

KOENIG SOLUTIONS · COURSE OUTLINE

20761C: Querying Data with Transact-SQL 2016

Learn to write and troubleshoot Transact-SQL queries, from SELECT statements and joins to subqueries, error handling and transactions.

18

MODULES

56

TOPICS

18

HANDS-ON LABS

COURSE OVERVIEW

This course covers the architecture and tools of SQL Server 2016 before introducing core Transact-SQL querying concepts including sets, predicate logic and the logical order of operations. It then moves through writing SELECT statements, querying multiple tables with joins, sorting and filtering data, and working with SQL Server data types. Further modules address modifying data with DML, built-in functions, grouping and aggregating data, subqueries, table expressions, set operators, window functions, and pivoting with grouping sets. The final modules cover executing stored procedures, programming with T-SQL, implementing error handling, and implementing transactions.

WHO THIS COURSE IS FOR

Database Developers

Database Administrators

Business Intelligence Developers

Report Developers

Data Analysts

LEARNING OBJECTIVES

- Describe the basic architecture and tools of SQL Server 2016
- Write SELECT statements and simple CASE expressions
- Query multiple tables using inner, outer, cross and self joins
- Sort and filter data using predicates, TOP and OFFSET-FETCH
- Apply built-in conversion, logical and NULL functions
- Group and aggregate data using GROUP BY and HAVING
- Write self-contained and correlated subqueries
- Implement error handling and control transactions in T-SQL

18 Modules, 56 Topics

01

Lab

Introduction to Microsoft SQL Server 2016

TOPICS

- The Basic Architecture of SQL Server
- SQL Server Editions and Versions
- Getting Started with SQL Server Management Studio

02

Lab

Introduction to T-SQL Querying

TOPICS

- Introducing T-SQL
- Understanding Sets
- Understanding Predicate Logic
- Understanding the Logical Order of Operations in SELECT Statements

03

Lab

Writing SELECT Queries

TOPICS

Writing Simple SELECT Statements · Eliminating Duplicates with DISTINCT · Using Column and Table Aliases · Writing Simple CASE Expressions

04

Lab

Querying Multiple Tables

TOPICS

Understanding Joins · Querying with Inner Joins · Querying with Outer Joins · Querying with Cross Joins and Self Joins

05

Lab

Sorting and Filtering Data

TOPICS

Sorting Data · Filtering Data with Predicates · Filtering Data with TOP and OFFSET-FETCH · Working with Unknown Values

06

Lab

Working with SQL Server 2016 Data Types

TOPICS

Introducing SQL Server 2016 Data Types · Working with Character Data · Working with Date and Time Data

07

Lab

Using DML to Modify Data

TOPICS

Adding Data to Tables · Modifying and Removing Data · Generating Automatic Column Values

08

Lab

Using Built-In Functions

TOPICS

Writing Queries with Built-In Functions · Using Conversion Functions · Using Logical Functions · Using Functions to Work with NULL

09

Lab

Grouping and Aggregating Data

TOPICS

Using Aggregate Functions · Using the GROUP BY Clause · Filtering Groups with HAVING

10

Lab

Using Subqueries

TOPICS

Writing Self-Contained Subqueries · Writing Correlated Subqueries · Using the EXISTS Predicate with Subqueries

11

Lab

Using Table Expressions

TOPICS

Using Views · Using Inline TVFs · Using Derived Tables · Using CTEs

12

Lab

Using Set Operators

TOPICS

Writing Queries with the UNION Operator · Using EXCEPT and INTERSECT · Using APPLY

13

Lab

Using Window Ranking, Offset, and Aggregate Functions

TOPICS

Creating Windows with OVER · Exploring Window Functions

14

Lab

Pivoting and Grouping Sets

TOPICS

Writing Queries with PIVOT and UNPIVOT · Working with Grouping Sets

15

Lab

Executing Stored Procedures

TOPICS

Querying Data with Stored Procedures · Passing Parameters to Stored Procedures · Creating Simple Stored Procedures · Working with Dynamic SQL

16

Lab

Programming with T-SQL

TOPICS

T-SQL Programming Elements · Controlling Program Flow

17

Lab

Implementing Error Handling

TOPICS

Implementing T-SQL Error Handling · Implementing Structured Exception Handling

18

Lab

Implementing Transactions

TOPICS

Transactions and the Database Engine · Controlling Transactions

HANDS-ON LABS

Practise What You Learn

#	MODULE	ACTIVITY
01	Introduction to Microsoft SQL Server 2016	Working with SQL Server 2016 Tools
02	Introduction to T-SQL Querying	Introduction to T-SQL Querying
03	Writing SELECT Queries	Writing Basic SELECT Statements
04	Querying Multiple Tables	Querying Multiple Tables
05	Sorting and Filtering Data	Sorting and Filtering Data
06	Working with SQL Server 2016 Data Types	Working with SQL Server 2016 Data Types
07	Using DML to Modify Data	Using DML to Modify Data
08	Using Built-In Functions	Using Built-in Functions
09	Grouping and Aggregating Data	Grouping and Aggregating
10	Using Subqueries	Using Subqueries
11	Using Table Expressions	Using Table Expressions
12	Using Set Operators	Using Set Operators
13	Using Window Ranking, Offset, and Aggregate Functions	Using Window Ranking, Offset, and Aggregate Functions
14	Pivoting and Grouping Sets	Pivoting and Grouping Sets
15	Executing Stored Procedures	Executing Stored Procedures
16	Programming with T-SQL	Programming with T-SQL
17	Implementing Error Handling	Implementing Error Handling
18	Implementing Transactions	Implementing Transactions

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

Learn the Way That Suits You

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Live Online Classes (ILO)

Fly-Me-A-Trainer (FMAT)

Flexi (Self-Paced)

1-on-1 Training

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