Modul Praktikum SQL 4

Basis Data I

DML "*Data Manupulation Language*"
Query of Select

STT Terpadu Nurul Fikri
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SQL SELECT

Definisi Select yakni Pernyataan **SELECT** digunakan untuk memilih data dari database.

SELECT Syntax

```
SELECT column1, column2, ...
FROM table_name;
```

atau

```
SELECT * FROM table_name;
```

Contoh SELECT Syntax

```
SELECT CustomerName, City FROM Customers;
```

atau

```
SELECT * FROM Customers;
```

SQL SELECT DISTINCT

Pernyataan **DISTINCT SELECT** digunakan untuk kembali hanya berbeda nilai-nilai (yang berbeda). Di dalam tabel, kolom sering mengandung banyak nilai-nilai duplikat; dan kadang-kadang Anda hanya ingin daftar nilai yang berbeda (berbeda). Pernyataan **DISTINCT SELECT** digunakan untuk kembali hanya berbeda nilai-nilai (yang berbeda).

SELECT DISTINCT Sintaks

```
SELECT DISTINCT column1, column2, ...
FROM table_name;
```

Contoh SELECT DISTINCT Syntax

```
SELECT Country FROM Customers;
```

atau

```
SELECT (DISTINCT Country) FROM Customers;
```

SQL SELECT WHERE

Klausa **WHERE** digunakan untuk menyaring catatan. Klausa **WHERE** digunakan untuk mengekstrak hanya catatan-catatan yang memenuhi kondisi tertentu.

WHERE Syntax

```
SELECT column1, column2, ...
FROM table_name
WHERE condition;
```

Contoh SELECT WHERE Syntax

```
SELECT * FROM Customers
WHERE Country='Mexico';
```

atau

```
SELECT * FROM Customers
WHERE CustomerID=1;
```

Operators in WHERE Clause

Operator berikut dapat digunakan dalam klausa WHERE:

Operator	Description
=	Equal
<>	Not equal. **Note:**In some versions of SQL this operator may be written as !=
>	Greater than
<	Less than
>=	Greater than or equal
<=	Less than or equal
BETWEEN	Between an inclusive range
LIKE	Search for a pattern
IN	To specify multiple possible values for a column

SQL AND, OR dan NOT Operator

Klausa **WHERE** dapat dikombinasikan dengan **AND, OR, dan NOT** operator.

AND dan **OR** operator yang digunakan untuk menyaring catatan didasarkan pada lebih dari satu syarat:

- Operator **AND** menampilkan catatan jika semua kondisi dipisahkan oleh DAN BENAR.
- Operator **OR** menampilkan catatan jika salah satu kondisi yang dipisahkan oleh OR adalah TRUE.

Operator **NOT** menampilkan catatan jika kondisi (s) adalah TIDAK BENAR.

AND Syntax

```
SELECT column1, column2, ...
FROM table_name
WHERE condition1 AND condition2 AND condition3 ...;
```

OR Syntax

```
SELECT column1, column2, ...
FROM table_name
WHERE condition1 OR condition2 OR condition3 ...;
```

NOT Syntax

```
SELECT column1, column2, ...
FROM table_name
WHERE NOT condition;
```

#Contoh AND Syntax

```
SELECT * FROM Customers
WHERE Country='Germany' AND City='Berlin';
```

#Contoh OR Syntax

```
SELECT * FROM Customers
WHERE City='Berlin' OR City='München';
```

#Contoh NOT Syntax

```
SELECT * FROM Customers
WHERE NOT Country='Germany';
```

Combining AND, OR & NOT

#Contoh Combinasi AND, OR & NOT Syntax

```
SELECT * FROM Customers
WHERE Country='Germany' AND (City='Berlin' OR City='München');
```

atau

```
SELECT * FROM Customers
WHERE NOT Country='Germany' AND NOT Country='USA';
```

SQL SELECT ORDER BY

ORDER BY kata kunci digunakan untuk mengurutkan hasil-set di menaik atau menurun. **ORDER BY** kata kunci macam catatan dalam urutan menaik secara default. Untuk mengurutkan catatan dalam urutan, gunakan kata kunci DESC & ASC.

