



**QUERYING MICROSOFT SQL SERVER
EĞİTİMİ
5 GÜN**



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Eđitim Hakkında

“Querying Microsoft SQL Server Giriř Eđitimi”, SQL Server üzerinde sorgu oluřturma becerilerini öğreten bir bařlangıç seviyesi eđitimidir. Bu eđitim, SQL Server sorgulama konularına odaklanır ve SQL Server’ın temel konularını ele alır.

Eđitim, SQL Server’ın temel özelliklerini, veritabanı sorgulama, performans iyileřtirme, güvenlik ve diđer kilit konuları öğretir. Katılımcılar, gerçek hayattan örnekler ve projelerle SQL Server sorgulama konusundaki bilgilerini geliştirirler.

Ayrıca, eđitim SQL Server ile veritabanı sorgulama sürecinde hangi araç ve teknolojilerin kullanılabileceđini de öğretir. Katılımcılar, veri iřleme, real-time analiz, veritabanı sorgulama ve güvenlik gibi temel özelliklerin nasıl yönetileceđini öğrenirler. Ayrıca, SQL Server ile veritabanı çözümlerinin nasıl sorgulanabileceđini de anlarlar.

“Querying Microsoft SQL Server Giriř Eđitimi”, SQL Server tabanlı veritabanı sorgulama sürecinin tüm temel yönlerini kapsar. Katılımcılar, etkili veritabanı sorgulamaya bařlamadan önce ihtiyaç duyacakları temel becerileri kazanırlar.

Eđitim programı, SQL Server sorgulama konularının temelleriyle bařlar. Katılımcılar, veritabanı sorgulama, performans iyileřtirme ve güvenlik gibi temel kavramları öğrenirler. Ayrıca, SQL Server tabanlı veritabanı çözümlerinin sorgulanması konusunda nasıl bir rol oynadıđına dair bilgi sahibi olurlar. Bu bilgiler, katılımcıların veritabanı sorgulamasında ihtiyaç duyacakları temel yapı taşlarını oluřturur.

Eđitimde, SQL Server ve bununla iliřkili temel özellikler ve bileřenler üzerinde duruyoruz. Bu, katılımcılara real-time veri iřleme, veritabanı sorgulama ve güvenlik gibi temel yetenekleri kazandırır. Konu akıřları, veritabanı sorgulama ve veri yönetimi gibi temel konuları iřler.

Son olarak, bir veritabanının nasıl SQL Server tabanlı sorgulanacađı hakkında bilgi veriyoruz. Bu süreç, veritabanının tasarımı, sorguların oluřturulmasını ve sonunda SQL Server tabanlı sorgulamayı içerir. Bu bilgiler, katılımcıların veritabanı çözümlerini bařarılı bir řekilde SQL Server ile sorgulamalarına yardımcı olur.

Neler Öğreneceksiniz?

Microsoft SQL Server eđitimi sırasında, řu konuları öğrenebilirsiniz:

- SQL (Structured Query Language) dilinin temel kullanımı ve sorgulama yapma becerileri.
- Veritabanı yapısının ve veri modellerinin anlaşılması.
- Veritabanı normalizasyon tekniklerinin uygulanması.
- Veritabanı güvenliđi ve yedekleme-geri yükleme iřlemlerinin yapılması.
- Veritabanı performansının ve veritabanı uygulamalarının optimize edilmesi.
- Microsoft SQL Server’ın yapılandırılması ve yönetimi.



- Veritabanı sorgulama ve raporlama işlemlerinin yapılması.
- Veritabanı uygulamalarının yazımı, test etme ve dağıtımı.

Eğitim, teorik bilgi sunan derslerin yanı sıra pratik uygulamalarla desteklenir ve öğrenciler veritabanı uygulamalarının yazımına, test etmelerine ve uygulamalarının dağıtımına yönelik beceriler de kazanırlar.

