROM nama\_tabel;

SELECT namaadmin, password FROM admin;



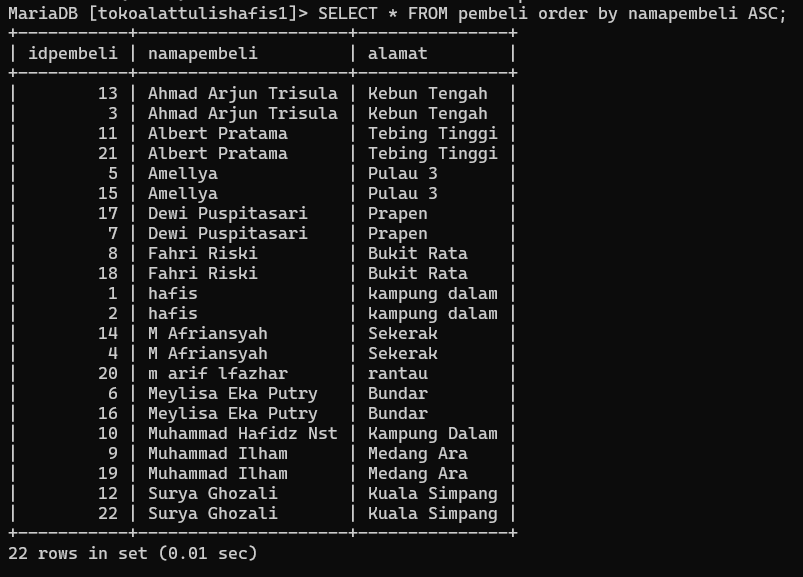
**Output :**

Memilih kolom dengan mengurutkan dari terkecil.

SELECT \* FROM nama\_tabel order by kolom\_dipilih ASC;

SELECT \* FROM pembeli order by namapembeli ASC;

**Output :**

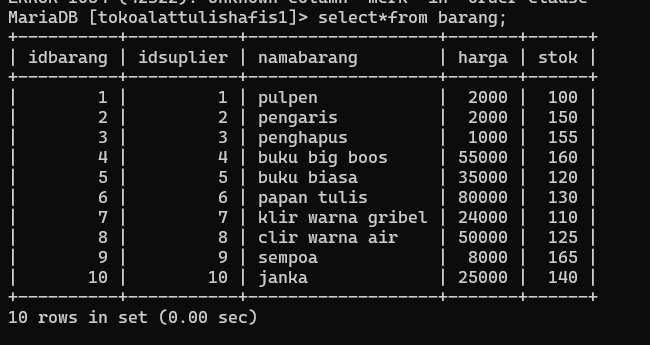


Memilih kolom dengan mengurutkan dari terbesar.

SELECT \* FROM nama\_tabel order by kolom\_dipilih DESC;

SELECT namabarang harga FROM barang order by harga DESC;

**Output :**

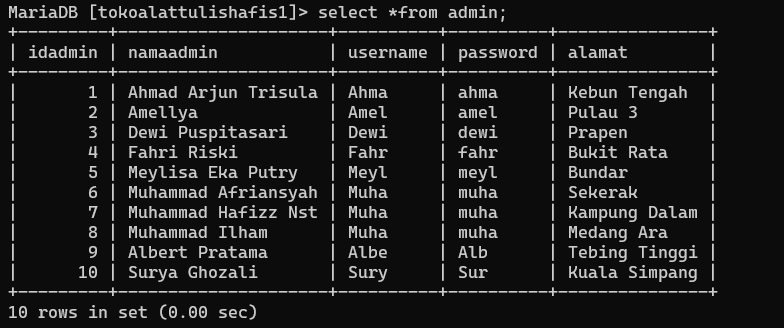


**UPDATE**

Update sebaris data record.

UPDATE nama\_tabel SET kolom1=data1, kolom2=data2,... WHERE kolom=data;

UPDATE admin SET namaadmin=’muhammad hafizz nst’, username=’Muha’, password=’muha’, alamat=’Kampung Dalam’ WHERE idadmin=1;



**Output :**

**DELETE**

Delete sebaris data record.

