SQL

- SQL : Structured Query Language, where Query is set of certain command cell. Structure data here means data stored in a row/column format.
- A structured database needs to know what is being stored in advance
- The Agile Development approach work well with SQL. Agile means dynamic
- Key value are simplest NoSQL databases. But in SQL the concept of key value is not there.

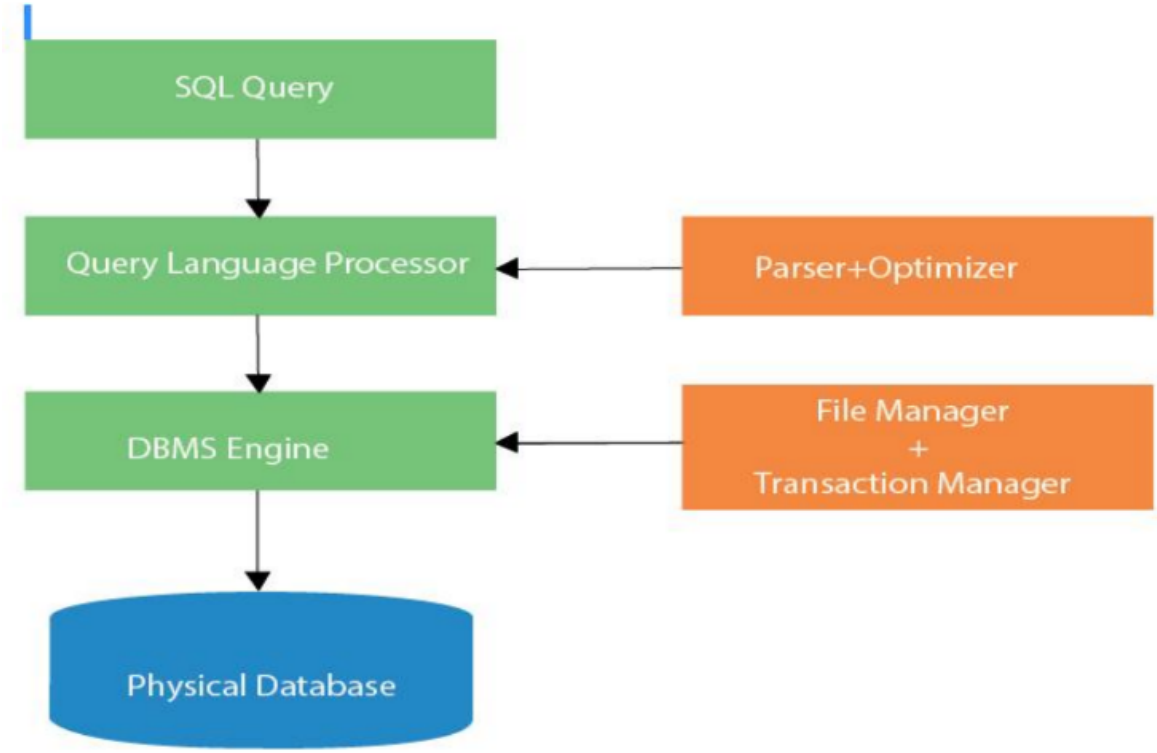
What is SQL?

- It is used for storing and managing data in Relational Database Management System(RDBMS)
- It enables user to create, read, update and delete relational databases and tables.

SQL rules:

- It is not case sensitive.
- Statements of SQL are dependent on text lines.
- Always close the statement with semicolon.
- Using SQL statements, you can perform most of the actions in a database.
- SQL depends on tuple relational calculus and relational algebra.

SQL process:

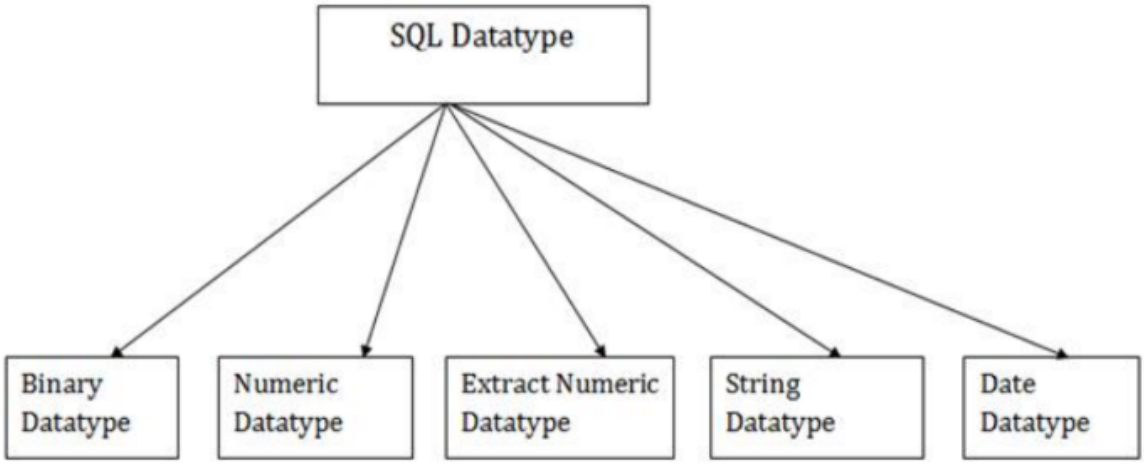


Advantages of SQL:

- High speed
- No coding needed
- Portability
- Multiple data view

SQL Datatype:

It is used to define the values that a column can contain.

