DATA ANALYTICS

30 DAYS

SQL COURSE

Check the dashboard for course duration

Github link for further details

All the resources are available for learn and practice sql queries

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Introduction of SQL in data analytics

SQL is important in data analytics because it allows analysts to efficiently retrieve, manipulate, and analyze data stored in relational databases. It provides a standardized language for tasks such as filtering, sorting, aggregating, joining tables, and managing database structures, contributing to effective data analysis, cleaning, and transformation. SQL is widely compatible, scalable, and integrates with various tools, making it a fundamental skill for professionals in the field.

SQL:

SQL stands for Structured Query Language. It is a domain-specific language used in programming and designed for managing data held in a relational database management system (RDBMS).
SQL is the most common language for extracting and organizing data that is stored in a relational database. It facilitates retrieving specific information from databases that are further used for analysis. SQL is a critical tool for data professionals and is undoubtedly the most important language for getting a job in the field of data analysis or data sciences.

Basic SQL commands

- Create Database
- Create table
- Drop Database
- Drop Table
- Sql constraints
    - ★ Primary key
    - ★ Foreign key
    - ★ Not null
    - ★ Unique
    - ★ Check
    - ★ Default
- Insert
- Select
- From
- Alter

- Update
- Delete

Intermediate SQL commands

- Where clause
- Operator
- Functions in SQL
- Aggregate function
- Group by and having clause
- Distinct clause
- Order by
- All and any clause
- Top clause
- Union and union all clause
- Intersection clause
- Aliases

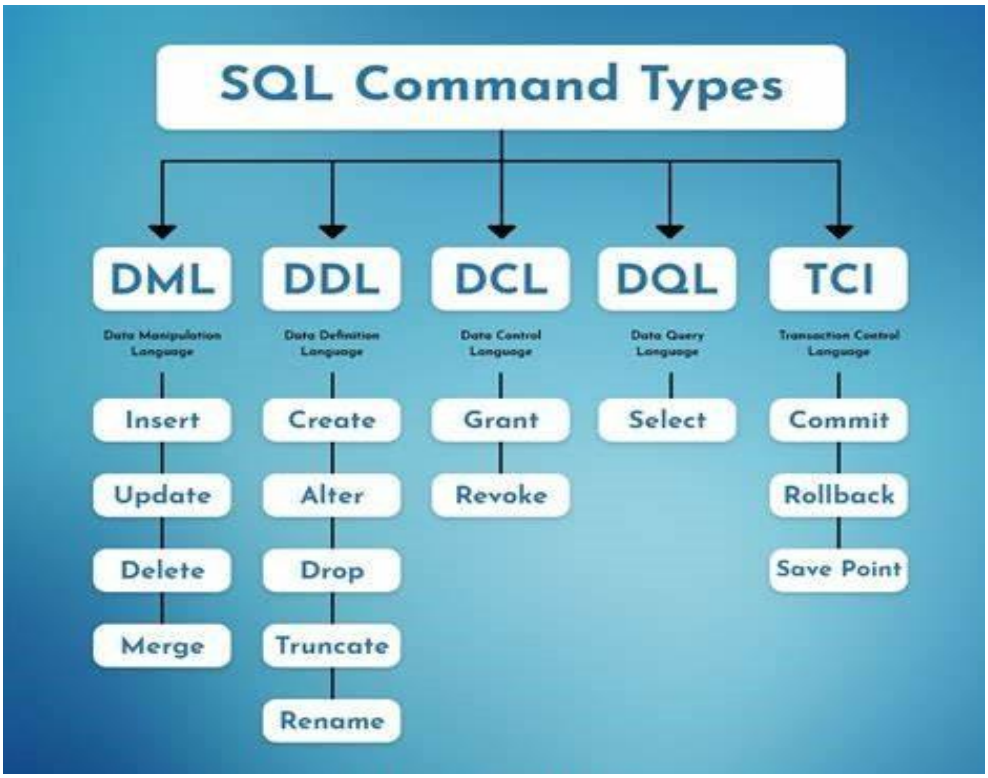
Advanced SQL commands

- SQL joins
- Pattern matching
- Views
- CET
- Case Expression
- Advance functions
- Stored procedure
- Trigger in SQL

Types of SQL commands

SQL commands mainly categories in five types

1. DDL – Data Definition Language
2. DQL – Data Query Language
3. DML – Data Manipulation Language
4. DCL – Data Control Language
5. TCL – Transaction Control Language



For more information click on link

Understanding SQL Commands

Create database:- To create a new database in SQL we use the CREATE DATABASE command and then we mention the name of the database.

