

(20464D) – Developing Microsoft SQL Server 2014 Databases

OBJECTIVE

This instructor-led course introduces SQL Server 2014 and describes logical table design, indexing and query plans. It also focusses on the creation of database objects including views, stored procedures, along with parameters, and functions. Other common aspects of procedure coding, such as indexes, concurrency, error handling, and triggers are also covered in this course. Also this course helps you prepare for the Exam 70-464.

Note: This course is designed for customers who are interested in learning SQL Server 2012 or SQL Server 2014. It covers the new features in SQL Server 2014, but also the important capabilities across the SQL Server data platform.

COURSE TOPICS

Module 1: Introduction to Database Development

- Introduction to the SQL Server Platform
- SQL Server Database Development Tasks

Module 2: Designing and Implementing Tables

- Designing Tables
- Data Types
- Working with Schemas
- Creating and Altering Tables
- Partitioning Data
- Compressing Data

Module 3: Ensuring Data Integrity through Constraints

- Enforcing Data Integrity
- Implementing Domain Integrity
- Implementing Entity and Referential Integrity

Module 4: Introduction to Indexing

- Core Indexing Concepts
- Data Types and Composite Indexes
- Single Column and Composite Indexes

Module 5: Designing Optimized Index Strategies

- Covering Indexes
- Managing Indexes
- Working with Execution Plans
- Using the DTE

Module 6: Columnstore Indexes

- Introduction to Columnstore Indexes
- Creating Columnstore Indexes
- Working with Columnstore Indexes

Module 7: Designing and Implementing Views

- Introduction to Views
- Creating and Managing Views
- Performance Considerations for Views

Module 8: Designing and Implementing Stored Procedures

- Introduction to Stored Procedures
- Working With Stored Procedures
- Implementing Parameterized Stored Procedures
- Controlling Execution Context

Module 9: Designing and Implementing User-Defined Functions

- Overview of Functions
- Designing and Implementing Scalar Functions
- Designing and Implementing Table-Valued Functions
- Implementation Considerations for Functions
- Alternatives to Functions

Module 10: Responding to Data Manipulation via Triggers

- Designing DML Triggers
- Implementing DML Triggers
- Advanced Trigger Concepts

Module 11: Using In-Memory Tables

- In-Memory Tables
- Native Stored Procedures

Module 12: Implementing Managed Code in SQL Server 2014

- Introduction to SQL CLR Integration
- Importing and Configuring Assemblies
- Implementing SQL CLR Integration

Module 13: Storing and Querying XML Data in SQL Server

- Introduction to XML and XML Schemas
- Storing XML Data and Schemas in SQL Server

- Implementing the XML Data Type
- Using the T-SQL FOR XML Statement
- Getting Started with XQuery

Module 14: Working with SQL Server Spatial Data

- Introduction to Spatial Data
- Working with SQL Server Spatial Data Types
- Using Spatial Data in Applications

Module 15: Incorporating Data Files into Databases

- Querying Data with Stored Procedures
- Implementing FILESTREAM and File Tables
- Searching Data Files

After completing this course, students will be able to:

- Introduce the entire SQL Server platform and its major tools. It will cover editions, versions, basics of network listeners, and concepts of services and service accounts.
- Determine appropriate data types to be used when designing tables, convert data between data types, and create alias data types.
- Be aware of good design practices regarding SQL Server tables and be able to create tables using T-SQL. (Note: partitioned tables are not covered).
- Implement PRIMARY KEY, FOREIGN KEY, DEFAULT, CHECK and UNIQUE constraints, and investigate cascading FOREIGN KEY constraints.
- Determine appropriate single column and composite indexes strategies.
- Create tables as heaps and tables with clustered indexes. Also consider the design of a table and suggest an appropriate structure.
- Read and interpret details of common elements from execution plans.
- Design effective non-clustered indexes.
- Design and implement views
- Design and implement stored procedures.
- Work with table types, table valued parameters and use the MERGE statement to create stored procedures that update data warehouses.
- Design and implement functions, both scalar and table-valued. (Also describe where they can lead to performance issues).
- Perform basic investigation of a deadlock situation and learn how transaction isolation levels affect application concurrency.
- Use both traditional T-SQL error handling code and structured exception handling.
- Design and implement DML triggers

- Learn appropriate uses for SQL CLR integration and implement an existing .NET assembly within SQL Server.
- Store XML data and schemas in SQL Server.
- Perform basic queries on XML data in SQL Server.

PREREQUISITES

This course requires that you meet the following prerequisites:

- Knowledge of writing T-SQL queries.
- Knowledge of basic relational database concepts.

TRAINING APPROACH

This course includes lectures, course notes, exercises and hands-on practice.

COURSE DURATION

24 Hours (in 3 days)

Time: 9:00am to 6:00pm

Lunch Time: 1:00pm to 2:00pm

CERTIFICATION COMPLETION

A certificate of completion is provided for all trainees attending the course