

The AND, OR, and NOT operators in SQL

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In this SQL lesson, we will explore the AND/OR and NOT operators - how to use them, as well as specific examples.

The and operators OR are used to filter records based on more than one condition:

1. The AND operator AND displays a record if all conditions separated by AND are TRUE.
2. The operator OR displays a record if any of the conditions separated by OR are TRUE.

The operator NOT displays a record if the condition(s) are NOT TRUE.

The AND operator in SQL

AND allows the use of multiple conditions in the WHERE clause of an SQL statement. As you saw in the previous lesson, we can only use one condition in WHERE when combined with SELECT . But with AND, you can add other conditions to ensure more accurate data retrieval. The retrieved data must simultaneously satisfy all the conditions in the WHERE clause.

Syntax of AND in WHERE:

```
SELECT col1, col2, colN FROM TEN_BANG WHERE [DIEU_KIEN1] AND [DIEU_KIEN2].AND [D
```

Examples of AND:

In this example, we will retrieve employee information from the EMPLOYEE table, filtering out employees whose salary is higher than 2000 and who are younger than 29.

This is the EMPLOYEE table:

ID	TEN	TUOI	DIACHI	LUONG
1	Thanh	24	Haiphong	2000.00
2	Loan	26	Hanoi	1500.00
3	Nga	24	Hanam	2000.00
4	Mạnh	29	Hue	6500.00
5	Huy	28	Hatinh	8500.00
6	Cao	23	HCM	4500.00
7	Lam	29	Hanoi	15000.00

The command will be as follows:

```
SQL> SELECT * FROM NHANVIEN WHERE LUONG > 2000 AND TUOI < 29;
```

The result will look like this:

ID	TEN	TUOI	DIACHI	LUONG
5	Huy	28	Hatinh	8500.00
6	Cao	23	HCM	4500.00

The OR operator in SQL

The OR operator is used to combine multiple conditions in the WHERE clause of an SQL statement. When using OR in the WHERE clause in conjunction with SELECT, the retrieved data only needs to satisfy one of the listed conditions. Do you notice the difference between OR and AND?

Syntax of OR in WHERE:

```
SELECT col1, col2, colN FROM TEN_BANG WHERE [DIEU_KIEN1] OR [DIEU_KIEN2].OR [DIEU_KIEN3]
```

You can combine N conditions using OR, and if just one of these N conditions is true, the data will be retrieved.

Examples of OR:

We will retrieve employee information from the EMPLOYEE table below, provided that the SALARY is greater than 6500 and the age is less than 24.

ID	TEN	TUOI	DIACHI	LUONG
1	Thanh	24	Haiphong	2000.00
2	Loan	26	Hanoi	1500.00
3	Nga	24	Hanam	2000.00
4	Manh	29	Hue	6500.00
5	Huy	28	Hatinh	8500.00
6	Cao	23	HCM	4500.00
7	Lam	29	Hanoi	15000.00

The command would be:

```
SQL> SELECT * FROM NHANVIEN WHERE LUONG > 6500 OR age < 24;
```

When executing the above command, any records that meet the conditions of having a salary higher than 6500 or being under 24 years old will be returned in the results table, as shown below:

ID	TEN	TUOI	DIACHI	LUONG
5	Huy	28	Hatinh	8500.00
6	Cao	23	HCM	4500.00
7	Lam	29	Hanoi	15000.00

The NOT operator in SQL

The NOT operator is used to negate the conditions that follow it in the WHERE clause. When using NOT in a SELECT statement combined with a WHERE clause, you will retrieve data that does NOT satisfy the condition.

Syntax of NOT in WHERE:

```
SELECT col1, col2, . . . colN FROM TEN_BANG WHERE NOT [DIEU_KIEN]
```

You can combine the NOT operator with AND/OR when necessary.

Examples of NOT:

We will retrieve employee information from the EMPLOYEE table below, provided that the SALARY is not less than 4000 and the age is 24 or greater.

The command would be:

```
SQL> SELECT * FROM NHANVIEN WHERE NOT LUONG 4000 AND age >= 24;
```

After executing the command, anyone with a salary higher than 4000 and aged 24 or older will be selected, with the following results:

```
+-----+-----+-----+-----+-----+ | ID | TEN | TUOI | DIACHI | LUONG  
?  
nh | 29 | Hue | 6500.00 | | 5 | Huy | 28 | Hatinh | 8500.00 | +-----+-----+-----+
```

By now, are you confident in using the AND, OR, and NOT operators in the WHERE clause? It's quite simple, isn't it? In the next lesson, we'll learn about a very important SQL statement: the UPDATE statement.

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