

# ADO.NET Using Oracle and C#

(3 Days) CTI 413C2



This course will enable students to understand the architecture and main classes of ADO.NET and gain fluency in programming ADO.NET using C#. They will also acquire a working knowledge of the tight coupling of XML with ADO.NET. The course uses Oracle as the database and includes coverage of the Oracle Data Provider for .NET (ODP.NET).

Prerequisites: Basic knowledge of SQL and of programming the .NET Framework using C#; understanding of fundamentals of XML. Able to write simple Windows Forms applications. Working knowledge of Oracle is required.

Minimum software requirements: Visual Studio 2005, Oracle Data Provider for .NET (ODP.NET), and Oracle RDBMS 10g Express Edition.

Minimum hardware requirements for all machines: Pentium 1 GHz or equivalent CPU; 512 MB RAM; 5 GB free hard disk space before installation; Internet access; machines must be networked.

Microsoft PowerPoint and Internet access on instructor's workstation for presentation purposes.

## Module 1: Database Application Basics

- Data Modeling
- Performance Considerations
- Conceptual Design and the Data Layer APIs

## Module 2: ADO.NET Fundamentals

- ADO.NET Overview
- .NET Data Providers
- Connections
- Error Handling
- DataReaders
- IDataReader
- IDataRecord
- Type-Safe Accessors
- Null Columns

## Module 3: ADO.NET Commands

- IDbCommand
- Command Objects
- Creating Commands
- Executing Commands
- Parameterized Queries
- Command Types
- Using Stored Procedures
- Using Oracle REF CURSOR

## Module 4: Data Sets and Disconnected Access

- DataSet
- DataAdapter
- Command Objects
- DataTable
- DataColumn
- DataRow
- Row States and Versions
- Accept or Reject Changes
- DataTable Events
- Updating a Database from a DataSet
- Command Builders
- Filtering Data Tables

## Module 5: XML and ADO.NET

- Strong Coupling Between ADO.NET and XML
- Rendering XML from a DataSet
- Controlling XML Output
- Reading XML into a DataSet
- XML Schema and DataSets
- Typed DataSets
- Synchronizing DataSets and XML
- XML Serialization

## Module 6: DataBinding

- DataGridView
- Data Binding in Windows Forms
- Simple Data Binding
- DataGrid Binding
- Master Detail Binding
- Data Binding in Web Forms

## Module 7: Creating and Using a Data Access Layer

- Three-Tier Applications
- Creating a Data Access Layer
- Implementing the Business Logic
- Creating the User Interface

## Appendix A. Acme Computer Case Study

Appendix B. Learning Resources