

TUGAS KELOMPOK PRAKTIKUM MANAJEMEN BASIS DATA PERTEMUAN-2 TENTANG FUNCTIONS



Asisten Praktikum :

Alya Safina & Izazava Putri Asari

Disusun oleh Kelompok 6 Lab A2 :

Aditya Arif Setiawan (24060121140144)

Alfonso Michael N H (24060123140156)

Anggita Mahardika Syarifa (24060119130089)

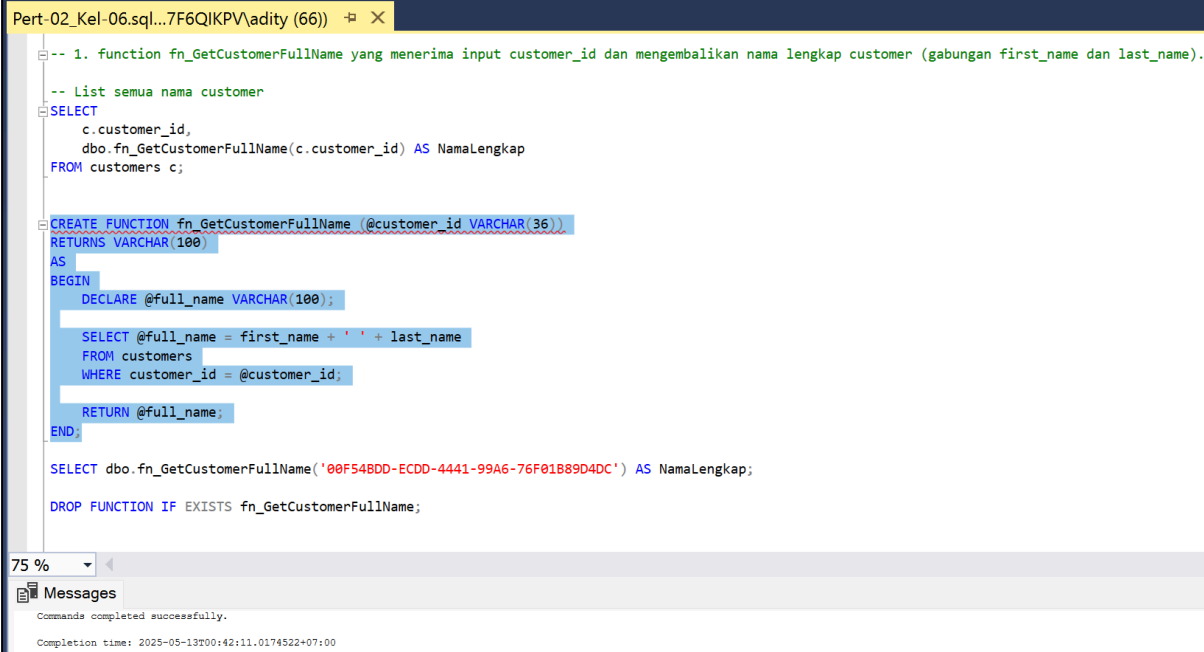
**DEPARTEMEN ILMU KOMPUTER/INFORMATIKA
FAKULTAS SAINS DAN MATEMATIKA
UNIVERSITAS DIPONEGORO**

2025

TOPIK 3 FUNCTIONS

1. function **fn_GetCustomerFullName** yang menerima input **customer_id** dan mengembalikan nama lengkap customer (gabungan **first_name** dan **last_name**).

Screenshot:



The screenshot shows a SQL script being executed in SQL Server Enterprise Manager. The script defines a function `fn_GetCustomerFullName` that takes a `customer_id` as input and returns the full name. It also includes a `SELECT` statement to list all customers and a test query for a specific customer ID.

