

# LU04a - Syntax of DML

As we know, **SQL** stands for **S**tructured **Q**uery **L**anguage. Consequently, It should come as no surprise that SQL is indeed consistently structured. The figure below shows the structure of a exhaustive SQL statement.

Order	Keywords	Expression	Purpose
5	SELECT	<select list>	Specifies which columns to return.
1	FROM	<table source>	Defines the table(s) to query
2	WHERE	<search condition>	Filters out the records to return
3	GROUP BY	<group by list>	Arranges records into groups
4	HAVING	<search condition>	Filters down the groups
6	ORDER BY	<order by list>	Sorts the returned records

## NOTES

- The content of this chapter is based on the [W3School-SQL-tutorial](https://www.w3schools.com/sql/).
- Please note that the use of CAPITAL LETTERS for SQL commands and tabs can make it easier for you to maintain your program code.
- Make sure, that every complete sql statement is finished by a semicolon (;).

## The Syntax of DML commands

Every SQL query is composed by three main commands:

- **SELECT** myColumn1, myColumn2, ... [or \* for all columns]
- **FROM** myTable
- **WHERE** myCondition.
- **ORDER BY** myColumn2 **ASC|DESC**;

With **SELECT** we specify which columns we want to retrieve, with **FROM** we specify the TABLE from which the columns originate, with **WHERE** we determine the condition under which the data records are selected, and finally, with **ORDER BY** + [**ASC** | **DESC**] we define the order in which the result set is to be displayed on the screen.

## Basic example

Let's take a table **Customers** as shown in the figure below.

CustomerID	CustomerName	ContactName	Address	City	PostalCode	Country
1	Alfreds Futterkiste	Maria Anders	Obere Str. 57	Berlin	12209	Germany
2	Ana Trujillo Emparedados y helados	Ana Trujillo	Avda. de la Constitución 2222	México D.F.	05021	Mexico
3	Antonio Moreno Taquería	Antonio Moreno	Mataderos 2312	México D.F.	05023	Mexico
4	Around the Horn	Thomas Hardy	120 Hanover Sq.	London	WA1 1DP	UK

To retrieve all the information, which are stored in this table, our SQL command would be like follows.

```
SELECT *  
FROM Customers;
```

or as a more detailed notation

```
SELECT CustomerID, CustomerName, ContactName, Address, City, PostalCode,  
Country  
FROM Customers;
```

The result set would include the entire contents of the table, since we we have not defined any preconditions or filters.

## Vocabulary

English	German
precondition	Vorbedingung
exhaustive	erschöpfend, vollständig
clause	Abschnitt
to determine	bestimmen
to fetch	abrufen, holen
be composed by	besteht aus
notation	Schreibweise



Volkan Demir

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