



SQL



Saturday
JAN 11 2025
1403 دی 22



Time
9 pm, Iran



Speaker by :
MILAD TAHVILZADEH



0098 939 835 8306



teachmeroadmap@gmail.com



www.teachmeroadmap.com

In 6 weeks, we'll be providing you with prerecorded videos each week, and our live classes will be held every **Saturday**.



SQL for Data Analysts & Scientists

Introduction to Data and Databases

- Understanding key concepts: data, information, databases, and DBMS.
- Exploring SQL and NoSQL databases: definitions, differences, and applications.

Core Components of Relational Databases

- Key relational database elements: tables, columns (fields), rows (records).
- Overview of RDBMS and the critical role of SQL in managing and analyzing structured data.

Getting Started with SQL

- SQL Responsibilities: Understanding DDL (Data Definition Language), DML (Data Manipulation Language), DQL (Data Query Language), and TCL (Transaction Control Language).
- Key database operations: creating, modifying, querying, and controlling access to data.

Exploring PostgreSQL and Database Technologies

- Comparison of popular relational databases: MySQL, PostgreSQL, Oracle, and others.
- Advantages of PostgreSQL for data analysis and why it's the focus of this course.

Querying Data with the SELECT Command

- Mastering the SELECT statement for data retrieval.
- Enhancing queries with DISTINCT and aliases.

Filtering and Sorting Data

- Applying the WHERE clause with comparison and logical operators (AND, OR, NOT).
- Sorting results with ORDER BY and controlling output using LIMIT and OFFSET.



SQL for Data Analysts & Scientists

Advanced Data Filtering Techniques

- Utilizing aggregation functions: COUNT, SUM, AVG, MIN, MAX.
- Grouping data with GROUP BY and refining results with HAVING

Understanding Data Relationships and Joins

- Explanation of fact tables, dimension tables, and primary/foreign keys.
- Mastering SQL joins: INNER JOIN, OUTER JOIN (LEFT/RIGHT/FULL), SELF JOIN, and CROSS JOIN.
- Combining query results using UNION, INTERSECT, and EXCEPT set operations.

Using Subqueries in SQL

- Writing effective subqueries with operators: IN, EXISTS, ALL, and ANY.
- Simplifying complex queries using subqueries for enhanced data retrieval.

Working with Temporary Tables, Views, and CTEs


- Introduction to temporary tables, views, and Common Table Expressions (CTEs).
- How to use views for storing reusable query logic.
- Applications of temporary tables and CTEs for managing intermediate query results

SQL Functions and Conditional Logic

- Using built-in functions for strings, numbers, and dates.
- Applying IF and CASE for dynamic and conditional query execution.

Window Functions for Advanced Analytics

- Introduction to window functions and their importance in analytics.
- Common window functions: ROW_NUMBER(), RANK(), LAG(), LEAD().
- Applications: calculating running totals, moving averages, and ranking data.



SQL for Data Analysts & Scientists

Brief Introduction to Table Management and Data Types

- Short overview of creating, altering, and deleting tables in SQL.
- Basics of data types: INT, VARCHAR, DATE, and their usage.

SQL and Python Integration

- Connecting PostgreSQL with Python for advanced data analysis.
- Querying databases and processing results using libraries like psycopg2.

- **Weekly Hands-On Exercises:** Apply your learning each week with practical exercises using the BaSalam (comments & products) dataset.
- **Real-World Data:** Work with authentic, real-world data from BaSalam to enhance your SQL skills and problem-solving abilities.
- **Interactive Support:** Receive dedicated support throughout the course to ensure your progress and success.