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Computer Visions Course Outline

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#2389: Programming with Microsoft ADO.NET

Description: This course will teach developers to build data-centric applications and Web services with Microsoft ADO.NET, Microsoft SQL Server 2000, and the Microsoft .NET Framework.

Course Outline:

Module 1: Data-Centric Applications and ADO.NET

Lessons

- Design of Data-Centric Applications
- ADO.NET Architecture
- ADO.NET and XML

Lab : Lab 1.1: Data-Centric Applications and ADO.NET

After completing this module, students will be able to:

- Give examples of storage options.
- Diagram the architecture of data-centric applications.
- Choose a connected, disconnected, or mixed environment based on application requirements.
- Use the System.Data namespaces in applications.
- Diagram the ADO.NET object model.
- Analyze typical business scenarios.
- Explain how to use ADO.NET with XML.

Module 2: Connecting to Data Sources

Take a closer look: **Download Sample Module 2** (Portable Document Format, 1.02 MB).

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The following topics are covered in this module:

Lessons

- Choosing a .NET Data Provider
- Defining a Connection
- Managing a Connection
- Handling Connection Exceptions
- Connection Pooling

Lab : Lab 2.1: Connecting to Data Sources

After completing this module, students will be able to:

- Choose a .NET data provider.
- Connect to SQL Server.
- Connect to OLE DB data sources.
- Manage a connection.
- Handle common connection exceptions.
- Implement and control connection pooling.

Module 3: Performing Connected Database OperationsThe following topics are covered in this module: **Lessons**

- Working in a Connected Environment
- Building Command Objects
- Executing Commands That Return a Single Value
- Executing Commands That Return Rows
- Executing Commands That Do Not Return Rows
- Using Transactions

Lab : Lab 3.1: Performing Connected Database Operations

After completing this module, students will be able to:

- Build a command object.
- Execute a command that returns a single value.
- Execute a command that returns a set of rows, and process the result.
- Execute a command that defines database structure and permissions by using the data definition language (DDL) and data control language (DCL).
- Execute a command that modifies data.
- Use transactions.

Module 4: Building DataSets

The following topics are covered in this module:

Lessons

- Working in a Disconnected Environment
- Building DataSets and DataTables
- Binding and Saving a DataSet
- Defining Data Relationships
- Modifying Data in a DataTable
- Sorting and Filtering

Lab : Lab 4.1: Building, Binding, Opening, and Saving DataSets Lab : Lab 4.2: Manipulating DataSets

After completing this module, students will be able to:

- Describe the disconnected environment.
- Build a DataSet and a DataTable.
- Bind a DataSet to a DataGridView.
- Open and save a DataSet.
- Define a data relationship.
- Modify data in a DataTable.
- Find and select rows in a DataTable.
- Sort and filter a DataTable by using a DataView.

Module 5: Reading and Writing XML with ADO.NETThe following topics are covered in this module:

Lessons

- Creating XSD Schemas
- Loading Schemas and Data into DataSets
- Writing XML from a DataSet

Lab : Lab 5.1: Working with XML Data in ADO.NET

After completing this module, students will be able to:

- Generate an XSD schema from a DataSet by using graphical tools.
- Save a DataSet structure to an XSD schema file.
- Create and populate a DataSet from an XSD schema and XML data.
- Save DataSet data as XML.
- Write and load changes by using a DiffGram.

Module 6: Building DataSets from Existing Data SourcesThe following topics are covered in this module: **Lessons**

- Configuring a DataAdapter to Retrieve Information
- Populating a DataSet Using a DataAdapter
- Configuring a DataAdapter to Update the Underlying Data Source
- Persisting Changes to a Data Source
- How to Handle Conflicts

Lab : Lab 6.1: Retrieving Data into a Disconnected Application
Lab : Lab 6.2: Retrieving and Updating Customers and Orders Data

After completing this module, students will be able to:

- Configure a DataAdapter to retrieve information.
- Populate a DataSet by using a DataAdapter.
- Configure a DataAdapter to modify information.
- Persist data changes to a data source.
- Manage data conflicts.

Module 7: Building and Consuming a Web Service That Uses ADO.NET

The following topic is covered in this module:

Building and Consuming a Web Service That Returns Data

Lab : Lab 7.1: Troubleshooting an ADO.NET Application

After completing this module, students will be able to:

Build a Web service.
Consume a Web service in a client application.
Troubleshoot errors in an ADO.NET application.