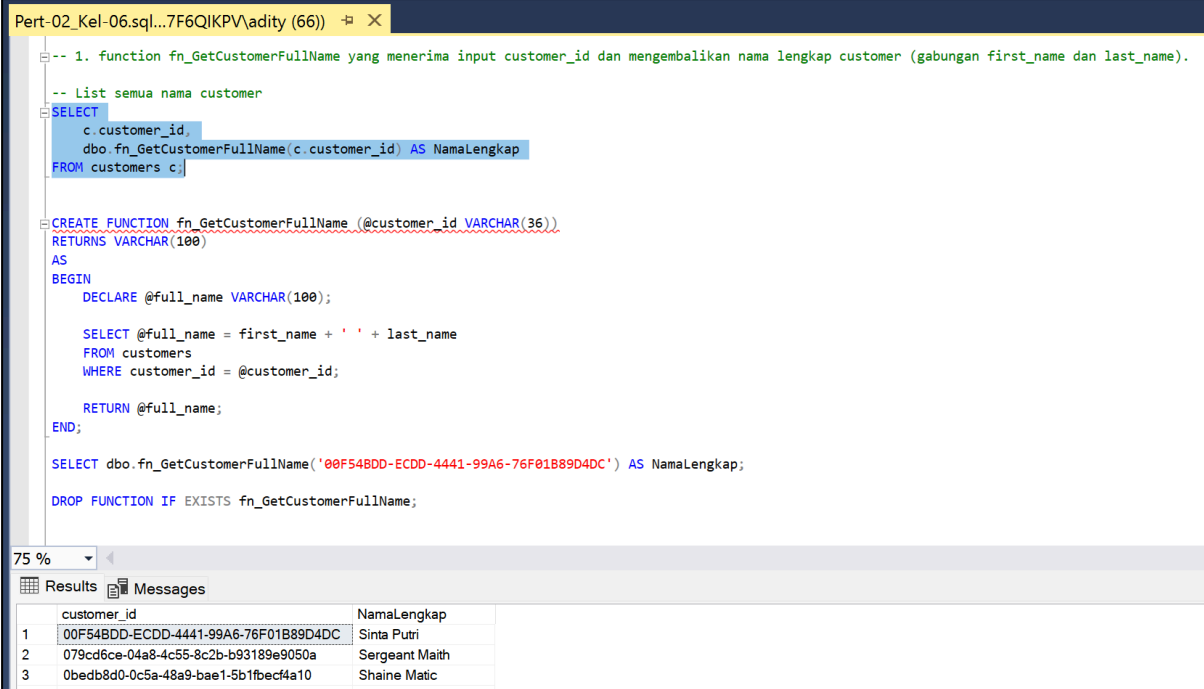
```
-- 1. function fn_GetCustomerFullName yang menerima input customer_id dan mengembalikan nama lengkap customer (gabungan first_name dan last_name).
-- List semua nama customer
SELECT
    c.customer_id,
    dbo.fn_GetCustomerFullName(c.customer_id) AS NamaLengkap
FROM customers c;

CREATE FUNCTION fn_GetCustomerFullName (@customer_id VARCHAR(36))
RETURNS VARCHAR(100)
AS
BEGIN
    DECLARE @full_name VARCHAR(100);
    SELECT @full_name = first_name + ' ' + last_name
    FROM customers
    WHERE customer_id = @customer_id;
    RETURN @full_name;
END;

SELECT dbo.fn_GetCustomerFullName('00F54BDD-ECDD-4441-99A6-76F01B89D4DC') AS NamaLengkap;

DROP FUNCTION IF EXISTS fn_GetCustomerFullName;
```

The Messages pane at the bottom indicates that the commands were completed successfully.



This screenshot shows the same SQL script as the previous one, but with the Results pane open, displaying the output of the `SELECT` statement. The results show four rows of customer data, including their IDs and full names.

```
-- 1. function fn_GetCustomerFullName yang menerima input customer_id dan mengembalikan nama lengkap customer (gabungan first_name dan last_name).
-- List semua nama customer
SELECT
    c.customer_id,
    dbo.fn_GetCustomerFullName(c.customer_id) AS NamaLengkap
FROM customers c;

CREATE FUNCTION fn_GetCustomerFullName (@customer_id VARCHAR(36))
RETURNS VARCHAR(100)
AS
BEGIN
    DECLARE @full_name VARCHAR(100);
    SELECT @full_name = first_name + ' ' + last_name
    FROM customers
    WHERE customer_id = @customer_id;
    RETURN @full_name;
END;

SELECT dbo.fn_GetCustomerFullName('00F54BDD-ECDD-4441-99A6-76F01B89D4DC') AS NamaLengkap;

DROP FUNCTION IF EXISTS fn_GetCustomerFullName;
```

