

**Naufal Rasyid**  
**SQL Question**

1. (10 poin: LO1) Buatlah sebuah database dengan judul yg mengacu pada 3 tabel di atas. Pada masing-masing tabel tersebut harus memiliki kolom dengan constraint Primary Key, Null, dan Not Null.

**Jawab :**

- **Alasan membuat judul database Binus\_University\_Management\_System\_2023 :**  
karena judul tersebut sesuai dengan fungsi dari database yaitu mengelola data akademik seperti data mahasiswa, mata kuliah, dan transaksi yang berhubungan dengan akademik.
- **Menambahkan ID mahasiswa pada Tabel "mahasiswa":**  
Menggunakan nama\_mahasiswa sebagai primary key kemungkinan nama mahasiswa bisa sama dengan nama mahasiswa lain, maka saya menambahkan id unik sebagai primary key seperti nomor induk mahasiswa (NIM). Lalu saya disini menggunakan auto increment untuk meminimalisir human error dalam proses insert data.

**Query :**

```
CREATE DATABASE Binus_University_Management_System_2023;
```

```
USE Binus_University_Management_System_2023;
```

```
CREATE TABLE mahasiswa (
```

```
    id_mahasiswa INT AUTO_INCREMENT PRIMARY KEY,
```

```
    nama_mahasiswa VARCHAR(30) NOT NULL,
```

```
    alamat_mahasiswa VARCHAR(25) NOT NULL,
```

```
    kota VARCHAR(10) NOT NULL,
```

```
    tgl_lahir DATE NOT NULL,
```

```
    usia INT NOT NULL,
```

```
    no_kontak INT NOT NULL,
```

```
    email VARCHAR(30) NOT NULL,
```

```
    jurusan CHAR(3) NOT NULL,
```

```
    nama_wali VARCHAR(30) NOT NULL,
```

```
    tgl_terdaftar DATE NOT NULL,
```

```
    prestasi_1 VARCHAR(30) NULL,
```

```
    prestasi_2 VARCHAR(30) NULL
```

```
) AUTO_INCREMENT =2501;
```

```
CREATE TABLE mata_kuliah (
```

```
    id_mata_kuliah VARCHAR(15) PRIMARY KEY NOT NULL,
```

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```
nama_mata_kuliah VARCHAR(30) NOT NULL,  
jurusan CHAR(3) NOT NULL,  
kelas VARCHAR(5) NOT NULL,  
tahun_ajaran INT NOT NULL,  
semester INT NOT NULL,  
jenis CHAR(3) NOT NULL,  
kode_dosen VARCHAR(7) NOT NULL,  
nama_dosen VARCHAR(30) NOT NULL,  
kuota_maks INT NOT NULL,  
kuota_tersisa INT NOT NULL,  
model_perkuliahan VARCHAR(20) NOT NULL,  
status_ VARCHAR(10) NOT NULL,  
durasi INT NOT NULL,  
maks_sks INT NOT NULL  
);  
  
CREATE TABLE transaksi (  
    id_transaksi INT AUTO_INCREMENT PRIMARY KEY,  
    id_mahasiswa INT NOT NULL,  
    id_mata_kuliah VARCHAR(15) NOT NULL,  
    jurusan CHAR(3) NOT NULL REFERENCES mata_kuliah(jurusan),  
    timestamp_transaksi TIMESTAMP NOT NULL DEFAULT CURRENT_TIMESTAMP,  
    jumlah_sks INT NOT NULL,  
    total_biaya INT NOT NULL,  
    virtual_account INT NOT NULL,  
    status_pembayaran VARCHAR(10) NOT NULL,  
    jatuh_tempo DATE NOT NULL,  
    potongan_biaya VARCHAR(5) NULL,  
    FOREIGN KEY (id_mahasiswa) REFERENCES mahasiswa(id_mahasiswa),  
    FOREIGN KEY (id_mata_kuliah) REFERENCES mata_kuliah(id_mata_kuliah)  
) AUTO_INCREMENT = 1401;
```

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#### Output :

Output				
Action Output				
#	Time	Action	Message	Duration / Fetch
1	12:20:01	CREATE DATABASE Binus_University_Management_System_2023	1 row(s) affected	0.016 sec
2	12:20:01	USE Binus_University_Management_System_2023	0 row(s) affected	0.000 sec
3	12:20:01	CREATE TABLE mahasiswa (id_mahasiswa INT AUTO_INCREMENT PRIMARY KEY...	0 row(s) affected	0.015 sec
4	12:20:01	CREATE TABLE mata_kuliah (id_mata_kuliah VARCHAR(15) PRIMARY KEY NOT NU...	0 row(s) affected	0.016 sec
5	12:20:01	CREATE TABLE transaksi (id_transaksi INT AUTO_INCREMENT PRIMARY KEY, id_...	0 row(s) affected	0.031 sec

2. (10 poin: LO2) Masukkan nilai pada 3 tabel tersebut, masing-masing tabel harus dimasukkan 8 record yang baru, tidak termasuk record yang terdapat pada tabel diatas

#### Jawab :

- **Insert Table Mahasiswa**

```
SELECT * FROM binus_university_management_system_2023.mahasiswa;
```

```
INSERT INTO mahasiswa (nama_mahasiswa, alamat_mahasiswa, kota, tgl_lahir, usia, no_kontak,  
email, jurusan, nama_wali, tgl_terdaftar, prestasi_1, prestasi_2)
```

```
VALUES (
```

```
    'Anjani Aul',
```

```
    'JL.BuahBatu No 1',
```

```
    'Bandung',
```

```
    '2002-01-01',
```

```
    21,
```

```
    0856712563,
```

```
    'anjani@binus.ac.id',
```

```
    'DKV',
```

```
    'Jono Iskandar',
```

```
    '2023-01-01',
```

```
    'Juara 1 Lomba Poster',
```

```
    NULL
```

```
),
```

```
('Budi Santoso',
```

```
    'JL.Kemang No 2',
```

```
    'Jakarta',
```

```
    '2002-02-02',
```

```
    21,
```

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0812345678,  
'budi@binus.ac.id',  
'IT',  
'Joni Suparman',  
'2023-01-02',  
NULL,  
NULL  
)

('Tania Putri',  
'JL.Kebon Jeruk No 3',  
'Tangerang',  
'2002-03-03',  
22,  
0823456789,  
'tania@binus.ac.id',  
'DI',  
'Umar Djaja',  
'2023-01-03',  
'Juara 1 Lomba Design',  
'Juara 2 Lomba Poster'  
)

('Della Dwi',  
'JL.Dago No 4',  
'Bandung',  
'2002-03-04',  
21,  
0834567890,  
'della@binus.ac.id',  
'DI',

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'Andika Pratama',  
'2023-01-04',  
NULL,  
NULL  
)

('Kyra Rahma',  
'JL.Riau No 5',  
'Jakarta',  
'2003-05-05',  
20,  
0845678901,  
'kyra@binus.ac.id',  
'IT',  
'Dwi Hartanto',  
'2023-01-09',  
NULL,  
NULL  
)

('Firman Wibowo',  
'JL.Ciledug No 6',  
'Tangerang',  
'2003-02-06',  
20,  
0856789012,  
'firman@binus.ac.id',  
'DKV',  
'Agus Suwarno',  
'2023-01-06',  
'Juara 1 Lomba Gamification',

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```
'Juara 3 Lomba Design'
),

('Gina Febriani',
'JL.Tamsar No 7',
'Bandung',
'2002-01-07',
21,
0867890123,
'gina@binus.ac.id',
'IT',
'Yogi Hendrawan',
'2023-01-07',
NULL,
NULL
),

('Janice Neira',
'JL.Kopo No 8',
'Jakarta',
'2003-07-08',
20,
0878901234,
'janice@binus.ac.id',
'DI',
'Rudi Hartono',
'2023-01-08',
'Juara 2 Lomba Desain',
NULL
);
```

**Output :**

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Result Grid

Filter Rows:

Filter Rows

Edit

Export/Import

Wrap Cell Contents

	id_mahasiswa	nama_mahasiswa	alamat_mahasiswa	kota	tgl_lahir	usia	no_kontak	email	jurusan	nama_wali	tgl_terdaftar	prestasi_1	prestasi_2
▶	2501	Anjani Aul	Jl.BuahBatu No 1	Ban...	2002-0...	21	856712563	anja...	DKV	Jono Iska...	2023-01-01	Juara 1 L...	
	2502	Budi Santoso	Jl.Kemang No 2	Jak...	2002-0...	21	812345678	budi...	IT	Joni Supa...	2023-01-02		
	2503	Tania Putri	Jl.Kebon Jeruk No 3	Tan...	2002-0...	22	823456789	tani...	DI	Umar Djaja	2023-01-03	Juara 1 L...	Juara 2 L...
	2504	Della Dwi	Jl.Dago No 4	Ban...	2002-0...	21	834567890	dell...	DI	Andika Pr...	2023-01-04		
	2505	Kyra Rahma	Jl.Riau No 5	Jak...	2003-0...	20	845678901	kyra...	IT	Dwi Harta...	2023-01-09		

mahasiswa12

Apply

Revert

Output

Action Output

#

Time

Action

Message

Duration / Fetch

✓

1

12:20:01

CREATE DATABASE Binus\_University\_Management\_System\_2023

1 row(s) affected

0.016 sec

✓

2

12:20:01

USE Binus\_University\_Management\_System\_2023

0 row(s) affected

0.000 sec

✓

3

12:20:01

CREATE TABLE mahasiswa (id\_mahasiswa INT AUTO\_INCREMENT PRIMARY KEY, id...

