



SQL: Structured Query Language

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History Of SQL

- The SQL(Structural Query language) was first created in the **1970s** by IBM researchers **Raymond Boyce** and **Donald Chamberlin**.
- The Query language, known then as **SEQUEL**



Raymond Boyce



Donald Chamberlin

WHAT IS DATABASE?

- A database is a well-ordered collection of data.
- A database is an electronic system that permits data to be easily manipulated, accessed, and updated, or an organization uses a database as a method of managing, storing, and retrieving information.

1) Structured Storage:

Data is stored in a specific format, often in tables with rows and columns, making it easy to query and analyze.

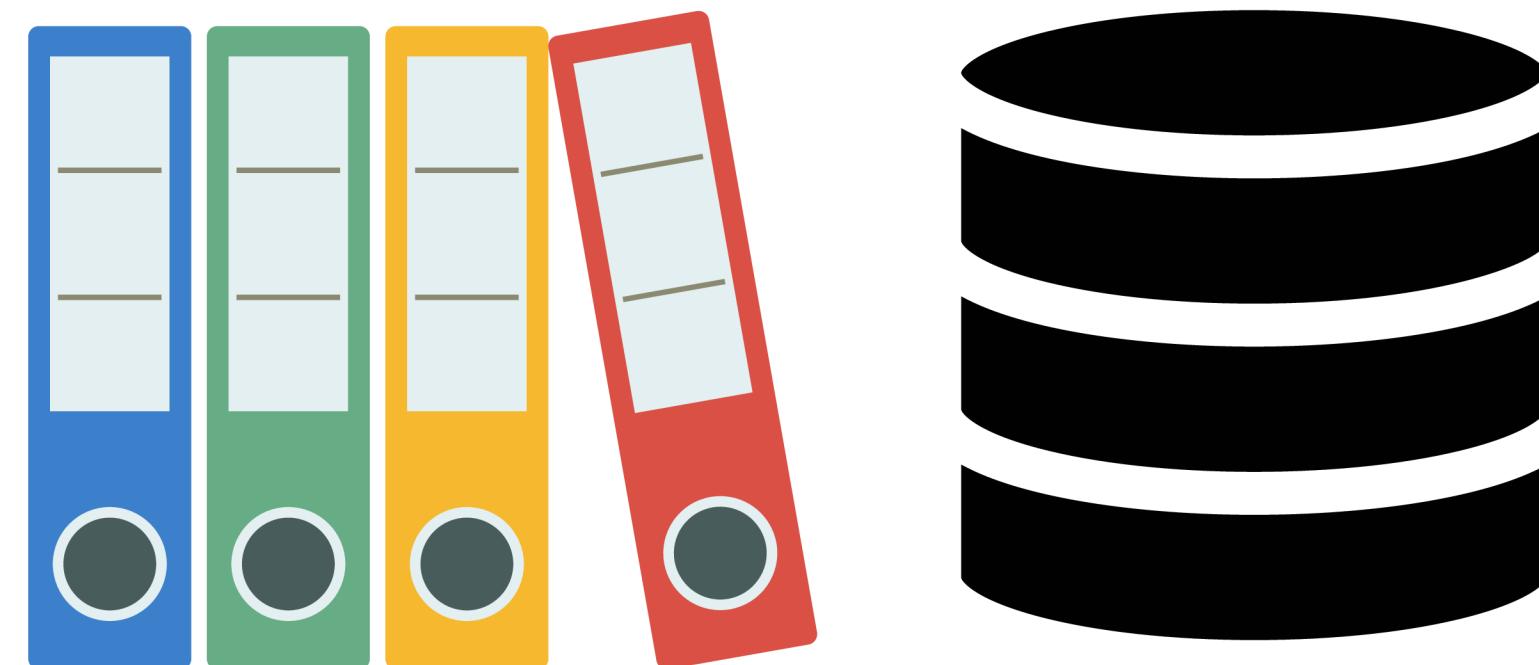
2) Consistency: The data stored is consistent, meaning that the same type of data is stored in the same way across the database.

