21. IN, ANY, ALL, >=, <=, AND, OR, NOT

Learn how we use operators like IN, ANY, ALL, >=, <=, AND, OR and NOT to build up logic in SQL with examples. All examples in this article can be executed in both SQL Server and MySQL.

Refer below tables for the following examples.

Orders Table:

Id	Number
1	0010
2	0011
3	0012
4	0013
5	0014
6	0015
7	0016

Table 1. Sample Data for Orders

OrderDetails Table:

OrderId	ItemId	ColourId	Quantity	Price
3	1	1	12	52.00
3	3	1	24	50.00
3	3	2	10	55.00
3	3	4	15	54.00
5	2	2	6	12.00
5	2	4	12	11.00
5	3	1	10	10.00
7	3	1	6	80.00

7	3	2	15	85.00
7	3	4	24	82.00

Table 2. Sample Data for OrderDetails

IN Operator

IN operator used to check whether a specified value is matching with any listed value.

Syntax
SELECT * FROM Table WHERE Column = IN(Value1, Value2, Value3, ...)

Table 3. IN Operator

Example 1. IN Operator

This example shows how to select order details having a quantity of 15 or 24.

SQL Script:

```
SELECT * FROM OrderDetails WHERE Quantity IN (15,24);
```

Script 1. IN Operator

The above query will filter order details having a quantity of 15 or 24.

Result:

OrderId	ItemId	ColourId	Quantity	Price
3	3	1	24	50.00
3	3	4	15	54.00
7	3	2	15	85.00
7	3	4	24	82.00

Table 4. Filtered Data for IN

ANY Operator

ANY operator used to check whether a specified value is matching having any of the listed values returned by a subquery.

Syntax
`SELECT * FROM Table1 WHERE Column1 = ANY(SELECT Column2 FROM Table2)`

Table 5. ANY Operator

Example 2. ANY Operator

This example shows how to select order details having the order number 0016 or 0014.

SQL Script:

`SELECT * FROM OrderDetails WHERE OrderId = ANY(SELECT Id FROM Orders WHERE Number = '0016' OR Number = '0014');`

Script 2. ANY Operator

The above query will filter order details having a number of 0016 or 0014.

Result:

OrderId	ItemId	ColourId	Quantity	Price
5	2	2	6	12.00
5	2	4	12	11.00
5	3	1	10	10.00
7	3	1	6	80.00
7	3	2	15	85.00
7	3	4	24	82.00

Table 6. Filtered Data for ANY

ALL Operator

ALL operator used to check whether a specified value is matching with all the listed values returned by a subquery.

Syntax
`SELECT * FROM Table1 WHERE Column1 = ALL(SELECT Column2 FROM Table2);`

Table 7. ALL Operator

Example 3. ALL Operator

This example shows how to select order details having the order number of 0016.

SQL Script:

```sql
SELECT * FROM OrderDetails WHERE OrderId = ALL(SELECT Id FROM Orders WHERE
Number = '0016');
```

The above query will filter order details having the number is equal to 0016.

Result:

OrderId	ItemId	ColourId	Quantity	Price
7	3	1	6	80.00
7	3	2	15	85.00
7	3	4	24	82.00

">=" Operator

">=" symbol is used to check whether a value is equal or greater than a given value.

">=" Number

Example 4. ">=" Operator

This example shows how to select order details having the order number equal to or greater than 15.

SQL Script:

```sql
SELECT * FROM OrderDetails WHERE Quantity >= 15;
```

The above query will filter order details having a quantity equal or greater than 15.

Result:

OrderId	ItemId	ColourId	Quantity	Price

3	3	1	24	50.00
3	3	4	15	54.00
7	3	2	15	85.00
7	3	4	24	82.00

Table 9. Filtered Data for >=

"<=" Operator

"<=" symbol is used to check whether a value is equal or less than a given value.

"<=" Number

Example 5. "<=" Operator

This example shows how to select order details having the order number equal or less than 10.

SQL Script:

```sql
SELECT * FROM OrderDetails WHERE Quantity <= 10;
```

Script 5. <= Operator

The above query will filter order details having a quantity equal or less than 10.

Result:

OrderId	ItemId	ColourId	Quantity	Price
3	3	2	10	55.00
5	2	2	6	12.00
5	3	1	10	10.00
7	3	1	6	80.00

Table 10. Filtered Data for <=

AND Operator

AND operator checks both conditions are true.

Syntax
| ```sql
SELECT * FROM Table WHERE Condition1 AND Condition2 ...
``` |

Table 11. AND Operator

Example 6. AND Operator

This example shows how to select order details having both conditions.

SQL Script:

```sql
SELECT * FROM OrderDetails WHERE Quantity <= 10 AND ColourId = 1;
```

Script 6. AND Operator

The above query will filter order details having a quantity equal or less than 10 and color ID is equal to 1.

Result:

OrderId	ItemId	ColourId	Quantity	Price
5	3	1	10	10.00
7	3	1	6	80.00

Table 12. Filtered Data for AND

OR Operator

OR operator check one condition is true.

Syntax
| ```sql
SELECT * FROM Table WHERE Condition1 OR Condition2 ...
``` |

Table 13. OR Operator

Example 7. OR Operator

This example shows how to select order details having a minimum of one condition.

SQL Script:

```sql
SELECT * FROM OrderDetails WHERE Quantity > 20 OR Quantity * Price > 750;
```

Script 7. OR Operator

The above query will filter order details having a quantity greater than 20 or quantity multiplied by price is greater than 750.

Result:

OrderId	ItemId	ColourId	Quantity	Price
3	3	1	24	50.00
3	3	4	15	54.00
7	3	2	15	85.00
7	3	4	24	82.00

Table 14. Filtered Data for OR