

**Introduction to SQL Server 2022 for Developers**

**Course Number:** SQL-501  
**Duration:** 5 days

**Overview**

SQL, or Structured Query Language, is a language used to manage data in relational databases. It is one of the most popular programming languages in the world and is used by businesses of all sizes to store and retrieve data.

Accelelbrate's SQL Server for Developers training course gives attendees a comprehensive introduction to SQL. Participants learn the basics of relational databases and how to work with data types, functions, Azure, and more.

**Prerequisites**

No prior experience is presumed.

**Materials**

All SQL Server 2022 training students receive a copy of Murach’s *SQL Server 2022 for Developers.*

**Software Needed on Each Student PC**

Attendees will not need to install any software on their computer for this class. The class will be conducted in a remote environment that Accelebrate will provide; students will only need a local computer with a web browser and a stable Internet connection. Any recent version of Microsoft Edge, Mozilla Firefox, or Google Chrome will be fine.

**Objectives**

* Understand the basics of relational databases and SQL
* Retrieve data from a single table and multiple tables
* Write summary queries and subqueries
* Insert, update, and delete data
* Work with data types and functions
* Understand Azure Data Studio and Azure SQL

**Outline**

* Introduction to Relational Databases and SQL
  + An introduction to client/server systems
  + An introduction to the relational database model
  + An introduction to SQL and SQL-based systems
  + The Transact-SQL statements
* Using Management Studio
  + An introduction to SQL Server 2022
  + An introduction to Management Studio
  + How to view and modify the database
  + How to work with queries
  + How to view the documentation for SQL Server
* Retrieving Data from a Single Table
  + An introduction to the SELECT statement
  + How to code the SELECT clause
  + How to code the WHERE clause
  + How to code the ORDER BY clause
* Retrieving Data from Two or More Tables
  + How to work with inner joins
  + How to work with outer joins
  + Other skills for working with joins
  + How to work with unions
* Coding Summary Queries
  + How to work with aggregate functions
  + How to group and summarize data
  + How to summarize data using SQL Server extensions
* Coding Subqueries
  + An introduction to subqueries
  + How to code subqueries in search conditions
  + Other ways to use subqueries
  + Guidelines for working with complex queries
  + How to work with common table expressions
* Inserting, Updating, and Deleting Data
  + How to create test tables
  + How to insert new rows
  + How to modify existing rows
  + How to delete existing rows
  + How to merge rows
* Working with Data Types
  + A review of the SQL data types
  + How to convert data
* Using Functions
  + How to work with string data
  + How to work with numeric data
  + How to work with date/time data
  + Other functions you should know about
* Designing a Database
  + How to design a data structure
  + How to normalize a data structure
* Creating and Maintaining a Database with SQL
  + How to create databases, tables, and indexes
  + How to use constraints
  + How to change databases and tables
  + How to work with sequences
  + How to work with collations
  + The script used to create the AP database
* Creating and Maintaining a Database with Management Studio
  + How to work with a database
  + How to work with tables
  + How to generate scripts
* Working with Views
  + An introduction to views
  + How to create and manage views
  + How to use views
* Coding Scripts
  + An introduction to scripts
  + How to work with variables and temporary tables
  + How to control the execution of a script
  + Advanced scripting techniques
* Coding Stored Procedures, Functions, and Triggers
  + Procedural programming options in Transact-SQL
  + How to code stored procedures
  + How to code user-defined functions
  + How to code triggers
* Managing Transactions and Locking
  + How to work with transactions
  + An introduction to concurrency and locking
  + How SQL Server manages locking
  + How to prevent deadlocks
* Managing Database Security
  + How to work with SQL Server login IDs
  + How to work with permissions
  + How to work with roles
  + How to manage security using Management Studio
* Using Azure Data Studio
  + An introduction to Azure Data Studio
  + How to view and modify the database
  + How to work with queries
  + More skills as you need them
* Working with Azure SQL
  + How to create and configure an Azure SQL database
  + How to use Data Studio to work with an Azure SQL database
  + How to migrate from SQL Server to Azure SQL
* Conclusion