MSQ4-12 - MOC 20761 - QUERYING DATA WITH TRANSACT-SQL

Categoria: **SQL Server 2017 e 2016**

INFORMAZIONI SUL CORSO

Durata:	Categoria:	Qualifica Istruttore:	Dedicato a:	Produttore:
5 Giorni	SQL Server 2017 e 2016	Microsoft Certified Trainer	Sviluppatore	Microsoft

OBIETTIVI

Descriverere le funzionalità chiave ei componenti di SQL Server 2016.
Descrivere T-SQL, gli insiemi le la logica dei predicati.
Scrivere un'istruzione SELECT su singola tabella.
Scrivere un'istruzione SELECT multi-tabella.
Scrivere istruzioni SELECT con filtro e ordinamento.
Descrivere come SQL Server utilizza le tipologie di dati.
Scrivere istruzioni DML.
Scrivere query che utilizzano le funzioni incorporate.
Scrivere query che aggregano i dati.
Scrivere subquery.
Creare e implementare viste e funzioni con table-valued.
Utilizzare gli operatori impostati per combinare i risultati delle query.
Scrivere query che utilizzano le funzioni di classificazione, offset e aggregazione.
Trasformare i dati implementando pivot, unpivot, rollup e cube.
Creare e implementare procedure memorizzate.
Aggiungere i costrutti di programmazione come variabili, condizioni e cicli al codice T-SQL.

PREREQUISITI

Conoscenza di base del sistema operativo Microsoft Windows e delle sue funzionalità principali.
Conoscenza di lavoro con i database relazionali.

CONTENUTI

Module 1: Introduction to Microsoft SQL Server 2016
The Basic Architecture of SQL Server
SQL Server Editions and Versions
Getting Started with SQL Server Management Studio

Lab : Working with SQL Server 2016 Tools
Working with SQL Server Management Studio
Creating and Organizing T-SQL Scripts
Using Books Online
After completing this module, you will be able to:

Describe relational databases and Transact-SQL queries.
Describe the on-premise and cloud-based editions and versions of SQL Server.
Describe how to use SQL Server Management Studio (SSMS) to connect to an instance of SQL Server, explore the databases contained in the instance, and work with script files that contain T-SQL queries.

Module 2: Introduction to T-SQL Querying
Introducing T-SQL
Understanding Sets
Understanding Predicate Logic
Understanding the Logical Order of Operations in SELECT statements

Lab : Introduction to T-SQL Querying
Executing Basic SELECT Statements
Executing Queries that Filter Data using Predicates
Executing Queries That Sort Data Using ORDER BY
After completing this module, you will be able to:
Describe the role of T-SQL in writing SELECT statements.
Describe the elements of the T-SQL language and which elements will be useful in writing queries.
Describe the concepts of the set theory, one of the mathematical underpinnings of relational databases, and to help you apply it to how you think about querying SQL Server
Describe predicate logic and examine its application to querying SQL Server.
Explain the elements of a SELECT statement, delineate the order in which the elements are evaluated, and then apply this understanding to a practical approach to writing queries.

Module 3: Writing SELECT Queries
Writing Simple SELECT Statements
Eliminating Duplicates with DISTINCT
Using Column and Table Aliases
Writing Simple CASE Expressions

Lab : Writing Basic SELECT Statements
Writing Simple SELECT Statements
Eliminating Duplicates Using DISTINCT
Using Column and Table Aliases
Using a Simple CASE Expression
After completing this module, you will be able to:
Describe the structure and format of the SELECT statement, as well as enhancements that will add functionality and readability to your queries
Describe how to eliminate duplicates using the DISTINCT clause
Describe the use of column and table aliases
Understand and use CASE expressions

Module 4: Querying Multiple Tables
Understanding Joins
Querying with Inner Joins
Querying with Outer Joins
Querying with Cross Joins and Self Joins

Lab : Querying Multiple Tables
Writing Queries that use Inner Joins
Writing Queries that use Multiple-Table Inner Joins
Writing Queries that use Self-Joins
Writing Queries that use Outer Joins

Writing Queries that use Cross Joins
After completing this module, you will be able to:
Explain the fundamentals of joins in SQL Server 2016
Write inner join queries
Write queries that use outer joins
Use additional join types

Module 5: Sorting and Filtering Data
Sorting Data
Filtering Data with Predicates
Filtering Data with TOP and OFFSET-FETCH
Working with Unknown Values

Lab : Sorting and Filtering Data
Writing Queries that Filter Data using a WHERE Clause
Writing Queries that Sort Data Using an ORDER BY Clause
Writing Queries that Filter Data Using the TOP Option
After completing this module, you will be able to:
Explain how to add an ORDER BY clause to your queries to control the order of rows displayed in your query's output
Explain how to construct WHERE clauses to filter out rows that do not match the predicate.
Explain how to limit ranges of rows in the SELECT clause using a TOP option.
Explain how to limit ranges of rows using the OFFSET-FETCH option of an ORDER BY clause.
Explain how to limit ranges of rows using the OFFSET-FETCH option of an ORDER BY clause.
Explain how three-valued logic accounts for unknown and missing values, how SQL Server uses NULL to mark missing values, and how to test for NULL in your queries.
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Module 6: Working with SQL Server 2016 Data Types
Introducing SQL Server 2016 Data Types
Working with Character Data
Working with Date and Time Data

Lab : Working with SQL Server 2016 Data Types
Writing Queries that Return Date and Time Data
Writing Queries that use Date and Time Functions
Writing Queries That Return Character Data
Writing Queries That Return Character Functions
After completing this module, you will be able to:
Explore many of the data types SQL Server uses to store data and how data types are converted between types
Explain the SQL Server character-based data types, how character comparisons work, and some common functions you may find useful in your queries
Describe data types that are used to store temporal data, how to enter dates and times so they will be properly parsed by SQL Server, and how to manipulate dates and times with built-in functions.