3) Integrity: Data integrity ensures that the data is accurate and reliable.

4) Scalability: Databases can grow in size, handling more data without performance issues.

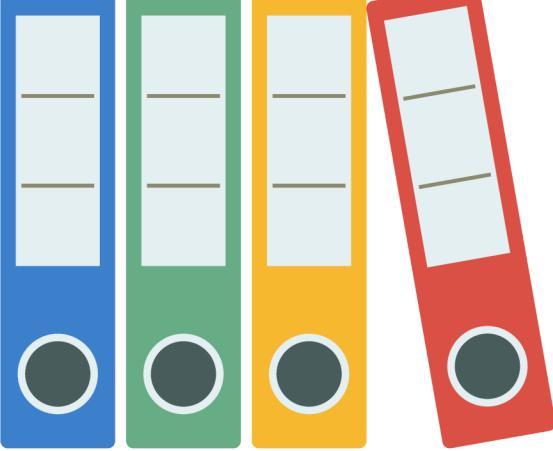
DATABASE MANAGEMENT SYSTEM (DBMS)

- A Database Management System (DBMS) is software that allows users to create, manage, and interact with databases. It acts as an intermediary between the user and the database, enabling users to easily retrieve, insert, update, and delete data while ensuring that the data is secure and consistent.



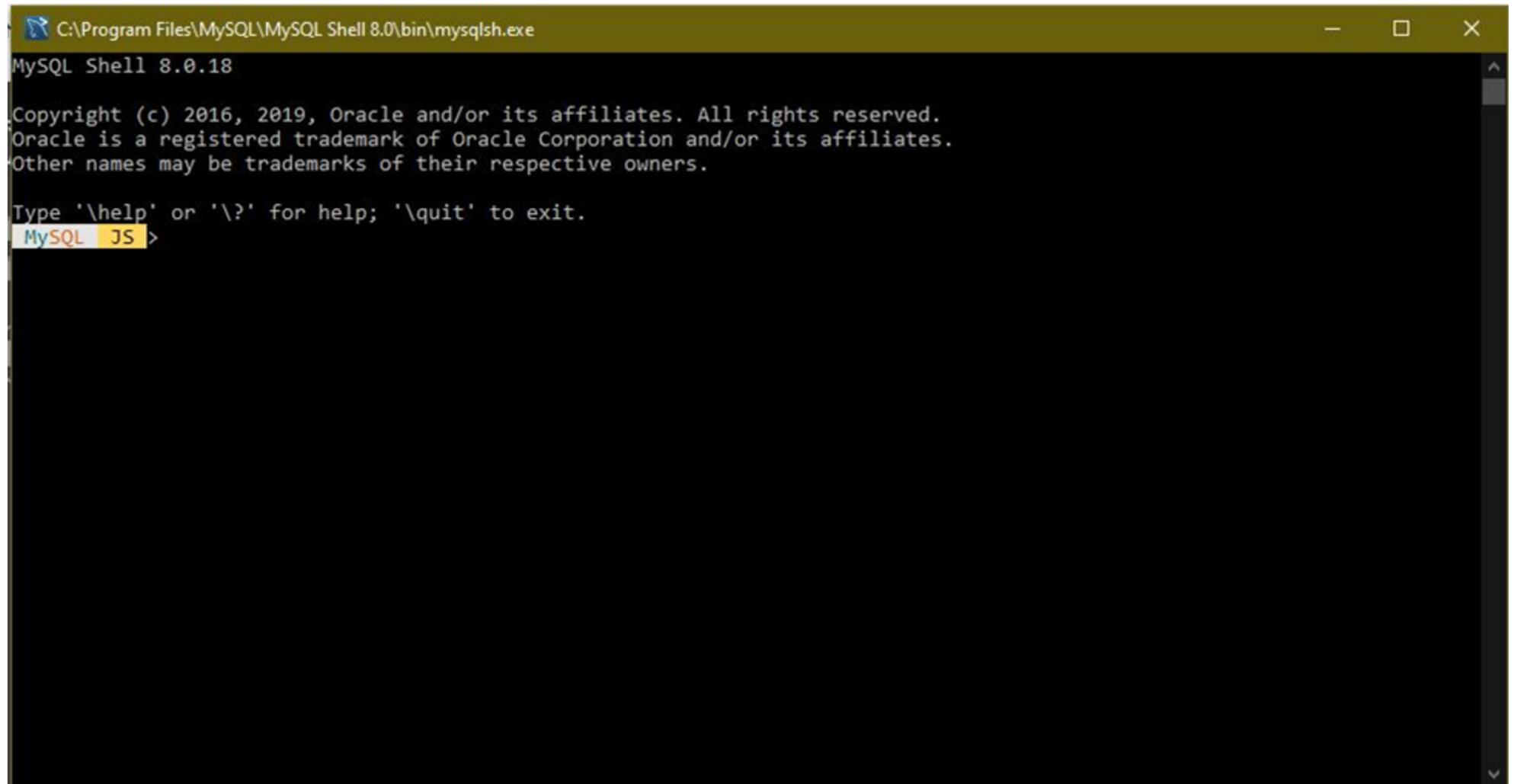
WHAT IS A RELATIONAL DATABASE MANAGEMENT SYSTEM (DBMS)?

