Aggregate Functions in SQL

In this lesson, we will learn about the different aggregate functions available in SQL.

WE'LL COVER THE FOLLOWING

Aggregate functions in SQL

In database management, an aggregate function is a function where the values of multiple rows are grouped together to form a single value of more significant meaning.

We will discuss the following in this lesson:

- `COUNT()`

- `SUM()`
- `AVG()`
- `MIN()`
- `MAX()`

Again we will be using the CUSTOMERS table.

The COUNT function

The `COUNT()` function returns the number of rows that match a specified criterion.

Syntax

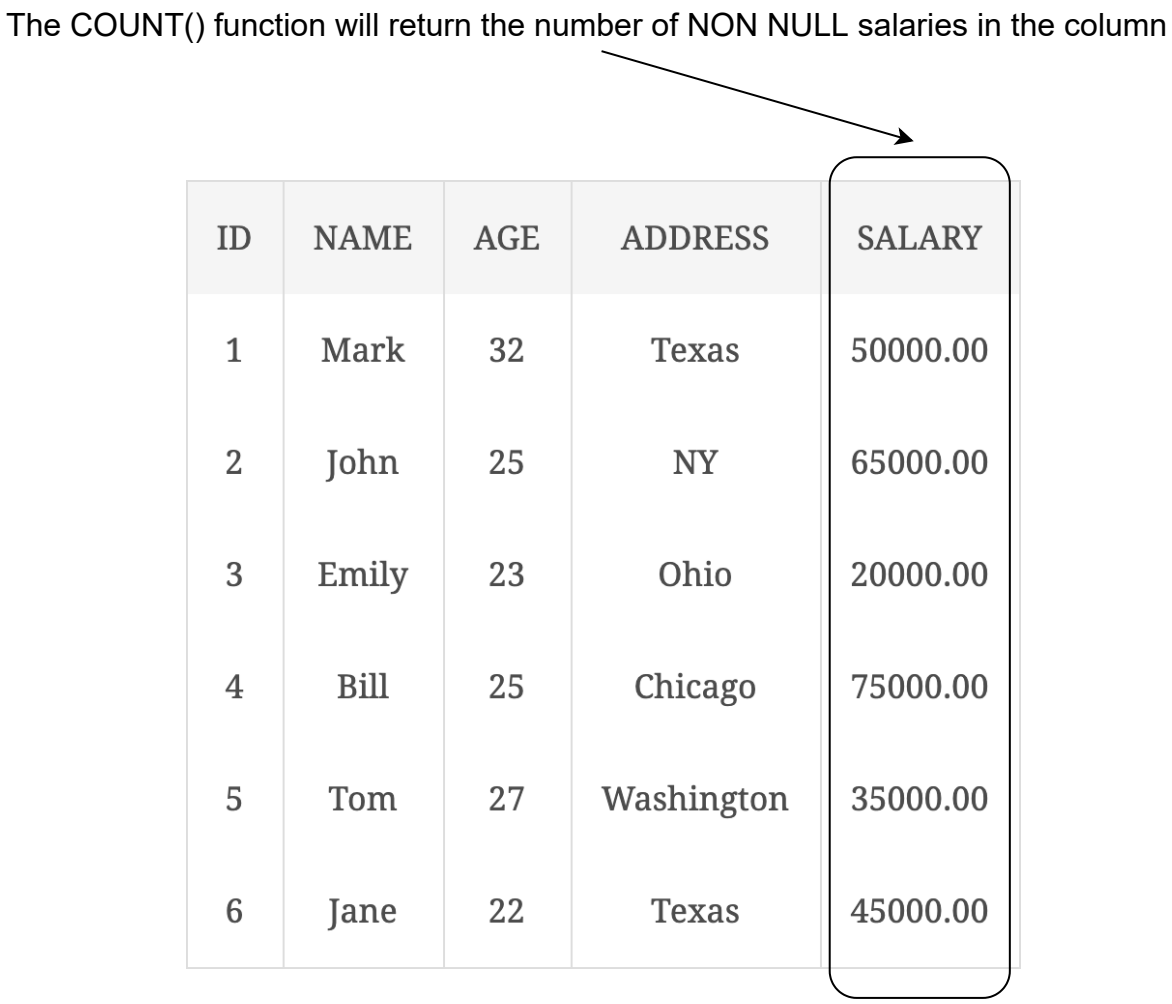
The syntax for the `COUNT()` function is as follows:

```
SELECT COUNT(column_name)

FROM table_name

WHERE condition;
```

This query will return the number of `Non-Null` values in the specified column.