0 row(s) affected

0.015 sec

✓

4

12:20:01

CREATE TABLE mata\_kuliah (id\_mata\_kuliah VARCHAR(15) PRIMARY KEY NOT N...

0 row(s) affected

0.016 sec

✓

5

12:20:01

CREATE TABLE transaksi (id\_transaksi INT AUTO\_INCREMENT PRIMARY KEY, id...

0 row(s) affected

0.031 sec

✓

6

12:24:33

SELECT \* FROM binus\_university\_management\_system\_2023.mahasiswa LIMIT 0, 400

0 row(s) returned

0.016 sec / 0.000 sec

✓

7

12:24:33

INSERT INTO mahasiswa (nama\_mahasiswa, alamat\_mahasiswa, kota, tgl\_lahir, usia...

8 row(s) affected Records: 8 Duplicates: 0 Warnings: 0

0.000 sec

- **Insert Table Mata Kuliah**

SELECT \* FROM binus\_university\_management\_system\_2023.mata\_kuliah;

INSERT INTO mata\_kuliah VALUES (

'COMP6468031',

'Artificial Intelligence',

'IT',

'LB75',

2023,

3,

'LEC',

'D6331',

'Annisa Istiqomah',

20,

5,

'Online',

'Tersedia',

90,

2

),

('DSGN468034',

'Design Thinking',

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```
'DI',  
'BF45',  
2023,  
2,  
'LAB',  
'D6214',  
'Lusiana Dera',  
30,  
20,  
'Onsite',  
'Tersedia',  
90,  
1  
)  
  
( 'COMP6458032',  
'Data Structures',  
'IT',  
'BC75',  
2023,  
2,  
'LAB',  
'D3564',  
'Evawaty Tanuar',  
30,  
12,  
'Online',  
'Tersedia',  
120,  
2  
)
```



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('ARTS6018',  
'Aesthetics',  
'DKV',  
'LG65',  
2023,  
1,  
'LEC',  
'D7512',  
'Karina Sim',  
15,  
3,  
'Online',  
'Tersedia',  
90,  
2  
)

('LANG6097031',  
'Indonesian',  
'IT',  
'LA75',  
2023,  
1,  
'LEC',  
'D6332',  
'Febrina Nadelia',  
30,  
10,  
'Onsite',  
'Tersedia',

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120,  
1  
,  
  
('MATH6129031',  
'Linear Algebra',  
'IT',  
'LD75',  
2023,  
1,  
'LEC',  
'D6230',  
'Maria Artanta',  
28,  
28,  
'Online',  
'Penuh',  
90,  
1  
,

('ENTR6519',  
'Entrepreneurship',  
'DI',  
'LF45',  
2023,  
1,  
'LEC',  
'D6219',  
'Nichol Tri',  
23,

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```
23,  
  
'Onsite',  
  
'Penuh',  
  
120,  
  
2  
  
,  
  
('DSGN6818',  
  
'Typography',  
  
'DKV',  
  
'LG75',  
  
2023,  
  
2,  
  
'LEC',  
  
'D6521',  
  
'Katty Gaga',  
  
26,  
  
2,  
  
'Online',  
  
'Tersedia',  
  
120,  
  
1  
  
);
```

### Output :

Result Grid													
Filter Rows:													
Edit:    Export/Import:   Wrap Cell Content:													
id_mata_kuliah	nama_mata_kuliah	jurusan	kelas	tahun_ajaran	semester	jenis	kode_dosen	nama_dosen	kuota_maks	kuota_tersisa	model_perkuliahan	status_	maks_
ARTS6018	Aesthetics	DKV	LG65	2023	1	LEC	D7512	Karina Sim	15	3	Online	Tersedia	90
COMP6458032	Data Structures	IT	BC75	2023	2	LAB	D3564	Evawaty Ta...	30	12	Online	Tersedia	120
COMP6468031	Artificial Intelligence	IT	LB75	2023	3	LEC	D6331	Annisa Istiq...	20	5	Online	Tersedia	90
DSGN468034	Design Thinking	DI	BF45	2023	2	LAB	D6214	Lusiana Dera	30	20	Onsite	Tersedia	90

mata_kuliah 8 x													
Apply Revert													
Output													
Action Output													
#	Time	Action					Message					Duration / Fetch	
2	12:20:01	USE Binus_University_Management_System_2023					0 row(s) affected					0.000 sec	
3	12:20:01	CREATE TABLE mahasiswa (id_mahasiswa INT AUTO_INCREMENT PRIMARY KEY NOT NULL)					0 row(s) affected					0.015 sec	
4	12:20:01	CREATE TABLE mata_kuliah (id_mata_kuliah VARCHAR(15) PRIMARY KEY NOT NULL)					0 row(s) affected					0.016 sec	
5	12:20:01	CREATE TABLE transaksi (id_transaksi INT AUTO_INCREMENT PRIMARY KEY NOT NULL)					0 row(s) affected					0.031 sec	
6	12:24:33	SELECT * FROM binus_university_management_system_2023.mahasiswa LIMIT 0, ...					0 row(s) returned					0.016 sec / 0.000 sec	
7	12:24:33	INSERT INTO mahasiswa (nama_mahasiswa, alamat_mahasiswa, kota_tgl_lahir, usi...					8 row(s) affected Records: 8 Duplicates: 0 Warnings: 0					0.000 sec	
8	12:27:55	SELECT * FROM binus_university_management_system_2023.mata_kuliah LIMIT 0, ...					0 row(s) returned					0.000 sec / 0.000 sec	
9	12:27:55	INSERT INTO mata_kuliah VALUES ('COMP6468031', 'Artificial Intelligence', 'IT', 'L...					8 row(s) affected Records: 8 Duplicates: 0 Warnings: 0					0.000 sec	

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**SQL Question**

- **Insert table Transaksi**

```
SELECT * FROM binus_university_management_system_2023.transaksi;
```

```
INSERT INTO transaksi (id_mahasiswa, id_mata_kuliah, jurusan, jumlah_sks, total_biaya,  
virtual_account, status_pembayaran, jatuh_tempo, potongan_biaya)
```

```
VALUES (
```

```
    2501,
```

```
    'ARTS6018',
```

```
    'DKV',
```

```
    2,
```

```
    500000,
```

```
    71234,
```

```
    'Lunas',
```

```
    '2023-03-01',
```

```
    '50%'
```

```
),
```

```
(2504,
```

```
    'DSGN468034',
```

```
    'DI',
```

```
    1,
```

```
    250000,
```

```
    71245,
```

```
    'Belum Lunas',
```

```
    '2023-03-04',
```

```
    NULL
```

```
),
```

```
(2507,
```

```
    'COMP6468031',
```

```
    'IT',
```

```
    2,
```

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500000,

71537,

'Belum Lunas',

'2023-03-02',

NULL

),

(2505,

'COMP6458032',

'IT',

2,

500000,

71262,

'Lunas',

'2023-03-02',

'50%'

),

(2508,

'DSGN468034',

'DI',

1,

250000,

71214,

'Belum Lunas',

'2023-03-04',

'70%'

),

(2503,

'ENTR6519',

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'DI',  
2,  
500000,  
71234,  
'Lunas',  
'2023-03-04',  
NULL  
)

(2502,  
'LANG6097031',  
'IT',  
1,  
250000,  
71219,  
'Lunas',  
'2023-03-02',  
NULL  
)

(2506,  
'DSGN6818',  
'DKV',  
1,  
250000,  
75334,  
'Belum Lunas',  
'2023-03-01',  
'10%'

);

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### SQL Question

Ouput :

id_transaksi	id_mahasiswa	id_mata_kuliah	jurusan	timestamp_transaksi	jumlah_sks	total_biaya	virtual_account	status_pembayaran	jatuh_tempo	potongan_biaya
1401	2501	ARTS6018	DKV	2023-02-06 04:31:50	2	500000	71234	Lunas	2023-03-01	50%
1402	2504	DSGN468034	DI	2023-02-06 04:31:50	1	250000	71245	Belum Lunas	2023-03-04	NULL
1403	2507	COMP6468031	IT	2023-02-06 04:31:50	2	500000	71537	Belum Lunas	2023-03-02	NULL
1404	2505	COMP6468032	IT	2023-02-06 04:31:50	2	500000	71262	Lunas	2023-03-02	50%
1405	2508	DSGN468034	DI	2023-02-06 04:31:50	1	250000	71214	Belum Lunas	2023-03-04	70%
1406	2503	ENTR6519	DI	2023-02-06 04:31:50	2	500000	71234	Lunas	2023-03-04	NULL
1407	2502	LANG6097031	IT	2023-02-06 04:31:50	1	250000	71219	Lunas	2023-03-02	NULL

3. (10 poin: LO2) Tampilkan nilai didalam suatu tabel (pilih 2 tabel), menggunakan query:

- WHERE-AND-OR.
- WHERE-NOT-LIKE.
- WHERE-LIKE-AND-IN.
- WHERE-NOT-OR-IN.