	customer_id	NamaLengkap
1	00F54BDD-ECDD-4441-99A6-76F01B89D4DC	Sinta Putri
2	079cd6ce-04a8-4c55-8c2b-b93189e9050a	Sergeant Maith
3	0bedb8d0-0c5a-48a9-bae1-5b1fbcf4a10	Shaine Matic
4	0ca06e8d-a7a2-40c4-893b-128336ffdf54	Buddie Sandison

```
Pert-02_Kel-06.sql...7F6QIKPV\adity (66) X
-- 1. function fn_GetCustomerFullName yang menerima input customer_id dan mengembalikan nama lengkap customer (gabungan first_name dan last_name).
-- List semua nama customer
SELECT
    c.customer_id,
    dbo.fn_GetCustomerFullName(c.customer_id) AS NamaLengkap
FROM customers c;

CREATE FUNCTION fn_GetCustomerFullName (@customer_id VARCHAR(36))
RETURNS VARCHAR(100)
AS
BEGIN
    DECLARE @full_name VARCHAR(100);

    SELECT @full_name = first_name + ' ' + last_name
    FROM customers
    WHERE customer_id = @customer_id;

    RETURN @full_name;
END;

SELECT dbo.fn_GetCustomerFullName('00F548DD-ECDD-4441-99A6-76F01889D4DC') AS NamaLengkap;

DROP FUNCTION IF EXISTS fn_GetCustomerFullName;
```

75 %

Results Messages

	NamaLengkap
1	Sinta Putri

2. function **fn_GetTotalBalanceByCustomer** yang menerima input customer_id dan mengembalikan total saldo dari semua akun milik customer tersebut dari tabel accounts.

Screenshot:

```
Pert-02_Kel-06.sql...7F6QIKPV\adity (66) X
-- 2. function fn_GetTotalBalanceByCustomer yang menerima input customer_id dan mengembalikan total saldo dari semua akun milik customer tersebut dari tabel accounts.
-- List total saldo semua customer
SELECT
    c.customer_id,
    dbo.fn_GetTotalBalanceByCustomer(c.customer_id) AS TotalSaldo
FROM customers c;

CREATE FUNCTION fn_GetTotalBalanceByCustomer (@customer_id VARCHAR(36))
RETURNS DECIMAL(18,2)
AS
BEGIN
    DECLARE @total_balance DECIMAL(18,2);

    SELECT @total_balance = SUM(balance)
    FROM accounts
    WHERE customer_id = @customer_id;

    RETURN ISNULL(@total_balance, 0);
END;

SELECT dbo.fn_GetTotalBalanceByCustomer('079cd6ce-04a8-4c55-8c2b-b93189e9050a') AS TotalSaldo;

DROP FUNCTION IF EXISTS fn_GetTotalBalanceByCustomer;
```

75 %

Messages

Commands completed successfully.
Completion time: 2025-05-13T00:47:02.2182991+07:00

Pert-02_Kel-06.sql...7F6QIKPV\adity (66)

```
-- 2. function fn_GetTotalBalanceByCustomer yang menerima input customer_id dan mengembalikan total saldo dari semua akun milik customer tersebut dari tabel accounts.
--List total saldo semua customer
SELECT
    c.customer_id,
    dbo.fn_GetTotalBalanceByCustomer(c.customer_id) AS TotalSaldo
FROM customers c;

CREATE FUNCTION fn_GetTotalBalanceByCustomer (@customer_id VARCHAR(36))
RETURNS DECIMAL(18,2)
AS
BEGIN
    DECLARE @total_balance DECIMAL(18,2);

    SELECT @total_balance = SUM(balance)
    FROM accounts
    WHERE customer_id = @customer_id;

    RETURN ISNULL(@total_balance, 0);
END;

SELECT dbo.fn_GetTotalBalanceByCustomer('079cd6ce-04a8-4c55-8c2b-b93189e9050a') AS TotalSaldo;

DROP FUNCTION IF EXISTS fn_GetTotalBalanceByCustomer;
```

75 %

Results Messages

	customer_id	TotalSaldo
1	00F54BDD-ECDD-4441-99A6-76F01B89D4DC	0.00
2	079cd6ce-04a8-4c55-8c2b-b93189e9050a	12498.44
3	0bedb8d0-0c5a-48a9-bae1-5b1fbecf4a10	9900.74
4	0ca06e8d-a7a2-40c4-893b-128336ffdf54	10980.79

