TUGAS FUNCTION
PRAKTIKUM MATA KULIAH MANAJEMEN BASIS DATA
PERTEMUAN ke-2

Disusun oleh:

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● Buatlah kemudian aplikasikan query function untuk kasus berikut:

i. function fn_GetCustomerFullName yang menerima input customer_id dan mengembalikan nama lengkap customer (gabungan first_name dan last_name).
- Query:
  CREATE FUNCTION fn_GetCustomerFullName (@customer_id VARCHAR(36))
  RETURNS VARCHAR(255)
  AS
  BEGIN
     DECLARE @full_name VARCHAR(255);

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

     RETURN @full_name;
  END;

  --Aplikasi
  SELECT dbo.fn_GetCustomerFullName('f40f3b32-6b03-4f88-896a-949bb777a247')
  AS FullName;

- Screenshoot:

ii. function fn_GetTotalBalanceByCustomer yang menerima input customer_id dan mengembalikan total saldo dari semua akun milik customer tersebut dari tabel accounts.
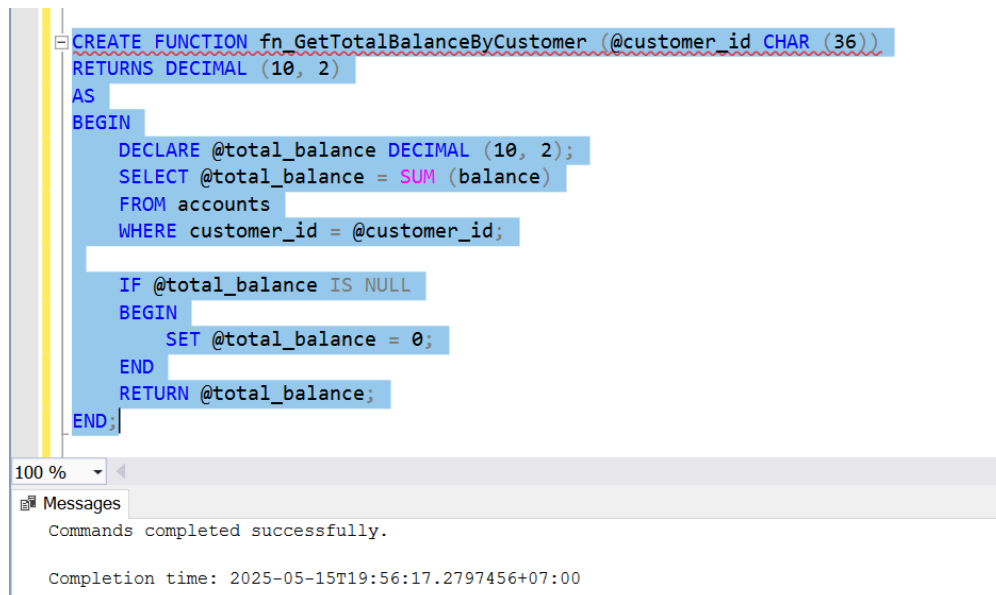
- Query:

```
CREATE FUNCTION fn_GetTotalBalanceByCustomer (@customer_id CHAR (36))
RETURNS DECIMAL (10, 2)
AS
BEGIN
        DECLARE @total_balance DECIMAL (10, 2);
        SELECT @total_balance = SUM (balance)
        FROM accounts
        WHERE customer_id = @customer_id;

        IF @total_balance IS NULL
        BEGIN
                SET @total_balance = 0;
        END
        RETURN @total_balance;
END;

SELECT SELECT
dbo.fn_GetTotalBalanceByCustomer('ed4658f1-c11e-484a-b761-c911885548c2') AS
total_balance;
```

- Screenshoot:

```
CREATE FUNCTION fn_GetTotalBalanceByCustomer (@customer_id CHAR (36))
RETURNS DECIMAL (10, 2)
AS
BEGIN
    DECLARE @total_balance DECIMAL (10, 2);
    SELECT @total_balance = SUM (balance)
    FROM accounts
    WHERE customer_id = @customer_id;

    IF @total_balance IS NULL
    BEGIN
        SET @total_balance = 0;
    END
    RETURN @total_balance;
END;
```

100 %

⊞ Messages

```
  Commands completed successfully.

  Completion time: 2025-05-15T19:56:17.2797456+07:00
```

```
SELECT dbo.fn_GetTotalBalanceByCustomer('ed4658f1-c11e-484a-b761-c911885548c2') AS total_balance;
```

	total_balance
1	11681.49

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

- Query:

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

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

    RETURN @activeLoanCount;
END;

SELECT dbo.fn_GetActiveLoanCount();
```

- Screenshoot:


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

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

    RETURN @activeLoanCount;
END;
```

Commands completed successfully.

Completion time: 2025-05-16T06:35:48.9790854+07:00

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

- Query:

```
CREATE FUNCTION fn_GetAccountNetFlow(@account_id CHAR(36))
RETURNS DECIMAL(18,2)
AS
BEGIN
    DECLARE @totalMasuk DECIMAL(18,2);
    DECLARE @totalKeluar DECIMAL(18,2);

    SELECT @totalMasuk = ISNULL(SUM(amount), 0)
    FROM transactions
    WHERE reference_account = @account_id;

    SELECT @totalKeluar = ISNULL(SUM(amount), 0)
    FROM transactions
    WHERE account_id = @account_id AND reference_account IS NOT NULL;

    RETURN @totalMasuk - @totalKeluar;
END;


SELECT
    account_id,
    dbo.fn_GetAccountNetFlow('905660c8-d6a7-40e9-9be3-e6711d22efb6') AS NetFlow
FROM accounts;
```

