

## 10265 Developing Data Access Solutions with Microsoft Visual Studio 2010

Days of Training: 5

### Overview

Experienced developers who know the basics of data access (CRUD) in Windows client and Web application environments will learn to optimize their designs and develop better performing data access code by using the ADO.NET Entity Framework, and ADO.NET.

### Prerequisites

Before attending this course, students must have:

- An understanding of the problem-solving techniques that apply to software development, including the following principles of software development:
- Modern software development models
- Typical phases of a software development lifecycle
- Concepts of event-driven programming
- Concepts of object-oriented programming
- Creating use-case diagrams
- Designing and building a user interface
- Developing a structured application
- A basic understanding of the following scripting techniques and some hands-on experience writing scripts:
  - Web scripting techniques
  - Macro scripting techniques
  - Windows scripting techniques
- A general understanding of the purpose, function, and features of following .NET Framework topics:
  - Common Language Runtime
  - .NET Framework class library
  - Common Type System
  - Component interoperation
  - Cross-language interoperability
  - Assemblies in the Common Language Runtime
  - Application domains
  - Runtime hosts supported by the .NET Framework
  - Experience using Visual Studio 2008 in the following task areas:
    - Declaring and initializing typed variables using the Camel case naming convention
    - Using arithmetic, relational, and logical operators in code statements
    - Using branching statements to control code execution
    - Using looping statements to iterate through collections or repeat steps until a specified condition is met
    - Creating classes and methods to establish the basic structure of an application
    - Using methods and events to implement the programming logic of an application
    - Identifying syntax and logic errors

### Lesson 1: Architecture and Data Access Technologies

Data Access Technologies  
Data Access Scenarios  
Lab : Analyzing Data Access Scenarios

### Lesson 2: Building Entity Data Models

Introduction to Entity Data Models  
Modifying the Entity Data Model  
Customizing the Entity Data Model  
Lab : Using Entity Data Models

### Lesson 3: Querying Entity Data

Retrieving Data by Using LINQ to Entities  
Retrieving Data by Using Entity SQL  
Retrieving Data by Using EntityClient Provider  
Retrieving Data by Using Stored Procedures  
Unit Testing Your Data Access Code  
Lab : Querying Entity Data

### Lesson 4: Creating, Updating, and Deleting Entity Data

Understanding Change Tracking in the Entity Framework  
Modifying Data in an Entity Data Model  
Lab : Creating, Updating, and Deleting Entity Data

### Lesson 5: Handling Multi-User Scenarios by Using Object Services

Handling Concurrency in the Entity Framework  
Transactional Support in the Entity Framework  
Lab : Handling Multi-User Scenarios by Using Object Services

### Lesson 6: Building Optimized Solutions by Using Object Services

The Stages of Query Execution  
Change Tracking and Object Materialization  
Using Compiled Queries  
Using Design-Time Generated Entity Framework Views  
Monitoring Performance  
Performing Asynchronous Data Modifications  
Lab : Building Optimized Solutions by Using Object Services

### Lesson 7: Customizing Entities and Building Custom Entity Classes

Overriding Generated Classes  
Using Templates to Customize Entities  
Creating and Using Custom Entity Classes  
Lab : Customizing Entities and Building Custom Entity Classes

### Lesson 8: Using POCO Classes with the Entity Framework

Requirements for POCO Classes  
POCO Classes and Lazy Loading  
POCO Classes and Change Tracking  
Extending Entity Types  
Lab : Using POCO Classes with the Entity Framework

### Lesson 9: Building an N-Tier Solution by Using the Entity Framework

Designing an N-Tier Solution  
Defining Operations and Implementing Data Transport Structures  
Protecting Data and Operations  
Lab : Building an N-Tier Solution by Using the Entity Framework

### Lesson 10: Handling Updates in an N-Tier Solution by Using the Entity Framework

Tracking Entities and Persisting Changes  
Managing Exceptions in an N-Tier Solution  
Lab : Handling Updates in an N-Tier Solution by Using the Entity Framework

### Lesson 11: Building Occasionally Connected Solutions

Offline Data Caching by Using XML  
Using the Sync Framework  
Lab : Building Occasionally Connected Solutions

### Lesson 12: Querying Data by Using WCF Data Services

Introduction to WCF Data Services  
Creating a WCF Data Service  
Consuming a WCF Data Service  
Protecting Data and Operations in a WCF Data Service  
Lab : Creating and Using WCF Data Services

## 10265 Developing Data Access Solutions with Microsoft Visual Studio 2010 (Continued)

Days of Training: 5

### Overview

Experienced developers who know the basics of data access (CRUD) in Windows client and Web application environments will learn to optimize their designs and develop better performing data access code by using the ADO.NET Entity Framework, and ADO.NET.

### Prerequisites

Before attending this course, students must have:

- Accessing and managing data from a data source
- Experience in object oriented design and development as follows:
- Creating and accessing classes and class properties
- Creating and accessing methods and overloaded methods
- Implementing inheritance, base classes, and abstract classes
- Declaring, raising, and handling events
- Responding to and throwing exceptions
- Implementing interfaces and polymorphism
- Implementing shared and static members
- Implementing generics
- Creating components and class libraries
- Experience in N-Tier application design and development as follows:
- Managing a software development process
- Controlling input at the user interface level in Windows client and Web applications
- Debugging, tracing, and profiling .NET applications
- Monitoring and logging .NET applications
- Implementing basic testing best practices
- Performing basic data access tasks with LINQ
- Basics of LINQ to XML
- Basics of LINQ to Entities
- Basics of LINQ to SQL
- Implementing basic security best practices in .NET Applications
- Basics of Code Access Security
- Basics of Role-Based Security
- Basics of Cryptography Services
- Implementing basic service calls
- Basics of creating and consuming XML Web Services
- Basics of creating and consuming WCF Services
- Using .NET Configuration Files
- Deploying .NET Framework Applications using ClickOnce and the

### Lesson 13: Updating Data by Using WCF Data Services

Creating, Updating, and Deleting Data in a WCF Data Service  
Preventing Unauthorized Updates and Improving Performance  
Using WCF Data Services with Nonrelational Data  
Lab : Updating Data by Using WCF Data Services

### Lesson 14: Using ADO.NET

Retrieving and Modifying Data by Using ADO.NET Commands  
Retrieving and Modifying Data by Using DataSets  
Managing Transactions and Concurrency in Multiuser Scenarios  
Lab : Using ADO.NET

### Lesson 15: Using LINQ to SQL

Implementing a Logical Data Model by Using LINQ to SQL  
Managing Performance and Handling Concurrency  
Lab : Using LINQ to SQL