Pert-02_Kel-06.sql...7F6QIKPV\adity (66)

```
-- 2. function fn_GetTotalBalanceByCustomer yang menerima input customer_id dan mengembalikan total saldo dari semua akun milik customer tersebut dari tabel accounts.
--List total saldo semua customer
SELECT
    c.customer_id,
    dbo.fn_GetTotalBalanceByCustomer(c.customer_id) AS TotalSaldo
FROM customers c;

CREATE FUNCTION fn_GetTotalBalanceByCustomer (@customer_id VARCHAR(36))
RETURNS DECIMAL(18,2)
AS
BEGIN
    DECLARE @total_balance DECIMAL(18,2);

    SELECT @total_balance = SUM(balance)
    FROM accounts
    WHERE customer_id = @customer_id;

    RETURN ISNULL(@total_balance, 0);
END;

SELECT dbo.fn_GetTotalBalanceByCustomer('079cd6ce-04a8-4c55-8c2b-b93189e9050a') AS TotalSaldo;

DROP FUNCTION IF EXISTS fn_GetTotalBalanceByCustomer;
```

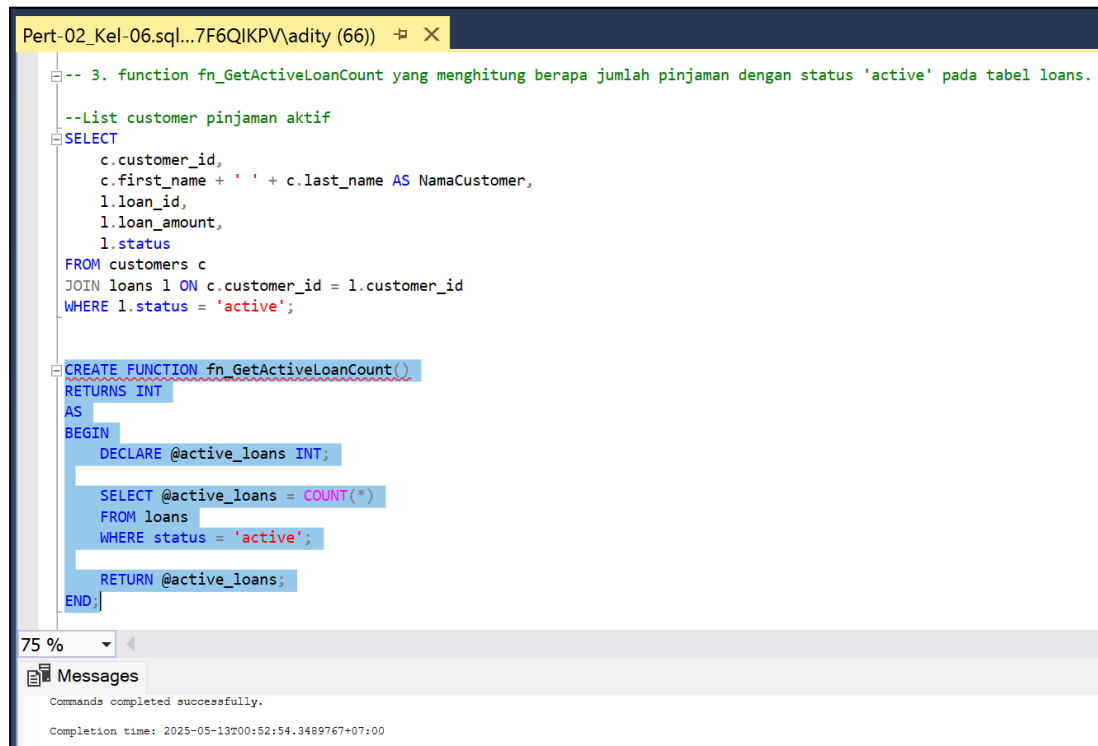
75 %

Results Messages

	TotalSaldo
1	12498.44

3. function **fn_GetActiveLoanCount** yang menghitung berapa jumlah pinjaman dengan status 'active' pada tabel loans.

