

## Building Web Applications with ASP.NET MVC: Hands-On - 4 Days

*Course 977 Overview*

- You Will Learn How To**
- Build and deploy secure, scalable Web applications using the MVC 3 framework in ASP.NET
  - Develop powerful application controllers with practical URLs to ensure application robustness
  - Produce a clean, maintainable code base using the Model View Controller (MVC 3) architecture
  - Create flexible views for user interaction with view helpers
  - Design rich user interfaces with Ajax and jQuery
  - Secure applications using authentication and role-based authorization
- Course Benefits** The Model View Controller Framework in ASP.NET provides a new way to develop Web applications for the .NET platform. Differing completely from traditional ASP.NET development, ASP.NET MVC 3 facilitates a refined code structure, total control over content generation and full support for test-driven development. In this hands-on course, you gain the skills required to effectively use ASP.NET MVC 3 to build Web applications.
- Who Should Attend** Anyone involved in the development of Web applications using Microsoft technology and new to ASP.NET MVC. Programming experience in C# or Visual Basic at the level of Course 419, "C# Programming," or Course 503, "Visual Basic Programming for .NET," and a fundamental knowledge of HTML are assumed.
- Hands-On Training** You gain hands-on experience building scalable Web applications with ASP.NET MVC 3. Exercises, completed in C# or Visual Basic, include:
- Creating a clean application architecture with MVC 3
  - Implementing robust controllers for smooth application flow
  - Testing controllers and views with test-driven development
  - Generating dynamic views with Razor
  - Validating user input with client and server-side rules
  - Building richer user interfaces with Ajax and jQuery
  - Restricting application access with role-based security

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### Course 977 Outline

#### The MVC 3 Framework in ASP.NET

##### Architecture of ASP.NET MVC 3

- Identifying the components of MVC 3
- Benefits of an MVC 3 architecture
- Describing the MVC 3 request processing cycle

##### Preparing the environment

- Selecting the correct project type
- Structuring the project layout with areas
- Integrating test-driven development

#### Orchestrating Application Requests with Controllers

##### Defining controller architecture

- Differentiating controller types
- Delegating request processing to actions
- Initiating the response with action results
- Handling special cases with asynchronous controllers

##### Enhancing functionality

- Intercepting request processing through action filtering
- Generating advanced operations by extending core controllers
- Decorating actions with additional behaviours
- Testing controllers outside of the server

#### Mapping URLs for Request Routing

##### Formatting the MVC 3 URL

- Shortcomings of ASP.NET URLs
- Decoupling URLs from actions with routing
- Designing a URL schema to enforce consistency

##### Applying practical URL solutions

- Configuring static and dynamic routes
- Customizing routing for search engine optimization
- Verifying routing with test-driven development

#### Defining the Model

##### Navigating the model landscape

- Analyzing the role of the model in different scenarios
- Constructing the N-tier architecture
- Improving application structure with dependency injection

#### Persisting the domain model

- Generating entity classes with Visual Studio Object Relational Designer
- Querying with LINQ to SQL
- Filtering data using properties

#### Generating the View with Razor

##### Streamlining view development with Razor

- Building compact, expressive views
- Integrating content and code
- Unit testing Razor views

#### Rendering the response with MVC 3 views

- Implementing dynamic views
- Streamlining the view structure with HTML helpers
- Creating custom HTML helpers
- Generating views using MVC 3 templates

#### Collecting data with forms

- Accessing submitted data
- Assigning validation rules to input fields
- Client-side vs. server-side data validation
- Reporting errors

#### Creating Responsive Interfaces with Ajax

##### The role of Ajax

- Building Web 2.0 functionality
- Benefiting from built-in support for Ajax

#### Leveraging the jQuery JavaScript library

- Bringing pages to life with jQuery
- Handling browser events asynchronously for faster responses
- Boost interactivity with special effects and animation

#### Communicating efficiently with JSON

- Serializing application data using JSON structures
- Developing JSON in controllers for Ajax
- Consuming JSON client-side in the view

#### Securing and Deploying the Application

##### Controlling access with authentication

- Managing Windows-based authentication
- Gathering user credentials with HTML-based forms

##### Restricting application access

- Shielding sensitive URLs
- Integrating role-based security

- Accessing user and role information in controllers

##### Packaging and distributing options

- Enhancing application performance with cache configuration
- Publishing the completed application