Example

Let's say we apply the COUNT function to the `salary` column:



ID	NAME	AGE	ADDRESS	SALARY
1	Mark	32	Texas	50000.00
2	John	25	NY	65000.00
3	Emily	23	Ohio	20000.00
4	Bill	25	Chicago	75000.00
5	Tom	27	Washington	35000.00
6	Jane	22	Texas	45000.00

The following code shows the SQL query:

```
SELECT COUNT(SALARY)
FROM CUSTOMERS;
```

As we can see it returned the number of `Non-Null` values over the column salary i.e, 6.

The SUM function

The `SUM()` function returns the total sum of a numeric column.

Syntax

The syntax for the SUM() function is as follows:

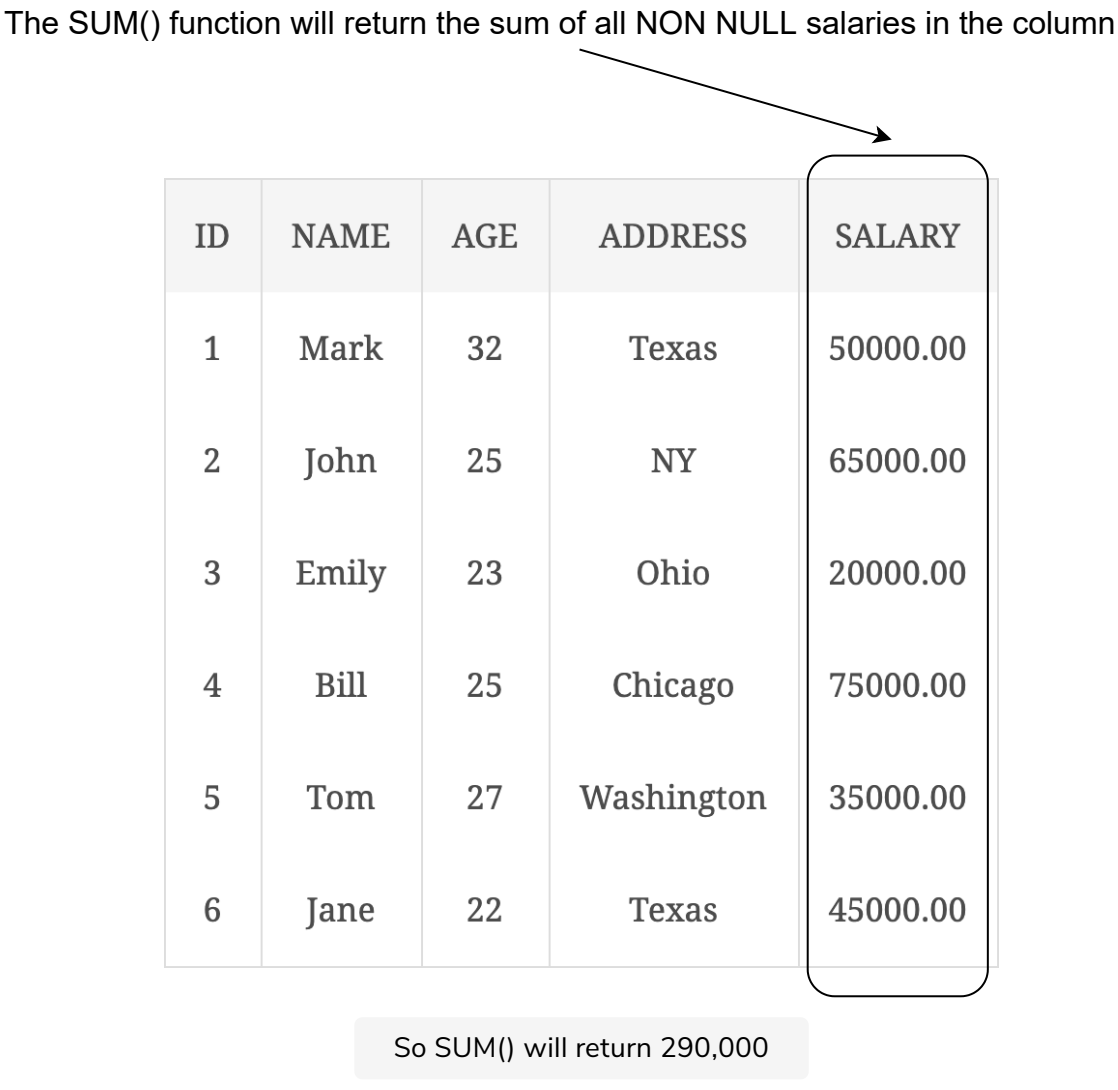
```
SELECT SUM(column_name)
```

```
FROM table_name



WHERE condition;
```

This query will return the sum of all `Non-Null` values in a particular column.

