

Structured Query Language

SQL - Day 5

Agenda

- Difference between SQL and MySQL.
- What is Query
- Different Commands used in SQL queries
- Different Languages used in SQL
- Usage of SQL languages and SQL commands.
- Establishing connection with MySql Server
- Finding the database present within MYSQL server.
- How to use a particular database present within MYSQL server.
- How to know which database is currently is in Use.
- How to know which are the tables present inside particular database.
- How to fetch all the data present inside particular table.



Case Study

- Creation of University database and its manipulation.

Difference between SQL and MySQL.

SQL is a Structured Query Language. It is useful to manage relational databases.

MySQL is an RDBMS to store, retrieve, modify and administrate a database using SQL.

What is Query?

A query is a question, often expressed in a formal way. A database query can be either a select query or an action query. A select query is a data retrieval query, while an action query asks for additional operations on the data, such as insertion, updating or deletion.

Let Us understand what is query.

Examples for queries.

From the given STUDENT table write a Query to get the all students details whose grade is greater than 70.



STUDENT TABLE			
ID	NAME	AGE	GRADE
1	JOHN	21	72
2	MIKE	20	68
3	KATE	22	86
4	ANDY	21	94

Query:

SELECT * FROM STUDENT WHERE THE GRADE > 70;

OUTPUT:

ID	NAME	AGE	GRADE
1	JOHN	21	72
2	KATE	22	86
3	ANDY	21	94

NOTE: Query which we have written had fetched all the student details whose grade is greater than 70% from STUDENT table and given a separate table as shown (output) above.

Unlike SELECT command there are many different types of command available in SQL.

Different Commands used in SQL queries.

Here is the list of different SQL commands:

SQL
Commands

CREATE
DROP
ALTER
TRUNCATE
INSERT
UPDATE
DELETE
GRANT
REVOKE
COMMIT
ROLLBACK
SAVEPOINT
SELECT



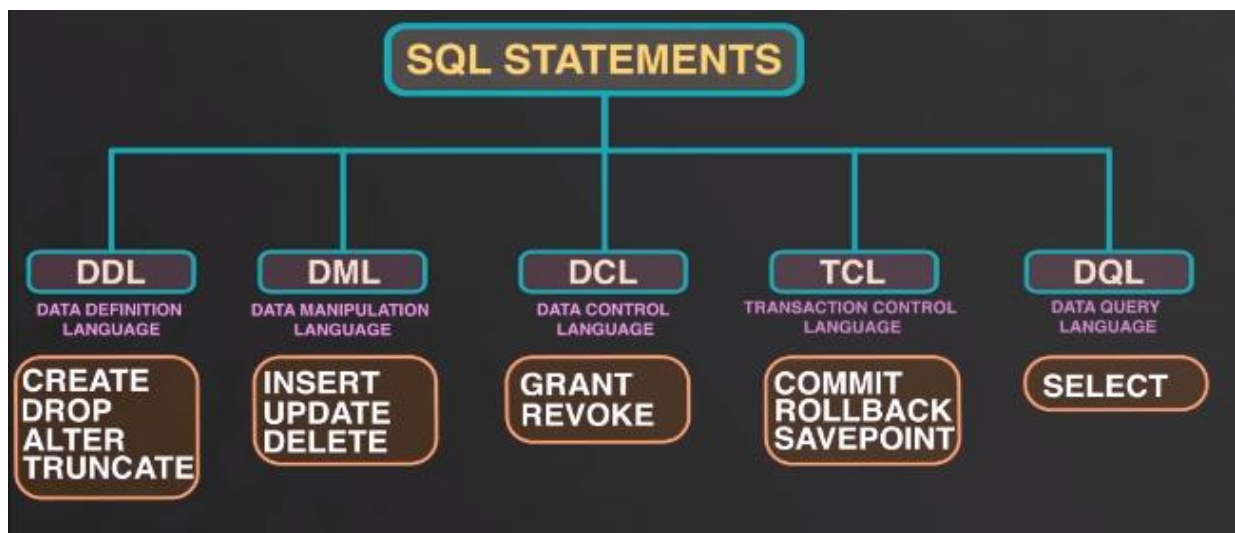
These commands are classified into different categories of sql languages.

Let us know the Different Languages and its commands used in SQL.

There are 5 different languages in sql, they are:

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)

Note: SQL statements are categorised into different languages and all the sql commands are categorised into these different languages as shown below.

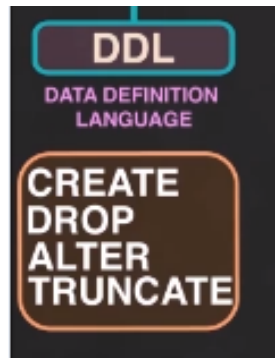


What is the usage of these SQL languages and SQL Commands?



Usage of SQL Languages and its Commands.

DDL (DATA Definition Language)



DDL(Data Definition Language) : DDL or Data Definition Language actually consists of the SQL commands that can be used to define the database schema. It simply deals with descriptions of the database and is used to create and modify the structure of database objects in the database.

DDL commands:

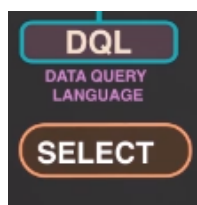
CREATE - is used to create the database or its objects (like table, index, function, views, store procedure and triggers).

DROP - is used to delete objects from the database.

ALTER-is used to alter the structure of the database.

