

Core Data Access with Microsoft Visual Studio 2005

Course 2541: Three days; Instructor-Led

Introduction

This three-day instructor-led workshop provides students with the knowledge and skills to develop data-access applications by using the Microsoft .NET Framework and Microsoft Visual Studio 2005. The workshop describes how to access and update data in a database by using ADO.NET. The workshop also describes how to create, read, and write XML data.

Audience

This workshop is intended for corporate and Independent Software Vendor (ISV) application developers who have a desire to learn more about specific technology areas in distributed application development.

Objectives

After completing this workshop, students will be able to:

- Connect to databases and read data.
- Query and update databases by using commands.
- Perform transactional operations.
- Perform disconnected operations programmatically.
- Perform disconnected operations by using Visual Studio 2005 wizards.
- Perform XML operations on disconnected data.
- Read and write XML data.
- Process XML data by using the Document Object Model DOM.

Prerequisites

Before attending this workshop, students must:

- Be able to manage a solution environment using the Visual Studio 2005 integrated development environment IDE and tools
- Understand the .NET Framework 2.0 and the Common Language Runtime
- Be able to program an application using a .NET Framework 2.0 compliant language
- Know how to make assemblies available to other applications
- Have a good understanding of basic relational database concepts
- Be able to use basic SQL commands
- Have a good understanding of XML including XML declaration, elements, attributes, and namespaces
- Be able to explain XML schema concepts

Course Outline

Unit 1: Connecting to Databases and Reading Data

This unit introduces the fundamental skills required to connect to a database and read data from the database. It describes how to use ADO.NET data providers to connect to various different kinds of databases, and how to execute a query that returns a scalar value from the database. It also describes how to use connection pooling to achieve scalability, and how to handle connection events and exceptions.

Unit 2: Querying and Updating Databases by Using Commands

This unit describes how to create and run commands that return a scalar value, return a result set, update data in the database, or update the schema of the database. It also describes how to create and run parameterized commands.

Unit 3: Performing Transactional Operations

This unit describes how to manage transactions in a .NET application at the middle tier. It describes how to write ADO.NET code to start, commit, and rollback local transactions. It also describes how to specify an appropriate isolation level for a transaction, and how to enlist in distributed transactions.

Unit 4: Performing Disconnected Operations Programmatically

This unit describes how to create and use DataSets programmatically. It describes how to create DataSet, DataTable, and DataColumn objects, how to populate a DataSet manually, and how to load and save data by using a DataAdapter. It also describes how to create in-memory views on data by using a DataView.

Unit 5: Performing Disconnected Operations by Using Visual Studio 2005 Wizards

This unit describes how to create typed DataSets, DataAdapters, and TableAdapters by using the TableAdapter Configuration Wizard and the Data Source Configuration Wizard in Visual Studio 2005. It also describes how to write type-safe code to access data in a typed DataSet.

Unit 6: Performing XML Operations on Disconnected Data

This unit describes how to read and write DataSets in XML format. It describes how to read and write data only, schema only, or a combination of the two. It also describes how to read and write a DataSet as a DiffGram, so that modifications to the data can be retained when the DataSet is serialized to XML format.

Unit 7: Reading and Writing XML Data

This unit describes how to use the XmlReader and XmlWriter classes to serially read and write XML data. It describes how to read elements, attributes, and text content in an XML document, and perform validation against an XML schema. It also describes how to create an XML document and write elements, attributes, namespace declarations, and text content.

Unit 8: Processing XML Data by Using DOM

This unit describes how to process XML data in memory by using the Document Object Model (DOM). It describes how to load an XML document into a DOM tree, and validate the XML document against an XML schema. It also describes how to read existing XML content, modify XML content, and save the DOM tree to an XML document.