

# SQL Queries

## Course Overview

In this 2-day course, you will learn how to generate reports using the SQL language and how to recognize proper syntax for an SQL statement. You will review relational database structure and key data types used in tables. You will learn how to explore a database using the SELECT query. You will learn how to search for specific character strings, dates or numeric data in a database. You will use math, date and string functions to locate or adjust your data display for business reports. You will learn how to use column aliases and mathematical expressions. You will learn how to sort, gather and apply additional filters to your final results. Finally, you will learn how to write queries that use data from many tables simultaneously. Prerequisite course: Level 1 course of any database reporting course or equivalent knowledge, for example, Access or Crystal Reports experience. After class, participants may use a variety of SQL Language querying tools to practice their skills.

## Course Topics

### Databases and Executing Simple Queries

- Database Concepts
- Understanding SQL Language Concepts
- SELECT Query Concepts
- Using the SQL Server Management Studio
- Creating SELECT Queries to Examine Tables
- Syntax rules for Basic Queries
- Common Data Types in SQL or Oracle Databases
- Adding Comments

### Performing a Conditional Search

- Establishing Conditions to Filter the Records
- The WHERE Clause syntax
- Using Numeric Conditions
- Performing Numeric Math Calculations
- Operators to Narrow or Widen the Search
- Establishing Multiple Conditions for a Single Field
- Using Ranges of Numbers
- Looking for Unknown or NULL values
- Using Text Conditions and Wildcards
- Pattern Matching

### Working with Functions

- Introduction to Common SQL Functions
- Date Functions for SQL Date Fields
- Aggregate Functions for Numeric Fields
- Uses for the DISTINCT keyword
- Using the COMPUTE clause
- Renaming Columns
- String Functions to Manipulate Text
- Concatenation of Text and Fields

### Organizing Data

- Sorting the Query Results
- Numbering the Query Results
- Concepts of Grouped Queries
- The GROUP BY Clause
- The HAVING Clause
- Compare the WHERE and HAVING Clauses
- Using CUBE and ROLLUP in Grouped Queries

### Retrieving Data from Many Tables

- Combining the Results of Two Queries
- Comparing the Results of Two Queries
- Introduction to Table Join Concepts
- Cross Joins
- Inner Joins
- Outer Joins
- Joining Tables using Table Aliases
- Self-Joins for Self-Referenced Tables