**What is SQL?**

SQL Stands for “Structured Query Language” it is a programming language used for managing and manipulating relational databases. SQL allows users to create, update, delete, and query data in a database. It is widely used in the field of data science, data analysis, and database management.

SQL has different subgroups.

1. DDL (Data definition language)
2. DML (Data Manipulation language)
3. DCL (Data Control Language)
4. TCL (Transaction Control language)
5. DQL (Data Query language)

**Data Definition Language**: DDL is a subset of SQL that is used to define the structure of a database, including tables, columns, constraints, and indexes. The main purpose of DDL is to define and manage the schema of a database.

DDL commands include:

* CREATE: used to create a new database object, such as a table or index.
* ALTER: used to modify the structure of an existing database object, such as a table or column.
* DROP: used to delete an existing database object, such as a table or index.
* TRUNCATE: used to delete all the data in a table without deleting the table itself.
* RENAME: used to rename an existing database object, such as a table or column.

**Data Manipulation Language**: DML is a subset of SQL that is used to manipulate data stored in a database. The main purpose of DML is to retrieve, insert, update, and delete data in a database.

DML commands include:

* SELECT: used to retrieve data from one or more tables in a database.
* INSERT: used to add new data to a table in a database.
* UPDATE: used to modify existing data in a table in a database.
* DELETE: used to remove data from a table in a database.

**Data Control Language**: DCL is a subset of SQL that is used to manage access control and security in a database. The main purpose of DCL is to define and regulate the permissions and access privileges that users and roles have on database objects.

DCL commands include:

* GRANT: used to grant access privileges to a specific user or role for a database object, such as a table or view.
* REVOKE: used to revoke access privileges from a specific user or role for a database object.
* DENY: used to explicitly deny access privileges to a specific user or role for a database object.

**Transaction Control Language**: TCL is a subset of SQL that is used to manage transactions in a database. The main purpose of TCL is to ensure the consistency and integrity of the data in a database by controlling the way transactions are handled

TCL commands include:

* COMMIT: used to save changes made during a transaction and make them permanent in the database.
* ROLLBACK: used to undo changes made during a transaction and restore the database to its previous state.
* SAVEPOINT: used to define a point within a transaction where you can roll back to if necessary.

**Data Query Language**: DQL is a subset of SQL that is used to retrieve data from a database. The main purpose of DQL is to query the database and retrieve the data that meets specific criteria.

The most common DQL command is **SELECT,** which is used to retrieve data from one or more tables in a database based on certain conditions. The SELECT statement allows you to specify the columns to be retrieved, the tables to be queried, and the conditions that must be met to return the desired data.

The SELECT statement can also be used to **join two or more tables** to retrieve data that is spread across multiple tables.

DQL commands:

* DISTINCT
* GROUP BY
* HAVING
* ORDER BY

Above commands can be used to filter and organize the data retrieved by the SELECT statement.

For more details about this topic you can check my blog at [medium](https://medium.com/@nadeemtaj407/what-is-sql-73b09f5f8cc4)

**What is Data type?**

When it comes to any language, whether it is a coding language like C or a query language like SQL, the data type is one of its most integral parts. In fact, SQL has more than 30 data types that are capable of storing all kinds of real-world data.

**some common Data type in SQL**

1. INTEGER: This datatype is used to store whole numbers, such as 1, 2, 3, etc. An example of creating a table with an INTEGER column would be:

* CREATE TABLE students (
* id INTEGER,
* name VARCHAR(50),
* age INTEGER
* );

1. VARCHAR: This datatype is used to store strings of characters, such as names, addresses, or other text data. An example of creating a table with a VARCHAR column would be:

* CREATE TABLE employees (
* id INTEGER,
* name VARCHAR(50),
* job\_title VARCHAR(50),
* salary INTEGER
* );

1. DATE: This datatype is used to store dates. An example of creating a table with a DATE column would be:

* CREATE TABLE orders (
* order\_id INTEGER,
* customer\_id INTEGER,
* order\_date DATE,
* order\_total INTEGER
* );