Ön Koşullar

Microsoft SQL Server eğitimine katılmak için genellikle şu ön koşullar bulunur: Bilgisayar bilimi veya benzer bir alanda temel seviyede bilgi ve beceri. Veritabanı kavramları hakkında temel seviyede bilgi ve anlayış. Programlama dilleri veya SQL dili hakkında temel seviyede bilgi. Bu ön koşullar, eğitim süresince daha hızlı ve kolay öğrenmeyi sağlar ve eğitimin verimli bir şekilde tamamlanmasına yardımcı olur. Ancak, eğitim süresince öğrenmeye açık olmanız ve çalışkan bir şekilde yaklaşmanız, eğitimi tamamlamanız için daha önemlidir. Eğitimin içeriği ve seviyesi, eğitim verilen kurum veya kuruluş tarafından belirlenebilir ve bu ön koşullar eğitim verilen kurum veya kuruluşun belirlemiş olduğu seviyeye göre değişebilir.

Kimler Katılmalı

Microsoft SQL Server veritabanı yönetimi ve sorgulama becerileri olan profesyonel veya bu alanda ilgi duyan herkes Microsoft SQL Server eğitimine katılabilir. Özellikle veritabanı yöneticileri, veri analistleri, veri yöneticileri, veri uzmanları, veritabanı tasarımcıları ve programcılar gibi profesyonel katılımcılar için bu eğitim oldukça faydalıdır. Ayrıca, veri tabanı yönetimi ve SQL sorgulama becerileri konularında ileri düzey bilgi sahibi olmak isteyen herkes de katılabilir.

Outline

Introduction to Microsoft SQL Server 2014

This module introduces the SQL Server platform and major tools. It discusses editions, versions, tools used to query, documentation sources, and the logical structure of databases. **Lessons**

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

Lab : Working with SQL Server 2014 Tools After completing this module, you will be able to:

- Describe the architecture and editions of SQL Server 2012.
- Work with SQL Server Management Studio.



Introduction to T-SQL Querying

This module introduces Transact SQL as the primary querying language of SQL Server. It discusses the basic structure of T-SQL queries, the logical flow of a SELECT statement, and introduces concepts such as predicates and set-based operations. **Lessons**

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

Lab : Introduction to Transact-SQL Querying After completing this module, you will be able to:

- Describe the elements of T-SQL and their role in writing queries
- Describe the use of sets in SQL Server
- Describe the use of predicate logic in SQL Server
- Describe the logical order of operations in SELECT statements

Writing SELECT Queries

This module introduces the fundamentals of the SELECT statement, focusing on queries against a single table. **Lessons**

- Writing Simple SELECT Statements
- Eliminate Duplicates with DISTINCT
- Using Column and Table Aliases
- Write Simple CASE Expressions

Lab : Writing Basic SELECT Statements After completing this module, you will be able to:

- Write simple SELECT statements.
- Eliminate duplicates using the DISTINCT clause.
- Use column and table aliases.
- Write simple CASE expressions.

Querying Multiple Tables

This module explains how to write queries which combine data from multiple sources in SQL Server. The module introduces the use of JOINS in T-SQL queries as a mechanism for retrieving data from multiple tables. **Lessons**

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

Lab : Querying Multiple Tables After completing this module, you will be able to:

- Describe how multiple tables may be queried in a SELECT statement using joins.
- Write queries that use inner joins.
- Write queries that use outer joins.
- Write queries that use self-joins and cross joins.



Sorting and Filtering Data

This module explains how to enhance queries to limit the rows they return, and to control the order in which the rows are displayed. The module also discusses how to resolve missing and unknown results. **Lessons**

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

Lab : Sorting and Filtering Data After completing this module, you will be able to:

- Filter data with predicates in the WHERE clause.
- Sort data using ORDER BY.
- Filter data in the SELECT clause with TOP.
- Filter data with OFFSET and FETCH.