Example

Let's say we apply the `SUM` function to the `salary` column:



ID	NAME	AGE	ADDRESS	SALARY
1	Mark	32	Texas	50000.00
2	John	25	NY	65000.00
3	Emily	23	Ohio	20000.00
4	Bill	25	Chicago	75000.00
5	Tom	27	Washington	35000.00
6	Jane	22	Texas	45000.00

The following code shows the SQL query:

```
SELECT SUM(SALARY)
FROM CUSTOMERS;
```

As we can see in the output above, the sum of all `Non-Null` values in the salary column is 290,000.

The AVG function

The `AVG()` function returns the average value of a numeric column.

Syntax

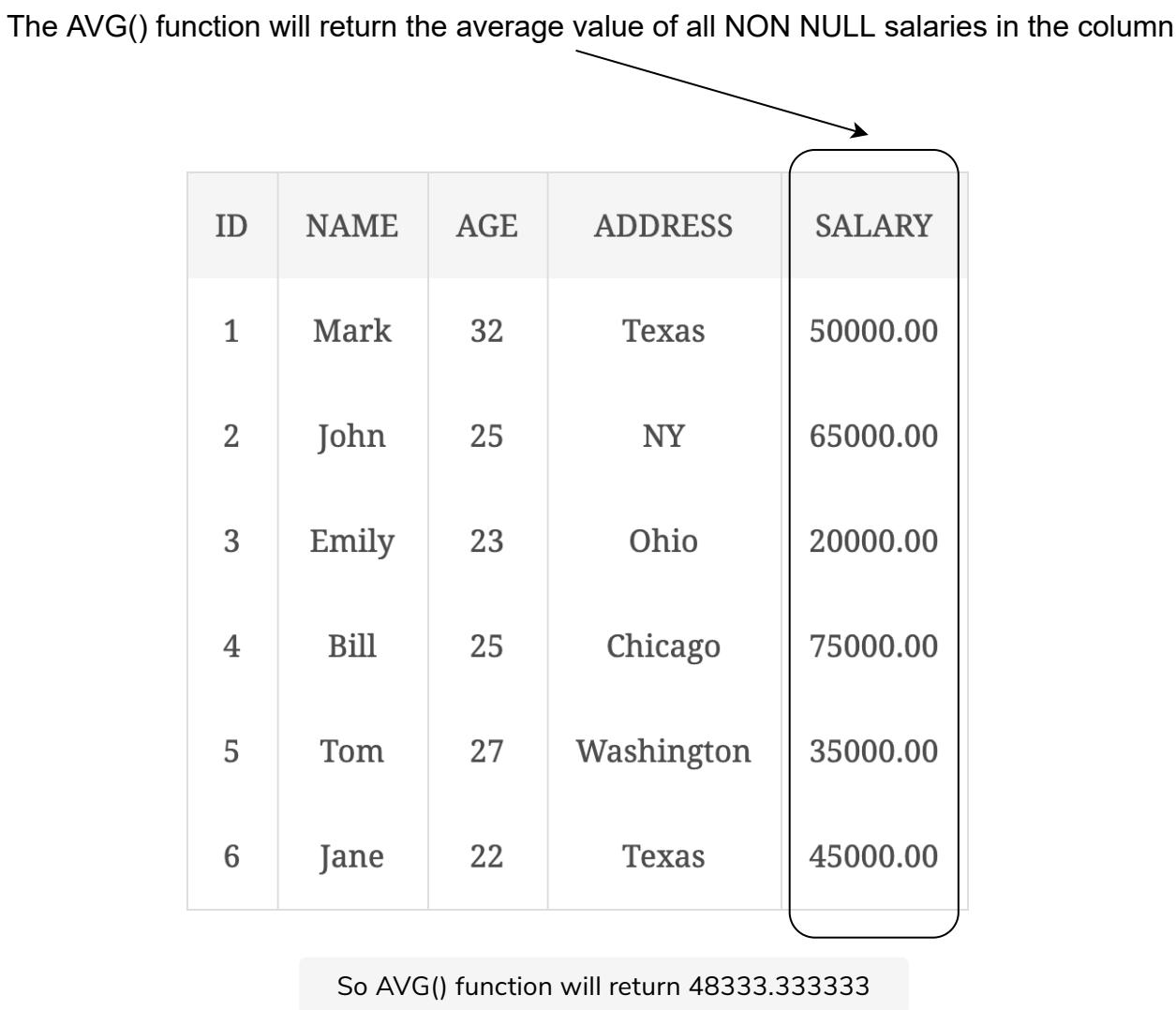
The syntax for the `AVG()` function is as follows:

```
SELECT AVG(column_name)

FROM table_name

WHERE condition;
```

