

TUGAS KOMPILASI QUERY
PRAKTIKUM MATA KULIAH MANAJEMEN BASIS DATA
PERTEMUAN ke-5



Disusun oleh:
Kelompok 3

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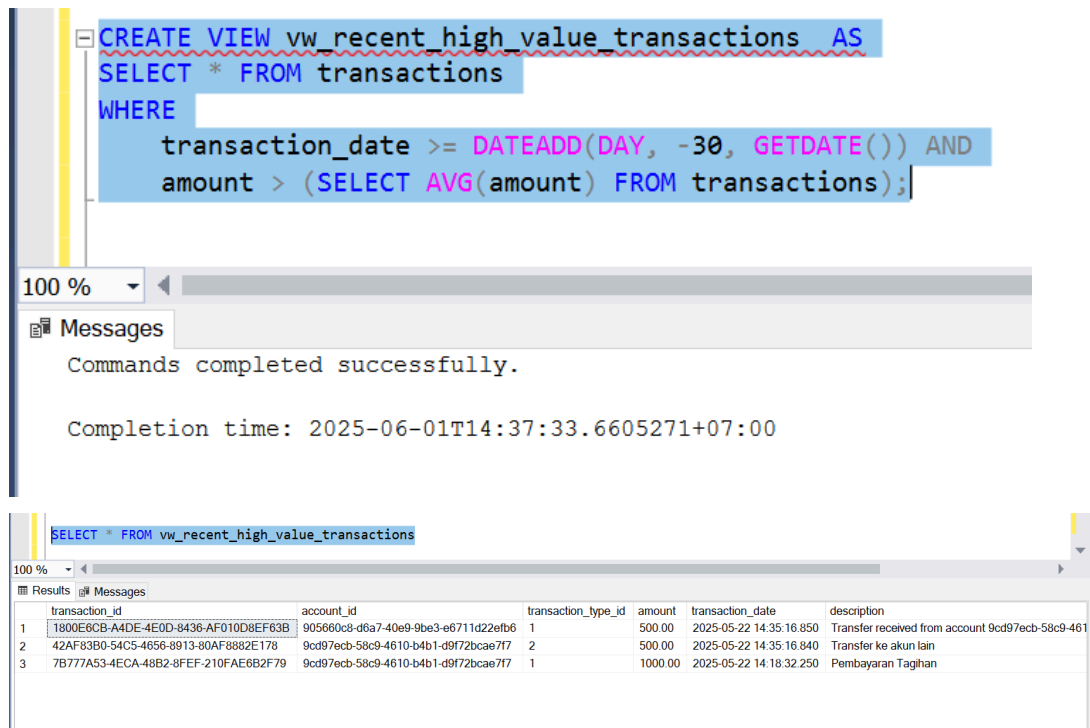
PROGRAM STUDI INFORMATIKA
FAKULTAS SAINS DAN MATEMATIKA
UNIVERSITAS DIPONEGORO

i. Buat view vw_recent_high_value_transactions yang menampilkan transaksi 30 hari terakhir dengan nilai > rata-rata seluruh transaksi.

- Query:

```
CREATE VIEW vw_recent_high_value_transactions AS
SELECT * FROM transactions
WHERE
    transaction_date >= DATEADD(DAY, -30, GETDATE()) AND
    amount > (SELECT AVG(amount) FROM transactions);
SELECT * FROM vw_recent_high_value_transactions
```

- Screenshoot:



ii. Buat view yang menampilkan jumlah transaksi per akun, dengan memisahkan transaksi deposit, transfer, dan withdrawal dalam kolom berbeda.

contoh:

customerId	deposit	transfer	withdrawal
abcd	2	4	1
efgh	5	2	6
ijkl	10	8	0

- Query:

```
CREATE VIEW vw_transaction_counts_by_account AS
SELECT
```

```

        t.account_id,
        SUM(CASE WHEN tt.name = 'deposit' THEN 1 ELSE 0 END)
AS deposit,
        SUM(CASE WHEN tt.name = 'transfer' THEN 1 ELSE 0 END)
AS transfer,
        SUM(CASE WHEN tt.name = 'withdrawal' THEN 1 ELSE 0
END) AS withdrawal
FROM
        transactions t
JOIN
        transaction_types tt ON t.transaction_type_id =
tt.transaction_type_id
GROUP BY
        t.account_id;