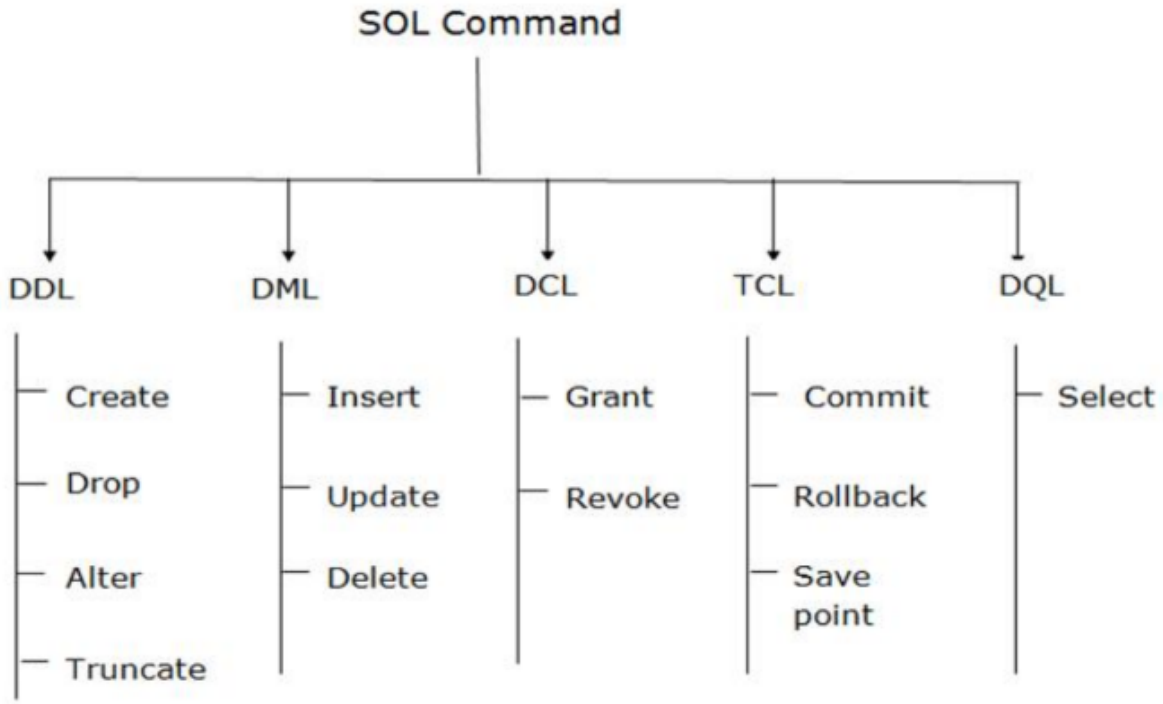


SQL Commands:

- SQL commands are instructions. It is used to communicate with the database. It is also used to perform specific tasks, functions, and queries of data.
- SQL can perform various tasks like create a table, add data to tables, drop the table, modify the table, set permission for users.

Type of SQL Commands:

There are five types of SQL commands: DDL, DML, DCL, TCL and DQL.



Data Definition Language (DDL)

- It changes the structure of table like creating a table, deleting a table, altering a table, etc.
- All the command of DDL are auto committed that means it permanently save all the changes in the database.
- Commands come under DDL: (DACT)
  - DROP - It is used to delete both the structure and record stored in the table.
  - ALTER - It is used to alter the structure of the database. This change could be either to modify the characteristics of an existing attribute or probably to add a new attribute.
  - CREATE
  - TRUNCATE - It is used to delete all the rows from the table and free the space containing the table.

Data Manipulation Language (DML)

- DML commands are used to modify the database. It is responsible for all form of CHANGES in the database.

- The command of DML is not auto-committed that means it can't permanently save all the changes in the database. They can be `rollback.`
- Here are some commands that come under DML:
  - INSERT
  - UPDATE
  - DELETE

Data Control Language (DCL)

DCL commands are used to GRANT and TAKE BACK authority from any database user.

Here are some commands that come under DCL:

- Grant
- Revoke

Transaction Control Language (TCL)

- TCL commands can only use with DML commands like INSERT, DELETE and UPDATE only.
- These operations are automatically committed in the database that's why they cannot be used while creating tables or dropping them.
- Here are some commands that come under TCL:
  - COMMIT
  - ROLLBACK
  - SAVEPOINT

Data Query Language (DQL)

DQL is used to fetch the data from the database.

It uses only one command:

- SELECT: This is the same as the projection operation of relational algebra. It is used to select the attribute based on the condition described by WHERE clause.