DELETE FROM nama\_tabel WHERE kolom=data;

**Output :**

Delete sebuah tabel.

DELETE FROM nama\_tabel;

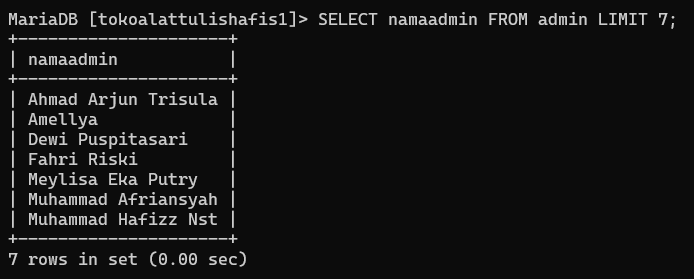
**Output :**

**SELECT SUBQUERY:**

SELECT nama\_produk FROM ms\_produk LIMIT 3;

SELECT namaadmin FROM admin LIMIT 7;

**Output :**

****

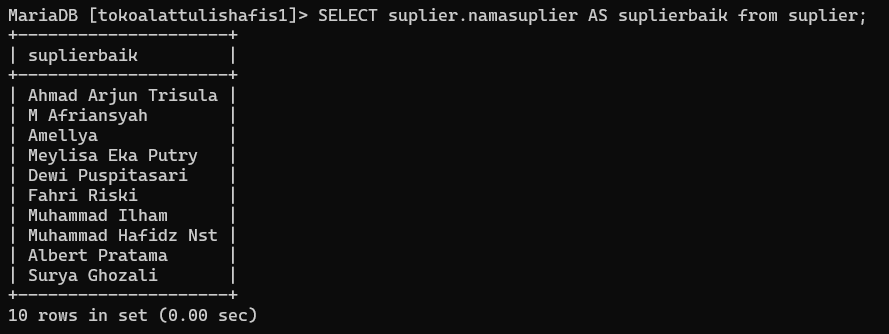
SELECT nama\_layanan FROM layanan LIMIT 3;

SELECT ms\_produk.nama\_produk AS nama from ms\_produk;

SELECT layanan.nama\_layanan AS layanan\_yang\_tersedia from layanan;

SELECT suplier.namasuplier AS suplierbaik from suplier;

**Output :**

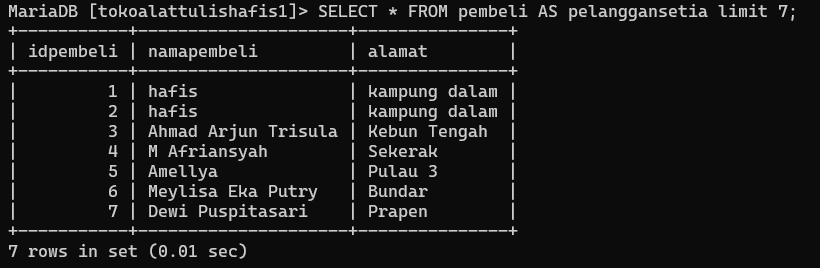
****

SELECT \* FROM ms\_produk AS t1;

## SELECT \* FROM petugas AS P1;

## SELECT \* FROM pembeli AS pelanggansetia limit 7;

**Output :**

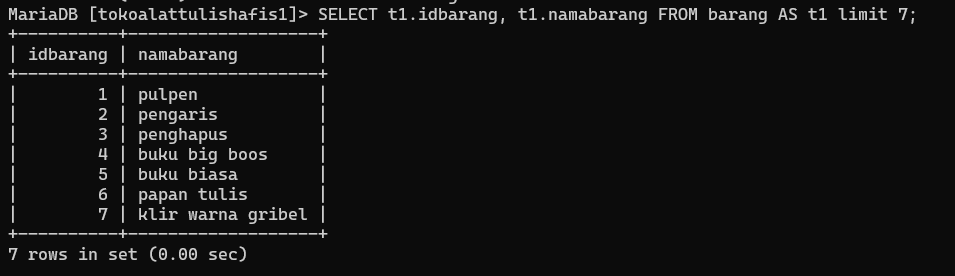
****

SELECT t1.kode\_produk, t1.nama\_produk FROM ms\_produk AS t1;