Working with SQL Server 2014 Data Types

This module explains the data types SQL Server uses to store data. It introduces the many types of numeric and special-use data types. It also explains conversions between data types, and the importance of type precedence. **Lessons**

- Introducing SQL Server 2014 Data Types
- Working with Character Data
- Working with Date and Time Data

Lab : Working with SQL Server 2014 Data Types After completing this module, you will be able to:

- Describe numeric data types, type precedence and type conversions.
- Write queries using character data types.
- Write queries using date and time data types.

Using DML to Modify Data

This module describes the use of Transact-SQL Data Manipulation Language to perform inserts, updates, and deletes to your data. **Lessons**

- Inserting Data
- Modifying and Deleting Data

Lab : Using DML to Modify Data After completing this module, you will be able to:

- Insert new data into your tables.
- Update and delete existing records in your tables.

Using Built-In Functions

This module introduces the use of functions that are built in to SQL Server Denali, and will discuss some common usages including data type conversion, testing for logical results and nullability. **Lessons**

- Writing Queries with Built-In Functions
- Using Conversion Functions



- Using Logical Functions
- Using Functions to Work with NULL

Lab : Using Built-In Functions After completing this module, you will be able to:

- Write queries with built-in scalar functions.
- Use conversion functions.
- Use logical functions.
- Use functions that work with NULL.

Grouping and Aggregating Data

This module introduces methods for grouping data within a query, aggregating the grouped data and filtering groups with HAVING. The module is designed to help the student grasp why a SELECT clause has restrictions placed upon column naming in the GROUP BY clause as well as which columns may be listed in the SELECT clause. **Lessons**

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

Lab : Grouping and Aggregating Data After completing this module, you will be able to:

- Write queries which summarize data using built-in aggregate functions.
- Use the GROUP BY clause to arrange rows into groups.
- Use the HAVING clause to filter out groups based on a search condition.

Using Subqueries

This module will introduce the use of subqueries in various parts of a SELECT statement. It will include the use of scalar and multi-result subqueries, and the use of the IN and EXISTS operators. **Lessons**

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

Lab : Using Subqueries After completing this module, you will be able to:

- Describe the uses of queries which are nested within other queries.
- Write self-contained subqueries which return scalar or multi-valued results.
- Write correlated subqueries which return scalar or multi-valued results.
- Use the EXISTS predicate to efficiently check for the existence of rows in a subquery.

Using Table Expressions

This module introduces T-SQL expressions which return a valid relational table, typically for further use in the query. The module discusses views, derived tables, common table expressions and inline table-valued functions. **Lessons**

- Using Views
- Using Inline Table-Valued Functions
- Using Derived Tables
- Using Common Table Expressions



Lab : Using Table Expressions After completing this module, you will be able to:

- Write queries which use derived tables.
- Write queries which use common table expressions.
- Create simple views and write queries against them.
- Create simple inline table-valued functions and write queries against them.

Using Set Operators

This module introduces the set operators UNION, INTERSECT, and EXCEPT to compare rows between two input sets. **Lessons**

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

Lab : Using Set Operators After completing this module, you will be able to:

- Write queries which combine data using the UNION operator
- Write queries which compare sets using the INTERSECT and EXCEPT operators
- Write queries which manipulate rows in a table by using APPLY with the results of a derived table or function

Using Window Ranking, Offset, and Aggregate Functions

This module introduces window functions including ranking, aggregate and offset functions. Much of this functionality is new to SQL Server 2012. It will cover the use of T-SQL functions such as ROW_NUMBER, RANK, DENSE_RANK, NTILE, LAG, LEAD, FIRST_VALUE and LAST_VALUE to perform calculations against a set, or window, of rows. **Lessons**

- Creating Windows with OVER
- Exploring Window Functions

Lab : Using Window Ranking, Offset and Aggregate Functions After completing this module, you will be able to:

- Describe the benefits to using window functions.
- Restrict window functions to rows defined in an OVER clause, including partitions and frames.
- Write queries which use window functions to operate on a window of rows and return ranking, aggregation and offset comparison results.

