**SQL**

**DATA**

* Data is any sort of information which is stored in computer memory. This information can later be used for a website, an application or any other client to store for future purpose.Server filter out the necessary data and stores it in Database
* A database is an electronic system that allows data to be stored,easily accessed, manipulated and updated.
* A database is made up of two components mainly, data and a meaningful method for accessing and manipulating data.Without these two, a database is just a random set of data.
* Databases are quite similar to spreadsheets as they are mostly made up of tables which contain rows and columns like a spreadsheet. A database needs to be hosted or created on some special database platform, some of the famous Database platforms are:
* PostgreSQL
* MySQL
* Microsoft Access
* SQLite

A software which can perform the various operations on databases is known as Database Management System.

* A database management system is a software used to perform different operations, like addition, access, updating, and deletion of the data, like adding your name in the database for an online retail store as a customer.A database management system acts as the backbone of a database and makes using a database a cakewalk as it makes access and management of data a lot easier.
* SQL is a standard computer language for relational database management and data manipulation. SQL stands for Structured Query Language.
* It is a standard language for accessing and manipulating databases. Using SQL,some of the action we could do are to create databases, tables, stored procedures (SP’s), execute queries, retrieve, insert, update, delete data against a database.You can think of SQL as a medium of communication between the user and the DBMS.
* SQL keywords are not case sensitive.

**SQL code is divided into four main categories:**

* **Clauses**:The SELECT statement is the omnipresent part of the statements to perform queries. It is further divided into clauses, which include SELECT, FROM, WHERE and ORDER BY. (DQL)
* **Data Manipulation Language (DML)**:Commands which are used to manipulate the data in a database, like add, update or delete data. It comes under the Data Manipulation Language . DMLconsists consist of statements like SELECT,INSERT, DELETE, and UPDATE along with BEGIN TRANSACTION, SAVEPOINT, COMMIT and ROLLBACK as some of the control statements.
* **Data Definition Language (DDL)**:To manage the tables and index structures,Data Definition Language is used. The statements DDL includes are mainly CREATE, ALTER, TRUNCATEand DROP.
* **Data Control Language(DCL)**:The GRANT and REVOKE statements are two main statements used to assign and revoke database rights and permissions. These commands make up the Data Control Language.

### **Most important SQL Commands are as follows:**

SELECT – It extracts data from a DataBase  
UPDATE – It updates data in a DataBase  
DELETE – It deletes data from a DataBase  
INSERT INTO – It inserts new data into a DataBase  
CREATE – It creates a new DataBase/Table/Index  
ALTER – It modifies a DataBase/Table  
DROP – It deletes a table/Index

## **SQL Data Types**

SQL data types can be broadly divided into following categories.

1. Numeric data types such as int, tinyint, bigint, float, real etc.
2. Date and Time data types such as Date, Time, Datetime etc.
3. Character and String data types such as char, varchar, text etc.
4. Unicode character string data types, for example nchar, nvarchar, ntext etc.
5. Binary data types such as binary, varbinary etc.t support DATETIME and MySQL doesn’t support CLOB data type. So while designing database schema and

* Miscellaneous data types – clob, blob, xml, cursor, table etc.

### **SQL Data Types important points**

* Not all data types are supported by every relational database vendors. For example, Oracle database doesn’ writing sql queries, make sure to check if the data types are supported or not.
* Data types listed here doesn’t include all the data types, these are the most popularly used data types. Some relational database vendors have their own data types that might be not listed here. For example, Microsoft SQL Server has money and smallmoney data types but since it’s not supported by other popular database vendors, it’s not listed here.
* Every relational database vendor has it’s own maximum size limit for different data types, you don’t need to remember the limit. Idea is to have the knowledge of what data type to be used in a specific scenario.

## **SQL Operators**

[SQL](https://www.journaldev.com/16767/sql) operators are used to perform operations like comparisons and arithmetic operations.

* These Operators are used to specify conditions in an SQL statement.
* SQL operators help us in selecting only specific records from the tables or views.

### SQL Operators Types

Broadly SQL operators are classified in following parts.

1. Arithmetic Operators(+,-,\*,/,%)
2. Comparison Operators(=,<>,!=,>,<,<=,>=)
3. Logical Operators(ALL,AND,BETWEEN,EXISTS,IN,LIKE,NOT,OR,UNIQUE etc)
4. Bitwise Operators(&,|,^,<<(left shift operator),>>)

Bitwise operators are the operators which are used on bit of data.