```

```
SELECT * FROM vw_transaction_counts_by_account;
```

- Screenshot:

```

CREATE VIEW vw_transaction_counts_by_account AS
SELECT
    t.account_id,
    SUM(CASE WHEN tt.name = 'deposit' THEN 1 ELSE 0 END) AS deposit,
    SUM(CASE WHEN tt.name = 'transfer' THEN 1 ELSE 0 END) AS transfer,
    SUM(CASE WHEN tt.name = 'withdrawal' THEN 1 ELSE 0 END) AS withdrawal
FROM
    transactions t
JOIN
    transaction_types tt ON t.transaction_type_id = tt.transaction_type_id
GROUP BY
    t.account_id;

```

100 %

Messages

Commands completed successfully.

Completion time: 2025-05-27T10:57:25.8124264+07:00

```
SELECT * FROM vw_transaction_counts_by_account;
```

100 %

Results Messages

	account_id	deposit	transfer	withdrawal
1	07a36a4b-7943-4634-b17a-7c7eb4407cd3	1	0	1
2	0937445f-d5eb-4ef9-887f-4173fe662dd4	1	0	0
3	1118a259-aa7d-402b-9f1f-72555ed15180	0	1	0
4	11d9d6f7-35d3-4ba3-bcca-a6b1e8f68519	0	0	1
5	14f24b1b-6e86-4cb3-bbc4-0293bc90f756	0	0	1
6	15b082e5-92e7-4375-a7d9-f7224d35ba13	0	0	1
7	15c1de08-94a5-482d-9db5-682a1581ed84	1	0	0
8	17a9ed0a-5ed3-41d6-9e20-df434296c83d	0	1	0
9	1afc36b6-ae72-48ff-9d51-5f57fac653bc	0	0	1
10	1d97bce1-5c94-49e4-8e2a-6ad56b99afb0	1	0	0
11	2156bbb2-c082-45e5-a5d6-f66752c37690	0	1	0
12	2229fe26-cc7f-4a58-9caf-d79a7f45b93e	0	1	0

v. Buat function fn_customer_loans_info yang mengembalikan list semua pinjaman customer lengkap dengan status dan selisih antara end_date dan GETDATE().

contoh:

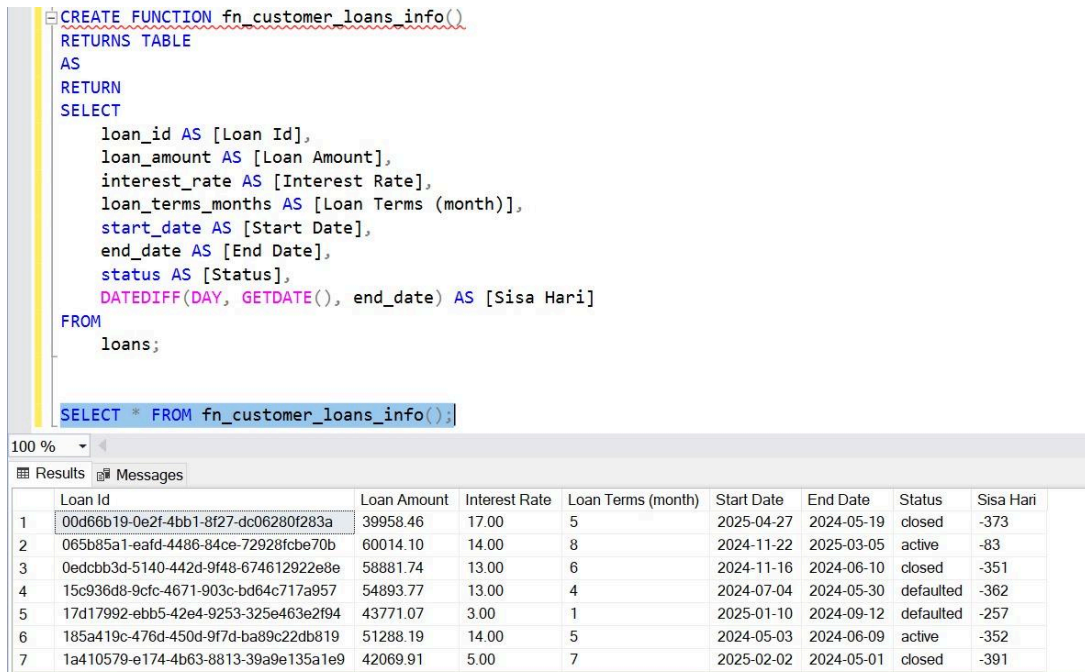
Loan Id	Loan Amount	Interest Rate	Loan Terms (month)	Start Date	End Date	Status	Sisa Hari
abcd	8500	12.5	24	2023-05-01	2025-05-01	active	342

