

MVC Training Outline

Overview

This ASP.NET MVC 4 training class teaches attendees all the skills necessary for designing and building an effective ASP.NET MVC 4 application. Significant time is spent on the maintainability and testability of a properly architected ASP.NET MVC application.

Goals

1. Understand the MVC design pattern and how it's applied in ASP.NET MVC.
2. Recognize the benefits and drawbacks of using ASP.NET MVC.
3. Learn to make good decisions about application architecture and the choice of data access technology.
4. Learn to use ASP.NET MVC's routing system to achieve a REST-style architecture.
5. Learn how to build a compelling and maintainable HTML user interface using the Razor view engine and client-side JavaScript.
6. Learn to use the new Web API framework to simplify the creation of HTTP services.
7. Gain experience with using adaptive rendering, mobile-specific views, and a view switcher to support a variety of mobile devices.
8. Learn how to extend and modify ASP.NET MVC 4 by creating custom components and templates.

Outline

1. Introduction
 1. ASP and ASP.NET WebForms
 2. Web Standards and REST
 3. JavaScript and AJAX
 4. The MVC Design Pattern
 5. Unit Testing
 6. Managing Dependencies
2. ASP.NET MVC Architecture
 1. ASP.NET Platform
 2. Controllers, Models, and Views
 3. URL Routing
 4. Controller Actions
 5. Razor View Engine
 6. Extensibility
3. Defining the Model
 1. Persistence Ignorance
 2. Repository Pattern
 3. Object Relational Mapping (ORM)
 1. ADO.NET
 2. Entity Framework (EF)
 3. nHibernate
 4. Using an IoC Container

4. Routes and URLs
 1. Introduction to Routing
 2. Defining Routes
 3. Route Evaluation
 4. The Controller Factory
 5. Constraints
 6. Exempting URLs
 7. Constructing Outgoing URLs
 8. Unit Testing Routes
5. Controllers and Actions
 1. IController, ControllerBase, and Controller
 2. Defining Actions
 3. Action Selectors
 4. Action Filters
 5. HTTP Verbs
 6. HttpContext and RouteData
 7. Maintaining Testability
 8. Returning Data with ActionResult
 9. Parameters and the Model Binder
 10. Asynchronous Action Methods
6. Views
 1. View Engines
 2. Templates and Scaffolding
 3. Razor Syntax
 4. ViewData and ViewBag
 5. Strongly-Typed Views
 6. Layout Pages
 7. Custom Sections
 8. Partial Views
 9. Child Actions
 10. Using a ViewModel Object
7. HTML Helpers
 1. Basic Helpers
 2. Strongly-Typed Helpers
 3. Creating Custom Helpers
 4. Declarative Helpers
8. Data Validation
 1. Data Annotations
 2. Validation HTML Helpers
 3. ModelState
 4. IValidatableObject
 5. Client Side Validation
9. Authentication and Authorization
 1. Using Windows Authentication
 2. Building a Custom Account Controller
 3. Configuring Forms Authentication
 4. Using the Authorize Attribute
10. Ajax

1. Controller Actions for Ajax
 2. Ajax Helpers
 3. Unobtrusive Ajax
 4. Ajax with jQuery
11. Web API
 1. Using HTTP as an Application Protocol
 2. Content Negotiation
 3. Routing
 4. ApiController
 5. MediaTypeFormatters
 6. Validation
 7. OData Queries
12. Building a Rich Client-Side UI
 1. jQuery UI
 2. jQuery Templates
 3. Knockout.js
13. Mobile Clients
 1. CSS 3 Media Queries
 2. Adaptive Rendering
 3. Mobile-Specific Views
 4. Using a View Switcher
14. Customizing and Extending ASP.NET MVC
 1. ASP.NET MVC Pipeline
 2. Advanced Routing
 3. Custom Global Filters
 4. Customizing MVC Code Templates
 5. Creating a Custom Controller Factory
15. Deployment
 1. Server Requirements
 2. Configuration Options