ORDER BY Syntax

```
SELECT column1, column2, ...
FROM table_name
ORDER BY column1, column2, ... ASC|DESC;
```

#Contoh ORDER BY → DESC

```
SELECT * FROM Customers
ORDER BY Country DESC;
```

#Contoh ORDER BY → ASC

```
SELECT * FROM Customers
ORDER BY Country ASC;
```

#Contoh ORDER BY → Combinasi ASC & DESC

```
SELECT * FROM Customers
ORDER BY Country ASC, CustomerName DESC;
```

SQL MIN () dan MAX () Fungsi

MIN () fungsi mengembalikan nilai terkecil dari kolom yang dipilih.

MAX () fungsi mengembalikan nilai terbesar dari kolom yang dipilih.

MIN () Sintaks

```
SELECT MIN(column_name)
FROM table_name
WHERE condition;
```

MAX () Sintaks

```
SELECT MAX(column_name)
FROM table_name
WHERE condition;
```

#Contoh MIN()

```
SELECT MIN(Price) AS SmallestPrice
FROM Products;
```

#Contoh MAX()

```
SELECT MAX(Price) AS LargestPrice
FROM Products;
```

SQL COUNT (), AVG () dan SUM () Fungsi

COUNT () mengembalikan fungsi jumlah baris yang cocok dengan kriteria tertentu.

AVG () fungsi mengembalikan nilai rata-rata dari kolom numerik.

The SUM () mengembalikan fungsi jumlah total kolom numerik.

COUNT () Sintaks

```
SELECT COUNT(column_name)
FROM table_name
WHERE condition;
```

AVG () Sintaks

```
SELECT AVG(column_name)
FROM table_name
WHERE condition;
```

SUM () Sintaks

```
SELECT SUM(column_name)
FROM table_name
WHERE condition;
```

#Contoh Count

```
SELECT COUNT(ProductID)
FROM Products;
```

#Contoh AVG

```
SELECT AVG(Price)
FROM Products;
```

#Contoh SUM

```
SELECT SUM(Quantity)
FROM OrderDetails;
```

The SQL LIKE Operator

Operator **LIKE** digunakan dalam klausa **WHERE** untuk mencari pola yang ditentukan dalam kolom.

Ada dua **wildcard** digunakan bersama dengan operator **LIKE**:

- **%** - Tanda persen mewakili nol, satu, atau beberapa karakter
- **_** - garis bawah mewakili karakter tunggal

LIKE Syntax

```
SELECT column1, column2, ...
FROM table_name
WHERE columnN LIKE pattern;
```

LIKE Operator	Description
WHERE CustomerName LIKE 'a%'	Finds any values that start with "a"
WHERE CustomerName LIKE '%a'	Finds any values that end with "a"
WHERE CustomerName LIKE '%or%'	Finds any values that have "or" in any position
WHERE CustomerName LIKE '_r%'	Finds any values that have "r" in the second position
WHERE CustomerName LIKE 'a_%_%'	Finds any values that start with "a" and are at least 3 characters in length
WHERE ContactName LIKE 'a%o'	Finds any values that start with "a" and ends with "o"

#Contoh LIKE %

```
SELECT * FROM Customers
WHERE CustomerName LIKE 'a%' atau ‘%a’ atau ‘%a%’;
```

#Contoh LIKE _ & %

```
SELECT * FROM Customers
WHERE CustomerName LIKE '_r%';
```

SQL BETWEEN Operator

BETWEEN Operator memilih nilai-nilai dalam kisaran tertentu. Nilai-nilai dapat angka, teks, atau tanggal. Operator **BETWEEN** inklusif: mulai dan nilai-nilai akhir disertakan.

BETWEEN Syntax

```
SELECT column_name(s)
FROM table_name
WHERE column_name BETWEEN value1 AND value2;
```

#Contoh BETWEEN with AND

```
SELECT * FROM Products
WHERE Price BETWEEN 10 AND 20;
```

SQL GROUP BY

GROUP BY pernyataan sering digunakan dengan fungsi agregat **(COUNT, MAX, MIN, SUM, AVG)** untuk kelompok hasil-set oleh satu atau lebih kolom.

GROUP BY Syntax

```
SELECT column_name(s)
FROM table_name
WHERE condition
GROUP BY column_name(s)
ORDER BY column_name(s);
```

#Contoh GROUP BY

```
SELECT COUNT(CustomerID), Country
FROM Customers
GROUP BY Country;
```