

SQL Learning Journey

Advanced SQL Programming (TTSQL005)

Explore Advanced Querying Techniques, Manipulating Table Data with DML, Stored Procedures, Triggers & More

Course Snapshot

- **Course: Advanced SQL Programming (TTSQL005)**
- **Duration:** 2 days
- **Audience & Skill-Level:** This is an **intermediate and beyond-level** SQL course geared for SQL experienced end users, data scientists, business analysts, application developers and database administrators.
- **Tools Used:** This course uses Oracle SQL Developer in the labs, however the tooling is just the means used to teach SQL. This is not a SQL Developer focused course, and prior SQL Developer knowledge is not required. The course focuses on skills and concepts that can be applied to other databases and platforms. If you need a specific alternate database, please inquire for details and options.
- **Format / Hands-on:** This course combines engaging instructor-led presentations and practical demonstrations with hands-on programming exercises, challenge labs, use case exploration and engaging group activities. Student machines are required.
- **Flexible Delivery Options:** This course can be delivered for your team or organization **online-live (virtual), onsite in-person, self-paced** or across our immersive **blended learning experience platform (LXP)**.
- **Public Schedule:** This course is currently available on our Public Open Enrollment Schedule.
- **Customizable:** We're flexible! This course agenda, topics, labs, hours and delivery modalities can be adjusted to target your specific training skills objectives, tools and learning goals. Please ask for details.

Description

SQL, or Structured Query Language, is the essential language that allows you to communicate with and manipulate databases. Advanced SQL Programming not only adds flair to basic database management but opens up new avenues for data retrieval, analysis, and optimization.

Geared for experienced SQL users, **Advanced SQL Programming** is a two-day course designed to transform your SQL skills, leading to enhanced data retrieval, analysis, and optimization. You'll explore techniques that enable them to solve complex challenges and contribute to organizational efficiency and innovation.

This course includes interactive discussions, group activities, and a balanced approach of lectures and hands-on labs. Expect to build, design, and troubleshoot complex SQL queries, create robust data manipulation techniques, and explore the intricate world of triggers, all under the guidance of a seasoned industry expert. You'll apply these skills in a practical context, simulating real-world projects and utilizing innovative tools and techniques. You'll exit this course able to design and execute intricate SQL queries, manage data with unprecedented accuracy, and implement unique functions and procedures, ready to apply these skills on the job.

NOTE: This course uses Oracle SQL Developer in the labs, however the tooling is just the means used to teach SQL. This is not a SQL Developer focused course, and prior SQL Developer knowledge is not required. The course focuses on skills and concepts that can be applied to other databases and platforms. If you need a specific alternate database, please inquire for details and options.

Learning Objectives

Working in a hands-on learning environment led by our expert practitioner, attendees will explore:

- **Advanced Query Techniques:** Dive into Inner and Outer Joins, Subqueries, and Aggregate Functions. Mastering these will allow for precise data extraction and comprehensive analysis, forming a solid foundation for developing complex SQL queries.
- **Manipulating Table Data Using SQL's DML:** Learn techniques like Inserting, Updating, Deleting Records, and Transactions.

These skills enable control over data integrity and efficient data manipulation, essential for maintaining high-quality database operations.

- **User-Defined Functions:** Create and manage Scalar vs. Table Functions. By understanding these, you can craft customized solutions, leading to flexible and dynamic data handling.
- **Stored Procedures:** Explore Variables, Parameters, and Program Flow. With these, you can streamline repetitive tasks, promoting efficient database management.
- **Triggers:** Grasp the creation and management of Triggers. Triggers automate tasks within the database, enhancing responsiveness and making systems more robust.

Audience

This intermediate and beyond skill level course is suited for experienced SQL developers and database professionals who are eager to expand their expertise into more complex areas of database manipulation and analysis. This includes Data Analysts, Database Administrators, Software Developers, and IT Professionals who work with databases regularly and seek to infuse their projects with innovative techniques and higher efficiency.

