

KOENIG SOLUTIONS · COURSE OUTLINE

Advanced Querying for SQL Databases

Learn to write and optimise advanced T-SQL queries, from joins and CTEs to stored procedures, transactions and indexing.

10

MODULES

34

TOPICS

COURSE OVERVIEW

This course covers advanced querying techniques for SQL databases using T-SQL. It begins with basic querying, sorting and filtering before moving into joins, subqueries and data aggregation. It then addresses table expressions, window functions, pivoting, stored procedures, user-defined functions and triggers. The course closes with error handling, transaction management, and index creation and performance tuning.

WHO THIS COURSE IS FOR

Database Developers

Database Administrators

SQL Developers

Data Analysts

Backend Developers

LEARNING OBJECTIVES

- Retrieve, sort and filter data using basic T-SQL queries
- Combine data from multiple tables using joins and subqueries
- Aggregate data using grouping and aggregate functions
- Apply common table expressions, recursive CTEs and derived tables
- Implement window functions, ranking functions and pivoting techniques
- Develop stored procedures, user-defined functions and triggers
- Handle errors in T-SQL using try-catch blocks
- Manage transactions and tune query performance using indexes

10 Modules, 34 Topics

01

Introduction

TOPICS

- Benefits of Advanced Querying SQL Databases
- Overview of T-SQL
- Tools required for Advanced Querying SQL Databases

02

Basic Querying with T-SQL

TOPICS

Introduction to Basic Querying · Retrieving Data from Tables · Sorting Data · Filtering Data

03

Joins and Subqueries

TOPICS

Combining Data from Multiple Tables · Inner Joins · Outer Joins · Self Joins · Subqueries

04

Aggregating Data

TOPICS

Grouping Data · Aggregate Functions · Working with NULL Values

05

Table Expressions

TOPICS

Understanding Common Table Expressions (CTEs) · Recursive CTEs · Derived Tables · Temporary Tables

06

Advanced Querying Techniques

TOPICS

Using Window Functions · Ranking Functions · Pivoting and Unpivoting Data · Creating Temporary Tables and Table Variables

07

Stored Procedures, Functions, and Triggers

TOPICS

Creating and Using Stored Procedures · Creating and Using User-defined Functions · Creating and Using Triggers

08

Error Handling in T-SQL

TOPICS

Understanding Error Handling in T-SQL · Using Try-Catch Blocks

09

Transactions in T-SQL

TOPICS

Understanding Transactions · Managing Transactions

Indexes and Performance Tuning

TOPICS

Understanding Indexes · Creating Indexes · Query Execution Plans · Performance Tuning Techniques

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.

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