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Introduction to SQL – Querying a Database

Course Length:	2 days
App:	Microsoft Access

Overview

The Structured Query Language (SQL) is the standard language for querying databases, used with Microsoft Access, Oracle, SQL Server, ArcGIS, and many other relational databases. This course teaches the proper syntax for writing basic SQL statements, plus how to join tables to create views. It also introduces SQL functions for analyzing the data. It is taught using Microsoft Access.

Audience

Anyone who works with database tables and needs to learn how to efficiently access, process, and query that data.

Topics Covered

Day 1

- Introduction to SQL – SQL for database queries and management. (Databases, DBMS, and Database Software; What Is SQL and What Can You Do With It?)
- Understanding the Structure of Databases – See how tables and relational databases are structured, as well as the types of data that can be used. (The Structure of a Table; Relational Database Concepts; Understanding Data Types; Database Table Indexes)
- Using a Database Client for Class – Getting around in the course database client. (Opening a Database and Importing Data; Viewing and Running a SQL Query)
- SQL Select Statements – Getting familiar with the basic syntax of SQL. (The Basic SQL SELECT Statement; Returning a Select Set of Records; SQL Syntax Rules; Sorting the Returned Records)
- The WHERE Clause – Understanding the operators and including AND/OR for multiple criteria queries. (Using the WHERE Clause to Limit Returned Records; Wildcards and Lists of Values; Specifying Multiple Criteria)
- SQL Functions for Summarizing Data – Using aggregation functions in a SQL statement. (Using Aggregation Functions; Functions for Summary Statistics; Retrieving a Certain Number of Records)
- Grouping Results – Sorting and grouping the returned records. (Grouping the Returned Records)
- Manipulating Data on the Fly – Calculate changes to data without modifying the data on disk (The Structure of the WHERE Clause; Calculations on the SELECT Statement)
- Using SQL Functions – Manipulating the results and using SQL functions for summarizing data and getting statistics. (Using Function in SQL; String Functions; Numeric Functions; Date Functions, Nesting Functions)

- SQL Subqueries – Selecting records using the results of another query. (Using a Subquery in a WHERE Clause; Using a Subquery in a SELECT Statement)

Day 2

- Joining Tables – Joining tables for additional analysis. (Relationships Between Tables; Pulling Fields from Multiple Tables: Building a Join; Types of Joins)
- SQL for Database Management – Using SQL to change the schema of the database. (Creating, Deleting, and Renaming Tables; Changing the Structure of a Table)
- Using Table Views – Creating temporary tables by combining and filtering tables. (What Is a View?; Creating Table Views)
- Changing Data with SQL Statements – Writing SQL statements that update data. (Adding New Data to a Table; Deleting and Updating Data in a Table)
- Course Wrap-Up and Next Steps

Format

In-person instruction with hands-on practice and course materials you can keep.

Prerequisites and Recommendations

Attendees should be comfortable working on a computer and navigating the folder structure in Microsoft Windows®.