

Data Analytics Project

18. The SQL Guide



Aagam Deolasi
@Aagam Deolasi



Introduction

1. SQL, or Structured Query Language, is used to interact with relational databases.
2. SQL queries are commands used to perform actions like adding, reading, updating, and deleting data from tables.
3. The syntax of a basic SQL query consists of keywords like SELECT, INSERT, UPDATE, and DELETE.

Example: *SELECT title, year FROM Movie*
retrieves the title and year columns from the Movie table.



SQL: Commands & Universality

1. SQL commands like **SELECT, INSERT, UPDATE, and DELETE** are part of the **Data Manipulation Language (DML)** used for manipulating data.
2. **Data Definition Language (DDL)** includes commands for creating and modifying database objects like tables.
3. SQL is universally supported by relational database systems (RDBSs), but each may have its own set of SQL keywords.
4. Understanding SQL syntax and commands is essential for effective database management & accurate data analysis.



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SQL: SELECT Command

The SELECT command is a "**read statement**" used to retrieve and display specific data from the database.

Example: "SELECT title, year FROM Movie" retrieves the title and year of all movies from the Movie table.



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SQL: SELECT ALL Command

We can retrieve all fields from a table using the asterisk symbol (*) after SELECT.

Example: "SELECT * FROM Movie" retrieves all attributes from the Movie table, including movieID, title, and year.



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SQL: WHERE Command

The WHERE command filters the results based on specified conditions.

Example: "SELECT * FROM Movie WHERE year > 1976" retrieves movies released after 1976 from the Movie table.



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SQL: ORDER BY Command

The ORDER BY command sorts the results based on specified criteria.

Example: "SELECT * FROM Movie ORDER BY title ASC" arranges the results in ascending (alphabetical) order by title.



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SQL: Logical Operator

Some of Logical Operators used in most RDBSs.

Operator	Meaning
=	Equal To
!=	Not Equal To
>	Greater Than
<	Less Than
>=	Greater Than or Equal To
<=	Less Than or Equal To
BETWEEN	Between the Lowest and Highest Value in the range
LIKE	Search for pattern.
IN	Specifying multiple potential values for column
AND	Logical AND between 2 conditions. Returns True if all conditions are true.
OR	Logical OR between 2 conditions. Returns True if at least one condition is true.
NOT	Logical NOT for a condition. Returns True if condition is False & Vice-versa



SQL: Queries Best Practices (1/3)

1. **Pay Close Attention to Case:** Use uppercase for keywords and lowercase for table and column names. (Though **SQL is Case insensitive**).

Example: `SELECT last_name FROM patients;`

2. **Use Spaces to Separate Keywords and Variables:** It enhances readability.

Example: `SELECT *` instead of `SELECT*`

3. **Use Single Quotes for Character Strings:** Surround character strings with single quotes to specify them.

Example: `SELECT 'John' AS first_name FROM patients;`



SQL: Queries Best Practices (2/3)

4. **Use Aliases to Make Queries More Readable:** To improve readability, provide alternative names for columns or tables.

Example: `SELECT f_name AS First_Name FROM employee;`

5. **Use Indentations and New Lines:** Utilize indentation and new lines to improve the readability of your queries.

Example: `SELECT *
FROM movie
WHERE year > 1976
ORDER BY title ASC
LIMIT 10;`



SQL: Queries Best Practices (3/3)

6. Add Comments Where They Might Be Useful:

Include comments in your queries to explain complex logic or instructions.

Example:

```
SELECT *  
FROM movie  
WHERE year > 1976  
ORDER BY title ASC -- We want alphabetical  
order  
LIMIT 10; -- We only need the top 10 for a "Top  
Ten" list
```



SQL: Common Functions

Below are some of the most commonly used SQL functions

Functions	Description
SUM()	Outputs SUM of all values in specified field
AVG()	Outputs AVERAGE of all values in specified field
COUNT()	Outputs NUMBER OF RECORDS containing the specified field
MIN()	Outputs MINIMUM value contained in the specified field
MAX()	Outputs MAXIMUM value contained in the specified field



THANK YOU!!! FOR YOUR SUPPORT! For Now...

Keep Learning, Keep Sharing & Keep Following
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