

Programming Scalable Web Applications with .NET and ASP.NET Ajax: Hands-On - 4 Days

Course 506 Overview

- You Will Learn How To**
- Create scalable Web applications using Visual Studio, ASP.NET and Ajax
 - Leverage ADO.NET and LINQ to build a data layer, custom business entities and typed DataSets
 - Program a stateless business layer with transactional .NET components
 - Create a more responsive UI using ASP.NET Ajax, WCF Web services and the Ajax toolkit
 - Secure Web applications using forms authentication and the membership API
 - Employ distributed sessions to balance performance and scalability in a Web farm

Course Benefits In today's Internet-dependent world, organisations need sophisticated and robust Web applications to meet their client's needs. In this course, you create a scalable multitier Web site that is both secure and reliable using Visual Studio and .NET. You learn how to use ADO.NET and LINQ, present Web content via Ajax and ASP.NET, call WCF services from ASP.NET Ajax and utilise message queuing for asynchronous distributed programming.

Who Should Attend Those programming robust Web applications. Programming experience at the level of Course 503, "Visual Basic Programming for .NET", or Course 419, "C# Programming", and Web development experience are assumed. ASP.NET experience is helpful.

Hands-On Training You gain experience building a scalable application. Exercises, presented in VB or C#, include:

- Creating custom business entities and typed DataSets
- Building a data access layer using ADO.NET
- Exploiting ASP.NET security features for Web UIs
- Programming transactional components
- Building a richer UI using Ajax and the Ajax toolkit
- Connecting Ajax to WCF Web services
- Implementing message queuing
- Employing SqlNotification cache dependencies in a Web farm environment
- Dynamically switching ASP.NET themes and masters

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Course 506 Outline

Architecture of Scalable Applications

- Three-layer applications
- Distributed objects vs. clustering
- Communication between layers
- Challenges of a Web farm environment

Building the Data Layer

Architecting a scalable data layer

- Adapting data tables into business objects
- Writing and calling stored procedures
- Optimising data performance with caching

Creating .NET typed DataSets

- DataTable
- DataRow
- TableAdapter

Working with ADO.NET low-level objects

- Connection
- Command
- DataReader
- Parameters
- Transaction
- Returning custom business entities using generics
- Leveraging the using block and IDisposable

Utilising LINQ in a 3-layer architecture

- Creating object models with LINQ to SQL
- Working with LINQ in the data access layer
- Filtering, sorting and aggregating with LINQ to Object

Implementing the Business Layer

Programming the middle tier

- Encapsulating business logic in .NET assemblies
- Creating a stateless business process library
- Building stateful business entity objects

Managing logical transactions

- Employing promotable .NET transactions
- Distributing transactions across multiple transaction servers

Creating More Responsive ASP.NET Pages with Ajax

Creating a richer UI with Ajax extensions

- Integrating Ajax and existing pages

- Increasing responsiveness with the UpdatePanel
- Utilising AsyncPostBack Triggers for conditional updates
- Using Ajax with Master Pages via ScriptManagerProxy
- Updating client HTML pages with jQuery

Leveraging the ASP.NET Ajax toolkit

- Writing and calling an Ajax-enabled WCF Web service
- Linking DropDownList with CascadingDropDown controls
- Creating modal dialogs with the ModalPopup control
- Implementing the Ajax Accordion control

Enhancing Web Form controls with Ajax control extenders

- CalendarExtender
- SliderExtender
- AlwaysVisibleControlExtender
- AutoCompleteExtender

Constructing a Web Presentation Layer

Working with ASP.NET controls

- Handling control events
- Binding business components with ObjectDataSource
- Exploiting simple and complex data binding

Managing Web Forms

- Inheriting from a base page
- Dynamically switching themes and master pages

Implementing Web Security

Integrating ASP.NET security

- Authenticating anonymous Internet users
- Achieving role-based Web security

Leveraging the membership API

- Customising security using the Provider Model
- Integrating Microsoft security tables with an existing database

Optimising State Management

Managing state in the Web farm environment

- Distributing session with state server and SQL Server
- Storing data in long-term user state with the Profile object
- Serialising session objects for distributed state

Accelerating performance with the Cache object

- Setting SqlNotification cache dependencies for a distributed environment
- Achieving fine-grained control over data expiry

Building Distributed Applications

- Sticky sessions vs. dynamic load balancing
- Utilising Microsoft Message Queue (MSMQ)
- Reading from and writing to queues using the System.Messaging namespace
- Enlisting queues into transactions