- RDBMS stands for Relational Database Management System. It is a type of database management system (DBMS) that stores data in a structured format, using rows and columns, which are organized into tables. The key feature of an RDBMS is that it uses relationships (or links) between tables to manage and query data efficiently.
- **a) Tables:** Data is stored in tables, where each table consists of rows (records) and columns (attributes).
- **b) Primary Key:** Each table typically has a primary key, a unique identifier for each row in the table.
- **c) Foreign Key:** Relationships between tables are established using foreign keys, which are fields in one table that refer to the primary key in another table.
- **SQL (Structured Query Language):** RDBMS systems use SQL for querying, updating, and managing the data.
- **d) Normalization:** RDBMSs often involve the normalization process, which organizes data to minimize redundancy and dependency.
- Examples: MySQL, PostgreSQL, Microsoft SQL Server, and Oracle Database.



Downloading & Installation of MySQL





C:\Program Files\MySQL\MySQL Shell 8.0\bin\mysqlsh.exe

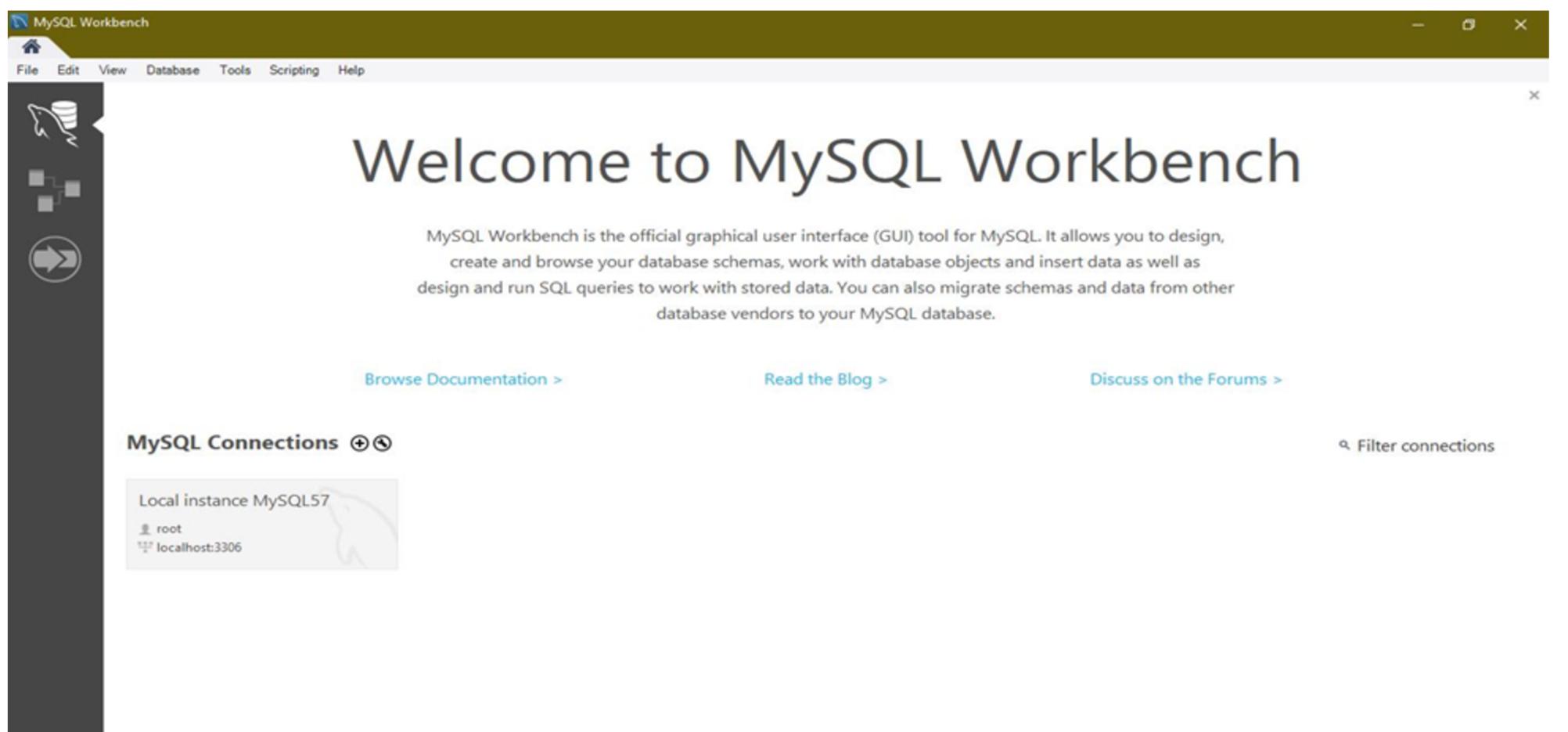
MySQL Shell 8.0.18

