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YOUR COURSE, YOUR WAY - MORE EFFECTIVE IT TRAINING

# MVC For .NET Developers

## Duration: 3 days

### Overview:

This course MVC the popular Microsoft technology that enables you to build dynamic, data-driven websites This course takes you through step-by-step techniques on using MVC to best advantage, by building a MVC website to illustrate the concepts. It covers controllers, views, and models; forms and HTML helpers; data annotation and validation; membership, authorization, and security.

This course can be presented for either C# or VB Developers.

### Prerequisites:

Delegates should have a good working knowledge of either C# or VB.

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### Topics:

#### 1 - Getting Started

A Quick Introduction to ASP.NET MVC

How ASP.NET MVC Fits in with ASP.NET

The MVC Pattern

MVC as Applied to Web Frameworks

Bootstrap Templates

Attribute Routing

ASP.NET Scaffolding

Authentication Filters

Filter Overrides

Creating an ASP.NET MVC Application

The New ASP.NET Project Dialog

The MVC Application Structure

ASP.NET MVC and Conventions

#### 2 - Controllers

The Controller's Role

The Exercise Application

Controller Basics

Writing Your First Controller

Parameters in Controller Actions

**3 - Views**

The Purpose of Views

View Basics

Understanding View Conventions

Strongly Typed Views

Understanding ViewBag, ViewData, and ViewDataDictionary

View Models

Adding a View

The Razor View Engine

What Is Razor?

Layouts

ViewStart

Specifying a Partial View

**4 - Models**

Modeling the Exercise

Scaffolding a Manager

What Is Scaffolding?

Scaffolding and the Entity Framework

Executing the Scaffolding Template

Executing the Scaffolded Code

Editing

Building a Resource to Edit

Responding to the Edit POST Request

Model Binding

The DefaultModelBinder

Explicit Model Binding

**5 - Forms And Html Helpers**

Using Forms

The Action and the Method

To GET or to POST?

HTML Helpers

Automatic Encoding

Making Helpers Do Your Bidding

Inside HTML Helpers 116

Setting Up an Edit Form

Adding Inputs

Helpers, Models, and View Data

Strongly Typed Helpers

Helpers and Model Metadata

Templated Helpers

Helpers and ModelState

Other Input Helpers

Rendering Helpers

Html.ActionLink and Html.RouteLink

URL Helpers

Html.Partial and Html.RenderPartial

Html.Action and Html.RenderAction

**6 - Data Annotations And Validation**

Annotating for Validation

Using Validation Annotations

Custom Error Messages and Localization

Looking Behind the Annotation Curtain

Controller Actions and Validation Errors

Custom Validation Logic

Custom Annotations

IValidatableObject

Display and Edit Annotations

**7 - Membership, Authorization, And Security**

Security: Incredibly Important

Using the Authorize Attribute to Require Login

Securing Controller Actions

How AuthorizeAttribute Works with Forms Authentication and the AccountController

Windows Authentication

Using AuthorizeAttribute to Require Role Membership

Extending User Identity

Storing additional user profile data

Persistance control

Managing users and roles

External Login via OAuth and OpenID

Understanding the Security Vectors in a Web Application

Threat: Cross-Site Scripting

Threat: Cross-Site Request Forgery

Threat: Cookie Stealing

Threat: Over-Posting

Threat: Open Redirection

Proper Error Reporting and the Stack Trace

Using Configuration Transforms

Using Retail Deployment Configuration in Production

Using a Dedicated Error Logging System

Security Recap and Helpful Resources

**8 - AJAX**

jQuery

jQuery Features

Unobtrusive JavaScript

Using jQuery

Ajax Helpers

Adding the Unobtrusive Ajax Script to Your Project

Ajax ActionLinks

HTML 5 Attributes

Ajax Forms

Client Validation

jQuery Validation

Custom Validation

Beyond Helpers

jQuery UI

Autocomplete with jQuery UI

JSON and Client-Side Templates

Bootstrap Plugins

Improving Ajax Performance

Using Content Delivery Networks

Script Optimizations

Bundling and Minification

**9 - Routing**

Uniform Resource Locators

Introduction to Routing

Comparing Routing to URL Rewriting

Routing Approaches

Defining Attribute Routes

Defining Traditional Routes

Choosing Attribute Routes or Traditional Routes

Named Routes

MVC Areas

Catch-All Parameter

Multiple Route Parameters in a Segment

StopRoutingHandler and IgnoreRoute

Debugging Routes

Inside Routing: How Routes Generate URLs

Ambient Route Values

More Examples of URL Generation with the Route Class

RouteData

Custom Route Constraints

Using Routing with Web Forms

**10 - NUGET**

Introduction to NuGet

Adding a Library as a Package

Finding Packages

Installing a Package

Updating a Package

Package Restore

Using the Package Manager Console

Creating Packages

Packaging a Project

Packaging a Folder

Configuration File and Source Code Transformations

NuSpec File

Metadata

Dependencies

Specifying Files to Include

Tools

Framework and Profile Targeting

Prerelease Packages

Publishing Packages

Publishing to NuGet.org

Using NuGet.exe

Using the Package Explorer

**11 - ASP.NET WEB API**

Defining ASP.NET Web API

Getting Started with Web API

Writing an API Controller

Async by Design: IHttpController

Incoming Action Parameters

Action Return Values, Errors, and Asynchrony

Configuring Web API

Configuration in Web-Hosted Web API

Configuration in Self-Hosted Web API

Adding Routes to Your Web API

Binding Parameters

Filtering Requests

Enabling Dependency Injection

Exploring APIs Programmatically

Tracing the Application

Web API Example

Single Page Applications With AngularJS

Understanding and Setting Up AngularJS

What's AngularJS?

Getting Started

Adding AngularJS to the Site

Setting Up the Database

Building the Web API

Building Applications and Modules

Creating Controllers, Models, and Views

Services

Routing

Details View

A Custom Service

**12 - Dependency Injection**

Software Design Patterns

Design Pattern: Inversion of Control

Design Pattern: Service Locator

Design Pattern: Dependency Injection

Dependency Resolution in MVC

Singly Registered Services in MVC

Multiply Registered Services in MVC

Arbitrary Objects in MVC

Dependency Resolution in Web API

Singly Registered Services in Web API

Multiply Registered Services in Web API

Arbitrary Objects in Web API

Dependency Resolvers in MVC vs. Web API

**13 - Unit Testing**

Understanding Unit Testing and Test-Driven Development

Defining Unit Testing

Defining Test-Driven Development

Building a Unit Test Project

Examining the Default Unit Tests

Test Only the Code You Write

Advice for Unit Testing Your ASP.NET MVC

and ASP.NET Web API Applications

Testing Controllers

Testing Routes

Testing Validators

**14 - Extending MVC**

Extending Models

Turning Request Data into Models

Describing Models with Metadata

Validating Models

Extending Views

Customizing View Engines

Writing HTML Helpers

Writing Razor Helpers

Extending Controllers

Selecting Actions

Filters

Providing Custom Results

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