

# Working with Data Using C#.NET and SQL Server 2005 (5 days) GWE10054

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5 Days

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## ***Introduction***

This 5-day, instructor-led course provides students with a solid understanding data from a C# perspective. This course concentrates on the items that a C# developer would need to know while working with data in the .NET environment. It includes information about ADO.NET and Transact-SQL syntax such as Select, Insert, Update and Delete statements. This course also discusses real-world subjects like Stored Procedures, User-defined Functions and how they can be used to make a .NET application more efficient. It also covers information on administering SQL Server and the tools needed for administering SQL Server as it pertains to a C# developer including topics like creating a database, backing up a database and securing the database. This course also covers how to increase the performance of a SQL Server 2005 database including subjects like Indexes, Statistics and efficient Relational Database Design. It is designed as a hands-on, lab intensive 5 day class.

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## ***Prerequisites***

- Familiarity with relational data.

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## ***Course Description***

At the end of this course, students will be able to recognize and implement Transact SQL (T-SQL) statements including Select, Insert, Update and Delete statements. They will also be able to determine when critical items like Store Procedures and User defined Functions should be used, how to call stored procedures from C#.NET code, and how to monitor SQL Server for query performance. Students will also learn to use many of the built-in functions such as string manipulation functions, datetime functions and other useful functions that are available in SQL Server 2005. Students will learn be able to identify the Administrative Tools for SQL Server 2005 and their uses. Students will learn how to increase performance using indexes and will work with tools that allow you to assess index performance. Students will learn ADO.NET and LINQ. Students will learn through lecture and intensive hands-on labs. This course will benefit anyone desiring to have a solid working knowledge data access using C#.NET, Transact SQL (T-SQL) and SQL Server 2005.

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## ***Course Summary***

The outline for this course contains the following:

### **What we need to know before learning to write queries or code**

- **Introduction to Microsoft SQL Server 2005**
  - Overview of items we will need for this course:
    - Microsoft SQL Server Management Studio (SSMS)
    - Connecting to a server
    - The Object Explorer
    - The Query Window
    - Creating a Project / Solution
- **Overview of Relational Data**
  - Relationships overview
  - Database Diagrams
  - Database Schemas

### **Administration Overview of SQL Server**

## SQL Server Tools

- SQL Server Management Studio
- SQL Server Configuration Manager
- SQL Profiler
- Using Visual Studio to access data

## Managing Databases and Files Overview

### Managing Security

- Logins
- Database Users
- Permissions
- Roles
- Object Schemas

## Implementing Databases

### Data Types

### Creating Tables

### Implementing Data Integrity with Constraints

- Foreign Key Constraints
- Check
- Default

## Retrieving and Manipulating Data

- **Select Statements**
  - SELECT List
    - Using an Alias for column names
  - FROM Clause
  - WHERE Clause
    - IN operator
    - BETWEEN operator
    - LIKE operator
    - AND / OR / NOT operators
  - ORDER BY Clause
  - TOP keyword
- **Useful T-SQL Functions**
- **Joining Multiple Tables**
  - JOIN Operator
  - LEFT / RIGHT / OUTER JOIN
  - UNION

- **Grouping and Summarizing Data**
  - Working with Aggregate Functions
  - GROUP BY Clause
  - HAVING Clause
  - COMPUTE and COMPUTE BY
- **Using Subqueries**
  - Subqueries as expressions
  - Subqueries as Tables
  - Correlated Queries
  - EXIST Clause

### **Inserting, Updating and Deleting Data**

- INSERT statements
- UPDATE statements
- DELETE statements

### **Advanced T-SQL Topics**

- Stored Procedures
- Views
- User Defined Functions Overview
- Triggers Overview
- Advanced T-SQL Functions

### **ADO.NET**

- ADO.NET Overview
- The Process of Connecting to a Database
- Creating and saving connection strings
- SqlConnection Object Features
- Understanding Connection Pooling

### **Querying and Updating a database using ADO.NET SqlCommand object**

- SqlCommand object features
- Passing parameters into commands
- Using commands to execute stored procedures

### **Transactions**

SQL Server transactions  
ADO.NET transactions

### **ADO.NET Dataset Object**

- Disconnected data using Datasets
- SqlDataAdapter

- Working with Table Adapters and Typed Datasets
- XML Representations of Datasets

### **More Implementing Databases**

Creating and Tuning Indexes  
Query Performance Overview  
Query Execution Plans  
Transactions and Locking  
Cursors and Cursor Refactoring

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