Pivoting and Grouping Sets

This module discusses techniques for pivoting data in T-SQL as well to introduce the fundamentals of the GROUPING SETS clause. It will also cover the use of GROUP BY ROLLUP and GROUP BY CUBE syntax in SQL Server. **Lessons**

- Writing Queries with PIVOT and UNPIVOT
- Working with Grouping Sets

Lab : Pivoting and Grouping Sets After completing this module, you will be able to:

- Write queries which pivot and unpivot result sets.
- Write queries which specify multiple groupings with grouping sets.



Querying data with Stored Procedures

This module introduces the use of existing stored procedures in a T-SQL querying environment. It discusses the use of EXECUTE, how to pass input and output parameters to a procedure, and how to invoke system stored procedures. **Lessons**

- Writing Queries with PIVOT and UNPIVOT
- Passing Parameters to Stored Procedures
- Creating Simple Stored Procedures
- Working with Dynamic SQL

Lab : Executing Stored Procedures After completing this module, you will be able to:

- Return results by executing stored procedures.
- Pass parameters to procedures.
- Create simple stored procedures which encapsulate a SELECT statement.
- Construct and execute dynamic SQL with EXEC and sp_executesql.

Programming with T-SQL

This module provides a basic introduction to T-SQL programming concepts and objects. It discusses batches, variables, control of flow elements such as loops and conditionals, how to create and execute dynamic SQL statements, and how to use synonyms. **Lessons**

- T-SQL Programming Elements
- Controlling Program Flow

Lab : Programming with T-SQL After completing this module, you will be able to:

- Describe the language elements of T-SQL used for simple programming tasks.
- Describe batches and how they are handled by SQL Server.
- Declare and assign variables and synonyms.
- Use IF and WHILE blocks to control program flow.

Implementing Error Handling

This module introduces the use of error handlers in T-SQL code. It will introduce the difference between compile errors and run-time errors, and will cover how errors affect batches. The module will also cover how to control error handling using TRY/CATCH blocks, the use of the ERROR class of functions, and the use of the new THROW statement. **Lessons**

- Using TRY / CATCH Blocks
- Working with Error Information

Lab : Implementing Error Handling After completing this module, you will be able to:

- Describe SQL Server's behavior when errors occur in T-SQL code.
- Implement structured exception handling in T-SQL.
- Return information about errors from system objects.
- Raise user-defined errors and pass system errors in T-SQL code.



Implementing Transactions

This module introduces the concepts of transaction management in SQL Server. It will provide a high-level overview of transaction properties, cover the basics of marking transactions with BEGIN, COMMIT and ROLLBACK. **Lessons**

- Transactions and the Database Engine
- Controlling Transactions

Lab : Implementing Transactions After completing this module, you will be able to:

- Describe transactions and the differences between batches and transactions.
- Describe batches and how they are handled by SQL Server.
- Create and manage transactions with transaction control language statements.
- Use SET XACT_ABORT to define SQL Server's handling of transactions outside TRY / CATCH blocks.
- Describe the effects of isolation levels on transactions.

Appendix 1: Improving Query Performance

This module presents several key guidelines for writing well-performing queries, as well as ways to monitor the execution of your queries and their impact on Microsoft SQL Server. **Lessons**

- Factors in Query Performance
- Displaying Query Performance Data

Lab : Improving Query Performance After completing this module, you will be able to:

- Describe components of well-performing queries.
- Display and interpret basic query performance data

Appendix 2: Querying SQL Server Metadata

SQL Server provides access to structured metadata by using a variety of mechanisms, such as system catalog views, system functions, dynamic management objects, and system stored procedures. In this module, you will learn how to write queries to return system metadata using these mechanisms. **Lessons**

- Querying System Catalog Views and Functions
- Executing System Stored Procedures
- Querying Dynamic Management Objects

Lab : Querying SQL Server Metadata After completing this module, you will be able to:

- Write queries that retrieve system metadata using system views and functions.
- Execute system stored procedures to return system information.

Write queries that retrieve system metadata and state information using system dynamic management views and functions.