



SQL Query Writing & Fundamentals Course

Course Modules and Objectives

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Course Modules and Objectives

Module 1:

Databases - An Overview

- Describe a Database
- Define a Database Management System (DBMS)
- List the Advantages of a DBMS
- Define a Relational Database Management System (RDBMS)
- Describe a Table
- Explain Data Types
- Describe Data Relationships
- Explain Primary and Foreign Keys
- Define Normalization

Module 2:

SQL - An Overview

- Define what is SQL
- Explain the Role of SQL
- List the Functions of SQL
- Understand SQL Components
 - Data Manipulation Language (DML)
 - Data Definition Language (DDL)
 - Data Control Language (DCL)

Module 3:

Getting Started with Microsoft SQL Server

- Understand the Features of Microsoft SQL Server
- Work with the command-line SQL CMD utility
- Building and Executing Queries
- Executing SQL Statements from a saved file
- Saving Output to a File
- Understand what is the SQL Server Management Studio
- Use SQL Server Management Studio for scripting
- Use Auto-generating SQL Statements
- Use Templates to Write and Execute SQL Statements

Module 4:

Retrieving data

- Introduce the SELECT statement
- Use the SELECT statement
- Execute a query in Microsoft SQL Server
- Retrieve specific columns in a table
- Sorting Results with ORDER BY
- Filter rows with the WHERE clause
- Use operators to create conditions
- Retrieve unknown values from the database
- Understand the NULL keyword
- Sort the Result Set with the ORDER BY clause
- Use the DISTINCT keyword to suppress duplicate rows
- View top rows in a large result set
- Use the LIKE keyword with wildcards to retrieve data
- Work with calculated columns

Module 5:

Working with Multi-table Queries

- Understand what are Joins
- Use different types of Joins
 - Inner Joins
 - Outer Joins
- Creating Joins with the FROM Clause
- Using the WHERE clause to create a join

Module 6:

Using SQL Functions in Queries

- Understanding Functions and Function Arguments
- Use Aggregate Functions:
 - SUM, AVG, MIN, MAX and COUNT
- Use Mathematical Functions:
 - ROUND, CEILING, FLOOR, SQUARE, SQRT, and SIGN
- Use Date Functions:
 - GETDATE, DAY, MONTH and YEAR
- Use String Functions:
 - LEN, SUBSTRING, REPLACE, LTRIM and RTRIM
- Use Conversion Functions:
 - CAST, CONVERT, STR

Module 7:

Grouping Data

- Understand the grouping of data
- Describing the GROUP BY clause
- Use the GROUP BY clause
- Describing the HAVING clause
- Use the HAVING clause
- Describing the ROLLUP and CUBE operators
- Use the ROLLUP and CUBE operators
- Add totals and subtotals to grouped data

Module 8:

Create, Modify and Delete Tables and Databases

- Create a new table
- Using the CREATE statement
- Modify the structure of an existing table
- Using the ALTER statement
- Delete a table
- Using the DROP statement
- Create a database
- Delete an existing database

Module 9:

Manipulating data in a Table

- Insert rows into a table
- Using the INSERT INTO statement
- Update existing rows in a table
- Using the UPDATE INTO statement
- Delete rows from a table
- Using the DELETE statement
- Delete all rows from a table with the TRUNCATE statement

Module 10:

Working with Views and Stored Procedures

- Understand and describe what is a View
- Using the CREATE VIEW statement
- Modifying a View with the ALTER VIEW statement
- Deleting a View with the DROP VIEW statement
- Understand and create an Indexed View
- Understand and describe what is a Stored Procedure
- Understand what are parameters in a Stored Procedure
- Create a Stored Procedure with the CREATE PROCEDURE statement
- Execute a Stored Procedure with the EXECUTE statement
- Modify a Stored Procedure with the ALTER PROCEDURE statement
- Delete a Stored Procedure with the DROP PROCEDURE statement