- Screenshot:

```sql
CREATE FUNCTION fn_GetAccountNetFlow(@account_id CHAR(36))
RETURNS DECIMAL(18,2)
AS
BEGIN
    DECLARE @totalMasuk DECIMAL(18,2);
    DECLARE @totalKeluar DECIMAL(18,2);

    SELECT @totalMasuk = ISNULL(SUM(amount), 0)
    FROM transactions
    WHERE reference_account = @account_id;

    SELECT @totalKeluar = ISNULL(SUM(amount), 0)
    FROM transactions
    WHERE account_id = @account_id AND reference_account IS NOT NULL;

    RETURN @totalMasuk - @totalKeluar;
END;
```

100 %

📰 Messages

```
Commands completed successfully.

Completion time: 2025-05-16T06:28:06.7101465+07:00
```

```sql
SELECT
    account_id,
    dbo.fn_GetAccountNetFlow('905660c8-d6a7-40e9-9be3-e6711d22efb6') AS NetFlow
FROM accounts;
```

100 %

⊞ Results 📰 Messages

	account_id	NetFlow
1	07a36a4b-7943-4634-b17a-7c7eb4407cd3	-118.44
2	0937445f-d5eb-4ef9-887f-4173fe662dd4	-118.44
3	1118a259-aa7d-402b-9f1f-72555ed15180	-118.44
4	11d9d6f7-35d3-4ba3-bcca-a6b1e8f68519	-118.44
5	14f24b1b-6e86-4cb3-bbc4-0293bc90f756	-118.44
6	15b082e5-92e7-4375-a7d9-f7224d35ba13	-118.44
7	15c1de08-94a5-482d-9db5-682a1581ed84	-118.44
8	17a9ed0a-5ed3-41d6-9e20-df434296c83d	-118.44
9	1afc36b6-ae72-48ff-9d51-5f57fac653bc	-118.44
10	1d97bce1-5c94-49e4-8e2a-6ad56b99afb0	-118.44
11	2156bbb2-c082-45e5-a5d6-f66752c37690	-118.44
12	2229fe26-cc7f-4a58-9caf-d79a7f45b93e	-118.44

✓ Query executed successfully.   🔒 DESKTOP-DV919G1\INSTANCE202

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

- Query:
CREATE FUNCTION fn_GetCustomerFinancialSummary (@customer_id
CHAR(36))
RETURNS DECIMAL(18, 2)
AS
BEGIN
    DECLARE @total_balance DECIMAL(18, 2);
    DECLARE @total_loan DECIMAL(18, 2);
    DECLARE @result DECIMAL(18, 2);

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

    SELECT @total_loan = SUM(loan_amount)
    FROM loans
    WHERE customer_id = @customer_id;

    IF @total_balance IS NULL
        SET @total_balance = 0;
    IF @total_loan IS NULL
        SET @total_loan = 0;

    SET @result = @total_balance + @total_loan;
    RETURN @result;
END;

SELECT
    c.customer_id,
    CONCAT(c.first_name, ' ', c.last_name) AS full_name,
    dbo.fn_GetCustomerFinancialSummary(c.customer_id) AS
total_saldo_dan_total_pinjaman
FROM customers c;
```

- Screenshoot:

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

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

    SELECT @total_loan = SUM(loan_amount)
    FROM loans
    WHERE customer_id = @customer_id;

    IF @total_balance IS NULL SET @total_balance = 0;
    IF @total_loan IS NULL SET @total_loan = 0;

    SET @result = @total_balance + @total_loan;
    RETURN @result;
END:
```

```sql
SELECT
    c.customer_id,
    CONCAT(c.first_name, ' ', c.last_name) AS full_name,
    dbo.fn_GetCustomerFinancialSummary(c.customer_id) AS total_saldo_dan_total_pinjaman
FROM customers c;
```

100 %

Results | Messages

	customer_id	full_name	total_saldo_dan_total_pinjaman
1	079cd6ce-04a8-4c55-8c2b-b93189e9050a	Sergeant Maith	50742.07
2	0bedb8d0-0c5a-48a9-bae1-5b1fbecf4a10	Shaine Matic	59238.57
3	0ca06e8d-a7a2-40c4-893b-128336ffdf54	Buddie Sandison	70994.89
4	13aac759-5c49-42dc-9693-0f46cb1337bb	Stephanus Frear	64771.51
5	14f35ff7-5574-4e12-ad89-7e7704a02e62	Corette Vicent	73524.09
6	1833e0d4-fd6c-4474-b416-3ce9e539b363	Devon McQuode	68205.76
7	1b056bda-e6c8-46bb-a706-8db8c2e53061	Jacquenette Hilldrup	69002.31
8	1ea5ec60-3f36-4896-af24-13ee03bf06d9	Bobette Shambrooke	52204.85
9	1f2aa50e-b682-43da-b36e-f33d041691dc	Donnajean Amerighi	57090.17
10	1f72084e-90f3-4334-9b8f-a3b350c2beb0	Barbabra Swires	60697.24
11	20b542e7-3b96-4059-b30a-6d09832e17de	Sandro Alten	60200.58
12	23fd617f-9912-4a67-b5cb-60147b25930c	Nester Niccolls	56520.80
13	26ae893b-6b51-41b9-9b07-a8d07e8a2979	Rebekah Conkie	68511.83
14	27693ec7-45c9-4230-89d2-d0c98654cde7	Sidonnie Marks	66000.50
15	287bf982-89ce-44b5-bfdd-49407600309a	Niel Yuryatin	48532.01
16	29f948c1-0d27-4e13-9126-498a6e51a079	Spike Sill	51328.67
17	33716558-b6fb-43ee-91a8-59207fe42376	Billye Lyfe	60273.94

✔ Query executed successfully.