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Type '\help' or '\?' for help; '\quit' to exit.

MySQL JS >

MySQL Shell



MySQL Workbench

File Edit View Database Tools Scripting Help

Welcome to MySQL Workbench

MySQL Workbench is the official graphical user interface (GUI) tool for MySQL. It allows you to design, create and browse your database schemas, work with database objects and insert data as well as design and run SQL queries to work with stored data. You can also migrate schemas and data from other database vendors to your MySQL database.

Browse Documentation > Read the Blog > Discuss on the Forums >

MySQL Connections + ↻

Local instance MySQL57

root
localhost:3306

MySQL WorkBench

SQL QUERY

- A database most often contains tables. Some name identifies each table.
- The table includes records(rows) with Data. To access those records, we need SQL Syntax.
- Most of the action you need to perform Database by using the SQL Statement.

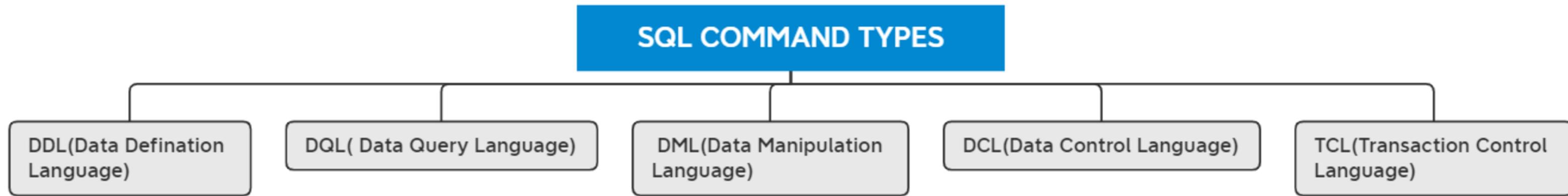
Note: SQL keywords are not case-sensitive
(e.g., select as SELECT)

- SQL syntax is like simple English sentences.
- Keywords include SELECT, UPDATE, WHERE, ORDER BY ETC.

