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Learning Style: Virtual Classroom

Technology:

Difficulty: Beginner

Course Duration: 3 Days

Next Course Date: **April 13, 2026**

Introduction to Writing SQL Queries (TTSQL003)



About This Course:

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.

Introduction to Writing SQL Queries is a three-day, hands-on course that provides you with the skills and experience 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.

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.

Course Objectives:

- 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

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.

Prerequisites:

- 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.

Course Outline:

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