TRUNCATE-is used to remove all records from a table, including all spaces allocated for the records are removed.

DQL (DATA QUERY LANGUAGE):



DQL statements are used for performing queries on the data within database table

DQL Commands:

SELECT - is used to retrieve data from the database.

DML (Data Manipulation Language):



DML (Data Manipulation Language): The SQL commands that deal with the manipulation of data present in the database belong to DML or Data Manipulation Language and this includes most of the SQL statements.

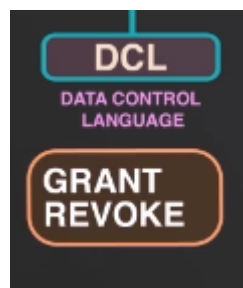
DML Commands:

INSERT - is used to insert data into a table.

UPDATE - is used to update existing data within a table.

DELETE - is used to delete records from a database table.

DCL (Data Control Language):



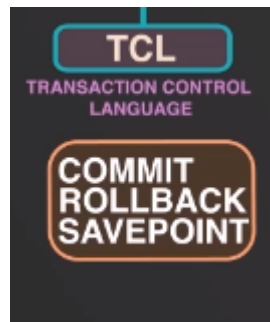
DCL (Data Control Language): DCL includes commands such as GRANT and REVOKE which mainly deal with the rights, permissions and other controls of the database system.

DCL commands:

GRANT - gives user's access privileges to the database.

REVOKE - withdraw user's access privileges given by using the GRANT command.

TCL (transaction Control Language):



TCL (transaction Control Language): TCL commands deal with the transaction within the database.

TCL commands:

COMMIT - commits a Transaction.

ROLLBACK - rolls back a transaction in case of any error occurs.

SAVEPOINT - sets a save point within a transaction.

How to establish a Connection with MYSQL server.



Before establishing the connection first install the MYSQL in your system.

MySQL command:

Invokes the MYSQL sever

-U: Specifies USER NAME

-P: Specifies Password.

```
COMMAND PROMPT

C:\Users\Studio>mysql -u rooman -p
Enter password: ****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 14
Server version: 8.0.22 MySQL Community Server - GPL

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current
statement.

mysql>
```


How to find the database present within MYSQL server.



Show database command:

Used to retrieve all the database present inside MYSQL server.

These are the 6 default database present inside MYSQL server

```
COMMAND PROMPT

owners.

Type 'help;' or '\h' for help. Type '\c' to
mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql          |
| performance_schema |
| sakila         |
| sys           |
| world         |
+-----+
6 rows in set (0.00 sec)
```

How to use a particular database present within MYSQL server.



To make use of SAKILA database present inside MYSQL server, make use of **USE command** followed with database name.

USE command: use command is used to make use of any database present inside the MYSQL server

```
COMMAND PROMPT

mysql
performance_schema
sakila
sys
world
+-----+
6 rows in set (0.00 sec)

mysql> use sakila;
Database changed
mysql>
```


How to know which database is currently in Use.



Select database () Command is used to know which is the database id currently in use.

```
mysql> use sakila;
Database changed
mysql> select database();
+-----+
| database() |
+-----+
| sakila      |
+-----+
1 row in set (0.00 sec)
```

How to get to know which are the tables present inside particular database?



Select tables () Command is used to know which are the tables present inside the database.

```
mysql> show tables;
+-----+
| Tables_in_sakila |
+-----+
| actor             |
| actor_info        |
| address           |
| category          |
| city              |
| country           |
| customer           |
| customer_list     |
| film              |
| film_actor        |
| film_category     |
| film_list         |
| film_text         |
| inventory         |
+-----+
```

How to fetch all the data present inside particular table?



Select * FROM TABLE_NAME

Note: Using the above SQL query we can fetch all the data present inside the database.

```
mysql> SELECT * FROM STAFF_LIST;
```

ID	name	address	zip code
1	Mike Hillyer	23 Workhaven Lane	
2	Jon Stephens	1411 Lillydale Drive	

Hey!! I understood about establishing a database connection, How to find the database present within MYSQL server, How to know which database is currently is in use, How to get to know which are the tables present inside particular database, How to fetch all the data present inside particular table.

But!! How to create new database and add data into it??



Let's understand how to create database and how to add data into it.

Creating University database.

CREATE DATABASE is the command used to create new database.

```
mysql> CREATE DATABASE UNIVERSITY;  
Query OK, 1 row affected (0.01 sec)
```

Syntax:

CREATE database_name

Making University Database as current database.

USE University is the command used to make university database as the current database.

```
mysql> USE UNIVERSITY;  
Database changed
```

Syntax: USE database_name

Finding the data present inside University Database.

SHOW TABLES command is used to find the data present inside current database.

```
mysql> SHOW TABLES;  
Empty set (0.00 sec)
```

Note: We have created university database but no data has been added to it, so it is displaying as **EMPTY SET**. Whenever data is not added into the database then it displays **EMPTY SET**.

Deleting the university database.

Drop DATABASE UNIVERSITY is the command used to delete a database from the server.

```
mysql> DROP DATABASE UNIVERSITY;  
Query OK, 0 rows affected (0.01 sec)
```

Syntax:

Drop DATABASE database_name

Note: Once the database is deleted/dropped from the server, then it cannot be used. If we try to use the database which is not present inside the database server then it will generate **Error** message.

```
mysql> USE UNIVERSITY;  
ERROR 1049 (42000): Unknown database 'university'
```

How to create table in database and add data inside table.?



To be continued...