Screenshot:

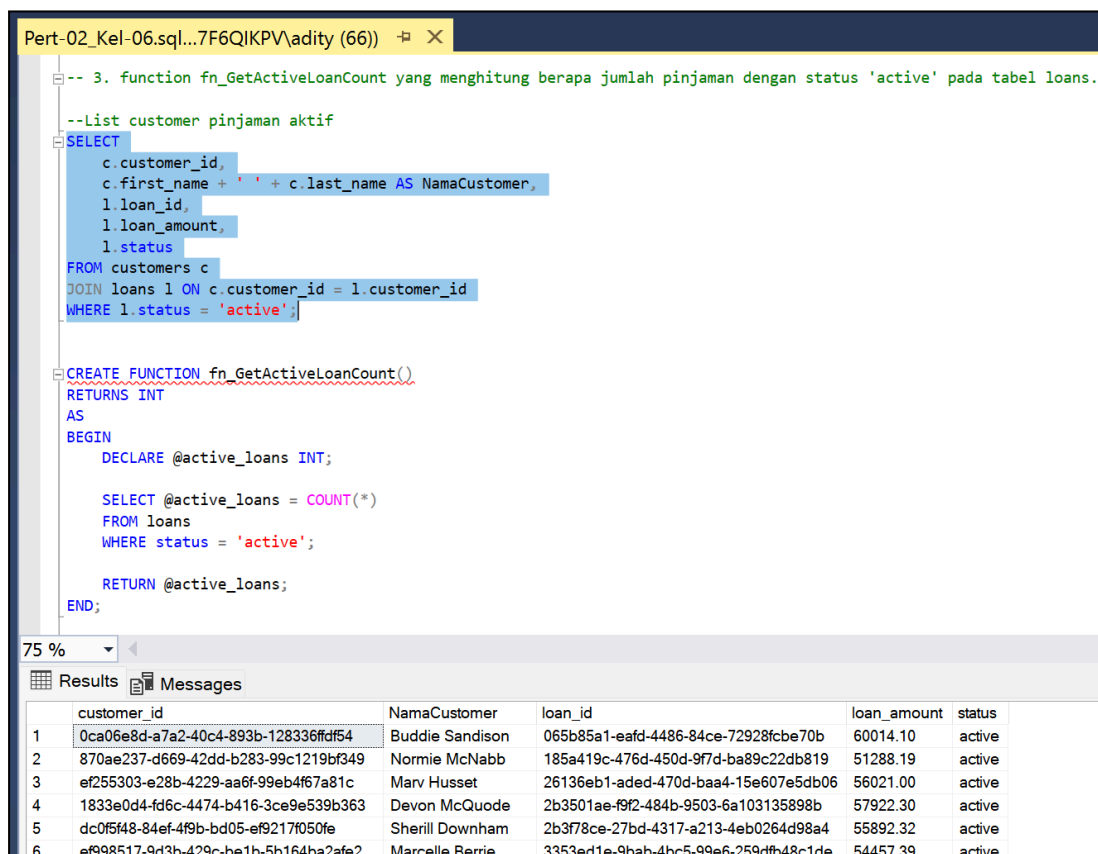


```
-- 3. function fn_GetActiveLoanCount yang menghitung berapa jumlah pinjaman dengan status 'active' pada tabel loans.
--List customer pinjaman aktif
SELECT
    c.customer_id,
    c.first_name + ' ' + c.last_name AS NamaCustomer,
    l.loan_id,
    l.loan_amount,
    l.status
FROM customers c
JOIN loans l ON c.customer_id = l.customer_id
WHERE l.status = 'active';

CREATE FUNCTION fn_GetActiveLoanCount()
RETURNS INT
AS
BEGIN
    DECLARE @active_loans INT;

    SELECT @active_loans = COUNT(*)
    FROM loans
    WHERE status = 'active';

    RETURN @active_loans;
END;
```



```
-- 3. function fn_GetActiveLoanCount yang menghitung berapa jumlah pinjaman dengan status 'active' pada tabel loans.
--List customer pinjaman aktif
SELECT
    c.customer_id,
    c.first_name + ' ' + c.last_name AS NamaCustomer,
    l.loan_id,
    l.loan_amount,
    l.status
FROM customers c
JOIN loans l ON c.customer_id = l.customer_id
WHERE l.status = 'active';

CREATE FUNCTION fn_GetActiveLoanCount()
RETURNS INT
AS
BEGIN
    DECLARE @active_loans INT;

    SELECT @active_loans = COUNT(*)
    FROM loans
    WHERE status = 'active';

    RETURN @active_loans;
END;
```

