Course 2778A: Writing Queries Using Microsoft SQL Server 2008 Transact-SQL

Introduction

This 3-day instructor led course provides students with the technical skills required to write basic Transact-SQL queries for Microsoft SQL Server 2008.

Audience

This course is intended for SQL Server database administrators, implementers, system engineers, and developers who are responsible for writing queries.

At Course Completion

After completing this course, students will be able to:

- Describe the uses of and ways to execute the Transact-SQL language.
- Use querying tools.
- Write SELECT queries to retrieve data.
- Group and summarize data by using Transact-SQL.
- Join data from multiple tables.
- Write queries that retrieve and modify data by using subqueries.
- Modify data in tables.
- Query text fields with full-text search.
- Describe how to create programming objects.
- Use various techniques when working with complex queries.

Prerequisites

Before attending this course, students must have:

- Logical database design.
- Physical database design.
- How data is stored in tables (rows and columns).
- Data integrity concepts.
- Relationships between tables and columns (primary key and foreign key, one-to-one, one-to-many, and many-to-many).
- Basic knowledge of the Microsoft Windows operating system and its core functionality. For example, how to use Windows Explorer, open and save files, and what a client/server application interaction means.

Course Outline

Module 1: Getting Started with Databases and Transact-SQL in SQL Server 2008

The student will be introduced to how client/server architecture works, and examine the various database and business tasks that can be performed by using the components of SQL Server 2008. The student will also be introduced to SQL Server database concepts such as relational databases, normalization, and database objects. In addition, the student will learn how to use T-SQL to query databases and generate reports.

Module 2: Querying and Filtering Data

The students will be introduced to the basic Transact-SQL (T-SQL) statements that are used for writing queries, filtering data, and formatting result sets.

Module 3: Grouping and Summarizing Data

The students will learn to group and summarize data when generating reports in Microsoft SQL Server 2008 by using aggregate functions and the COMPUTE clause.

Module 4: Joining Data from Multiple Tables

The students will learn to write joins to query multiple tables, as well as limiting and combining result sets.

Module 5: Working with Subqueries

The students will be introduced to basic and correlated subqueries and how these compare with joins and temporary tables. The students will also be introduced to using common table expressions in queries.

Module 6: Modifying Data in Tables

The students will be able to modify the data in tables by using the INSERT, DELETE, and UPDATE statements. In addition, students will examine how transactions work in a database, the importance of transaction isolation levels, and how to manage transactions.

Module 7: Querying Metadata, XML, and Full-Text Indexes

The students will learn to query semi-structured and unstructured data. The students will also learn how SQL Server 2008 handles XML data and will query XML data. The students will also be introduced to full-text indexing in SQL Server 2008.

Module 8: Using Programming Objects for Data Retrieval

The students will be introduced to user-defined functions and executing various kinds of queries by using user-defined functions. The students will be introduced to SQL Server views that encapsulate data and present users with limited and relevant information. In addition, the students will be introduced to SQL Server stored procedures and the functionalities of the various programming objects. The students will learn how to perform distributed queries and how SQL Server works with heterogeneous data such as databases, spreadsheets, and other servers.

Module 9: Using Advanced Querying Techniques

The students will be introduced to best practices for querying complex data. The students will also examine how to query complex table structures such as data stored in hierarchies and self-referencing tables. The students will analyze the recommended guidelines for executing queries and how to optimize query performance.