- Query:

```
CREATE FUNCTION fn_customer_loans_info()
RETURNS TABLE
AS
RETURN
SELECT
    loan_id AS [Loan Id],
    loan_amount AS [Loan Amount],
    interest_rate AS [Interest Rate],
    loan_terms_months AS [Loan Terms (month)],
    start_date AS [Start Date],
    end_date AS [End Date],
    status AS [Status],
    DATEDIFF(DAY, GETDATE(), end_date) AS [Sisa Hari]
FROM
    loans;
```

```
SELECT * FROM fn_customer_loans_info();
```

- Screenshoot:



The screenshot shows a SQL query window with the following code:

```
CREATE FUNCTION fn_customer_loans_info()
RETURNS TABLE
AS
RETURN
SELECT
    loan_id AS [Loan Id],
    loan_amount AS [Loan Amount],
    interest_rate AS [Interest Rate],
    loan_terms_months AS [Loan Terms (month)],
    start_date AS [Start Date],
    end_date AS [End Date],
    status AS [Status],
    DATEDIFF(DAY, GETDATE(), end_date) AS [Sisa Hari]
FROM
    loans;

SELECT * FROM fn_customer_loans_info();
```

Below the query window, the 'Results' tab displays the output of the function call. The results are as follows:

	Loan Id	Loan Amount	Interest Rate	Loan Terms (month)	Start Date	End Date	Status	Sisa Hari
1	00d66b19-0e2f-4bb1-8f27-dc06280f283a	39958.46	17.00	5	2025-04-27	2024-05-19	closed	-373
2	065b85a1-eafd-4486-84ce-72928fcb70b	60014.10	14.00	8	2024-11-22	2025-03-05	active	-83
3	0edcbb3d-5140-442d-9f48-674612922e8e	58881.74	13.00	6	2024-11-16	2024-06-10	closed	-351
4	15c936d8-9cfc-4671-903c-bd64c717a957	54893.77	13.00	4	2024-07-04	2024-05-30	defaulted	-362
5	17d17992-ebb5-42e4-9253-325e463e2f94	43771.07	3.00	1	2025-01-10	2024-09-12	defaulted	-257
6	185a419c-476d-450d-9f7d-ba89c22db819	51288.19	14.00	5	2024-05-03	2024-06-09	active	-352
7	1a410579-e174-4b63-8813-39a9e135a1e9	42069.91	5.00	7	2025-02-02	2024-05-01	closed	-391

vii. Cegah transaksi baru yang memiliki transaction_date lebih lama dari transaksi terakhir untuk akun yang melakukan transaksi tersebut.

- Query:

```
CREATE TRIGGER trg_prevent_backdated_transaction
ON transactions
INSTEAD OF INSERT
AS
BEGIN
    SET NOCOUNT ON;

    IF EXISTS (
        SELECT 1
        FROM inserted i
        WHERE EXISTS (
            SELECT 1
            FROM transactions t
            WHERE t.account_id = i.account_id
            AND t.transaction_date > i.transaction_date
        )
    )
    BEGIN
        RAISERROR('Transaksi ditolak: Tanggal transaksi
lebih lama dari transaksi terakhir akun ini.', 16, 1);
        RETURN;
    END

    -- Jika valid, lanjutkan insert
    INSERT INTO transactions (
        transaction_id, account_id, transaction_type_id,
        amount, transaction_date, description, reference_account
    )
    SELECT
        transaction_id, account_id, transaction_type_id,
        amount, transaction_date, description, reference_account
    FROM inserted;
END;
GO

-- cek tabel transaksi
select * from transactions;

-- uji coba backdate
INSERT INTO transactions (transaction_id, account_id,
transaction_type_id, amount, transaction_date,
description, reference_account)
VALUES (NEWID(), 'c098f0dd-6434-4f69-afdd-d756849fe1fd',
1, 200.00, '2024-08-27 12:30:00', 'Transaksi backdate',
NULL);
```

