

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](#)
- Please note that the use of CAPITAL LETTERS for SQL commands and tabs can make it easier for you to maintain your program code.

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 |



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