Jawab :

Table Mata Kuliah :

- **WHERE-AND-OR.**  
SELECT \*FROM mata\_kuliah  
WHERE kelas = 'LB75' AND (jenis = 'LEC' OR jenis = 'LAB');

Output :

id_mata_kuliah	nama_mata_kuliah	jurusan	kelas	tahun_ajaran	semester	jenis	kode_dosen	nama_dosen	kuota_maks	kuota_ter sisa	model_perkulahan	status	durasi	mata_kuliah
COMP6468031	Artificial Intelligence	IT	LB75	2023	3	LEC	D6331	Annisa Istiqomah	20	5	Online	Tersedia	90	2

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### SQL Question

- **WHERE-NOT-LIKE**

```
SELECT *FROM mata_kuliah
WHERE nama_dosen NOT LIKE '%Sim%';
Output :
```

The screenshot shows a SQL Studio interface. The 'Result Grid' displays a table with columns: id\_mata\_kuliah, nama\_mata\_kuliah, jurusan, kelas, tahun\_ajaran, semester, jenis, kode\_dosen, nama\_dosen, kuota\_maks, kuota\_ter sisa, model\_perkulahan, status, and durasi. The data includes courses like Data Structures, Artificial Intelligence, Design Thinking, Typography, and Entrepreneurship. Below the grid, the 'mata\_kuliah 66' window shows the 'Output' tab with an 'Action Output' table. The output table has columns: #, Time, Action, Message, and Duration / Fetch. It shows six actions, including a SELECT statement that returned 1 row.

#	Time	Action	Message	Duration / Fetch
8	04:31:40	SELECT * FROM binus_university_management_system_2023.mata_kuliah	0 row(s) returned	0.016 sec / 0.000 sec
9	04:31:40	INSERT INTO mata_kuliah VALUES ('COMP6468031', 'Artificial Intelligence', 'IT', 'L...	8 row(s) affected Records: 8 Duplicates: 0 Warnings: 0	0.000 sec
10	04:31:50	SELECT * FROM binus_university_management_system_2023.transaksi	0 row(s) returned	0.000 sec / 0.000 sec
11	04:31:50	INSERT INTO transaksi (id_mahasiswa, id_mata_kuliah, jurusan, jumlah_sks, total_b...	8 row(s) affected Records: 8 Duplicates: 0 Warnings: 0	0.000 sec
12	04:33:32	SELECT *FROM mata_kuliah WHERE kelas = 'LB75' AND (jenis = 'LEC' OR jenis = '...	1 row(s) returned	0.000 sec / 0.000 sec

- **WHERE-LIKE-AND-IN.**

```
SELECT *FROM mata_kuliah
WHERE nama_mata_kuliah LIKE '%Design%' AND status_ IN ('Penuh', 'Tersedia');
Output :
```

The screenshot shows a SQL Studio interface. The 'Result Grid' displays a table with columns: id\_mata\_kuliah, nama\_mata\_kuliah, jurusan, kelas, tahun\_ajaran, semester, jenis, kode\_dosen, nama\_dosen, kuota\_maks, kuota\_ter sisa, model\_perkulahan, status, durasi, and maks\_sks. The data includes courses like Design Thinking, Indonesian, and Linear Algebra. Below the grid, the 'mata\_kuliah 67' window shows the 'Output' tab with an 'Action Output' table. The output table has columns: #, Time, Action, Message, and Duration / Fetch. It shows six actions, including a SELECT statement that returned 1 row.

#	Time	Action	Message	Duration / Fetch
10	04:31:50	SELECT * FROM binus_university_management_system_2023.transaksi	0 row(s) returned	0.000 sec / 0.000 sec
11	04:31:50	INSERT INTO transaksi (id_mahasiswa, id_mata_kuliah, jurusan, jumlah_sks, total_b...	8 row(s) affected Records: 8 Duplicates: 0 Warnings: 0	0.000 sec
12	04:33:32	SELECT *FROM mata_kuliah WHERE kelas = 'LB75' AND (jenis = 'LEC' OR jenis = '...	1 row(s) returned	0.000 sec / 0.000 sec
13	04:34:29	SELECT *FROM mata_kuliah WHERE nama_dosen NOT LIKE '%Sim%'	7 row(s) returned	0.000 sec / 0.000 sec
14	04:35:31	SELECT *FROM mata_kuliah WHERE nama_mata_kuliah LIKE '%Design%' AND st...	1 row(s) returned	0.000 sec / 0.000 sec

- **WHERE-NOT-OR-IN.**

```
SELECT *FROM mata_kuliah
WHERE jenis NOT IN ('LEC', 'LAB') OR jurusan = 'IT'
Output :
```

The screenshot shows a SQL Studio interface. The 'Result Grid' displays a table with columns: id\_mata\_kuliah, nama\_mata\_kuliah, jurusan, kelas, tahun\_ajaran, semester, jenis, kode\_dosen, nama\_dosen, kuota\_maks, kuota\_ter sisa, model\_perkulahan, status, and durasi. The data includes courses like Data Structures, Artificial Intelligence, Indonesian, Linear Algebra, and MATH6129031. Below the grid, the 'mata\_kuliah 68' window shows the 'Output' tab with an 'Action Output' table. The output table has columns: #, Time, Action, Message, and Duration / Fetch. It shows six actions, including a SELECT statement that returned 4 rows.

#	Time	Action	Message	Duration / Fetch
11	04:31:50	INSERT INTO transaksi (id_mahasiswa, id_mata_kuliah, jurusan, jumlah_sks, total_b...	8 row(s) affected Records: 8 Duplicates: 0 Warnings: 0	0.000 sec
12	04:33:32	SELECT *FROM mata_kuliah WHERE kelas = 'LB75' AND (jenis = 'LEC' OR jenis = '...	1 row(s) returned	0.000 sec / 0.000 sec
13	04:34:29	SELECT *FROM mata_kuliah WHERE nama_dosen NOT LIKE '%Sim%'	7 row(s) returned	0.000 sec / 0.000 sec
14	04:35:31	SELECT *FROM mata_kuliah WHERE nama_mata_kuliah LIKE '%Design%' AND st...	1 row(s) returned	0.000 sec / 0.000 sec
15	04:36:45	SELECT *FROM mata_kuliah WHERE jenis NOT IN ('LEC', 'LAB') OR jurusan = 'IT'	4 row(s) returned	0.000 sec / 0.000 sec



## Naufal Rasyid

### SQL Question

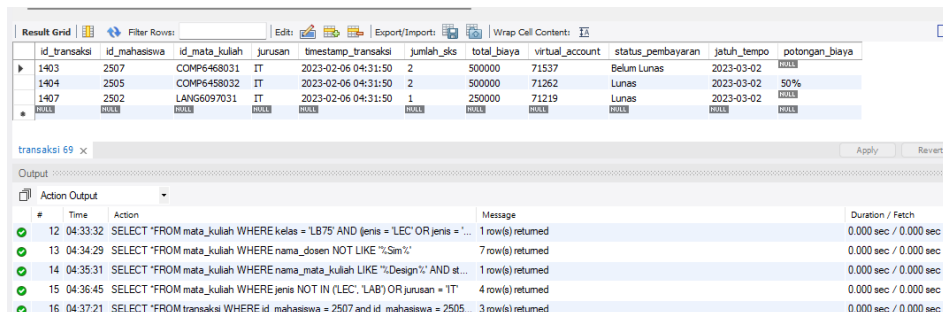
#### Table Transaksi :

- WHERE-AND-OR.**

SELECT \*FROM transaksi

WHERE id\_mahasiswa = 2507 and id\_mahasiswa = 2505 OR (jurusan = 'IT');

**Output :**



id_transaksi	id_mahasiswa	id_mata_kuliah	jurusan	timestamp_transaksi	jumlah_sks	total_biaya	virtual_account	status_pembayaran	jatuh_tempo	potongan_biaya
1403	2507	COMP6468031	IT	2023-02-06 04:31:50	2	500000	71537	Belum Lunas	2023-03-02	10%
1404	2505	COMP6458032	IT	2023-02-06 04:31:50	2	500000	71262	Lunas	2023-03-02	50%
1407	2502	LANG6097031	IT	2023-02-06 04:31:50	1	250000	71219	Lunas	2023-03-02	10%

transaksi 69 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
12	04:33:32	SELECT *FROM mata_kuliah WHERE kelas = 'LB75' AND (jenis = 'LEC' OR jenis = 'S...'	1 row(s) returned	0.000 sec / 0.000 sec
13	04:34:29	SELECT *FROM mata_kuliah WHERE nama_dosen NOT LIKE '%Sim%'	7 row(s) returned	0.000 sec / 0.000 sec
14	04:35:31	SELECT *FROM mata_kuliah WHERE nama_mata_kuliah LIKE '%Design%' AND st...	1 row(s) returned	0.000 sec / 0.000 sec
15	04:36:45	SELECT *FROM mata_kuliah WHERE jenis NOT IN ('LEC', 'LAB') OR jurusan = 'IT'	4 row(s) returned	0.000 sec / 0.000 sec
16	04:37:21	SELECT *FROM transaksi WHERE id_mahasiswa = 2507 and id_mahasiswa = 2505...	3 row(s) returned	0.000 sec / 0.000 sec

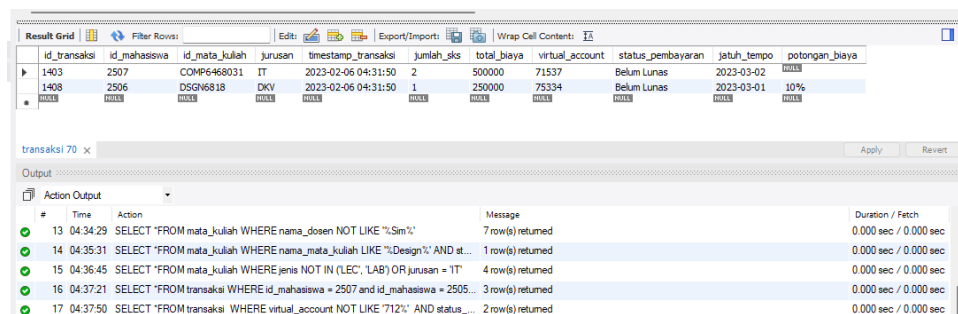
- WHERE-NOT-LIKE**

SELECT \*FROM transaksi

WHERE virtual\_account NOT LIKE '712%'