SELECT t1.kode\_layanan, t1.nama\_layanan FROM layanan AS t1;

SELECT t1.idbarang, t1.namabarang FROM barang AS t1 limit 7;

**Output :**

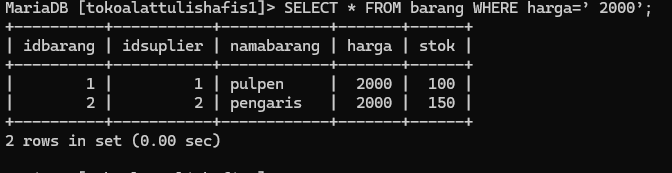
****

SELECT \* FROM ms\_produk WHERE nama\_produk = 'Gantungan Kunci DQLab';

SELECT \* FROM layanan WHERE nama\_layanan = ‘ganti Hardisk';

SELECT \* FROM barang WHERE harga=’ 2000’;

**Output :**

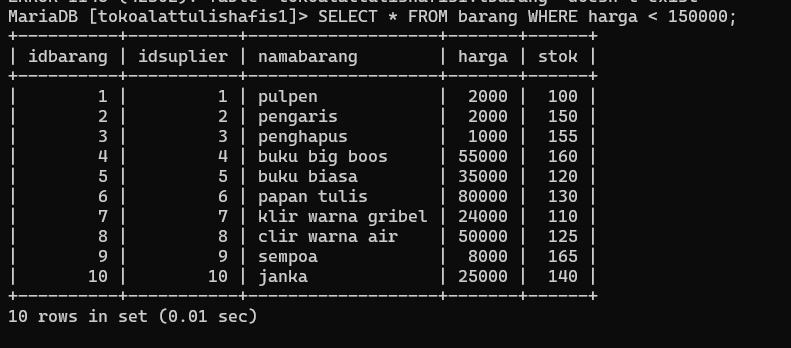
****

SELECT \* FROM ms\_produk WHERE harga < 50000;

SELECT \* FROM layanan WHERE harga < 50000;

SELECT \* FROM barang WHERE harga < 150000;

**Output :**

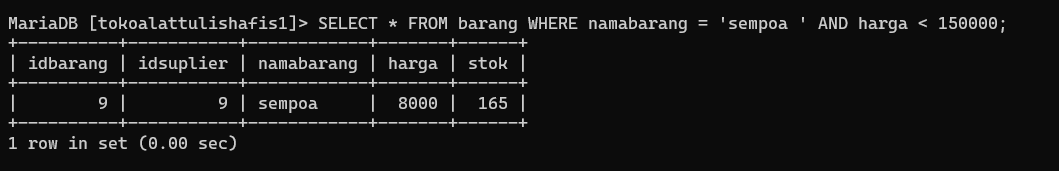
****

SELECT \* FROM ms\_produk WHERE nama\_produk = 'Gantungan Kunci DQLab' AND harga < 50000;

SELECT \* FROM layanan WHERE nama\_layanan = 'Lambat / Lemot ' AND harga\_layanan < 50000;

SELECT \* FROM barang WHERE namabarang = 'sempoa ' AND harga < 150000;

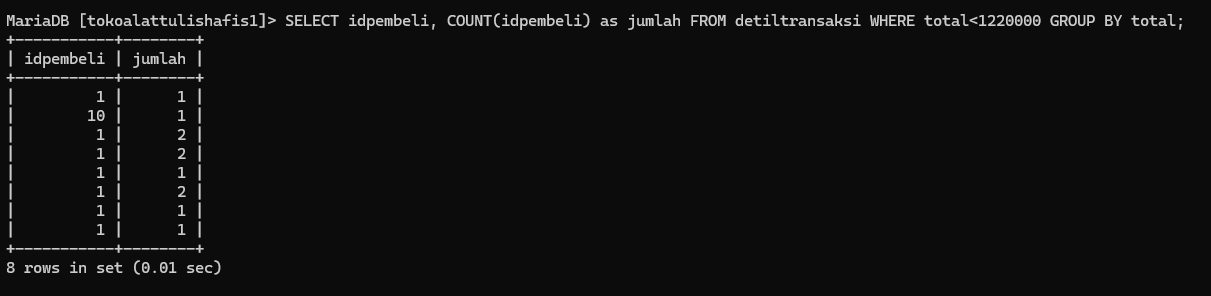
Output :

