

1-800-ROI-9877

www.trainingbyROI.com

Course 452: Programming with ADO.NET 2.0 (4 days)

Course Description...

This is a beginning through intermediate level course in ADO.NET 2.0. The course describes the role of both vendor neutral and vendor specific managed providers in the data access world. The program also explores the use of ADO.NET using both Visual Studio.NET visual designers and programming concepts. In addition, working with SQLCLR is also introduced.

Learning Objectives...

- Understand both the connected and disconnected ADO.NET data access model
- Explore Visual Studio.NET's visual designers
- Explore ADO.NET programmatically
- The interdependence of ADO.NET objects and XML is exploited to build robust data aware applications.
- Server-based and ADO.NET-based transactions are described and the role of Component Services in Distributed Transactions briefly explored.
- Use of stored procedures for data access is explored
- Data binding in both Windows and Web Form controls is explained and used.
- Explore Caching concepts
- Understand how and when to use the SQLCLR
- Learn about new features introduced with ADO.NET version 2.0

Who should attend...

Audience includes individuals who are familiar with the .NET Framework and wish to extend their knowledge of .NET data access technologies.

Prerequisites...

Knowledge equivalent to ROI course 451, Object-Oriented Programming with .NET.

See next page for a detailed course outline...



Course Outline...

Unit 1: A Brief History of Data Access at Microsoft

The early years

- ODBC and RDO
- OLEDB and ADO

Universal Data Access

- OLEDB as an example of interface inheritance
- ADO as a robust class library for accessing OLEDB methods

Recordsets

- The four recordset objects and their roles
- Forward-only cursors and traditional client-server models
- Static cursors and multi-tier architectures

Unit 2: Overview of ADO.NET

Object Model

- .NET Data Providers
- Connected Classes
- Disconnected Classes
- Metadata

Unit 3: ADO.NET Connected Classes - Getting Connected

Connecting

- DbConnection
- Connection Strings
- Connection Pooling

Unit 4: ADO.NET Connected Classes – Retrieving Data

Querying

- DbCommand
- DbDataReader
- Multiple Active Result Sets (MARS)

Retrieving

- DbDataAdapter

Understanding

- DbProviderFactory / DbProviderFactories
- DbException
- Synchronous vs. Asynchronous Access

Unit 5: ADO.NET Disconnected Classes – Local Schema Structure

DataSets

- DataSet class features
 - Sorting / Searching Filtering
 - Hierarchical Data
 - Caching modifications to data
 - XML



- DataSet Class operations
 - Creating – untyped / strongly typed
 - Filling
 - Data modification
 - Dataset serialization / remoting
- DataTable Class
- DataColumn Class
- DataRow Class

Relational Data

- Relational Refresher
- DataRelation classes

Unit 5: ADO.NET Disconnected Classes – Local Schema Operations

Searching, Sorting, Filtering

- DataTable class: Searching, Filtering
- DataView class

Strongly Typed DataSets

- Design Advantages
- Runtime Advantages

TableAdapters

- TableAdapter class

Unit 6: Updates – Moving Changes to the Database

Basic Tools and Techniques

- Parameterized SqlCommands
- Using Stored Procedures
- Using SqlCommandBuilder
- Visual Studio-generated Update Logic
- Using SqlCommandBuilder

Advanced Scenarios and Strategies

- Post-update Row Refreshing
- How to retrieve auto-increment information
- Managing hierarchical updates
- Handling Exceptions
- Batch Queries
- Using SqlBulkCopy

Unit 7: Updates – Transactions

Ensuring data integrity with transactions

- Concurrency and database locking
- Transactions / Distributed Transactions
- Transaction with T-SQL
- dbTransaction class
- TransactionScope



Unit 8: XML and ADO.NET

Working with XML

- DataSet class XML methods
- Xml Data type
- XmlDocument
- SQL XML.NET Provider

Unit 9: SQL Server 2005 Common Language Runtime

Using CLR Integration to Extend SQL Server

- When to use SQLCLR vs T-SQL
- Enabling SQLCLR
- SqlContext: using the Context class
- Creating User-Defined Functions: Scalar, Table-Valued
- User-Defined Aggregates
- Triggers
- User-Defined Types
- Using System.Transactions with SQLCLR

Unit 10: Data Binding

- Windows Form Controls
- Web Form Controls
- Web Form binding expressions

Unit 9: Special Topics

Using ADO.NET to work with information about the backend store

- Metadata

Improving performance with Caching

- Deciding what to cache
- Using the SqlDependency class
- Cache invalidation techniques

Securing applications

- Overview
- Encrypted Connection Strings

Large Objects

- LOBs, BLOBs, CLOBs
- Reading / writing large objects

Unit 11: Putting It All Together

What Has Been Learned

- Understand both the connected and disconnected ADO.NET data access model
- Explore Visual Studio.NET's visual designers
- Explore ADO.NET programmatically
- Server-based and ADO.NET-based transactions are described
- Understand Caching techniques
- Explore the SQLCLR
- Data binding in both Windows and Web Form controls is explained and used.

Please contact your ROI representative to discuss course tailoring!!!