AND status\_pembayaran = 'Belum Lunas';

**Output :**



id_transaksi	id_mahasiswa	id_mata_kuliah	jurusan	timestamp_transaksi	jumlah_sks	total_biaya	virtual_account	status_pembayaran	jatuh_tempo	potongan_biaya
1403	2507	COMP6468031	IT	2023-02-06 04:31:50	2	500000	71537	Belum Lunas	2023-03-02	10%
1408	2506	DSGN6818	DKV	2023-02-06 04:31:50	1	250000	75334	Belum Lunas	2023-03-01	10%

transaksi 70 x

Output

Action Output

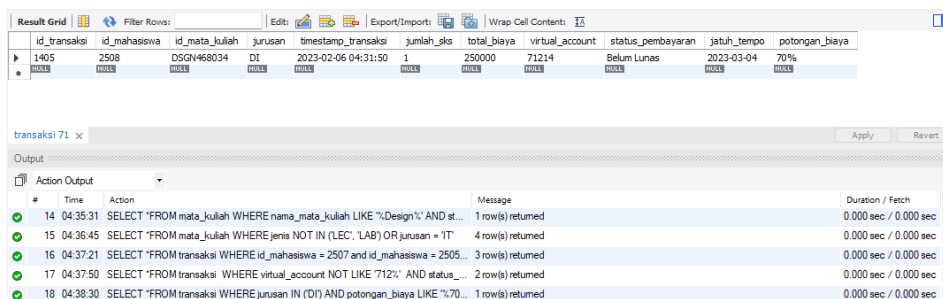
#	Time	Action	Message	Duration / Fetch
13	04:34:29	SELECT *FROM mata_kuliah WHERE nama_dosen NOT LIKE '%Sim%'	7 row(s) returned	0.000 sec / 0.000 sec
14	04:35:31	SELECT *FROM mata_kuliah WHERE nama_mata_kuliah LIKE '%Design%' AND st...	1 row(s) returned	0.000 sec / 0.000 sec
15	04:36:45	SELECT *FROM mata_kuliah WHERE jenis NOT IN ('LEC', 'LAB') OR jurusan = 'IT'	4 row(s) returned	0.000 sec / 0.000 sec
16	04:37:21	SELECT *FROM transaksi WHERE id_mahasiswa = 2507 and id_mahasiswa = 2505...	3 row(s) returned	0.000 sec / 0.000 sec
17	04:37:50	SELECT *FROM transaksi WHERE virtual_account NOT LIKE '712%' AND status...	2 row(s) returned	0.000 sec / 0.000 sec

- WHERE-LIKE-AND-IN.**

SELECT \*FROM transaksi

WHERE jurusan IN ('DI') AND potongan\_biaya LIKE '%70%';

**Output :**



id_transaksi	id_mahasiswa	id_mata_kuliah	jurusan	timestamp_transaksi	jumlah_sks	total_biaya	virtual_account	status_pembayaran	jatuh_tempo	potongan_biaya
1405	2508	DSGN468034	DI	2023-02-06 04:31:50	1	250000	71214	Belum Lunas	2023-03-04	70%

transaksi 71 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
14	04:35:31	SELECT *FROM mata_kuliah WHERE nama_mata_kuliah LIKE '%Design%' AND st...	1 row(s) returned	0.000 sec / 0.000 sec
15	04:36:45	SELECT *FROM mata_kuliah WHERE jenis NOT IN ('LEC', 'LAB') OR jurusan = 'IT'	4 row(s) returned	0.000 sec / 0.000 sec
16	04:37:21	SELECT *FROM transaksi WHERE id_mahasiswa = 2507 and id_mahasiswa = 2505...	3 row(s) returned	0.000 sec / 0.000 sec
17	04:37:50	SELECT *FROM transaksi WHERE virtual_account NOT LIKE '712%' AND status...	2 row(s) returned	0.000 sec / 0.000 sec
18	04:38:30	SELECT *FROM transaksi WHERE jurusan IN ('DI') AND potongan_biaya LIKE '%70...	1 row(s) returned	0.000 sec / 0.000 sec

- WHERE-NOT-OR-IN.**

SELECT \*FROM transaksi

WHERE jurusan NOT LIKE 'IT'

OR id\_mahasiswa NOT IN (2501, 2505, 2507)

## Naufal Rasyid

### SQL Question

#### Output :

The screenshot shows a database management tool interface. At the top, there's a 'Result Grid' with columns: id\_transaksi, id\_mahasiswa, id\_mata\_kuliah, jurusan, timestamp\_transaksi, jumlah\_sks, total\_biaya, virtual\_account, status\_pembayaran, jatuh\_tempo, and potongan\_biaya. Below the grid, there's an 'Output' section with a dropdown menu set to 'Action Output'. The output shows a list of SQL queries and their results, including SELECT statements with WHERE clauses and their durations.

#	Time	Action	Message	Duration / Fetch
15	04:36:45	SELECT * FROM mata_kuliah WHERE jenis NOT IN ('LEC', 'LAB') OR jurusan = 'IT'	4 row(s) returned	0.000 sec / 0.000 sec
16	04:37:21	SELECT * FROM transaksi WHERE id_mahasiswa = 2507 and id_mahasiswa = 2505...	3 row(s) returned	0.000 sec / 0.000 sec
17	04:37:50	SELECT * FROM transaksi WHERE virtual_account NOT LIKE '7121'; AND status...	2 row(s) returned	0.000 sec / 0.000 sec
18	04:38:30	SELECT * FROM transaksi WHERE jurusan IN ('DI') AND potongan_biaya LIKE '%70...	1 row(s) returned	0.000 sec / 0.000 sec
19	04:39:03	SELECT * FROM transaksi WHERE jurusan NOT LIKE 'IT' OR id_mahasiswa NOT I...	6 row(s) returned	0.000 sec / 0.000 sec

4. (10 poin: LO2) Buatlah tabel baru yang bernama pegawai. Tabel tersebut harus memiliki kolom id\_pegawai, nama\_pegawai, pemberian\_pelaporan\_kepada (isinya id\_pegawai yang jadi atasannya). Silahkan anda sesuaikan terkait tipe data dan constraintnya, serta masukkan 5 record.

#### Jawab :

- **Create Table pegawai :**

```
CREATE TABLE pegawai (  
  id_pegawai INT AUTO_INCREMENT PRIMARY KEY,  
  nama_pegawai VARCHAR(30) NOT NULL,  
  pemberian_pelaporan_kepada INT NULL,  
  FOREIGN KEY (pemberian_pelaporan_kepada) REFERENCES pegawai(id_pegawai)  
 )AUTO_INCREMENT = 1201;
```

#### Output :

The screenshot shows the 'Output' section of the database management tool. It displays the execution of the CREATE TABLE statement and its result, showing 0 rows affected and a duration of 0.015 sec.

#	Time	Action	Message	Duration / Fetch
16	04:37:21	SELECT * FROM transaksi WHERE id_mahasiswa = 2507 and id_mahasiswa = 2505...	3 row(s) returned	0.000 sec / 0.000 sec
17	04:37:50	SELECT * FROM transaksi WHERE virtual_account NOT LIKE '7121'; AND status...	2 row(s) returned	0.000 sec / 0.000 sec
18	04:38:30	SELECT * FROM transaksi WHERE jurusan IN ('DI') AND potongan_biaya LIKE '%70...	1 row(s) returned	0.000 sec / 0.000 sec
19	04:39:03	SELECT * FROM transaksi WHERE jurusan NOT LIKE 'IT' OR id_mahasiswa NOT I...	6 row(s) returned	0.000 sec / 0.000 sec
20	04:39:33	CREATE TABLE pegawai ( id_pegawai INT AUTO_INCREMENT PRIMARY KEY, ...	0 row(s) affected	0.015 sec

- **Insert Table pegawai :**

```
SELECT * FROM binus_university_management_system_2023.pegawai;  
INSERT INTO pegawai (nama_pegawai, pemberian_pelaporan_kepada)  
VALUES  
  ('John Smith',  
   NULL),  
  ('Jane Nara',  
   1201 ),  
  ('Bob Marley',  
   1201 ),  
  ('Alice Wonder',  
   1201 ),  
  ('Kylie Brown',  
   1201
```

## Naufal Rasyid

### SQL Question

);

**Output :**

The screenshot shows a database management tool interface. At the top, there's a 'Result Grid' with columns: id\_pegawai, nama\_pegawai, pemberian\_pelaporan\_kepada. The data rows are:

id_pegawai	nama_pegawai	pemberian_pelaporan_kepada
1201	John Smith	1201
1202	Jane Nara	1201
1203	Bob Marley	1201
1204	Alice Wonder	1201
1205	Kylie Brown	1201

Below the table, there's an 'Output' section showing the execution log for the 'pegawai' table. The log includes the following actions:

#	Time	Action	Message	Duration / Fetch
18	04:38:30	SELECT *FROM transaksi WHERE jurusan IN ('DI') AND potongan_biaya LIKE '%70...	1 row(s) returned	0.000 sec / 0.000 sec
19	04:39:03	SELECT *FROM transaksi WHERE jurusan NOT LIKE 'IT' OR id_mahasiswa NOT I...	6 row(s) returned	0.000 sec / 0.000 sec
20	04:39:33	CREATE TABLE pegawai ( id_pegawai INT AUTO_INCREMENT PRIMARY KEY, ...	0 row(s) affected	0.015 sec
21	04:41:51	SELECT * FROM binus_university_management_system_2023.pegawai	0 row(s) returned	0.000 sec / 0.000 sec
22	04:41:51	INSERT INTO pegawai (nama_pegawai, pemberian_pelaporan_kepada) VALUES ...	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0	0.000 sec

5. (10 poin: LO3) Lakukan JOIN QUERY sebagai berikut:

- INNER JOIN (pada 2 tabel bebas, dan menampilkan minimal 5 kolom).
- LEFT JOIN (pada 2 tabel bebas, dan menampilkan minimal 5 kolom).
- RIGHT JOIN (pada 2 tabel bebas, dan menampilkan minimal 5 kolom).
- FULL OUTER (pada 2 tabel bebas, dan menampilkan minimal 5 kolom).
- SELF JOIN (pada tabel karyawan, dan menampilkan minimal 4 kolom). Terkait SELF JOIN, setiap karyawan harus .
- MULTIPLE JOINS (pada 3 tabel, dan menampilkan minimal 8 kolom), serta dilakukan pengurutan menggunakan ascending berdasarkan 1 kolom bebas.