	customer_id	NamaCustomer	loan_id	loan_amount	status
1	0ca06e8d-a7a2-40c4-893b-128336ffdf54	Buddie Sandison	065b85a1-eafd-4486-84ce-72928fcb70b	60014.10	active
2	870ae237-d669-42dd-b283-99c1219bf349	Normie McNabb	185a419c-476d-450d-9f7d-ba89c22db819	51288.19	active
3	ef255303-e28b-4229-aa6f-99eb4f67a81c	Marv Husset	26136eb1-aded-470d-baa4-15e607e5db06	56021.00	active
4	1833e0d4-fd6c-4474-b416-3ce9e539b363	Devon McQuode	2b3501ae-f9f2-484b-9503-6a103135898b	57922.30	active
5	dc0f5f48-84ef-4f9b-bd05-ef9217f050fe	Sherill Downham	2b3f78ce-27bd-4317-a213-4eb0264d98a4	55892.32	active
6	ef998517-9d3b-429c-be1b-5b164ba2afe2	Marcelle Berrie	3353ed1e-9bab-4bc5-99e6-259dfb48c1de	54457.39	active

Pert-02_Kel-06.sql...7F6QIKPV\adity (66)

```
--List customer pinjaman aktif
SELECT
    c.customer_id,
    c.first_name + ' ' + c.last_name AS NamaCustomer,
    l.loan_id,
    l.loan_amount,
    l.status
FROM customers c
JOIN loans l ON c.customer_id = l.customer_id
WHERE l.status = 'active';

CREATE FUNCTION fn_GetActiveLoanCount()
RETURNS INT
AS
BEGIN
    DECLARE @active_loans INT;

    SELECT @active_loans = COUNT(*)
    FROM loans
    WHERE status = 'active';

    RETURN @active_loans;
END;

SELECT dbo.fn_GetActiveLoanCount() AS JumlahPinjamanAktif;

DROP FUNCTION IF EXISTS fn_GetActiveLoanCount;
```

75 %



Results



Messages

	JumlahPinjamanAktif
1	33

4. function **fn_GetAccountNetFlow** yang menerima **account_id** dan mengembalikan selisih antara total transaksi masuk dan keluar.

Screenshot:

```
Pert-02_Kel-06.sql...7F6QIKPV\adity (66)  X
-- 4. function fn_GetAccountNetFlow yang menerima account_id dan mengembalikan selisih antara total transaksi masuk dan keluar.
--Daftar Net Transaksi Semua Akun
SELECT
    c.first_name + ' ' + c.last_name AS NamaCustomer,
    a.account_id,
    a.account_number,
    a.customer_id,
    dbo.fn_GetAccountNetFlow(a.account_id) AS NetTransaksi
FROM accounts a
JOIN customers c ON a.customer_id = c.customer_id;

CREATE FUNCTION fn_GetAccountNetFlow (@account_id VARCHAR(36))
RETURNS DECIMAL(18,2)
AS
BEGIN
    DECLARE @inflow DECIMAL(18,2);
    DECLARE @outflow DECIMAL(18,2);

    -- Total transaksi masuk
    SELECT @inflow = SUM(amount)
    FROM transactions
    WHERE account_id = @account_id AND transaction_type_id = 1;

    -- Total transaksi keluar
    SELECT @outflow = SUM(amount)
    FROM transactions
    WHERE account_id = @account_id AND transaction_type_id = 2;

    RETURN ISNULL(@inflow, 0) - ISNULL(@outflow, 0);
END;
```

62 %

Messages

Commands completed successfully.

