**SQL**

SQL is a standard language for storing, manipulating and retrieving data in databases.

use SQL in: MySQL, SQL Server, MS Access, Oracle, Sybase, Informix, Postgres, and other database systems.

**Purpose of SQL**

SQL is **used to communicate with a database**. According to ANSI (American National Standards Institute), it is the standard language for relational database management systems. SQL statements are used to perform tasks such as update data on a database, or retrieve data from a database.

**Who should learn SQL?**

If you're looking for your first job in data, it turns out knowing SQL is even more critical. For **data analyst roles**, SQL is again the most in-demand skill, listed in 57.4% of all data analyst jobs. SQL appears in 1.5 times as many "data analyst" job postings as Python, and nearly 2.5 times as many job postings as R.

**What are the subsets of SQL?**

**The various subset of SQL**

* DDL (Data Definition Language) As the name suggests, these types of queries are used to define the structure of data. ...
* DML (Data Manipulation Language) This type of queries is used to manipulate data in the database. ...
* DCL (Data Control Language) ...
* TCL (Transaction Control Language)

**1. DDL (Data Definition Language)**

As the name suggests, these types of queries are used to define the structure of data. Like the structure of a table, schema and modify it.

Example –

* **CREATE**: This command is used to create tables, database etc.
* **DROP**: This command is used to drop tables and other database objects.
* **ALTER**: This command is used to alter the definition of database objects.
* **TRUNCATE**: This command is used to remove tables, procedures, views, and other database objects.
* **ADD COLUMN**: This command is used to add any column to the table schema.
* **DROP COLUMN**: This command is used to drop a column from any

table structure.

1. **DML (Data Manipulation Language)**

This type of queries is used to manipulate data in the database. Example –

* + **SELECT INTO**: This command is used to select data from one table and insert it into another table.
  + **INSERT**: This command is used to insert data/records into a table.
  + **DELETE**: This command is used to delete records from the table.
  + **UPDATE**: This command is used to update the value of any record in the database.

1. **DCL (Data Control Language)**

This category of SQL queries deals with the access rights and permission control of the database. Example –

* + **GRANT**: This command is used to grant access rights to database objects.
  + **REVOKE**: This command is used to withdraw permission from database objects.

1. **TCL (Transaction Control Language)**

The transaction is a set of commands that perform a specific task on objects in a single unit of execution. So TCL commands deals with transactions in a database. Example –

* + **COMMIT**: This command is used to commits a transaction. Once committed, it cannot be rolled back. This means the previous image of the database before running this transaction cannot be retrieved.
  + **ROLLBACK**: Rollback is used to revert the steps in transactions if an error occurs.
  + **SAVEPOINT**: This command sets a savepoint in the transaction to which steps can be rolled back.
  + **SET TRANSACTION**: This command is used to set the characteristics of the transaction. **SQL vs. NoSQL)**

**the five key differences between SQL vs. NoSQL are:**

SQL databases are relational, NoSQL databases are non-relational.

SQL databases use structured query language and have a predefined schema. NoSQL databases have dynamic schemas for unstructured data.

SQL databases are vertically scalable, while NoSQL databases are horizontally scalable.

SQL databases are table-based, while NoSQL databases are document, key-value, graph, or wide-column stores.

SQL databases are better for multi-row transactions, while NoSQL is better for unstructured data like documents or JSON.