****

**SELECT nama\_layanan, COUNT(id\_layanan) as jumlah FROM layanan WHERE harga\_layanan=’50000’ GROUP BY harga\_layanan HAVING COUNT(id\_layanan)>2;**

**SELECT idpembeli, COUNT(idpembeli) as jumlah FROM detiltransaksi WHERE total<1220000 GROUP BY total;**

**Output :**

****

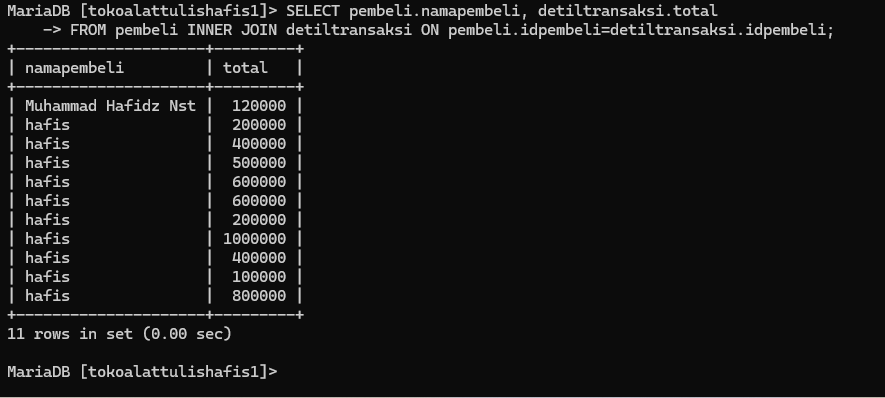
**SELECT JOINT MULTITABLE:**

SELECT pelanggan.nama\_pelanggan, pembayaran.total\_bayar

FROM pelanggan INNER JOIN pembayaran ON pelanggan.id\_pelanggan=pembayaran.id\_pelanggan;

SELECT pembeli.namapembeli, detiltransaksi.total

FROM pembeli INNER JOIN detiltransaksi ON pembeli.idpembeli=detiltransaksi.idpembeli;  
  
**Output :**

****

SELECT petugas.nama\_petugas, layanan.nama\_layanan, transaksi.jumlah

FROM petugas

INNER JOIN transaksi ON petugas.id\_petugas = transaksi.id\_petugas

INNER JOIN layanan ON transaksi.id\_layanan = layanan.id\_layanan;

