Introduction to Writing SQL Queries - TTSQL003

Maximize the Potential of SQL to Build Powerful, Complex and Robust SQL Queries

Duration: 3 Days
Skill Level: Introductory
Available Format: Instructor-Led Online; Instructor-Led, Onsite In Person ; Blended; On Public Schedule

Introduction to Writing SQL Queries is a three-day, hands-on course that provides you with the skills and experienced required to use SQL to efficiently organize, retrieve, analyze, and manipulate data to deliver insightful reports, inform strategic decisions, and optimize various aspects of any business. Each module introduces critical concepts and practices, providing you with the knowledge to streamline your data management tasks.

What You'll Learn

Overview

A company's success hinges on responsible, accurate database management. Organizations rely on highly available data to complete all sorts of tasks, from creating marketing reports and invoicing customers to setting financial goals. Data professionals like analysts, developers and architects are tasked with creating, optimizing, managing and analyzing data from databases - with little room for error. When databases aren't built or maintained correctly, it's easy to mishandle or lose valuable data.

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and practices, providing you with the knowledge to streamline your data management tasks.

SQL is the cornerstone of all relational database operations. In this hands-on course, you learn to exploit the full potential of the SELECT statement to write robust queries using the best query method for your application, test your queries, and avoid common errors and pitfalls. Mastering the art of restricting and sorting data enables you to customize your queries, displaying only what's essential and presenting it in a meaningful order. Understanding single-row functions and conversion functions helps optimize data handling by transforming and converting data types as needed. Lastly, by unraveling the mysteries of SQL joins, group functions, and subqueries, you'll acquire the ability to aggregate data, combine data from multiple tables, and conduct complex queries with ease.

You'll leave this course equipped with a firm understanding of SQL and its real-world application, helping you better organize, analyze, and manipulate data in your professional role. You'll be ready to contribute to improving data management processes, enhancing efficiency, and providing actionable insights within your organization. You will be able to streamline data-related tasks, improve data quality, and contribute to data-driven decision-making processes.

NOTE: This course uses SQL Developer. SQL Developer is not the focus of the course, but rather the platform for learning the SQL querying skills. Students are NOT required to have prior experience with SQL Developer. All tools are provided in our easy-access, no-install required, cloud-based environment.

Objectives

This course combines expert lecture, real-world demonstrations and group discussions with machine-based practical labs and exercises. Working in a hands-on learning environment led by our expert practitioner, you'll learn to:

- Maximize the potential of SQL to build powerful, complex and robust SQL queries
- Query multiple tables with inner joins, outer joins and self joins

- Learn the art of data conversion and manipulation:
- Delve into SQL joins, group functions, and subqueries: Construct recursive common table expressions
- Summarize data using aggregation and grouping
- Execute analytic functions to calculate ranks
- Build simple and correlated subqueries
- Thoroughly test SQL queries to avoid common errors
- Select the most efficient solution to complex SQL problems

Need different skills or topics? If your team requires different topics or tools, additional skills or custom approach, this course may be further adjusted to accommodate. We offer additional SQL, database, data analytics and other related courses which may be blended with this course for a track that best suits your learning objectives.

Audience

This is an introductory- level course appropriate for those who are developing applications using relational databases, or who are using SQL to extract and analyze data from databases and need to use the full power of SQL queries. In order to benefit from the hands-on labs, attendees should have prior experience in scripting or programming languages.

Pre-Requisites

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Agenda

Please note that this list of topics is based on our standard course offering, evolved from typical industry uses and trends. We will work with you to tune this course and level of coverage to target the skills you need most. Course agenda, topics and labs are subject to adjust during live delivery in response to student skill level, interests and participation.

Introduction: Quick Tools Review

- Introduction to SQL and its development environments
- Using SQL*PLUS
- Using SQL Developer

Using the SQL SELECT Statement

- Capabilities of the SELECT statement
- Arithmetic expressions and NULL values in the SELECT statement
- Column aliases
- Use of concatenation operator, literal character strings, alternative quote operator, and the DISTINCT keyword
- Use of the DESCRIBE command

Restricting and Sorting Data

- Limiting the Rows
- Rules of precedence for operators in an expression
- Substitution Variables
- Using the DEFINE and VERIFY command

Single-Row Functions

- Describe the differences between single row and multiple row functions
- Manipulate strings with character function in the SELECT and WHERE clauses
- Manipulate numbers with the ROUND, TRUNC and MOD functions
- Perform arithmetic with date data
- Manipulate dates with the date functions

Conversion Functions and Expressions

- Describe implicit and explicit data type conversion
- Use the TO_CHAR, TO_NUMBER, and TO_DATE conversion functions
- Nest multiple functions

- Apply the NVL, NULLIF, and COALESCE functions to data
- Decode/Case Statements

Using the Group Functions and Aggregated Data
- Group Functions
- Creating Groups of Data
- Having Clause
- Cube/Rollup Clause

SQL Joins and Join Types
- Introduction to JOINS
- Types of Joins
- Natural join
- Self-join
- Non equijoins
- OUTER join

Using Subqueries
- Introduction to Subqueries
- Single Row Subqueries
- Multiple Row Subqueries

OPTIONAL / TIME-PERMITTING

The following chapters are included in your course materials, and will be covered time-permitting, depending on the skill level and interests of the attendees.

Using the SET Operators

- Set Operators
- UNION and UNION ALL operator
- INTERSECT operator
- MINUS operator
- Matching the SELECT statements

Using Data Manipulation Language (DML) statements

- Data Manipulation Language
- Database Transactions
- Insert
- Update
- Delete
- Merge

Using Data Definition Language (DDL)

- Data Definition Language
- Create
- Alter
- Drop

Data Dictionary Views

- Introduction to Data Dictionary
- Describe the Data Dictionary Structure
- Using the Data Dictionary views
- Querying the Data Dictionary Views
- Dynamic Performance Views

Follow On Courses

TTDB7020	PostgreSQL for Database Developers
TTDB7024	PostgreSQL Server Administration

TTOR12019	Oracle 19c PL/SQL Fundamentals
TTSQL005	Advanced SQL Programming
TTSNW06	Snowflake for Technologists
TTSNW02	Snowflake for End Users

Related Courses

TTOR12019	Oracle 19c PL/SQL Fundamentals
TTOR20719	Oracle 19c Database Multitenant Architecture
TTSQL002	Introduction to SQL Programming Basics
TTSQL005	Advanced SQL Programming
TTSQL003	Introduction to Writing SQL Queries

All applicable course software, digital courseware files or course notes, labs, data sets and solutions, live coaching support channels and rich extended learning and post training resources are provided for you in our "easy access, no install required" online **Learning Experience Platform (LXP),** remote lab and content environment. Access periods vary by course. We'll collaborate with you to ensure your team is set up and ready to go well in advance of the class. Please inquire about set up details and options for your specific course of interest.

For More Information

Please contact us or call 844-475-4559 toll free for more information about our training services (instructor-led, self-paced or blended), coaching and mentoring services, public course enrollment or questions, partner programs, courseware licensing options and more.