SQL Aggregate Functions

* [AVG](http://www.sqltutorial.org/sql-avg.aspx)– calculates the average of a set of values.
* [COUNT](http://www.sqltutorial.org/sql-count.aspx)– counts rows in a specified table or view.
* [MIN](http://www.sqltutorial.org/sql-min-max.aspx)– gets the minimum value in a set of values.
* [MAX](https://www.zentut.com/sql-tutorial/sql-max/)– gets the maximum value in a set of values.
* [SUM](http://www.sqltutorial.org/sql-sum.aspx)– calculates the sum of values.

Notice that all aggregate functions above ignore NULL values except for the COUNT function.

### COUNT function example

| **COUNT() Function** | **Count Duplicates** | **Count NULL values** |
| --- | --- | --- |
| COUNT(\*) | Yes | Yes |
| COUNT(DISTINCT column) | No | No |
| COUNT(ALL column) | Yes | No |

SELECT COUNT(\*) FROM products;

SELECT COUNT(\*) FROM empl WHERE dept = "HR";

SELECT COUNT(ALL country) FROM customers;

-- Count distinct joining months in the empl table

SELECT COUNT(DISTINCT month) FROM empl;

Find the employee with the lowest salary

SELECT MIN(salary) FROM empl;

-- Find the employee with the highest salary

SELECT MAX(salary) FROM empl;

-- Find the sum all employee salaries

SELECT SUM(salary) FROM empl;

SELECT AVG(unitprice) FROM products;

SELECT AVG(DISTINCT unitprice)FROM products;

Round()

The ROUND() function rounds a number to a specified number of decimal places.

ROUND(*number*, *decimals*)

SELECT ROUND(345.156, 0);

SELECT Roung(AVG(DISTINCT unitprice))FROM products;

MySQL ISNULL() Function

The ISNULL() function returns 1 or 0 depending on whether an expression is NULL.

If expression is NULL, this function returns 1. Otherwise, it returns 0.

ISNULL(expression)

SELECT ISNULL(350);

MySQL IFNULL

MySQL IFNULL function is one of the MySQL control flow functions that accepts two arguments and returns the first argument if it is not NULL. Otherwise, the IFNULL function returns the second argument.

IFNULL(expression\_1,expression\_2);

SELECT IFNULL(1,0); -- returns 1

SELECT IFNULL('',1); -- returns ''

SELECT IFNULL(NULL,'IFNULL function'); -- returns IFNULL function

MySQL NULLIF() Function

The NULLIF() function compares two expressions and returns NULL if they are equal. Otherwise, the first expression is returned.

NULLIF(expr1, expr2)

SELECT NULLIF(25, "Hello");

MySQL | COALESCE( ) Function

The MySQL **COALESCE()** function is used for returning the first non-null value in a list of expressions. If all the values in the list evaluate to NULL, then the COALESCE() function returns NULL.

The COALESCE() function accepts one parameter which is the list which can contain various values. The value returned by the MySQL COALESCE() function is the first non-null value in a list of expressions or NULL if all the values in a list are NULL.

SELECT COALESCE(NULL, 'A', 'B', NULL);