Reference Document for Web Application Development using ASP.NET MVC

Author(s)	Jane Pamela T.
Authorized by	Pramod Panda
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<u>Usage Guidelines</u>

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Education, Training and Assessment Department
Infosys Limited
Electronics City
Hosur Road
Bangalore - 561 229, India.

Tel: 91 80 852 0261-270
Fax: 91 80 852 0362
www.infosys.com
mailto:ETA@infosys.com

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0	August-2014	Jane Pamela T.	Suryanaryana V	Initial version
1	Aug 2015	Jane Pamela T.	Suryanaryana V	Base Lined Version

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1. Introduction to ASP.NET MVC Framework

1.1 Introduction

ASP.NET MVC gives you a powerful, patterns-based way to build dynamic websites that enables a clean separation of concerns and that gives you full control over markup for enjoyable, agile development. ASP.NET MVC includes many features that enable fast, TDD-friendly development for creating sophisticated applications that use the latest web standards

1.2 Reference Material

Topic Name	Reference
Overview of ASP.NET MVC Framework	http://www.asp.net/mvc/tutorials/mvc-5/introduction/getting-started
	http://www.asp.net/mvc/tutorials/mvc-4/getting-started-with-aspnet-mvc4/intro-to-aspnet-mvc-4
Creating Applications and one ASP.NET	http://www.asp.net/mvc/overview/getting-started/introduction/getting-started (One ASP.NET only)
Application Structure	https://msdn.microsoft.com/en-us/library/dd410120(v=vs.100).aspx (contents under The MVC Project Template and Web Application MVC Project structure)

1.3 Additional References

2. Working with Controller

2.1 Introduction

MVC stands for model-view-controller.

Controllers: Classes that handle incoming browser requests, retrieve model data, and then specify

view templates that return a response to the browser.

2.2 Reference Material

Topic Name	Reference
Introduction to Controller	http://www.asp.net/mvc/overview/getting-started/introduction/adding-a-controller
Introduction to Action Methods and Parameters in Action Method	http://msdn.microsoft.com/en-in/library/dd410269(v=vs.100).aspx

Introduction to ActionResults	http://msdn.microsoft.com/en-in/library/dd410269(v=vs.100).aspx

2.3 Additional References

3. Introduction to Routing

3.1 Introduction

ASP.NET routing enables you to use URLs that do not have to map to specific files in a Web site. In ASP.NET routing, you define URL patterns that contain placeholders for values that are used when you handle URL requests. At run time, the pieces of the URL that follow the application name are parsed into discrete values, based on a URL pattern that you have defined

3.1 Reference Material

Topic Name	Reference
Introduction to Routing	https://msdn.microsoft.com/en-us/library/cc668201(v=vs.100).aspx
Routing pattern	https://msdn.microsoft.com/en-us/library/cc668201(v=vs.100).aspx (only content under defining URL Routes, Setting Default Values for Route Parameters, Adding Constraints to Routes)

3.2 Additional References

4. Creating Views

3.1 Introduction

Views are the components that display the application s user interface (UI). Typically, this UI is created from the model data. An example would be an edit view of a Products table that displays text boxes, drop-down lists, and check boxes based on the current state of a Products object

4.2 Reference Material

Topic Name	Reference

Introduction to views	http://www.asp.net/mvc/overview/getting-started/introduction/adding-a-view
Introduction to Layout Pages	http://www.asp.net/mvc/overview/getting-started/introduction/adding-a-view (Changing Views and Layout Pages)
Working with Partial Views	http://www.codeproject.com/Articles/698246/ASP-NET-MVC-Special-Views-Partial-View-and-Layout
Passing Data From Controller to Views using ViewData, ViewBag and TempData	http://www.asp.net/mvc/overview/getting-started/introduction/adding-a-view (Passing Data from the Controller to the View) http://msdn.microsoft.com/en-us/library/dd394711(v=vs.100).Aspx

4.3 Additional References

5. Working with Razor Engine

5.1 Introduction

An overview of programming with ASP.NET Web Pages using the Razor syntax. The Razor syntax is based on the C# programming language, and that's the language that's used most often with ASP.NET Web Pages

5.2 Reference Material

Topic Name	Reference
Introduction to Razor view engine	http://www.asp.net/web-pages/tutorials/basics/2-introduction-to-asp-net-web-programming-using-the-razor-syntax
Razor syntax codes	http://www.asp.net/web-pages/tutorials/basics/2-introduction-to-asp-net-web-programming-using-the-razor-syntax

5.3 Additional References

6. Working with helper classes

3.1 Introduction

An HTML Helper is just a method that returns a string. The string can represent any type of content that you want. For example, you can use HTML Helpers to render standard HTML tags like HTML <input> and <img> tags. You also can use HTML Helpers to render more complex content such as a tab strip or an HTML table of database data

