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## ADO.NET Development

(5 days)

### Course overview

ADO.NET is Microsoft's data-access API. ADO.NET has evolved significantly since its emergence in .NET 1.0, and now offers several distinct programming models for accessing data in your applications.

This course covers all of the options in detail. We begin with through coverage of essential concepts such as data providers, connection management, and statement execution. We then look at the disconnected data model, based on datasets, data adapters, and table adapters. A large part of the course is devoted to the Entity Framework and LINQ, where we show how to query and manipulate data in an object-oriented manner.

### What you'll learn

- Managing connections and executing statements
- Working with DataSets and disconnected data
- Using LINQ to query data effectively
- Querying and updating data using Entity Framework
- Working with distributed data

### Prerequisites

- 3-6 months experience in C#
- Familiarity with database design and SQL

### Course details

- **Connecting to a Database and Reading Data:** Evolution of ADO.NET; Managing connection strings; Managing connections; Reading data from a database; Connection pooling; Handling SQL exceptions
- **Executing Commands:** Executing query and non-query commands; Calling stored procedures; Specifying parameters; Asynchronous queries
- **Transactions:** Recap of ACID transactions; Managing local transactions; Managing distributed transactions
- **Using ADO.NET in GUI Applications:** Implementing a data access layer; Binding data to WPF user interfaces; Updating the database
- **Disconnected Data Access:** Populating and saving a DataSet; Adding, modifying, and deleting data in a DataSet; Using DataViews
- **Creating and Using Typed DataSets:** Creating a typed DataSet; Managing data in a typed DataSet; Adding code to a typed DataSet; Adding queries to a typed DataSet; Using DataSets as XML

- [Getting Started with LINQ](#): Using LINQ with arrays, collections, and DataSets; LINQ under the hood; LINQ techniques; Performing joins
- [Using LINQ to SQL](#): Overview of LINQ to SQL; Defining relations; Generating mapping classes; Inserting, updating, and deleting entities; Saving changes; Handling optimistic concurrency conflicts
- [Creating an Entity Model Using the Entity Framework](#): Overview of the Entity Framework; Overview of entity data models; Defining an entity data model; Modifying an entity data model
- [Working with Data Using the Entity Framework](#): Using LINQ to Entities; Using Entity SQL; Modifying entities; Attaching/detaching entities
- [Going Further with Entity Framework Mapping](#): Defining relationships; Inheritance scenarios; Implementing inheritance mappings
- [Entity Framework POCOs](#): Getting started with POCOs; POCO configuration; Working with POCO objects; Using POCO in ASP.NET MVC
- [WCF Data Services](#): Getting started with WCF Data Services; WCF Data Services walkthrough; Additional considerations
- [Developing Reliable Applications](#): Using performance counters; Handling exceptions; Protecting data
- [Using Synchronization Services](#): Overview of Synchronization Services; Downloading and uploading data by using Synchronization Services