SELECT admin.namaadmin, pembeli.namapembeli, trans.jumlah

FROM petugas

INNER JOIN transaksi ON petugas.id\_petugas = transaksi.id\_petugas

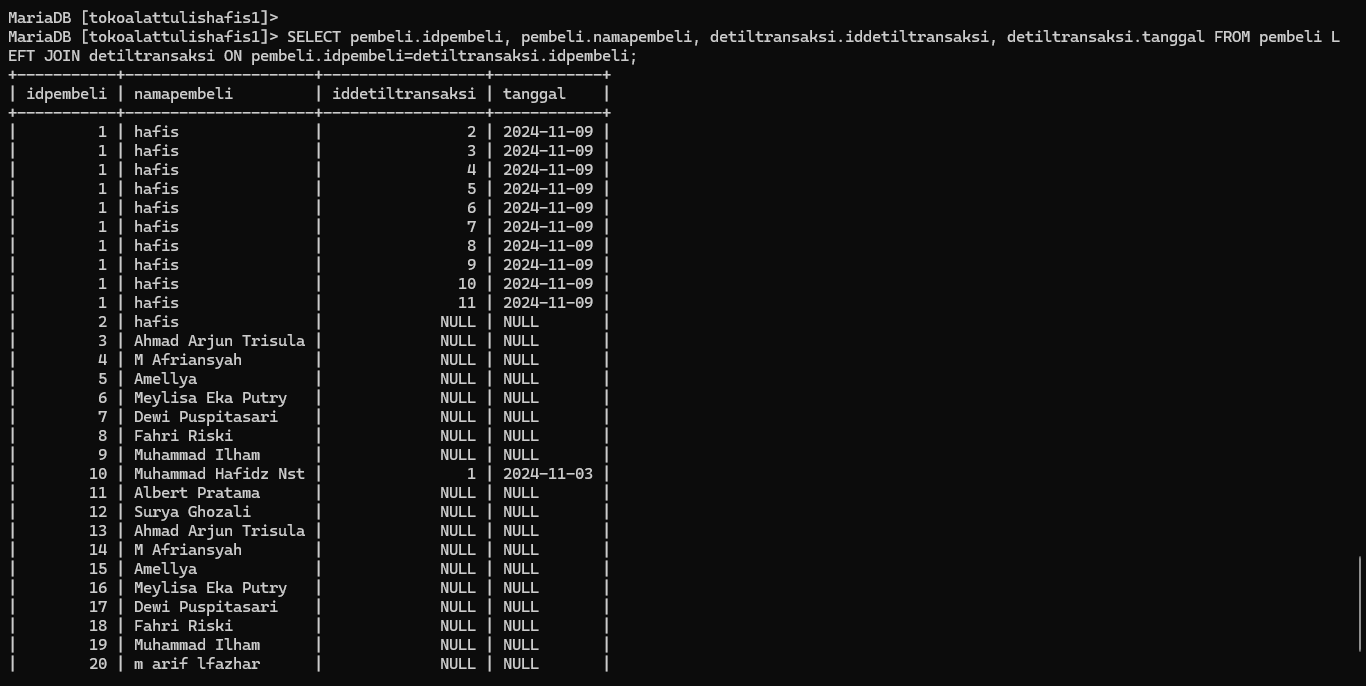
INNER JOIN layanan ON transaksi.id\_layanan = layanan.id\_layanan;

**Output :**

SELECT pembeli.idpembeli, pembeli.namapembeli, detiltransaksi.iddetiltransaksi, detiltransaksi.tanggal FROM pembeli LEFT JOIN detiltransaksi ON pembeli.idpembeli=detiltransaksi.idpembeli;

SELECT pembeli.idpembeli, pembeli.namapembeli, detiltransaksi.iddetiltransaksi, detiltransaksi.tanggal FROM pembeli LEFT JOIN detiltransaksi ON pembeli.idpembeli=detiltransaksi.idpembeli;

**Output :**

****

select a.\*, b.\*

from admin a

join detiltransaksi b using (idadmin);

**Output :**

select a.\*, b.\*

from pelanggan a

left join pembayaran b

using (id\_pelanggan);

**Output :**

select a.\*, b.\*

from pelanggan a

right join pembayaran b

using (id\_pelanggan);

**Output :**

select a.\*, b.\*

from pelanggan a

right join pembayaran b

using (id\_pelanggan)

union all

select a.\*, b.\*

from pelanggan a

left join pembayaran b

using (id\_pelanggan);

select a.\*, b.\*

from pelanggan a

right join pembayaran b

using (id\_pelanggan)

union all

select a.\*, b.\*

from pelanggan a

left join pembayaran b

using (id\_pelanggan);

**Output :**

select a.nama\_pelanggan, b.total\_bayar

from pelanggan a

right join pembayaran b

using (id\_pelanggan)

union all

select a.nama\_pelanggan, b.total\_bayar

from pelanggan a

left join pembayaran b

using (id\_pelanggan);

select a.nama\_pelanggan, b.tanggal

from pelanggan a

right join transaksi b

using (id\_pelanggan)

union all

select a.nama\_pelanggan, b.tanggal

from pelanggan a

left join transaksi b

using (id\_pelanggan);

**Output :**