**Jawab :**

- **INNER JOIN**

SELECT m.nama\_mahasiswa, m.jurusan, mk.nama\_mata\_kuliah, mk.kuota\_tersisa, mk.jenis  
FROM mahasiswa m

INNER JOIN mata\_kuliah mk ON m.jurusan = mk.jurusan;

**Output :**

The screenshot shows a database management tool interface. At the top, there's a 'Result Grid' with columns: nama\_mahasiswa, jurusan, nama\_mata\_kuliah, kuota\_tersisa, jenis. The data rows are:

nama_mahasiswa	jurusan	nama_mata_kuliah	kuota_tersisa	jenis
Firman Wibowo	DKV	Aesthetics	3	LEC
Anjani Aul	DKV	Aesthetics	3	LEC
Gina Febriani	IT	Data Structures	12	LAB
Kyra Rahma	IT	Data Structures	12	LAB
Budi Santoso	IT	Data Structures	12	LAB

Below the table, there's an 'Output' section showing the execution log for the 'mahasiswa' table. The log includes the following actions:

#	Time	Action	Message	Duration / Fetch
19	04:39:03	SELECT *FROM transaksi WHERE jurusan NOT LIKE 'IT' OR id_mahasiswa NOT I...	6 row(s) returned	0.000 sec / 0.000 sec
20	04:39:33	CREATE TABLE pegawai ( id_pegawai INT AUTO_INCREMENT PRIMARY KEY, ...	0 row(s) affected	0.015 sec
21	04:41:51	SELECT * FROM binus_university_management_system_2023.pegawai	0 row(s) returned	0.000 sec / 0.000 sec
22	04:41:51	INSERT INTO pegawai (nama_pegawai, pemberian_pelaporan_kepada) VALUES ...	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0	0.000 sec
23	04:44:10	SELECT m.nama_mahasiswa, m.jurusan, mk.nama_mata_kuliah, mk.kuota_tersisa, ...	22 row(s) returned	0.000 sec / 0.000 sec

- **LEFT JOIN**

SELECT m.nama\_mahasiswa, m.jurusan, mk.nama\_mata\_kuliah, mk.kuota\_tersisa, mk.jenis  
FROM mahasiswa m

LEFT JOIN mata\_kuliah mk ON m.jurusan = mk.jurusan;

**Output :**

## Naufal Rasyid

### SQL Question

nama_mahasiswa	jurusan	nama_mata_kuliah	kuota_tersisia	jenis
Anjani Aul	DKV	Typography	2	LEC
Anjani Aul	DKV	Aesthetics	3	LEC
Budi Santoso	IT	Linear Algebra	28	LEC
Budi Santoso	IT	Indonesian	10	LEC
Budi Santoso	IT	Artificial Intelligence	5	LEC

Result 74 x

Output

#	Time	Action	Message	Duration / Fetch
20	04:39:33	CREATE TABLE pegawai ( id_pegawai INT AUTO_INCREMENT PRIMARY KEY, ...	0 row(s) affected	0.015 sec
21	04:41:51	SELECT * FROM binus_university_management_system_2023.pegawai	0 row(s) returned	0.000 sec / 0.000 sec
22	04:41:51	INSERT INTO pegawai (nama_pegawai, pemberian_pelaporan_kepada) VALUES ...	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0	0.000 sec
23	04:44:10	SELECT m.nama_mahasiswa, m.jurusan, mk.nama_mata_kuliah, mk.kuota_tersisia, ...	22 row(s) returned	0.000 sec / 0.000 sec
24	04:45:07	SELECT m.nama_mahasiswa, m.jurusan, mk.nama_mata_kuliah, mk.kuota_tersisia, ...	22 row(s) returned	0.000 sec / 0.000 sec

- RIGHT JOIN**

SELECT m.nama\_mahasiswa, m.jurusan, mk.nama\_mata\_kuliah, mk.kuota\_tersisia, mk.jenis  
FROM mahasiswa m

RIGHT JOIN mata\_kuliah mk ON m.jurusan = mk.jurusan;

**Output :**

nama_mahasiswa	jurusan	nama_mata_kuliah	kuota_tersisia	jenis
Firman Wibowo	DKV	Aesthetics	3	LEC
Anjani Aul	DKV	Aesthetics	3	LEC
Gina Febrina	IT	Data Structures	12	LAB
Kyria Rahma	IT	Data Structures	12	LAB
Budi Santoso	IT	Data Structures	12	LAB

Result 75 x

Output

#	Time	Action	Message	Duration / Fetch
21	04:41:51	SELECT * FROM binus_university_management_system_2023.pegawai	0 row(s) returned	0.000 sec / 0.000 sec
22	04:41:51	INSERT INTO pegawai (nama_pegawai, pemberian_pelaporan_kepada) VALUES ...	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0	0.000 sec
23	04:44:10	SELECT m.nama_mahasiswa, m.jurusan, mk.nama_mata_kuliah, mk.kuota_tersisia, ...	22 row(s) returned	0.000 sec / 0.000 sec
24	04:45:07	SELECT m.nama_mahasiswa, m.jurusan, mk.nama_mata_kuliah, mk.kuota_tersisia, ...	22 row(s) returned	0.000 sec / 0.000 sec
25	04:46:09	SELECT m.nama_mahasiswa, m.jurusan, mk.nama_mata_kuliah, mk.kuota_tersisia, ...	22 row(s) returned	0.016 sec / 0.000 sec

- FULL OUTER**

SELECT mata\_kuliah.id\_mata\_kuliah, mata\_kuliah.nama\_mata\_kuliah,  
transaksi.id\_mahasiswa, transaksi.timestamp\_transaksi, transaksi.status\_pembayaran  
FROM mata\_kuliah

LEFT JOIN transaksi

ON mata\_kuliah.id\_mata\_kuliah = transaksi.id\_mata\_kuliah

UNION

SELECT mata\_kuliah.id\_mata\_kuliah, mata\_kuliah.nama\_mata\_kuliah,  
transaksi.id\_mahasiswa, transaksi.timestamp\_transaksi, transaksi.status\_pembayaran  
FROM mata\_kuliah

RIGHT JOIN transaksi

ON mata\_kuliah.id\_mata\_kuliah = transaksi.id\_mata\_kuliah;

**Output :**

id_mata_kuliah	nama_mata_kuliah	id_mahasiswa	timestamp_transaksi	status_pembayaran
ARTS6018	Aesthetics	2501	2023-02-06 04:31:50	Lunas
COMP6458032	Data Structures	2505	2023-02-06 04:31:50	Lunas
COMP6468031	Artificial Intelligence	2507	2023-02-06 04:31:50	Belum Lunas
DSGN468034	Design Thinking	2504	2023-02-06 04:31:50	Belum Lunas
DSGN468034	Design Thinking	2508	2023-02-06 04:31:50	Belum Lunas

Result 76 x

Output

#	Time	Action	Message	Duration / Fetch
22	04:41:51	INSERT INTO pegawai (nama_pegawai, pemberian_pelaporan_kepada) VALUES ...	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0	0.000 sec
23	04:44:10	SELECT m.nama_mahasiswa, m.jurusan, mk.nama_mata_kuliah, mk.kuota_tersisia, ...	22 row(s) returned	0.000 sec / 0.000 sec
24	04:45:07	SELECT m.nama_mahasiswa, m.jurusan, mk.nama_mata_kuliah, mk.kuota_tersisia, ...	22 row(s) returned	0.000 sec / 0.000 sec
25	04:46:09	SELECT m.nama_mahasiswa, m.jurusan, mk.nama_mata_kuliah, mk.kuota_tersisia, ...	22 row(s) returned	0.016 sec / 0.000 sec
26	04:47:12	SELECT mata_kuliah.id_mata_kuliah, mata_kuliah.nama_mata_kuliah, transaksi.id_...	9 row(s) returned	0.000 sec / 0.000 sec