Module 7: Using DML to Modify Data
Inserting Data
Modifying and Deleting Data

Lab : Using DML to Modify Data
Inserting Data
Updating and Deleting Data

After completing this module, you will be able to:
Use INSERT and SELECT INTO statements
Use UPDATE, MERGE, DELETE, and TRUNCATE.

Module 8: Using Built-In Functions
Writing Queries with Built-In Functions
Using Conversion Functions
Using Logical Functions
Using Functions to Work with NULL

Lab : Using Built-In Functions
Writing Queries That Use Conversion Functions
Writing Queries that use Logical Functions
Writing Queries that Test for Nullability
After completing this module, you will be able to:
Describe the types of functions provided by SQL Server, and then focus on working with scalar functions
Explain how to explicitly convert data between types using several SQL Server functions
Describe how to use logical functions that evaluate an expression and return a scalar result.
Describe additional functions for working with NULL

Module 9: Grouping and Aggregating Data
Using Aggregate Functions
Using the GROUP BY Clause
Filtering Groups with HAVING

Lab : Grouping and Aggregating Data
Writing Queries That Use the GROUP BY Clause
Writing Queries that Use Aggregate Functions
Writing Queries that Use Distinct Aggregate Functions
Writing Queries that Filter Groups with the HAVING Clause
After completing this module, you will be able to:
Describe the built-in aggregate function in SQL Server and write queries using it.
Write queries that separate rows using the GROUP BY clause.
Write queries that use the HAVING clause to filter groups.

Module 10: Using Subqueries
Writing Self-Contained Subqueries
Writing Correlated Subqueries
Using the EXISTS Predicate with Subqueries

Lab : Using Subqueries
Writing Queries That Use Self-Contained Subqueries
Writing Queries That Use Scalar and Multi-Result Subqueries
Writing Queries That Use Correlated Subqueries and an EXISTS Clause
After completing this module, you will be able to:
Describe where subqueries may be used in a SELECT statement.
Write queries that use correlated subqueries in a SELECT statement
Write queries that use EXISTS predicates in a WHERE clause to test for the existence of qualifying rows
Use the EXISTS predicate to efficiently check for the existence of rows in a subquery.

Module 11: Using Table Expressions
Using Views
Using Inline Table-Valued Functions

Using Derived Tables
Using Common Table Expressions

Lab : Using Table Expressions
Writing Queries That Use Views
Writing Queries That Use Derived Tables
Writing Queries That Use Common Table Expressions (CTEs)
Writing Queries That Sue Inline Table-Valued Expressions
After completing this module, you will be able to:
Write queries that return results from views.
Use the CREATE FUNCTION statement to create simple inline TVFs.
Write queries that create and retrieve results from derived tables.
Write queries that create CTEs and return results from the table expression.

Module 12: Using Set Operators
Writing Queries with the UNION operator
Using EXCEPT and INTERSECT
Using APPLY

Lab : Using Set Operators
Writing Queries That Use UNION Set Operators and UNION ALL
Writing Queries That Use CROSS APPLY and OUTER APPLY Operators
Writing Queries That Use the EXCEPT and INTERSECT Operators

Module 13: Using Windows Ranking, Offset, and Aggregate Functions
Creating Windows with OVER
Exploring Window Functions

Lab : Using Windows Ranking, Offset, and Aggregate Functions
Writing Queries that use Ranking Functions
Writing Queries that use Offset Functions
Writing Queries that use Window Aggregate Functions

Module 14: Pivoting and Grouping Sets
Writing Queries with PIVOT and UNPIVOT
Working with Grouping Sets

Lab : Pivoting and Grouping Sets
Writing Queries that use the PIVOT Operator
Writing Queries that use the UNPIVOT Operator
Writing Queries that use the GROUPING SETS CUBE and ROLLUP Subclauses

Module 15: Executing Stored Procedures
Querying Data with Stored Procedures
Passing Parameters to Stored procedures
Creating Simple Stored Procedures
Working with Dynamic SQL

Lab : Executing Stored Procedures
Using the EXECUTE statement to Invoke Stored Procedures
Passing Parameters to Stored procedures
Executing System Stored Procedures

Module 16: Programming with T-SQL
T-SQL Programming Elements
Controlling Program Flow

Lab : Programming with T-SQL
Declaring Variables and Delimiting Batches
Using Control-Of-Flow Elements
Using Variables in a Dynamic SQL Statement
Using Synonyms

Module 17: Implementing Error Handling
Implementing T-SQL error handling
Implementing structured exception handling

Lab : Implementing Error Handling
Redirecting errors with TRY/CATCH
Using THROW to pass an error message back to a client

Module 18: Implementing Transactions
Transactions and the database engines
Controlling transactions

Lab : Implementing Transactions
Controlling transactions with BEGIN, COMMIT, and ROLLBACK
Adding error handling to a CATCH block

INFO

Materiale didattico: Materiale didattico in formato digitale
Costo materiale didattico: incluso nel prezzo del corso a Calendario
Natura del corso: Operativo (previsti lab su PC)