



MySQL AND Operator

Summary: in this tutorial, you will learn how to the MySQL `AND` operator to combine multiple Boolean expressions to filter data.

Introduction to MySQL AND operator

MySQL doesn't have a built-in Boolean type. Instead, it uses the number zero as FALSE and non-zero values as TRUE.

The `AND` operator is a logical operator that combines two or more [Boolean](https://www.mysqltutorial.org/mysql-boolean/) expressions and returns 1, 0, or NULL:

```
A AND B
```

In this expression, A and B are called operands. They can be literal values or expressions.

The logical AND operator returns 1 if both A and B are non-zero and not NULL. It returns 0 if either operand is zero; otherwise, it returns NULL.

The logical AND operator returns 1 if both A and B are non-zero and NOT NULL. For example:

```
SELECT 1 AND 1;
```

```
+-----+
| 1 AND 1 |
+-----+
|      1 |
+-----+
1 row in set (0.00 sec)
```

The logical AND operator returns 0 if A or B is zero or both A and B are zero:

```
SELECT 1 AND 0, 0 AND 1, 0 AND 0, 0 AND NULL;
```

```
+-----+-----+-----+-----+
| 1 AND 0 | 0 AND 1 | 0 AND 0 | 0 AND NULL |
+-----+-----+-----+-----+
|      0 |      0 |      0 |      0 |
+-----+-----+-----+-----+
1 row in set (0.00 sec)
```

The logical AND operator returns NULL if either operand is non-zero or both operands are NULL.

```
SELECT 1 AND NULL, NULL AND NULL;
```

```
+-----+-----+
| 1 AND NULL | NULL AND NULL |
+-----+-----+
|      NULL |      NULL |
+-----+-----+
1 row in set (0.00 sec)
```

The following table illustrates the results of the **AND** operator when combining true, false, and null.

	TRUE	FALSE	NULL
TRUE	TRUE	FALSE	NULL
FALSE	FALSE	FALSE	FALSE
NULL	NULL	FALSE	NULL

In practice, you'll use the **AND** operator in the **WHERE** (<https://www.mysqltutorial.org/mysql-where/>) clause of the **SELECT** (<https://www.mysqltutorial.org/mysql-select-statement-query-data.aspx>) , **UPDATE** (<https://www.mysqltutorial.org/mysql-update-data.aspx>) , **DELETE** (<https://www.mysqltutorial.org/mysql-delete-statement.aspx>) statements to form a condition. Also, you can the **AND** operator in the conditions of the **INNER JOIN** (<https://www.mysqltutorial.org/mysql-inner-join.aspx>) and **LEFT JOIN** (<https://www.mysqltutorial.org/mysql-left-join.aspx>) clauses.

When evaluating an expression that contains the **AND** operator, MySQL stops evaluating the remaining parts of the expression as soon as it can determine the result.

This is called short-circuit evaluation. In other words, the **AND** operator is short-circuited. For example:

```
SELECT 1 = 0 AND 1 / 0 ;
```

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```
+-----+
| 1 = 0 AND 1 / 0 |
+-----+
|                0 |
+-----+
1 row in set (0.01 sec)
```

In this example, MySQL only evaluates the first part `1 = 0` of the expression `1 = 0 AND 1 / 0`.

Since the expression `1 = 0` returns 0, MySQL can determine the result of the whole expression, which is 0.

Therefore, MySQL doesn't need to evaluate the remaining part of the expression, which is `1/0`; it would issue a division by zero error.

MySQL AND operator examples

Let's use the `customers` table in the [sample database](https://www.mysqltutorial.org/mysql-sample-database.aspx) for the demonstration.

customers
* customerNumber
customerName
contactLastName
contactFirstName
phone
addressLine1
addressLine2
city
state
postalCode
country
salesRepEmployeeNumber
creditLimit

The following statement uses the `AND` operator to find customers who locate in California (CA), USA:

```

SELECT
    customername,
    country,
    state
FROM
    customers
WHERE
    country = 'USA' AND
    state = 'CA';

```

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customername	country	state
Mini Gifts Distributors Ltd.	USA	CA
Mini Wheels Co.	USA	CA
Technics Stores Inc.	USA	CA
Toys4GrownUps.com	USA	CA
Boards & Toys Co.	USA	CA
Collectable Mini Designs Co.	USA	CA
Corporate Gift Ideas Co.	USA	CA
Men 'R' US Retailers, Ltd.	USA	CA
The Sharp Gifts Warehouse	USA	CA
West Coast Collectables Co.	USA	CA
Signal Collectibles Ltd.	USA	CA

11 rows in set (0.00 sec)

By using the `AND` operator, you can combine more than two Boolean expressions. For example, the following query returns the customers who locate in California, USA, and have a credit limit greater than 100K.

```

SELECT
    customername,
    country,
    state,
    creditlimit
FROM
    customers

```

WHERE

```
country = 'USA' AND  
state = 'CA' AND  
creditlimit > 100000;
```

Try It Out



```
+-----+-----+-----+-----+  
| customername          | country | state | creditlimit |  
+-----+-----+-----+-----+  
| Mini Gifts Distributors Ltd. | USA     | CA    | 210500.00 |  
| Collectable Mini Designs Co. | USA     | CA    | 105000.00 |  
| Corporate Gift Ideas Co.    | USA     | CA    | 105000.00 |  
+-----+-----+-----+-----+  
3 rows in set (0.00 sec)
```

Summary

- Use the **AND** operator to combine two Boolean expressions. The **AND** operator returns true when both expressions are true; otherwise, it returns false.
- Use the **AND** operator to form conditions in the **WHERE** clause of the **SELECT** statement.