- Screenshoot:

```
CREATE TRIGGER trg_prevent_backdated_transaction
ON transactions
INSTEAD OF INSERT
AS
BEGIN
    SET NOCOUNT ON;

    IF EXISTS (
        SELECT 1
        FROM inserted i
        WHERE EXISTS (
            SELECT 1
            FROM transactions t
            WHERE t.account_id = i.account_id
            AND t.transaction_date > i.transaction_date
        )
    )
    BEGIN
        RAISERROR('Transaksi ditolak: Tanggal transaksi lebih lama dari transaksi terakhir akun ini.', 16, 1);
        RETURN;
    END
    ELSE
    BEGIN
        INSERT INTO transactions (
            transaction_id, account_id, transaction_type_id, amount, transaction_date, description, reference_account
        )
        SELECT
            transaction_id, account_id, transaction_type_id, amount, transaction_date, description, reference_account
        FROM inserted;
    END
    GO
```

Commands completed successfully.

Completion time: 2025-06-01T11:11:58.3246326+07:00

Commands completed successfully.

Completion time: 2025-06-01T11:11:58.3246326+07:00

select * from transactions;

transaction_id	account_id	transaction_type_id	amount	transaction_date	description
04e45e65-b269-4c95-9362-74e17a8319bf	6edc13ce-6ed2-48a7-b73d-ef6ed8b73e38	3	76.99	2024-08-04 12:28:58.000	Accedis saluto 'chaere' inquam 'Tite' lictores tur
063e014a-839b-4ed2-b3a3-510e528f961c	0937445f-d5eb-4ef9-887f-4173fe662dd4	1	122.10	2025-03-05 00:22:17.000	Et quidem locis pluribus
06ae34b6-1723-4b44-baf9-a885f489723	71c0f7ab-b701-45f0-9c94-802383b3cc36	1	87.25	2025-01-09 09:05:38.000	Quales eius maiores fuisse et in conspectum su
0db669d2-610c-44cd-b5fa-2e3f58051d09	c098f0dd-6434-4f69-afdd-d756849fe1fd	1	124.05	2024-08-28 00:48:45.000	Praeterea neque praesenti nec
0e5cdf7d-0803-476b-8405-23e0b5091c08	d094e634-9744-478d-b73b-1a73149b19...	2	98.25	2024-06-29 15:41:58.000	Fidem sensibus confirmat id est in eo quod semel a
117e659a-c474-4cab-87a4-a5f902fc6453	2fd7706a-7187-470c-a1c3-f3e747b72f20	3	110.02	2024-09-17 22:54:11.000	Dolores eos qui ratione voluptatem sequi nesciunt
11bba8a7-a180-47b0-9fed-583129ee66...	15b082e5-92e7-4375-a7d9-47224d35ba...	3	101.20	2024-06-28 01:14:58.000	Sit voluptatem accusantium doloremque laudanti...
1229a502-c09e-478b-9939-4f7599344d37	eae2bb46-3bd9-4bd6-a6b7-1b2efdc1911a	3	111.00	2025-02-11 21:11:29.000	Spe proposita fore levius aliquando nulla praetere

Query executed successfully.

DESKTOP-DV919G1\INSTANCE202... | DESKTOP-DV919G1\Lenovo... | bank | 00:00:00 | 104 rows

```
INSERT INTO transactions (transaction_id, account_id, transaction_type_id, amount, transaction_date, description, reference_account)
VALUES (NEWID(), 'c098f0dd-6434-4f69-afdd-d756849fe1fd', 1, 200.00, '2024-08-27 12:30:00', 'Transaksi backdate', NULL);
```

Msg 50000, Level 16, State 1, Procedure trg_prevent_backdated_transaction, Line 19 [Batch Start Line 90]
Transaksi ditolak: Tanggal transaksi lebih lama dari transaksi terakhir akun ini.

(1 row affected)

Completion time: 2025-06-01T11:20:08.3872376+07:00