

SQL - quick guide

What is SQL?

SQL is Structured Query Language, which is a computer language for storing, manipulating and retrieving data stored in relational database.

SQL is the standard language for Relation Database System. All relational database management systems like MySQL, MS Access, Oracle, Sybase, Informix, postgres and SQL Server use SQL as standard database language.

Also, they are using different dialects, such as:

- MS SQL Server using T-SQL,
- Oracle using PL/SQL,
- MS Access version of SQL is called JET SQL (native format), etc

Why SQL?

- Allows users to access data in relational database management systems.
- Allows users to describe the data.
- Allows users to define the data in database and manipulate that data.
- Allows to embed within other languages using SQL modules, libraries & pre-compilers.
- Allows users to create and drop databases and tables.
- Allows users to create view, stored procedure, functions in a database.
- Allows users to set permissions on tables, procedures, and views

What is RDBMS?

RDBMS stands for Relational Database Management System. RDBMS is the basis for SQL and for all modern database systems like MS SQL Server, IBM DB2, Oracle, MySQL, and Microsoft Access.

A Relational database management system (RDBMS) is a database management system (DBMS) that is based on the relational model as introduced by E. F. Codd.

What is table ?

The data in RDBMS is stored in database objects called **tables**. The table is a collection of related data entries and it consists of columns and rows.

Remember, a table is the most common and simplest form of data storage in a relational database.

What is field?

Every table is broken up into smaller entities called fields. The fields in the CUSTOMERS table consist of ID, NAME, AGE, ADDRESS and SALARY.

A field is a column in a table that is designed to maintain specific information about every record in the table.

What is record or row?

A record, also called a row of data, is each individual entry that exists in a table. For example, there are 7 records in the above CUSTOMERS table.

A record is a horizontal entity in a table.

What is column?

A column is a vertical entity in a table that contains all information associated with a specific field in a table.

What is NULL value?

A NULL value in a table is a value in a field that appears to be blank which means A field with a NULL value is a field with no value.

It is very important to understand that a NULL value is different than a zero value or a field that contains spaces. A field with a NULL value is one that has been left blank during record creation.

SQL Constraints:

Constraints are the rules enforced on data columns on table. These are used to limit the type of data that can go into a table. This ensures the accuracy and reliability of the data in the database.

Constraints could be column level or table level. Column level constraints are applied only to one column where as table level constraints are applied to the whole table.

SQL Syntax:

SQL is followed by unique set of rules and guidelines called Syntax. This tutorial gives you a quick start with SQL by listing all the basic SQL Syntax:

All the SQL statements start with any of the keywords like SELECT, INSERT, UPDATE, DELETE, ALTER, DROP, CREATE, USE, SHOW and all the statements end with a semicolon (;).

Important point to be noted is that SQL is **case insensitive** which means SELECT and select have same meaning in SQL statements but MySQL make difference in table names. So if you are working with MySQL then you need to give table names as they exist in the database.