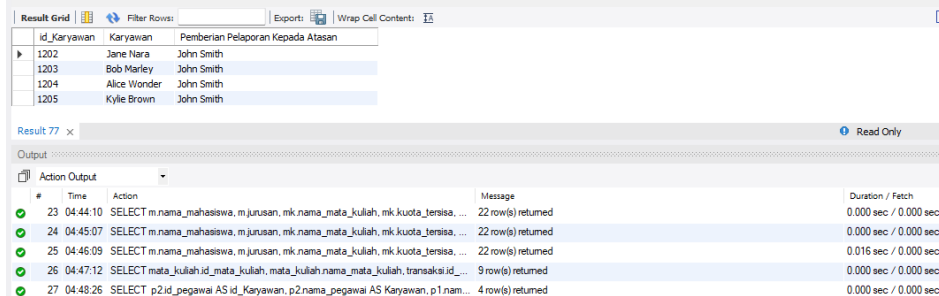
- SELF JOIN**

## Naufal Rasyid

### SQL Question

```
SELECT p2.id_pegawai AS id_Karyawan, p2.nama_pegawai AS Karyawan, p1.nama_pegawai  
AS 'Pemberian Pelaporan Kepada Atasan'  
FROM pegawai p1  
JOIN pegawai p2 ON p2.pemberian_pelaporan_kepada = p1.id_pegawai;
```

**Output :**



The screenshot shows a SQL query result grid with 5 rows. The columns are id\_Karyawan, Karyawan, and Pemberian Pelaporan Kepada Atasan. The data is as follows:

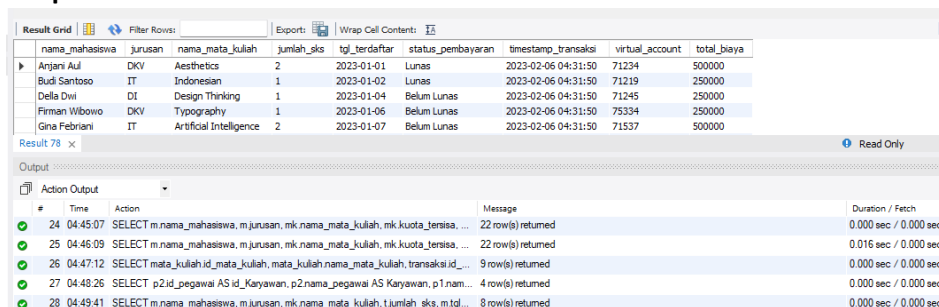
id_Karyawan	Karyawan	Pemberian Pelaporan Kepada Atasan
1202	Jane Nara	John Smith
1203	Bob Marley	John Smith
1204	Alice Wonder	John Smith
1205	Kyle Brown	John Smith

Below the grid, the 'Action Output' section shows the execution of the query, with a message indicating '22 row(s) returned'.

- **MULTIPLE JOINS**

```
SELECT m.nama_mahasiswa, m.jurusan, mk.nama_mata_kuliah, t.jumlah_sks,  
m.tgl_terdaftar, t.status_pembayaran, t.timestamp_transaksi, t.virtual_account, t.total_biaya  
FROM mahasiswa m  
JOIN transaksi t ON m.id_mahasiswa = t.id_mahasiswa  
JOIN mata_kuliah mk ON t.id_mata_kuliah = mk.id_mata_kuliah  
ORDER BY m.nama_mahasiswa ASC;
```

**Output :**



The screenshot shows a SQL query result grid with 7 rows. The columns are nama\_mahasiswa, jurusan, nama\_mata\_kuliah, jumlah\_sks, tgl\_terdaftar, status\_pembayaran, timestamp\_transaksi, virtual\_account, and total\_biaya. The data is as follows:

nama_mahasiswa	jurusan	nama_mata_kuliah	jumlah_sks	tgl_terdaftar	status_pembayaran	timestamp_transaksi	virtual_account	total_biaya
Anjani Aul	DKV	Aesthetics	2	2023-01-01	Lunas	2023-02-06 04:31:50	71234	500000
Budi Santoso	IT	Indonesian	1	2023-01-02	Lunas	2023-02-06 04:31:50	71219	250000
Della Dwi	DI	Design Thinking	1	2023-01-04	Belum Lunas	2023-02-06 04:31:50	71245	250000
Firman Wibowo	DKV	Typography	1	2023-01-06	Belum Lunas	2023-02-06 04:31:50	75334	250000
Gina Febriani	IT	Artificial Intelligence	2	2023-01-07	Belum Lunas	2023-02-06 04:31:50	71537	500000

Below the grid, the 'Action Output' section shows the execution of the query, with a message indicating '22 row(s) returned'.

6. (10 poin: LO2) Lakukan pengubahan struktur dari 2 tabel menggunakan query ALTER. Terkait pemilihan tabel dan kolom dibebaskan kepada anda untuk memilihnya, dengan rincian berikut:

- Mengubah nama 1 tabel. Apabila telah mengubah ke nama baru, maka silahkan mengubah kembali ke nama tabel semula.
- Mengubah tipe data pada 1 kolom dari suatu tabel
- Mengubah nama dari 1 kolom dari suatu tabel
- Mengubah posisi 1 kolom dari suatu tabel
- Menambahkan 1 kolom baru pada suatu tabel
- Menghapus 1 kolom baru tersebut dari suatu tabel

**Jawab :**

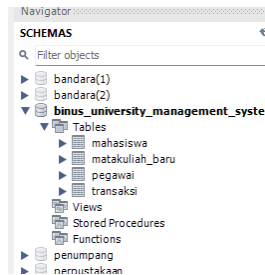
- **Mengubah nama 1 tabel ke nama baru dan mengubah kembali ke nama tabel semula.**

## Naufal Rasyid

### SQL Question

```
/*Untuk mengubah nama tabel "mata_kuliah" menjadi "matakuliah_baru"*/  
SELECT *FROM mata_kuliah;  
ALTER TABLE mata_kuliah RENAME TO matakuliah_baru;
```

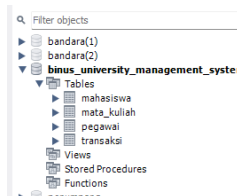
**Output :**



#	Time	Action	Message	Duration / Fetch
25	04:46:09	SELECT m.nama_mahasiswa, m.jurusan, mk.nama_mata_kuliah, mk.kuota_ter sisa, ...	22 row(s) returned	0.016 sec / 0.000 sec
26	04:47:12	SELECT mata_kuliah.id_mata_kuliah, mata_kuliah.nama_mata_kuliah, transaksi.id, ...	9 row(s) returned	0.000 sec / 0.000 sec
27	04:48:26	SELECT p2.id_pegawai AS id_Karyawan, p2.nama_pegawai AS Karyawan, p1.nam...	4 row(s) returned	0.000 sec / 0.000 sec
28	04:49:41	SELECT m.nama_mahasiswa, m.jurusan, mk.nama_mata_kuliah, t.jumlah_sks, m.tgl...	8 row(s) returned	0.000 sec / 0.000 sec
29	04:52:06	SELECT *FROM mata_kuliah	8 row(s) returned	0.016 sec / 0.000 sec

```
/*untuk mengubah nama tabel "matakuliah_baru" kembali menjadi "mata_kuliah*/  
SELECT *FROM mata_kuliah;  
ALTER TABLE matakuliah_baru RENAME TO mata_kuliah;
```

**Output :**



#	Time	Action	Message	Duration / Fetch
28	04:49:41	SELECT m.nama_mahasiswa, m.jurusan, mk.nama_mata_kuliah, t.jumlah_sks, m.tgl...	8 row(s) returned	0.000 sec / 0.000 sec
29	04:52:06	SELECT *FROM mata_kuliah	8 row(s) returned	0.016 sec / 0.000 sec
30	04:52:06	ALTER TABLE mata_kuliah RENAME TO matakuliah_baru	0 row(s) affected	0.032 sec
31	04:52:09	Reset recordset	Error Code: 1146 Table 'binus_university_management_system_2023.mata_kuliah' d...	
32	04:54:08	ALTER TABLE matakuliah_baru RENAME TO mata_kuliah	0 row(s) affected	0.031 sec

- Mengubah tipe data pada 1 kolom dari suatu tabel

```
/*Untuk mengubah tipe data pada kolom durasi dari INT menjadi Varchar*/  
SELECT *FROM mata_kuliah;  
ALTER TABLE mata_kuliah MODIFY durasi VARCHAR(3);
```

**Output :**

#	Time	Action	Message	Duration / Fetch
30	04:52:06	ALTER TABLE mata_kuliah RENAME TO matakuliah		
31	04:52:09	Reset recordset		
32	04:54:08	ALTER TABLE matakuliah_baru RENAME TO mata_kuliah		
33	04:55:40	SELECT *FROM mata_kuliah		
34	04:55:40	ALTER TABLE mata_kuliah MODIFY durasi VARCHAR(3)		

## Naufal Rasyid

### SQL Question

/\*Untuk mengubah tipe data pada kolom balik ke awal\*/

```
SELECT *FROM mata_kuliah;  
ALTER TABLE mata_kuliah MODIFY durasi INT;
```

**Output :**

jens	cnar(4)
kode_dosen	varchar(7)
nama_dosen	varchar(30)
kuota_maks	int
kuota_terisa	int
model_perkulahan	varchar(20)
status_	varchar(10)
durasi	int
maks_sks	int

#	Time	Action	Message
32	04:54:08	ALTER TABLE matakuliah_baru RENAME TO mata_kuliah	0 row(s) affected
33	04:55:40	SELECT *FROM mata_kuliah	8 row(s) returned
34	04:55:40	ALTER TABLE mata_kuliah MODIFY durasi VARCHAR(3)	8 row(s) affected Records: 8 Duplicates: 0 Warnings: 0
35	04:57:43	SELECT *FROM mata_kuliah	8 row(s) returned
36	04:57:43	ALTER TABLE mata_kuliah MODIFY durasi INT	8 row(s) affected Records: 8 Duplicates: 0 Warnings: 0

