SQL

SQL (Structured Query Language):

SQL is a standardized programming language used to manage and manipulate relational databases. It allows users to perform various operations on data stored in a relational database management system (RDBMS). These operations include querying data, updating data, inserting data, deleting data, creating new databases and tables, and modifying existing database structures.

MySQL:

MySQL is one of the most popular open-source relational database management systems. It is widely used for web applications and other data-driven software applications. MySQL supports SQL and is known for its reliability, scalability, and ease of use.

SQL	MySQL
SQL is a language to manage databases.	MySQL is a database software.
SQL is used to query databases.	MySQL stores the data.
SQL is structured query language.	MySQL is RDBMS (Relational Database Management System)
SQL does not provide connectors.	MySQL provide an integrated tool called "MySQL workbench"
SQL codes or commands are used in Oracle, SQL server, PostgreSQL, DB2, MariaDB, MySQL etc.	MySQL uses SQL.

Commands:

SELECT - extracts data from a database

UPDATE - updates data in a database

DELETE - deletes data from a database

INSERT INTO - inserts new data into a database

CREATE DATABASE - creates a new database

ALTER DATABASE - modifies a database

CREATE TABLE - creates a new table

ALTER TABLE - modifies a table

DROP TABLE - deletes a table

1. Show databases;
2. Create database_name; # for create new database.
3. Use database_name;
4. Show tables from database_name;
5. Show columns from table_name;
6. CREATE TABLE table_name (column1 datatype column2 datatype, column3 datatype, ...);
   Eg: CREATE TABLE Persons (PersonID int,LastName varchar(255),City varchar(255));

CRUD Operations in SQL:

CRUD stands for Create, Read, Update, and Delete. These are the basic operations that can be performed on data in a database.

1. **Create (INSERT):** Used to add new records (rows) to a table.

 INSERT INTO table_name (column1, column2, ...) VALUES (value1, value2, ...);

 Read (SELECT): Used to retrieve data from one or more tables.

 SELECT column1, column2, ... FROM table_name WHERE condition;

 Update (UPDATE): Used to modify existing records in a table.

 UPDATE table_name SET column1 = value1, column2 = value2, ... WHERE condition;

 Delete (DELETE): Used to remove records from a table.

4. DELETE FROM table_name WHERE condition;

JOIN Queries:

JOIN operations are used to combine rows from two or more tables based on a related column between them. There are different types of JOINs:

1. **INNER JOIN:** Returns records that have matching values in both tables.

   sql
   SELECT * FROM table1 INNER JOIN table2 ON table1.column = table2.column;

LEFT JOIN (or LEFT OUTER JOIN): Returns all records from the left table and matching records from the right table.

sql
SELECT * FROM table1 LEFT JOIN table2 ON table1.column = table2.column;

RIGHT JOIN (or RIGHT OUTER JOIN): Returns all records from the right table and matching records from the left table.

sql
SELECT * FROM table1 RIGHT JOIN table2 ON table1.column = table2.column;

FULL JOIN (or FULL OUTER JOIN): Returns all records when there is a match in either left or right table.

sql
4. SELECT * FROM table1 FULL JOIN table2 ON table1.column = table2.column;

These are the main concepts and query types in SQL and MySQL for managing and querying data in relational databases.