Pre-Requisites

To ensure a smooth learning experience and maximize the benefits of attending this course, you should have the following prerequisite skills:

- Basic SQL Programming experience. This course is not for students new to SQL.

Take Before: Students should have incoming practical skills aligned with those in the course(s) below, or should have attended the following course(s) as a pre-requisite:

- TTSQL002 Introduction to SQL Programming Basics– 3 days
- TTSQL003 Introduction to Writing SQL Queries – 3 days

Enhanced Learning Services: Please also ask about our robust Learning Experience Platform (LXP), Skills Assessment & Skills Prep Services, Skills Immersion Programs & Camps, Coaching and Mentoring Services and Extended Learning Support programs.

Course Topics / Agenda

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

1. Advanced Query Techniques

- Inner Joins
- Outer Joins (Left, Right, Full)
- Performing Self-Joins
- Subqueries
 - Simple
 - Correlated
- Using the EXISTS Operator
- Tips for Developing Complex SQL Queries
- Using Aggregate Functions
 - AVG, COUNT
 - SUM
 - MIN
 - MAX
- Performing Set Operations
 - UNION

- INTERSECT
- EXCEPT/MINUS
- Aggregating Results Using GROUP BY
- Restricting Groups with the HAVING Clause
- Creating Temporary Tables

2. Manipulating Table Data Using SQL's Data Manipulation Language (DML)

- Inserting Data into Tables
- Updating Existing Data
- Deleting Records
- Truncating Tables
- Implementing Data Integrity with Transactions

- Beginning Explicit Transactions
- Committing Transactions
- Rolling Back Transactions

3. User-Defined Functions

- Definition and Benefits of Use
- CREATE FUNCTION
 - Syntax
 - RETURN Clause and the RETURNS Statement
 - Scalar vs. Table Functions
- Comparison with Stored Procedures
- Returning Scalar Values and Tables
- ALTER and DROP FUNCTION

4. Stored Procedures

- Definition and Benefits of Use
- CREATE PROCEDURE
 - Syntax
 - Variables and Parameters
- Control of Program Flow
- ALTER and DROP PROCEDURE

- Implementation Differences

5. Triggers

- Definition and Benefits of Use
- Alternatives (e.g., Constraints)
- CREATE TRIGGER
 - Syntax

- Trigger Types
- "Inserted" (or "NEW") and "Deleted" (or "OLD") Tables
- Event Handling and Trigger Execution
- ALTER and DROP TRIGGER

Setup Made Simple! Learning Experience Platform (LXP)

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

For more information about our training services (instructor-led, self-paced or blended), collaborative coaching services, robust Learning Experience Platform (LXP), Career Experiences, public course schedule, partner programs, courseware licensing options or to see our complete list of course offerings, solutions and special offers, please visit us at www.triveratech.com, email Info@triveratech.com or call us toll free at **844-475-4559**. Our pricing and services are always satisfaction guaranteed.

TRIVERA TECHNOLOGIES • Collaborative IT Training, Coaching & Skills Development Solutions
www.triveratech.com • toll free +1-844-475-4559 • Info@triveratech.com • Twitter TriveraTech

ONSITE, ONLINE & BLENDED TRAINING SOLUTIONS • PUBLIC / OPEN ENROLLMENT COURSES
 LEARNING EXPERIENCE PLATFORM (LXP) • COACHING / MENTORING • ASSESSMENTS • CONTENT LICENSING & DEVELOPMENT
 LEARNING PLAN DEVELOPMENT • SKILLS IMMERSION PROGRAMS / RESKILLING / NEW HIRE / BOOT CAMPS
 PARTNER & RESELLER PROGRAMS • CORPORATE TRAINING MANAGEMENT • VENDOR MANAGEMENT SERVICES

Trivera Technologies is a Woman-Owned Small-Business Firm

