This three-day, intensive course teaches the essential elements of ADO.NET such that at the end of the course the programmer is able to utilize its tremendous database manipulation powers to build effective database applications. The course includes a major case study demonstrating the use of ADO.NET in a realistic setting. It is current to .NET 2.0, Visual Studio® 2005 and SQL Server® 2005.

**Audience:** Programmers with a working knowledge of C# who want to build Windows applications using .NET and the C# language.

**Prerequisites:** A basic knowledge of SQL and of programming the .NET Framework using C#. To get full benefit from the case studies in the course the student should be able to write simple Windows Forms applications. A working knowledge of SQL Server is also desirable.

**Number of Days:** 3 days

---

### 1. Introduction to ADO.NET

- Microsoft Data Access Technologies
- ODBC
- OLE DB
- ActiveX Data Objects (ADO)
- Accessing SQL Server Before ADO.NET
- ADO.NET
- ADO.NET Architecture
- .NET Data Providers
- Programming with ADO.NET Interfaces
- .NET Namespaces
- Connected Data Access
- ADO.NET Class Libraries
- Connecting to an OLE DB Data Provider

#### Using Commands
- Executing NonQuery
- Using a Data Reader
- Disconnected Datasets
- Data Adapters
- Command Builder
- Main Program
- Creating a Data Adapter and Generating Commands
- Filling the Dataset
- Displaying the Data Set
- Adding a Row to the Data Set
- Deleting a Row
- Changing a Row

#### Updating the Database
- Acme Computer Case Study
- Buy Computer
- Model
- Component
- Part
- PartConfiguration
- System
- SystemId as Identity Column
- SystemDetails
- StatusCode
- Relationships
- Stored Procedure
- Additional Tables

---

### 2. ADO.NET Connections

- ADO.NET Block Diagram
- .NET Data Providers
- Namespaces for .NET Data Providers
- Basic Connection Programming
- Using Interfaces
- IDbConnection Properties
- Connection String
- SQL Server Connection String
- OLE DB Connection String
- SQL Server Security
- IDbConnection Methods
- BasicConnection (Step 2)
- Connection Life Cycle
- BasicConnect (Step 3)
- ChangeDatabase
Connection Pooling
Pool Settings for SQL Server
Connection Events
ADO.NET Error Handling
Using List Boxes

3. **ADO.NET Commands**
   Command Objects
   Creating Commands
   Executing Commands
   Dynamic Queries
   Parameterized Queries
   Command Types
   Stored Procedures
   Testing the Stored Procedure
   Stored Procedures in ADO.NET
   Batch Queries
   Transactions

4. **DataReaders and Connected Access**
   DataReader
   Using a DataReader
   Closing a DataReader
   IDataRecord
   Type-Safe Accessors
   GetOrdinal()
   Null Data
   Testing for Null
   ExecuteReader Options
   Returning Multiple Result Sets
   DataReader Multiple Results Sets
   Obtaining Schema Information
   Acme Computer Case Study
   Using Dialog Boxes
   Communicating with the Parent
   Returning a DialogResult

5. **Data Sets and Disconnected Access**
   DataSet
   DataSet Architecture
   Why DataSet?
   DataSet Components
   DataAdapter
   Filling a DataSet
   Accessing a DataSet
   Updating a DataSet Scenario
   Adding a New Row
   Searching and Updating a Row
   Deleting a Row
   Row Versions
   Row State
   BeginEdit and CancelEdit
   DataTable Events
   Updating a Database
   Insert Command
   Update Command
   Delete Command
   Command Builders

6. **More About DataSets**
   Filtering DataTables
   Using a Single DataTable
   Multiple Tables
   DataSet Architecture
   Schema in the DataSet
   Inferring Schema
   AddWithKey
   Relations
   Adding a Primary Key
   Identity Columns
   Navigating a DataSet
   TableMappings
   Creating a Dataset Manually
   Manual DataSet Code

7. **Data Binding**
   Data Binding Concept
   Simple Data Binding
   Binding to a List
   Binding to DataGrid
   DataGridView in Visual Studio 2005
   Complex Data Binding
   DataView
   Filtering and Sorting
   DataView and Data Binding
   New Data Binding
   BindingSource Architecture
   Binding to a List
   Setting up the Bindings
   Category Class
   Code in the Form
   DataGridView Control
   Performing a Query

8. **Concurrency and Transactions**
   DataSets and Concurrency
   Handling Concurrency Violations
   Pessimistic Concurrency
   Transactions
   Programming ADO.NET Transactions
ADO.NET Transaction Code
Using ADO.NET Transactions
DataBase Transactions
Transaction in Stored Procedure
Testing the Stored Procedure

9. New Features in ADO.NET 2.0
AcmePub Database
Creating a Data Connection
Using Database Explorer
Performing a Query
Using a Data Connection
Connected Database Access
Long Database Operations
Asynchronous Operations
Enumerating Instances of SQL Server
Multiple Active Result Sets
Bulk Copy