Syntax:
```
CREATE DATABASE Arpitajain;
```

Drop database:- Delete the database

Syntax:
```
DROP DATABASE Arpitajain;
```

Create table:-To create a new table in SQL we use the CREATE TABLE command

Syntax:
```
CREATE TABLE Arpita (
        id int,
        name varchar(50),
        address text,
        email varchar(50),
        phone varchar(10));
```

SQL Constraints

Not Null:- column can't have any null value
Primary key:- combination of not null and unique values
Foreign key:- Prevents actions that would destroy links between tables
Unique :- In a column all values are different
Check:- Ensures that the values in a column satisfies a specific condition
Default:- Sets a default value for a column if no value is specified

Link for learn more about the SQL constraints

Insert:- used to add new record in a table

Syntax:- `INSERT INTO Arpita values(value1,value2,.....);`

Select clause:- Retrieve or fetch data from a database.

From clause:- From which table in the database do you have to select data?

Alter:- The ALTER TABLE statement is used to add, delete, or modify columns in an existing table.

The ALTER TABLE statement is also used to add and drop various constraints on an existing table.

Syntax:-
```
ALTER TABLE table_name
ADD column_name datatype;
```

Update:- The UPDATE statement is used to modify the existing records in a table.

Syntax:-
```
UPDATE table_name
SET column1 = value1, column2 = value2, ...
WHERE condition;
```

Delete:- Remove records from a database table based on certain conditions.

Practice questions for basic SQL commands

Simple questions

1. Explain the difference between SELECT and UPDATE statements in SQL.
2. What is a primary key, and why is it important in a database table?
3. How can you delete all records from a table without deleting the table structure?
4. Explain the difference between CHAR and VARCHAR data types.
5. What is normalization in the context of relational databases?

Intermediate SQL commands

Where clause:- It the used for filter the data with a specific condition

Syntax:- *SELECT **column1,column2** FROM table_name WHERE column_name operator value;*

Operator used with where clause

Functions in SQL:-

Aggregate function- These functions are used to do operations from the values of the column and a single value is returned.

- AVG()
- COUNT()
- MIN()
- MAX()
- SUM()

Scalar functions- these functions are based on user input, these too returns single value.

- UCASE()
- LCASE()
- MID()
- LEN()
- ROUND()
- NOW()
- FORMAT()

Group by:- The GROUP BY clause is often used with aggregate functions (MAX, SUM, AVG) to group the results by one or more columns.

Syntax:-
```
select count(salary) from Arpita
Group by salary;
```

Having clause:-Having Clause is basically like the aggregate function with the GROUP BY clause.

Syntax:-
```
SELECT COUNT (SALARIES) AS COUNT_SALARIES, EMPLOYEES
FROM EMPLOYEES
GROUP BY SALARIES
HAVING COUNT(SALARIES) > 1;
```

Distinct clause:- distinct used for select only different data

Syntax:-
```
select distinct column_name from table_name;
```

Order by:- set the data in ascending and descending format

Syntax:-
```
select * from table_name
Order by column_name;
```

All and any clause:- they are logical operators in SQL and return boolean values as a result

Syntax:-
```
SELECT ALL column_name
FROM table_name
WHERE TRUE;
```

Top clause:- used for fetching the top records in large dataset

Syntax:-
```
select top 2 * from table_name;
```

Union and union all clause: The Union Clause is used to combine two separate select statements and produce the result set as a union of both select statements.

Syntax:-
```
select column_name from table1
UNION
select column_name from table2;
```

Union all:- The resultant set consists of distinct values.

Syntax:-
```
select column_name from table1
UNION ALL
```

```
select column_name from table2;
```

Intersection clause:- provide the common values.

Syntax:-
```
select column_name from table1
INTERSECT
select column_name from table2;
```

Aliases:- Aliases are the temporary names given to tables or columns for the purpose of a particular SQL query.

Syntax:-
```
select * from Arpita as arpi;
```

Practice query for intermediate sql commands

Advanced SQL commands

SQL joins:- SQL Join statement is used to combine data or rows from two or more tables based on a common field between them. Different types of Joins are as follows:

- *INNER JOIN*
- *LEFT JOIN*
- *RIGHT JOIN*
- *FULL JOIN*
- *NATURAL JOIN*

For complete details of join

CTE(common table expression)
Views
Case Expression
Stored procedure
Trigger in SQL

Practice query for advance SQL

After completing the course:-

Solve codingNinjas SQL problems: Click Here
Solve all interview questions:
Top SQL interview Questions and Answers | Most Asked SQL Questions for Job interview
Group by interview question (learnsql.com website): Click Here
Go to HackerRank & solve SQL, use filter Skills= SQL (Basic)- Click Here
Go to LeetCode & solve SQL: Click Here