- **Mengubah nama dari 1 kolom dari suatu tabel**

/\*Untuk mengubah kolom "jurusan" di tabel "mata\_kuliah" menjadi "program\_studi"\*/

```
SELECT *FROM mata_kuliah;  
ALTER TABLE mata_kuliah CHANGE jurusan program_studi CHAR(3) NOT NULL;
```

**Output :**

#	Time	Action	Message	Duration / Fetch
37	04:58:36	SELECT *FROM mata_kuliah	8 row(s) returned	0.000 sec / 0.000 sec
38	04:58:36	ALTER TABLE mata_kuliah CHANGE program_studi jurusan CHAR(3) NOT NULL	Error Code: 1054. Unknown column 'program_studi' in 'mata_kuliah'	0.000 sec
39	04:59:03	SELECT *FROM mata_kuliah	8 row(s) returned	0.000 sec / 0.000 sec
40	04:59:03	ALTER TABLE mata_kuliah CHANGE jurusan program_studi CHAR(3) NOT NULL	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.032 sec
41	04:59:14	SELECT *FROM mata_kuliah	8 row(s) returned	0.000 sec / 0.000 sec

/\*Untuk mengubah nama awal kembali nama kolom\*/

```
SELECT *FROM mata_kuliah;  
ALTER TABLE mata_kuliah CHANGE program_studi jurusan CHAR(3) NOT NULL;
```

**Output :**

#	Time	Action	Message	Duration / Fetch
40	04:59:03	ALTER TABLE mata_kuliah CHANGE jurusan program_studi CHAR(3) NOT NULL	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.032 sec
41	04:59:14	SELECT *FROM mata_kuliah	8 row(s) returned	0.000 sec / 0.000 sec
42	05:00:07	SELECT *FROM mata_kuliah	8 row(s) returned	0.000 sec / 0.000 sec
43	05:00:07	ALTER TABLE mata_kuliah CHANGE program_studi jurusan CHAR(3) NOT NULL	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.031 sec
44	05:00:13	SELECT *FROM mata_kuliah	8 row(s) returned	0.000 sec / 0.000 sec

- **Mengubah posisi 1 kolom dari suatu tabel**

/\*Untuk mengubah posisi kolom "program\_studi" menjadi setelah kolom "id\_mata\_kuliah" di tabel "mata\_kuliah"\*/

```
SELECT *FROM mata_kuliah;  
ALTER TABLE mata_kuliah MODIFY COLUMN jurusan CHAR(3) NOT NULL FIRST;
```

**Output :**

## Naufal Rasyid

### SQL Question

The screenshot shows the 'mata\_kuliah' table with the following columns: jurusan, id\_mata\_kuliah, nama\_mata\_kuliah, kelas, tahun\_ajaran, semester, jenis, kode\_dosen, nama\_dosen, kuota\_maks, kuota\_ter sisa, model\_perkulahan, status, durasi. The table contains 4 rows of data.

The output window shows the following actions:

#	Time	Action	Message	Duration / Fetch
42	05:00:07	SELECT *FROM mata_kuliah	8 row(s) returned	0.000 sec / 0.000 sec
43	05:00:07	ALTER TABLE mata_kuliah CHANGE program_studi jurusan CHAR(3) NOT NULL	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.031 sec
44	05:00:13	SELECT *FROM mata_kuliah	8 row(s) returned	0.000 sec / 0.000 sec
45	05:00:52	ALTER TABLE mata_kuliah MODIFY COLUMN jurusan CHAR(3) NOT NULL FIRST	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.312 sec
46	05:00:54	SELECT *FROM mata_kuliah	8 row(s) returned	0.000 sec / 0.000 sec

/\*Untuk mengubah posisi kolom awal\*/

```
SELECT *FROM mata_kuliah;
```

```
ALTER TABLE mata_kuliah MODIFY COLUMN jurusan CHAR(3) NOT NULL AFTER  
nama_mata_kuliah;
```

**Output :**

The screenshot shows the 'mata\_kuliah' table with the following columns: id\_mata\_kuliah, nama\_mata\_kuliah, jurusan, kelas, tahun\_ajaran, semester, jenis, kode\_dosen, nama\_dosen, kuota\_maks, kuota\_ter sisa, model\_perkulahan, status, durasi. The table contains 4 rows of data.

The output window shows the following actions:

#	Time	Action	Message	Duration / Fetch
44	05:00:13	SELECT *FROM mata_kuliah	8 row(s) returned	0.000 sec / 0.000 sec
45	05:00:52	ALTER TABLE mata_kuliah MODIFY COLUMN jurusan CHAR(3) NOT NULL FIRST	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.312 sec
46	05:00:54	SELECT *FROM mata_kuliah	8 row(s) returned	0.000 sec / 0.000 sec
47	05:01:35	ALTER TABLE mata_kuliah MODIFY COLUMN jurusan CHAR(3) NOT NULL AFTE...	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.125 sec
48	05:01:39	SELECT *FROM mata_kuliah	8 row(s) returned	0.000 sec / 0.000 sec

- **Menambahkan 1 kolom baru pada suatu tabel**

```
SELECT *FROM mata_kuliah;
```

```
ALTER TABLE mata_kuliah ADD COLUMN rating INT;
```

**Output :**

The screenshot shows the 'mata\_kuliah' table with the following columns: nama\_mata\_kuliah, jurusan, kelas, tahun\_ajaran, semester, jenis, kode\_dosen, nama\_dosen, kuota\_maks, kuota\_ter sisa, model\_perkulahan, status, durasi, maka\_sks, rating. The table contains 4 rows of data.

The output window shows the following actions:

#	Time	Action	Message	Duration / Fetch
46	05:00:54	SELECT *FROM mata_kuliah	8 row(s) returned	0.000 sec / 0.000 sec
47	05:01:35	ALTER TABLE mata_kuliah MODIFY COLUMN jurusan CHAR(3) NOT NULL AFTE...	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.125 sec
48	05:01:39	SELECT *FROM mata_kuliah	8 row(s) returned	0.000 sec / 0.000 sec
49	05:02:16	ALTER TABLE mata_kuliah ADD COLUMN rating INT	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.031 sec
50	05:02:18	SELECT *FROM mata_kuliah	8 row(s) returned	0.000 sec / 0.000 sec



**Naufal Rasyid**  
**SQL Question**

- Menghapus 1 kolom baru tersebut dari suatu tabel

```
SELECT *FROM mata_kuliah;  
ALTER TABLE mata_kuliah DROP COLUMN rating;
```

**Output :**

The screenshot shows a database management tool interface. At the top, there is a table named 'mata\_kuliah' with the following columns: id\_kuliah, nama\_mata\_kuliah, jurusan, kelas, tahun\_ajaran, semester, jenis, kode\_dosen, nama\_dosen, kuota\_maks, kuota\_tersisa, model\_perkuliahan, status\_, durasi, and maks\_sks. The table contains four rows of data. Below the table, there is an 'Output' section showing a log of SQL operations and their results. The operations include a SELECT statement, an ALTER TABLE statement to add a column, another SELECT statement, and an ALTER TABLE statement to drop a column. Each operation is followed by a message indicating the number of rows affected and the duration of the operation.

#	Time	Action	Message	Duration / Fetch
48	05:01:39	SELECT *FROM mata_kuliah	8 row(s) returned	0.000 sec / 0.000 sec
49	05:02:16	ALTER TABLE mata_kuliah ADD COLUMN rating INT	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.031 sec
50	05:02:18	SELECT *FROM mata_kuliah	8 row(s) returned	0.000 sec / 0.000 sec
51	05:02:56	ALTER TABLE mata_kuliah DROP COLUMN rating	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.032 sec
52	05:02:59	SELECT *FROM mata_kuliah	8 row(s) returned	0.000 sec / 0.000 sec

7. (10 poin: LO2) Buatlah relasi antara 3 tabel tersebut menggunakan FOREIGN KEY kearah tabel Transaksi.

**Jawab :**

CREATE TABLE transaksi (

id\_transaksi INT AUTO\_INCREMENT PRIMARY KEY,

id\_mahasiswa INT NOT NULL,

id\_mata\_kuliah VARCHAR(15) NOT NULL,

jurusan CHAR(3) NOT NULL REFERENCES mata\_kuliah(jurusan),

timestamp\_transaksi TIMESTAMP NOT NULL DEFAULT CURRENT\_TIMESTAMP,

jumlah\_sks INT NOT NULL,

total\_biaya INT NOT NULL,

virtual\_account INT NOT NULL,

status\_pembayaran VARCHAR(10) NOT NULL,

jatuh\_tempo DATE NOT NULL,

potongan\_biaya VARCHAR(5) NULL,

FOREIGN KEY (id\_mahasiswa) REFERENCES mahasiswa(id\_mahasiswa),

FOREIGN KEY (id\_mata\_kuliah) REFERENCES mata\_kuliah(id\_mata\_kuliah)

) AUTO\_INCREMENT = 1401;

## Naufal Rasyid

### SQL Question

8. (10 poin: LO2) Terapkanlah pemahaman anda mengenai TRANSACTION pada 2 tabel, dengan keterangan :

- Apabila GENAP (nilai kolom kuota\_tersisa pada tabel mata\_kuliah akan berkurang, apabila terjadi penambahan 2 record ditabel transaksi. Untuk barisnya atau record pada tabel mata\_kuliah yang digunakan hanya 2 saja, silahkan anda pilih baris atau recordnya).