Completion time: 2025-05-13T01:00:52.7181466+07:00

```
Pert-02_Kel-06.sql...7F6QIKPV\adity (66)  X
-- 4. function fn_GetAccountNetFlow yang menerima account_id dan mengembalikan selisih antara total transaksi masuk dan keluar.
--Daftar Net Transaksi Semua Akun
SELECT
    c.first_name + ' ' + c.last_name AS NamaCustomer,
    a.account_id,
    a.account_number,
    a.customer_id,
    dbo.fn_GetAccountNetFlow(a.account_id) AS NetTransaksi
FROM accounts a
JOIN customers c ON a.customer_id = c.customer_id;

CREATE FUNCTION fn_GetAccountNetFlow (@account_id VARCHAR(36))
RETURNS DECIMAL(18,2)
AS
BEGIN
    DECLARE @inflow DECIMAL(18,2);
    DECLARE @outflow DECIMAL(18,2);

    -- Total transaksi masuk
    SELECT @inflow = SUM(amount)
    FROM transactions
    WHERE account_id = @account_id AND transaction_type_id = 1;

    -- Total transaksi keluar
    SELECT @outflow = SUM(amount)
    FROM transactions
    WHERE account_id = @account_id AND transaction_type_id = 2;

    RETURN ISNULL(@inflow, 0) - ISNULL(@outflow, 0);
END;
```

75 %

Results Messages

	NamaCustomer	account_id	account_number	customer_id	NetTransaksi
1	Sergeant Maith	f75c87e7-70a8-4fbd-8ad6-9d5e9cefc314	3849055069	079cd6ce-04a8-4c55-8c2b-b93189e9050a	-112.54
2	Shaine Matic	65b4514d-4bbb-4aed-b0e0-859e1bef135e	0851676096	0bedb8d0-0c5a-48a9-bae1-5b1fbec4a10	-118.80
3	Buddie Sandison	c5f0f1a9-441b-4a71-81c8-9f2a78288a92	8530330039	0ca06e8d-a7a2-40c4-893b-128336ffdf54	0.00
4	Stephanus Frear	c098f0dd-6434-4f69-afdd-d756849fe1fd	8421559542	13aac759-5c49-42dc-9693-0f46cb1337bb	124.05
5	Corette Vicent	1118a259-aa7d-402b-9f1f-72555ed15180	7713339428	14f35ff7-5574-4e12-ad89-7e7704a02e62	-93.12
6	Adi Saputra	29514E7D-7DA0-48B2-B80A-BCC23448D542	ACC100001	1745BAC5-B03B-474A-A348-DED69AEAF2FE	0.00

Pert-02_Kel-06.sql...7F6QIKPV\adity (66)

```
FROM accounts a
JOIN customers c ON a.customer_id = c.customer_id;

CREATE FUNCTION fn_GetAccountNetFlow (@account_id VARCHAR(36))
RETURNS DECIMAL(18,2)
AS
BEGIN
    DECLARE @inflow DECIMAL(18,2);
    DECLARE @outflow DECIMAL(18,2);

    -- Total transaksi masuk
    SELECT @inflow = SUM(amount)
    FROM transactions
    WHERE account_id = @account_id AND transaction_type_id = 1;

    -- Total transaksi keluar
    SELECT @outflow = SUM(amount)
    FROM transactions
    WHERE account_id = @account_id AND transaction_type_id = 2;

    RETURN ISNULL(@inflow, 0) - ISNULL(@outflow, 0);
END;

SELECT dbo.fn_GetAccountNetFlow('07a36a4b-7943-4634-b17a-7c7eb4407cd3') AS NetTransaksi;

DROP FUNCTION IF EXISTS fn_GetAccountNetFlow;
```

75 %

Results Messages

	NetTransaksi
1	-4920.90

5. function **fn_GetCustomerFinancialSummary** yang menerima **customer_id**, dan mengembalikan hasil total saldo + total pinjaman.

Screenshot:

```
Pert-02_Kel-06.sql...7F6QIKPV\adity (66) X
-- 5. function fn_GetCustomerFinancialSummary yang menerima customer_id, dan mengembalikan hasil total saldo + total pinjaman.
--Daftar Ringkasan Semua Customer
SELECT
    c.customer_id,
    c.first_name + ' ' + c.last_name AS NamaCustomer,
    dbo.fn_GetCustomerFinancialSummary(c.customer_id) AS RingkasanKeuangan
FROM customers c;

CREATE FUNCTION fn_GetCustomerFinancialSummary (@customer_id VARCHAR(36))
RETURNS DECIMAL(18,2)
AS
BEGIN
    DECLARE @total_balance DECIMAL(18,2);
    DECLARE @total_loan DECIMAL(18,2);

    -- Ambil total saldo dari semua akun customer
    SELECT @total_balance = SUM(balance)
    FROM accounts
    WHERE customer_id = @customer_id;

    -- Ambil total jumlah pinjaman customer
    SELECT @total_loan = SUM(loan_amount)
    FROM loans
    WHERE customer_id = @customer_id;

    RETURN ISNULL(@total_balance, 0) + ISNULL(@total_loan, 0);
END;
```

68 %

Messages

Commands completed successfully.

