



## **Developing Microsoft SQL Server 2014 Databases:**

### **COURSE OVERVIEW**

In this course, you will be introduced to SQL Server, logical table design, indexing, query plans, and data and domain integrity. You will focus on creating database objects, including views, stored procedures, parameters, and functions. You will also learn procedure coding, such as indexes, concurrency, error handling, triggers, and SQL Common Language Runtime (CLR).

This course incorporates material from the Official Microsoft Learning Product 20464: Developing Microsoft SQL Server 2014 Databases. It covers the skills and knowledge measured by Exam 70-464 and along with on-the-job experience, helps you prepare for the exam.

### **WHAT YOU'LL LEARN**

- SQL Server platform tools including editions, versions, basics of network listeners, and concepts of services and service accounts
- Appropriate data types used when designing tables, convert data between data types, and create alias data types
- Design practices regarding SQL Server tables and create tables using T-SQL (partitioned tables not covered in this course)
- Implement PRIMARY KEY, FOREIGN KEY, DEFAULT, CHECK, and UNIQUE constraints
- Investigate cascading FOREIGN KEY constraints
- Appropriate single column and composite index strategies
- Create tables as heaps, tables with clustered indexes, and appropriate structure for table designs
- Common elements from execution plans
- Design effective non-clustered indexes
- Design and implement views and stored procedures
- Work with table types and table-valued parameters
- Use MERGE to create stored procedures that update data warehouses
- Design and implement scalar and table-valued functions
- Investigate deadlock situation and how transaction isolation levels affect application concurrency

- T-SQL error handling code and structured exception handling
- Design and implement data manipulation language (DML) triggers
- SQL CLR integration and implement existing .NET assembly within SQL Server
- Store Extensible Markup Language (XML) data and schemas in SQL Server
- Basic queries on XML data in SQL Server
- GEOGRAPHY and GEOMETRY data types
- Implement and query a full-text index

## **OUTLINE**

### 1. Database Development Introduction

- SQL Server Platform
- SQL Server Tools
- Configure SQL Server Services

### 2. Design and Implement Tables

- Design Tables
- Work with Schemas
- Create and Alter Tables
- Partition and Compress Data

### 3. Ensure Data Integrity through Constraints

- Data Integrity Enforcement
- Implement Domain Integrity
- Implement Entity and Referential Integrity

### 4. Introduction to Indexing

- Core Indexing Concepts
- Single Column and Composite Indexes
- SQL Server Table Structures and Clustered Indexes

### 5. Design Optimized Index Strategies

- Execution Plan Concepts and Elements
- INCLUDE Clause, Padding, Hints, and Statistics
- Design Effective Non-Clustered Indexes
- Performance Monitoring and the Database Engine Tuning Advisor

### 6. Columnstore Indexes

- Clustered and Non-Clustered Columnstore Indexes

### 7. Design and Implement Views

- Views
- Creating and Managing Views
- Performance Considerations for Views
- 8. Design and Implement Stored Procedures
- Stored Procedures
- Implement Parameterized Stored Procedures
- Control the Execution Context
- 9. Design and Implement User-Defined Functions
- Functions
- Design and Implement Scalar Functions and Table-Valued Functions
- Considerations for Implementing Functions
- Alternatives to Functions
- 10. Respond to Data Manipulation via Triggers
- Design and Implement DML Triggers
- Advanced Trigger Concepts
- 11. In-Memory Tables
- Memory-Optimized Tables
- Native Stored Procedures
- 12. Implement Managed Code in SQL Server 2014
- SQL CLR Integration and Implementation
- Import and Configure Assemblies
- Implement Objects created within .NET Assemblies
- 13. Store and Query XML Data in SQL Server
- XML and XML Schemas
- Store XML Data and Schemas in SQL Server
- Implement the XML Data Type within SQL Server
- Use the T-SQL for XML Statement
- XQuery Language
- Shred XML to a Relational Form
- 14. SQL Server 2014 Spatial Data
- Spatial Data Introduction
- SQL Server Spatial Data Types
- Spatial Data in Applications

## **PREREQUISITES**

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