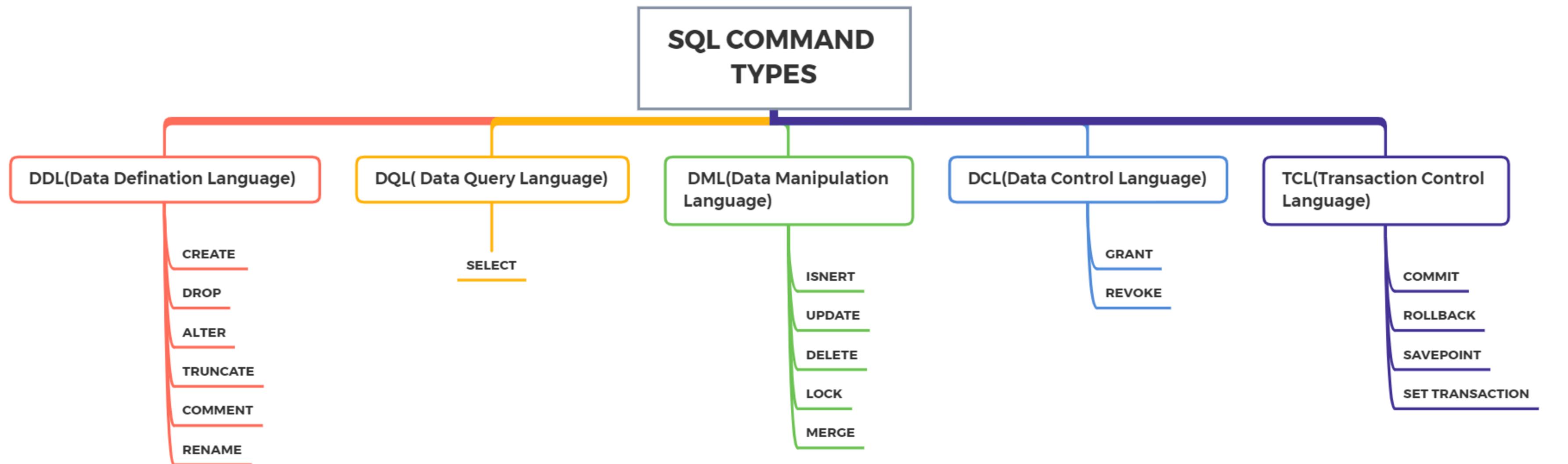


SQL COMMANDS

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 COMMAND TYPES



DDL(DATA DEFINITION LANGUAGE)

- DDL changes the structure of the 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.

Here are some commands that come under DDL:

- 1)CREATE
- 2)ALTER
- 3)DROP
- 4)TRUNCATE

DDL(DATA DEFINITION LANGUAGE)

1)CREATE: It is used to create a new table in the database.

Syntax: CREATE TABLE TABLE_NAME (COLUMN_NAME DATATYPES[,...]);

2)ALTER: To add a new column in the table

Syntax: ALTER TABLE table_name ADD column_name COLUMN-definition;

3)DROP: It is used to delete both the structure and record stored in the table.

Syntax: DROP TABLE TABLE_NAME;

4)TRUNCATE: It is used to delete all the rows from the table and free the space containing the table.

Syntax: TRUNCATE TABLE table_name;

DDL(DATA DEFINITION LANGUAGE)

5)COMMENT: Comments are used to explain sections of SQL statements, or to prevent execution of SQL statements.

Syntax: 1) Single line comments start with --.

2) Multi-line comments start with /* and end with */.