This query will return the average of all `Non-Null` values in a particular column.

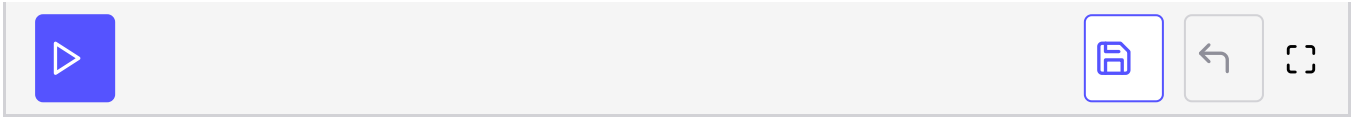
Example

Let's say we apply the `AVG` function to the `salary` column:



The following code shows the SQL query:

```
SELECT AVG(SALARY)
FROM CUSTOMERS;
```



As we can see, it returned the average of `Non-Null` values of the column salary, i.e. 48333.33.

The MAX function

The `MAX()` function returns the largest value of the selected column.

Syntax

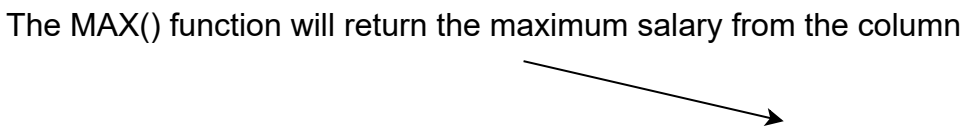
The syntax for the `MAX()` function is as follows:

```
SELECT MAX(column_name)

FROM table_name

WHERE condition;
```

This query will return the max of all `Non-Null` values in a particular column.

Example

Let's say we want to find the highest salary in the CUSTOMERS table:



ID	NAME	AGE	ADDRESS	SALARY
1	Mark	32	Texas	50000.00
2	John	25	NY	65000.00
3	Emily	23	Ohio	20000.00
4	Bill	25	Chicago	75000.00
5	Tom	27	Washington	35000.00
6	Jane	22	Texas	45000.00

So MAX() function will return 75000.00

The following code shows the SQL query:

```
SELECT MAX(SALARY)
FROM CUSTOMERS
```

The MIN function

The `MIN()` function returns the smallest value in the selected column.

Syntax

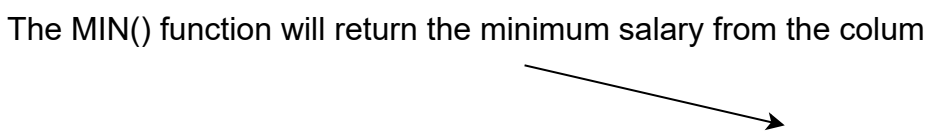
The syntax for the `MIN()` function is as follows:

```
SELECT MIN(column_name)

FROM table_name

WHERE condition;
```

This query will return the min of all `Non-Null` values in a particular column.

Example

Let's say we want to find the lowest salary in the CUSTOMERS table:



ID	NAME	AGE	ADDRESS	SALARY
1	Mark	32	Texas	50000.00
2	John	25	NY	65000.00
3	Emily	23	Ohio	20000.00
4	Bill	25	Chicago	75000.00
5	Tom	27	Washington	35000.00
6	Jane	22	Texas	45000.00

So MAX() function will return 75000.00

The following code shows the SQL query:

```
SELECT MIN(SALARY)
FROM CUSTOMERS;
```

Quick quiz!

Q

Which of the following SQL queries will return the youngest person in the CUSTOMERS table?

In the next lesson, we will discuss two important clauses: ORDER BY and GROUP BY.