

# **2778: Writing Queries Using Microsoft SQL Server 2008 Transact-SQL**

6/10 ó 6/11/2009

Demstar Education,

## **Course Aim:**

There is a need for IT workers to learn more about the technical skills required to write basic Transact-SQL queries for Microsoft SQL Server 2008.

## **Course Objectives:**

After completing this course, students will be able to:  
Describe the uses of and ways to execute the Transact-SQL language.  
Use querying tool.  
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.

## **Target Trainee Profile:**

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

## **Trainers Profile:**

Gregoris Liasis

## **Course Outline:**

**Session 1: 05/10/2009**

**05:30 ó 08:45**

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.

#### Lessons

Overview of SQL Server 2008  
Overview of SQL Server Databases  
Overview and Syntax Elements of T-SQL  
Working with T-SQL Scripts  
Using T-SQL Querying Tools

#### **Session 2: 09/10/2009**

**05:30 ó 08:45**

Lab : Using SQL Server Management Studio and SQLCMD  
Exploring the Components and Executing Queries in SQL Server Management Studio  
Starting and Using SQLCMD  
Generating a Report from a SQL Server Database Using Microsoft Office Excel  
After completing this module, students will be able to:  
Describe the architecture and components of SQL Server 2008.  
Describe the structure of a SQL Server database.  
Explain the basics of the SQL language.  
Describe the syntax elements of T-SQL.  
Explain how to manage T-SQL scripts.  
Use T-SQL querying tools to query SQL Server 2008 databases.

#### 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.

#### Lessons

Using the SELECT Statement  
Filtering Data  
Working with NULL Values  
Formatting Result Sets  
Performance Considerations for Writing Queries

#### **Session 3: 12/10/2009**

**05:30 ó 08:45**

Lab : Querying and Filtering Data  
Retrieving Data by Using the SELECT Statement  
Filtering Data by Using Different Search Conditions  
Using Functions to Work with NULL Values  
Formatting Result Sets  
After completing this module, students will be able to:  
Retrieve data by using the SELECT statement.  
Filter data by using different search conditions.  
Explain how to work with NULL values.

Format result sets.

Describe the performance considerations that affect data retrieval.

### 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.

Lessons

Summarizing Data by Using Aggregate Functions

Summarizing Grouped Data

Ranking Grouped Data

Creating Crosstab Queries

Lab : Grouping and Summarizing Data

Summarizing Data by Using Aggregate Functions

Summarizing Grouped Data

Ranking Grouped Data

Creating Crosstab Queries

After completing this module, students will be able to:

Summarize data by using aggregate functions.

Summarize grouped data by using the GROUP BY and COMPUTE clauses.

Rank grouped data.

Create cross-tabulation queries by using the PIVOT and UNPIVOT clauses.

### **Session 4: 16/10/2009**

**05:30 ó 08:45**

### 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.

Lessons

Querying Multiple Tables by Using Joins

Applying Joins for Typical Reporting Needs

Combining and Limiting Result Set

Lab : Joining Data from Multiple Tables

Querying Multiple Tables by Using Joins

Applying Joins for Typical Reporting Needs

Combining and Limiting Result Sets

After completing this module, students will be able to:

Query multiple tables by using joins.

Apply joins for typical reporting needs.

Combine and limit result sets.

### **Session 5: 19/10/2009**

**05:30 ó 08:45**

### 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.

Lessons

Writing Basic Subqueries

Writing Correlated Subqueries

Comparing Subqueries with Joins and Temporary Tables

Using Common Table Expressions

**Session 6: 23/10/2009**

**05:30 ó 08:45**

Lab : Working with Subqueries

Writing Basic Subqueries

Writing Correlated Subqueries

Comparing Subqueries with Joins and Temporary Tables

Using Common Table Expressions

After completing this module, students will be able to:

Write basic subqueries.

Write correlated subqueries.

Compare subqueries with joins and temporary tables.

Use 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.

Lessons

Inserting Data into Tables

Deleting Data from Tables

Updating Data in Tables

Overview of Transactions

**Session 7: 26/10/2009**

**05:30 ó 08:45**

Lab : Modifying Data in Tables

Inserting Data into Tables

Deleting Data from Tables

Updating Data in Tables

Working with Transactions

After completing this module, students will be able to:

Insert data into tables.

Delete data from tables.

Update data in tables.

Describe 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.

### Lessons

Querying Metadata

Overview of XML

Querying XML Data

Overview of Full-Text Indexes

Querying Full-Text Indexes

Lab : Querying Metadata, XML, and Full-Text Indexes

Querying Metadata

Querying XML Data

Creating and Querying Full-Text Indexes

After completing this module, students will be able to:

Query metadata.

Describe the functionality of XML.

Query XML data.

Describe the functionality of full-text indexes.

Query full-text indexes.

## **Session 8: 30/10/2009**

**05:30 ó 08:45**

## 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.

### Lessons

Overview of Views

Overview of User-Defined Functions

Overview of Stored Procedures

Overview of Triggers

Writing Distributed Queries

Lab : Using Programming Objects for Data Retrieval

Creating Views

Creating User-Defined Functions

Creating Stored Procedures

Writing Distributed Queries

After completing this module, students will be able to:

Encapsulate queries by using views.

Encapsulate expressions by using user-defined functions.  
Explain how stored procedures encapsulate T-SQL logic.  
Define triggers, types of triggers, create a trigger.  
Write distributed queries.

#### 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.

Lessons

Considerations for Querying Data

Working with Data Types

Cursors and Set-Based Queries

Dynamic SQL

Maintaining Query Files

Lab : Using Advanced Querying Techniques

Using Execution Plans

Converting Data Types

Implementing a Hierarchy

Using Cursors and Set-Based Queries

After completing this module, students will be able to:

Explain the recommendations for querying complex data.

Query complex table structures.

Write efficient queries.

Use various techniques when working with complex queries.

Maintain query files.

#### **Meeting Information:**

Venue: Demstar Education, Nicosia

#### **Participation Fee**

Initial Cost:                                    p 825

HRDA Subsidy:                                (p 456)

**Net Cost per Participant**                p 369

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Αρχή Ανάπτυξης  
Ανθρώπινου  
Δυναμικού  
Κύπρου