

SQL

1. Introduction to SQL

- **What is SQL?:** Overview and importance
- **Database Concepts:** Tables, columns, rows, primary keys, and foreign keys
- **Basic SQL Structure:** SQL syntax and structure

2. Basic SQL Operations

- **Creating a Database:** CREATE DATABASE
- **Creating a Table:** CREATE TABLE
- **Inserting Data:** INSERT INTO
- **Selecting Data:** SELECT statement
- **Filtering Data:** Using WHERE clause for conditions
- **Sorting Data:** ORDER BY for sorting

3. Modifying Data

- **Updating Data:** UPDATE statement
- **Deleting Data:** DELETE FROM

4. SQL Functions

- **Aggregate Functions:** COUNT (), SUM (), AVG (), MAX (), MIN ()
- **String Functions:** CONCAT (), LENGTH (), UPPER (), LOWER ()
- **Date Functions:** NOW (), YEAR (), MONTH ()

5. Joining Tables

- **INNER JOIN:** Combining rows from two tables

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- **LEFT JOIN:** Including all records from the left table
- **RIGHT JOIN:** Including all records from the right table

6. Subqueries

- **Using Subqueries:** In SELECT, INSERT, UPDATE, and DELETE
- **Nested Queries:** Writing complex queries with subqueries

7. Constraints

- **Primary Key:** Uniqueness in a table
- **Foreign Key:** Relating tables
- **Unique, Not Null, Check:** Data integrity constraints

8. Database Modifications

- **Altering Tables:** ALTER TABLE (add/drop columns)
- **Dropping Tables:** DROP TABLE

9. Indexing

- **What is an Index?:** Improving query performance
- **Creating and Dropping Indexes**