



Microsoft SQL Database Developer Certification

Training for Exam 70-433

Course Modules and Objectives

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Table of Contents

Module #1	Working with Query Fundamentals	3
Module #2	Querying Multiple Tables	3
Module #3	Implementing Aggregate Queries	4
Module #4	Combine and Compare Datasets	4
Module #5	Modifying Data	5
Module #6	Working with Transactions and Locking	5
Module #7	Working with Data Types and Creating Tables	6
Module #8	Implementing Data Integrity	6
Module #9	Using Advanced Query Techniques	7
Module #10	Using Programming Objects	7
Module #11	Working with Triggers and Views	8
Module #12	Improving Query Performance	8
Module #13	Working with Indexes and Partitions	9
Module #14	Working with XML in the database	9
Module #15	Working with SQLCLR and FILESTREAM	10
Module #16	Using Additional Functionality	10
Module #17	Implementing the Service Broker	11
Module #18	Using SQL Server Manageability Features	11
Module #19	Tracking Data Changes	12

Course Modules and Objectives

Module 1:

Working with Query Fundamentals

- Querying Data with the SELECT Statement
- Sorting and Filtering Data with the WHERE clause
- Use the DISTINCT statement
- Work with NULL values
- Use the LIKE clause
- Work with Wildcard characters
- Use the BETWEEN clause
- Use the ORDER BY clause

Module 2:

Querying Multiple Tables

- Understand Joins
- Work with INNER JOINS
- Work with OUTER JOINS
- Understand types of OUTER JOINS
- Work with CROSS JOINS
- Retrieve data from multiple tables
- Work with Self Joins

Module 3:

Implementing Aggregate Queries

- Understand Aggregate functions
- Use the GROUP BY clause
- Modify data in tables
- Work with the WITH ROLLUP Operator
- Work with the WITH CUBE Operator
- Work with Grouping Sets
- Understand the HAVING clause

Module 4:

Combine and Compare Datasets

- Understand the Fundamentals of Combining Datasets
- Use the UNION operator
- Use the EXCEPT operator
- Use the INTERSECT operator
- Use the APPLY operator
- Understand Built-in Scalar Functions
- Work with the DATE and TIME functions
- Use the SYSTEM functions
- Use the STRING functions

Module 5:

Modifying Data

- Use the INSERT statement
- Use the UPDATE statement
- Use the DELETE statement
- Use the TRUNCATE TABLE statement
- Modify Data using the MERGE Statement
- Use the OUTPUT clause

Module 6:

Working with Transactions and Locking

- Understand the fundamentals of Transactions
- List the properties and types of Transactions
- Work with Implicit Transactions
- Use the COMMIT and ROLLBACK statements
- Work with Explicit Transactions
- Understand different database locking approaches
- Understand the Deadlock scenario
- Set Transaction Isolation Levels

Module 7:

Working with Data Types and Creating Tables

- Understand Data types
- Understand Schemas
- Work with Identifiers
- Choose the right Data Types
- Work with NULL or NOT NULL values
- Understand the IDENTITY property
- Create a Table
- Compress Rows and Pages to reduce storage space

Module 8:

Implementing Data Integrity

- Understand the fundamentals of Data Integrity
- Define Declarative Data Integrity
- Implement Data Integrity
- Use the PRIMARY KEY constraint
- Use the UNIQUE constraint
- Use the FOREIGN KEY constraint
- Use the CHECK constraint
- Use the DEFAULT constraint

Module 9:

Using Advanced Query Techniques

- Define Common Table Expressions
- Work with Common Table Expressions
- Understand how Sub-queries work
- Work with Sub-queries
- Understand how to rank rows with functions.
- Use the ROW_NUMBER function
- Use the RANK function
- Use the DENSE RANK function
- Use the NTILE function

Module 10:

Using Programming Objects

- Understand how Variables are used
- Work with Variables
- Understand how to use Stored Procedures
- Work with Stored Procedures
- Work with the following Control Flow statements
 - BEGIN...END
 - IF...ELSE
 - WHILE...BREAK/CONTINUE
 - RETURN
 - WAITFOR
 - GOTO
- Understand the use of Cursors
- Work with Cursors
- Understand and work with User-Defined Functions

Module 11:

Working with Triggers and Views

- Understand Triggers
- Work with DML Triggers
- Work with DDL Triggers
- Work with Logon Triggers
- Understand Views
- Create Regular Views
- Create Indexed Views
- Create Partitioned Views
- Modify Views
- Rename Views
- Modify Data in Views

Module 12:

Improving Query Performance

- Understand the principles of Query Performance
- Measure Query Performance
- Understand what is the Query Cost
- Understand what is the Query Execution Time
- Optimize Query Performance
- Tune Query Performance
- Understand Effects of Query Components on Query Cost

Module 13:

Working with Indexes and Partitions

- Understand the Index Structure
- Work with Indexes
- Understand Other Index Types
- Work with Indexed Views
- Understand Partitioning
- Understand Partition Functions
- Understand Partition Schemes
- Create Partitioned Tables
- Create Partitioned Indexes
- Manage Partitions
- Tune Indexes Automatically

Module 14:

Working with XML in the database

- Understand XML
- Understand the use of XML in SQL Server
- Retrieve Table Data as XML
- Work with XML Data
- Use the XML Data Type
- Work with XML Stored in an XML Variable or Column
- Retrieve data stored in an XML column by using:
 - Exist
 - Value
 - Nodes
 - Query

Module 15:

Working with SQLCLR and FILESTREAM

- Understand SQLCLR
- Create Objects using SQLCLR
- Compile a Common Language Runtime (CLR) Object
- Load and Use the compiled assembly in SQL Server
- Describe the Permission Sets in SQLCLR
- Understand the fundamentals of FILESTREAM
- Use the FILESTREAM feature

Module 16:

Using Additional Functionality

- Understand what are Spatial Data Types
- Work with Geometry Data Types
- Work with Geography Data Types
- Understand what are Full Text Indexes
- Work with the Full Text Index Thesaurus File and Stop List
- Work with CONTAINS and FREETEXT
- Use Full-Text Search
- Troubleshoot Full-Text Search

Module 17:

Implementing the Service Broker

- Understand the Service Broker
- Understand the Service Broker Components
- Work with the Service Broker
- Understand the Service Broker Applications
- Enable the Service Broker
- Configure the Service Broker Components
- Send and Receive Messages

Module 18:

Using SQL Server Manageability Features

- Understand Database Mail
- Configure Database Mail
- Send Database Mail messages
- Manage Database Mail
- Understand Windows PowerShell
- Execute SQL Server PowerShell cmdlets

Module 19:

Tracking Data Changes

- Understand how to Manage Changes to Data
- Work with Change Tracking
- Enable Change Tracking at the Database Level
- Enable Change Tracking at the Table Level
- Use Change Tracking Functions
- Understand the fundamentals of Change Data Capture
- Work with Change Data Capture
- Microsoft Test Preparation