



**CTREC  
HILTON**  
IT ACADEMY

BUILDING TRAINING SOLUTIONS  
FOR THE IT WORLD

## Writing Queries Using Microsoft SQL Server 2008 Transact-SQL

<b>Days:</b>	<b>3</b>
<b>Format:</b>	<b>Instructor-Led</b>
<b>Class Code</b>	<b>2778</b>
<b>Certification Exams:</b>	<b>None</b>
<b>Certification Track:</b>	<b>None</b>

### Recommended Course Sequence

Knowledge of prerequisites  
noted below.

*Course content is subject to change  
without notice.*

### Course Description:

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

### Target Student:

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

### Delivery Method:

Instructor led, group-paced, classroom-delivery learning model with structured hands-on activities.

### Prerequisites:

Before attending this course, the student must have

- Knowledge of data integrity concepts.
- Core Windows Server skills.
- Relational database design skills.
- Programming skills.

### At Course Completion:

Upon successful completion of 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.

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## 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.

Lessons
<ul style="list-style-type: none"><li>■ Overview of SQL Server 2008</li><li>■ Overview of SQL Server Databases</li><li>■ Overview and Syntax Elements of T-SQL</li><li>■ Working with T-SQL Scripts</li><li>■ Using T-SQL Querying Tools</li></ul>
Labs: Using SQL Server Management Studio and SQLCMD
<ul style="list-style-type: none"><li>■ Exploring the Components and Executing Queries in SQL Server Management Studio</li><li>■ Starting and Using SQLCMD</li><li>■ Generating a Report from a SQL Server Database Using Microsoft Office Excel</li></ul>

### 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
<ul style="list-style-type: none"><li>■ Using the SELECT Statement</li><li>■ Filtering Data</li><li>■ Working with NULL Values</li><li>■ Formatting Result Sets</li><li>■ Performance Considerations for Writing Queries</li></ul>
Lab: Querying and Filtering Data
<ul style="list-style-type: none"><li>■ Retrieving Data by Using the SELECT Statement</li><li>■ Filtering Data by Using Different Search Conditions</li><li>■ Using Functions to Work with NULL Values</li><li>■ Formatting Result Sets</li></ul>

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## 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
<ul style="list-style-type: none"><li>■ Summarizing Data by Using Aggregate Functions</li><li>■ Summarizing Grouped Data</li><li>■ Ranking Grouped Data</li><li>■ Creating Crosstab Queries</li></ul>
Lab: Grouping and Summarizing Data
<ul style="list-style-type: none"><li>■ Summarizing Data by Using Aggregate Functions</li><li>■ Summarizing Grouped Data</li><li>■ Ranking Grouped Data</li><li>■ Creating Crosstab Queries</li></ul>

## 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
<ul style="list-style-type: none"><li>■ Querying Multiple Tables by Using Joins</li><li>■ Applying Joins for Typical Reporting Needs</li><li>■ Combining and Limiting Result Set</li></ul>
Lab: Joining Data from Multiple Tables
<ul style="list-style-type: none"><li>■ Querying Multiple Tables by Using Joins</li><li>■ Applying Joins for Typical Reporting Needs</li><li>■ Combining and Limiting Result Sets</li></ul>

## 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
<ul style="list-style-type: none"><li>■ Writing Basic Subqueries</li><li>■ Writing Correlated Subqueries</li><li>■ Comparing Subqueries with Joins and Temporary Tables</li><li>■ Using Common Table Expressions</li></ul>
Lab: Working with Subqueries
<ul style="list-style-type: none"><li>■ Writing Basic Subqueries</li><li>■ Writing Correlated Subqueries</li><li>■ Comparing Subqueries with Joins and Temporary Tables</li><li>■ Using Common Table Expressions</li></ul>

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## 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
<ul style="list-style-type: none"><li>■ Inserting Data into Tables</li><li>■ Deleting Data from Tables</li><li>■ Updating Data in Tables</li><li>■ Overview of Transactions</li></ul>
Lab: Modifying Data in Tables
<ul style="list-style-type: none"><li>■ Inserting Data into Tables</li><li>■ Deleting Data from Tables</li><li>■ Updating Data in Tables</li><li>■ Working with Transactions</li></ul>

## 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
<ul style="list-style-type: none"><li>■ Querying Metadata</li><li>■ Overview of XML</li><li>■ Querying XML Data</li><li>■ Overview of Full-Text Indexes</li><li>■ Querying Full-Text Indexes</li></ul>
Lab: Querying Metadata, XML, and Full-Text Indexes
<ul style="list-style-type: none"><li>■ Querying Metadata</li><li>■ Querying XML Data</li><li>■ Creating and Querying Full-Text Indexes</li></ul>

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### 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
<ul style="list-style-type: none"><li>■ Overview of Views</li><li>■ Overview of User-Defined Functions</li><li>■ Overview of Stored Procedures</li><li>■ Overview of Triggers</li><li>■ Writing Distributed Queries</li></ul>
Lab: Using Programming Objects for Data Retrieval
<ul style="list-style-type: none"><li>■ Creating Views</li><li>■ Creating User-Defined Functions</li><li>■ Creating Stored Procedures</li><li>■ Writing Distributed Queries</li></ul>

### 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
<ul style="list-style-type: none"><li>■ Considerations for Querying Data</li><li>■ Working with Data Types</li><li>■ Cursors and Set-Based Queries</li><li>■ Dynamic SQL</li><li>■ Maintaining Query Files</li></ul>
Lab: Using Advanced Querying Techniques
<ul style="list-style-type: none"><li>■ Using Execution Plans</li><li>■ Converting Data Types</li><li>■ Implementing a Hierarchy</li><li>■ Using Cursors and Set-Based Queries</li></ul>