Completion time: 2025-05-13T01:05:14.963286+07:00

```
Pert-02_Kel-06.sql...7F6QIKPV\adity (66) X
-- 5. function fn_GetCustomerFinancialSummary yang menerima customer_id, dan mengembalikan hasil total saldo + total pinjaman.
--Daftar Ringkasan Semua Customer
SELECT
    c.customer_id,
    c.first_name + ' ' + c.last_name AS NamaCustomer,
    dbo.fn_GetCustomerFinancialSummary(c.customer_id) AS RingkasanKeuangan
FROM customers c;

CREATE FUNCTION fn_GetCustomerFinancialSummary (@customer_id VARCHAR(36))
RETURNS DECIMAL(18,2)
AS
BEGIN
    DECLARE @total_balance DECIMAL(18,2);
    DECLARE @total_loan DECIMAL(18,2);

    -- Ambil total saldo dari semua akun customer
    SELECT @total_balance = SUM(balance)
    FROM accounts
    WHERE customer_id = @customer_id;

    -- Ambil total jumlah pinjaman customer
    SELECT @total_loan = SUM(loan_amount)
    FROM loans
    WHERE customer_id = @customer_id;

    RETURN ISNULL(@total_balance, 0) + ISNULL(@total_loan, 0);
END;
```

68 %

Results Messages

	customer_id	NamaCustomer	RingkasanKeuangan
1	00F54BDD-ECDD-4441-99A6-76F01B89D4DC	Sinta Putri	0.00
2	079cd6ce-04a8-4c55-8c2b-b93189e9050a	Sergeant Maith	50742.07
3	0bedb8d0-0c5a-48a9-bae1-5b1fbecf4a10	Shaine Matic	59238.57
4	0ca06e8d-a7a2-40c4-893b-128336dfd54	Buddie Sandison	70994.89
5	13aac759-5c49-42dc-9693-0f46cb1337bb	Stephanus Frear	64771.51
6	14f35ff7-5574-4e12-ad89-7e7704a02e62	Corette Vicent	73524.09
7	1745BAC5-B03B-474A-A348-DED69AEAF2FE	Adi Saputra	1000000.00
8	1833e0d4-fd6c-4474-b416-3ce9e539b363	Devon McQuode	68205.76

Pert-02_Kel-06.sql...7F6QIKPV\adity (66)

```
SELECT
    c.customer_id,
    c.first_name + ' ' + c.last_name AS NamaCustomer,
    dbo.fn_GetCustomerFinancialSummary(c.customer_id) AS RingkasanKeuangan
FROM customers c;

CREATE FUNCTION fn_GetCustomerFinancialSummary (@customer_id VARCHAR(36))
RETURNS DECIMAL(18,2)
AS
BEGIN
    DECLARE @total_balance DECIMAL(18,2);
    DECLARE @total_loan DECIMAL(18,2);

    -- Ambil total saldo dari semua akun customer
    SELECT @total_balance = SUM(balance)
    FROM accounts
    WHERE customer_id = @customer_id;

    -- Ambil total jumlah pinjaman customer
    SELECT @total_loan = SUM(loan_amount)
    FROM loans
    WHERE customer_id = @customer_id;

    RETURN ISNULL(@total_balance, 0) + ISNULL(@total_loan, 0);
END;

SELECT dbo.fn_GetCustomerFinancialSummary('14f35ff7-5574-4e12-ad89-7e7704a02e62') AS RingkasanKeuangan;

DROP FUNCTION IF EXISTS fn_GetCustomerFinancialSummary;
```

68 %

Results Messages

	RingkasanKeuangan
1	73524.09