



Developing ASP.NET MVC 5 Web Applications

Course ISI-1460 - Five days - Instructor-led

Introduction

This 5-day course teaches the skills necessary to design and build well-architected ASP.NET MVC 5 applications. ASP.NET MVC5 is a framework for building scalable, standards-based web applications using well-established design patterns and the power of ASP.NET and the .NET Framework. Version 5 of ASP.NET MVC adds many new features such as ASP.NET Identity, templated based on the Bootstrap framework, Attribute-based routing and more.

During the course, attendees build a fully functional data-driven ASP.NET MVC web application through a series of hands-on lab exercises.

At Course Completion

After completing this course, students will be able to:

- How to create models, views, controllers, and routes and how these elements of a MVC application fit together.
- How to compose MVC views from layouts and partials, and how you can validate form data
- Retrieving and storing information in a database.
- Use LINQ and the Entity Framework to interact with a SQL Server database
- Use patterns such as the Repository Pattern and Dependency Injection to write more maintainable and testable code.
- How to build secure ASP.NET applications and how to create Single Page Applications (SPAs).
- Use jQuery, KnockoutJS, and the ASP.NET Web API to build applications that execute in the browser.

Prerequisites

Before attending this course, students must have:

- A minimum of two to three years of experience developing web-based applications by using Microsoft Visual Studio and Microsoft ASP.NET, proficiency in using the .NET Framework, and some familiarity with the C# language

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Student Materials

Each student receives a printed copy of all the material presented by the instructor and a lab manual consisting of a series of hands-on lab exercises that take students through the building of a data-driven 3-tier ASP.NET MVC application.

Course Outline

Module 1: Introduction to ASP.NET MVC 5

- ASP and ASP.NET WebForms
- One ASP.NET in VS 2013
- Web Standards and REST
- JavaScript and Ajax
- The MVC Design Pattern
- Unit Testing
- Managing Dependencies

Module 2: ASP.NET MVC Architecture

- ASP.NET Platform
- Controllers, Models, and Views
- URL Routing
- Controller Actions
- Razor View Engine
- Extensibility

Module 3: Defining the Model

- ASP.NET Platform
- Controllers, Models, and Views
- URL Routing
- Controller Actions
- Razor View Engine
- Extensibility

Module 4: Routes and URLs

- Introduction to Routing
- Defining Routes
- Route Evaluation
- The Controller Factory
- Constraints
- Exempting URLs
- Constructing Outgoing URLs
- Unit Testing Route

Module 5: Controllers and Actions

- IController, ControllerBase, and Controller
- Defining Actions
- Action Selectors

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- Action Filters
- HTTP Verbs
- HttpContext and RouteData
- Maintaining Testability
- Returning Data with ActionResult
- Parameters and the Model Binder
- Asynchronous Action Methods

Module 6: Views

- View Engines
- Templates and Scaffolding
- Bootstrap Framework
- Razor Syntax
- ViewData and ViewBag
- Strongly-Typed Views
- Layout Pages
- Custom Sections
- Partial Views
- Child Actions
- Using a ViewModel Object

Module 7: HTML Helpers

- Basic Helpers
- Strongly-Typed Helpers
- Creating Custom Helpers
- Declarative Helpers

Module 8: Data Validation

- Data Annotations
- Validation HTML Helpers
- ModelState
- IValidatableObject
- Client Side Validation

Module 9: Authentication and Authorization

- ASP.NET Identity
- Using Windows Authentication
- Building a Custom Account Controller
- Configuring Forms Authentication
- Using the Authorize Attribute
- Authentication Filters
- OAuth2 and OpenID

Module 10: Ajax

- Controller Actions for Ajax
- Ajax Helpers
- Unobtrusive Ajax
- Ajax with jQuery

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Module 11: Web API 2

- Using HTTP as an Application Protocol
- Content Negotiation
- Routing
- Attribute Routing
- ApiController
- MediaTypeFormatters
- Cross Origin Resource Sharing (CORS)
- Open Web Interface for .NET (OWIN)
- Web API OData

Module 12: Building a Rich Client-Side UI

- JavaScript
- jQuery UI
- Other Frameworks

Module 13: Mobile Clients

- CSS 3 Media Queries
- Responsive vs. Adaptive
- Mobile-Specific Views
- Using a View Switcher

Module 14: Customizing and Extending ASP.NET MVC

- ASP.NET MVC Pipeline
- Advanced Routing
- Custom Global Filters
- Customizing MVC Code Templates
- Creating a Custom Controller Factory

Module 15: Deployment

- Server Requirements
- Configuration Options