**Jawab :**

Table Mata kuliah sebelum query Transaction :

id_mata_kuliah	nama_mata_kuliah	jurusan	kelas	tahun_ajaran	semester	jenis	kode_dosen	nama_dosen	kuota_maks	kuota_tersisa	model_perkulahan	status	durasi	maks_s
ART56018	Aesthetics	DKV	LG65	2023	1	LEC	D7512	Karina Sim	15	3	Online	Tersedia	90	2
COMP6458032	Data Structures	IT	BC75	2023	2	LAB	D3564	Evawaty Ta...	30	12	Online	Tersedia	120	2
COMP6468031	Artificial Intelligence	IT	LB75	2023	3	LEC	D6331	Annisa Istiq...	20	5	Online	Tersedia	90	2
DSGN468034	Design Thinking	DI	BF45	2023	2	LAB	D6214	Lusiana Dera	30	20	Onsite	Tersedia	90	1

Table TRANSAKSI sebelum query Transaction :

id_transaksi	id_mahasiswa	id_mata_kuliah	jurusan	timestamp_transaksi	jumlah_sks	total_biaya	virtual_account	status_pembayaran	jatuh_tempo	potongan_biaya
1401	2501	ART56018	DKV	2023-02-06 04:31:50	2	500000	71234	Lunas	2023-03-01	50%
1402	2504	DSGN468034	DI	2023-02-06 04:31:50	1	250000	71245	Belum Lunas	2023-03-04	NULL
1403	2507	COMP6468031	IT	2023-02-06 04:31:50	2	500000	71537	Belum Lunas	2023-03-02	NULL
1404	2505	COMP6458032	IT	2023-02-06 04:31:50	2	500000	71262	Belum Lunas	2023-03-02	50%
1405	2508	DSGN468034	DI	2023-02-06 04:31:50	1	250000	71214	Belum Lunas	2023-03-04	70%
1406	2503	ENR6519	DI	2023-02-06 04:31:50	2	500000	71234	Lunas	2023-03-04	NULL
1407	2502	LANG6097031	IT	2023-02-06 04:31:50	1	250000	71219	Lunas	2023-03-02	NULL
1408	2506	DSGN6818	DKV	2023-02-06 04:31:50	1	250000	75334	Belum Lunas	2023-03-01	10%

**Query :**

BEGIN;

INSERT INTO transaksi (id\_mahasiswa, id\_mata\_kuliah, jurusan, jumlah\_sks, total\_biaya, virtual\_account, status\_pembayaran, jatuh\_tempo)

VALUES (2505, 'COMP6458032', 'IT', 2, 500000, 71262, 'Lunas', '2023-03-02'),  
(2507, 'COMP6458031', 'IT', 2, 500000, 71537, 'Lunas', '2023-03-02');

UPDATE mata\_kuliah

SET kuota\_tersisa = kuota\_tersisa - 1

WHERE id\_mata\_kuliah IN ('COMP6458031', 'COMP6458032');

COMMIT;

## Naufal Rasyid

### SQL Question

#### Output :

id_transaksi	id_mahasiswa	id_mata_kuliah	jurusan	timestamp_transaksi	jumlah_sks	total_biaya	virtual_account	status_pembayaran	jatuh_tempo	potongan_biaya
1401	2501	ART56018	DKV	2023-02-06 06:43:55	2	500000	71234	Lunas	2023-03-01	50%
1402	2504	DSGN468034	DI	2023-02-06 06:43:55	1	250000	71245	Belum Lunas	2023-03-04	00%
1403	2507	COMP6468031	IT	2023-02-06 06:43:55	2	500000	71537	Belum Lunas	2023-03-02	00%
1404	2505	COMP6468032	IT	2023-02-06 06:43:55	2	500000	71262	Lunas	2023-03-02	50%
1405	2508	DSGN468034	DI	2023-02-06 06:43:55	1	250000	71214	Belum Lunas	2023-03-04	70%
1406	2503	ENTR6519	DI	2023-02-06 06:43:55	2	500000	71234	Lunas	2023-03-04	00%
1407	2502	LANG6097031	IT	2023-02-06 06:43:55	1	250000	71219	Lunas	2023-03-02	00%
1408	2506	DSGN46818	DKV	2023-02-06 06:43:55	1	250000	75334	Belum Lunas	2023-03-01	10%
1409	2504	DSGN468034	DI	2023-02-06 06:44:32	1	250000	71245	Lunas	2023-03-04	00%
1410	2507	COMP6468031	IT	2023-02-06 06:44:32	2	500000	71537	Lunas	2023-03-02	00%

#	Time	Action	Message	Duration / Fetch
12	06:43:55	INSERT INTO transaksi (id_mahasiswa, id_mata_kuliah, jurusan, jumlah_sks, total_b...	8 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.000 sec
13	06:44:32	BEGIN	0 row(s) affected	0.000 sec
14	06:44:32	INSERT INTO transaksi (id_mahasiswa, id_mata_kuliah, jurusan, jumlah_sks, total_b...	2 row(s) affected Records: 2 Duplicates: 0 Warnings: 0	0.000 sec
15	06:44:32	UPDATE mata_kuliah SET kuota_terisa = kuota_terisa - 1 WHERE id_mata_kula...	2 row(s) affected Rows matched: 2 Changed: 2 Warnings: 0	0.000 sec
16	06:44:32	COMMIT	0 row(s) affected	0.000 sec

id_mata_kuliah	nama_mata_kuliah	jurusan	kelas	tahun_ajaran	semester	jenis	kode_dosen	nama_dosen	kuota_maks	kuota_terisa	model_perkuliahan	status	durasi	make_u
ART56018	Aesthetics	DKV	LG65	2023	1	LEC	D7512	Karina Sim	15	3	Online	Tersedia	90	2
COMP6468032	Data Structures	IT	BC75	2023	2	LAB	D3564	Evawaty Ta...	30	12	Online	Tersedia	120	2
COMP6468031	Artificial Intelligence	IT	LB75	2023	3	LEC	D6331	Annisa Istiq...	20	4	Online	Tersedia	90	2
DSGN468034	Design Thinking	DI	BF45	2023	2	LAB	D6214	Lusiana Dera	30	19	Onsite	Tersedia	90	1

#	Time	Action	Message	Duration / Fetch
30	07:05:54	INSERT INTO transaksi (id_mahasiswa, id_mata_kuliah, jurusan, jumlah_sks, total_b...	8 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.000 sec
31	07:06:01	BEGIN	0 row(s) affected	0.000 sec
32	07:06:01	INSERT INTO transaksi (id_mahasiswa, id_mata_kuliah, jurusan, jumlah_sks, total_b...	2 row(s) affected Records: 2 Duplicates: 0 Warnings: 0	0.000 sec
33	07:06:01	UPDATE mata_kuliah SET kuota_terisa = kuota_terisa - 1 WHERE id_mata_kula...	2 row(s) affected Rows matched: 2 Changed: 2 Warnings: 0	0.000 sec

9. (10 poin: LO2) Gunakanlah INDEX pada 2 tabel, dan masing-masing tabel pada 3 kolom. Untuk tabel dan kolomnya dibebaskan kepada anda untuk menentukan. Setelah itu tunjukkan kedua tabel tersebut telah sukses ditambahkan INDEX, menggunakan SHOW.

Jawab :

Query :

```
CREATE INDEX IDX_mahasiswa ON mahasiswa (nama_mahasiswa, jurusan, tgl_lahir);
```

```
CREATE INDEX IDX_mata_kuliah ON mata_kuliah (nama_mata_kuliah, jurusan, jenis);
```

```
SHOW INDEX FROM mahasiswa;
```

```
SHOW INDEX FROM mata_kuliah;
```

#### Output :

Table	Non_unique	Key_name	Seq_in_index	Column_name	Collation	Cardinality	Sub_part	Packed	Null	Index_type	Comment	Index_comment	Visible	Expression
mahasiswa	0	PRIMARY	1	id_mahasiswa	A	0				BTREE			YES	
mahasiswa	1	IDX_mahasiswa	1	nama_mahasiswa	A	8				BTREE			YES	
mahasiswa	1	IDX_mahasiswa	2	jurusan	A	8				BTREE			YES	
mahasiswa	1	IDX_mahasiswa	3	tgl_lahir	A	8				BTREE			YES	

#	Time	Action	Message	Duration / Fetch
58	05:36:46	CREATE INDEX IDX_mahasiswa ON mahasiswa (nama_mahasiswa, jurusan, tgl_lahir)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.110 sec
59	05:36:47	CREATE INDEX IDX_mata_kuliah ON mata_kuliah (nama_mata_kuliah, jurusan, jenis)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.125 sec
60	05:36:47	SHOW INDEX FROM mahasiswa	4 row(s) returned	0.000 sec / 0.000 sec
61	05:36:47	SHOW INDEX FROM mata_kuliah	4 row(s) returned	0.000 sec / 0.000 sec
62	05:37:09	SHOW INDEX FROM mahasiswa	4 row(s) returned	0.000 sec / 0.000 sec

**Naufal Rasyid**  
**SQL Question**

Table	Non_unique	Key_name	Seq_in_index	Column_name	Collation	Cardinality	Sub_part	Packed	Null	Index_type	Comment	Index_comment	Visible	Expression
mata_kuliah	0	PRIMARY	1	id_mata_kuliah	A	0	NULL			BTREE			YES	INDEX
mata_kuliah	1	IDX_mata_kuliah	1	nama_mata_kuliah	A	8	NULL	NULL		BTREE			YES	INDEX
mata_kuliah	1	IDX_mata_kuliah	2	jurusan	A	8	NULL	NULL		BTREE			YES	INDEX
mata_kuliah	1	IDX_mata_kuliah	3	jenis	A	8	NULL	NULL		BTREE			YES	INDEX