3.2 Reference Material

Topic Name	Reference
Html, URL helpers	http://www.asp.net/mvc/tutorials/hands-on-labs/aspnet-mvc-4-helpers,-forms-and-validation http://blogs.msdn.com/b/roncain/archive/2012/07/17/using-the-asp-net-web-api-urlhelper.aspx
Working with custom html helper	http://www.asp.net/mvc/overview/older-versions-1/views/creating-custom-html-helpers-cs
Web Grid	http://msdn.microsoft.com/en-us/magazine/hh288075.aspx
Web Image	http://www.asp.net/web-pages/tutorials/files,-images,-and-media/9-working-with-images
Web Mail	http://www.asp.net/web-pages/tutorials/email-and-search/11-adding-email-to-your-web-site

6.3 Additional References

7. Working with Action Filters

7.1 Introduction

Sometimes you want to perform logic either before an action method is called or after an action method runs. To support this, ASP.NET MVC provides action filters. Action filters are custom attributes that provide a declarative means to add pre-action and post-action behavior to controller action methods

7.2 Reference Material

Topic Name	Reference
• Understanding Action Filters	https://msdn.microsoft.com/en-us/library/dd410209(v=vs.100).aspx
• Using an Action Filter	http://www.asp.net/mvc/overview/older-versions-1/controllers-and-routing/understanding-action-filters-cs http://www.asp.net/mvc/overview/older-versions/hands-on-labs/aspnet-mvc-4-custom-action-filters
• Types of Action Filter	http://www.dotnet-tricks.com/Tutorial/mvc/b11a280114-Understanding-ASP.NET-MVC-Filters-and-Attributes.html
• Working with Action Filters	http://www.dotnetcurry.com/aspnet-mvc/957/aspnet-mvc-authentication-filters

7.3 Additional References

8. Introduction to Model

8.1 Introduction
Model objects are the parts of the application that implement the logic for the application's data domain. Often, model objects retrieve and store model state in a database. For example, a Product object might retrieve information from a database, operate on it, and then write updated information back to a Products table in a SQL Server database

8.2 Reference Material

Topic Name	Reference
Model overview	http://www.asp.net/mvc/overview/getting-started/introduction/adding-a-model http://www.asp.net/mvc/overview/getting-started/introduction/accessing-your-models-data-from-a-controller
Creating model using ADO.NET entity model	http://www.asp.net/mvc/overview/getting-started/getting-started-with-ef-using-mvc/creating-an-entity-framework-data-model-for-an-asp-net-mvc-application http://www.asp.net/mvc/overview/getting-started/database-first-development/setting-up-database
Creating model using Linq to SQL	http://www.asp.net/mvc/overview/older-versions-1/models-(data)/creating-model-classes-with-linq-to-sql-cs

8.3 Additional References

9. Data Annotation and Validation

9.1 Introduction
This topic illustrates how to use attributes from the System.ComponentModel.DataAnnotations namespace to specify validation for individual fields in the data model. These attributes define common validation patterns, such as range checking and required fields. The System.ComponentModel.DataAnnotations attributes cause MVC to provide both client and server validation checks with no additional coding required by you.

9.2 Reference Material

Topic Name	Reference
• Data Annotation attributes	http://msdn.microsoft.com/en-us/library/ee256141(VS.100).aspx https://msdn.microsoft.com/en-us/library/dd901590(VS.95).aspx http://www.asp.net/mvc/tutorials/older-versions/models-(data)/validation-with-the-data-annotation-validators-cs

• Using the Data Annotation Model Binder	http://www.asp.net/mvc/overview/older-versions/mvc-music-store/mvc-music-store-part-6 http://www.asp.net/mvc/overview/older-versions-1/models-(data)/validation-with-the-data-annotation-validators-cs
• Using Data Annotation Validators with the Entity Framework	http://www.devcurry.com/2013/04/custom-templates-in-aspnet-mvc.html http://www.dotnet-tricks.com/Tutorial/mvc/D8I4270712-MVC-Data-Annotations-for-Model-Validation.html

9.3   Additional References

10. Using AJAX

10.1 Introduction

Ajax stands for asynchronous JavaScript and XML. The core of the Ajax support to MVC application comes from jQuery.

10.2 Reference Material

Topic Name	Reference
• Using AJAX helpers	https://msdn.microsoft.com/en-us/library/system.web.mvc.ajaxhelper(v=vs.118).aspx
• jQuery	http://www.dotnet-tricks.com/Tutorial/mvc/bcWO151212-How-to-Enable-and-Disable-Client-Side-Validation-in-MVC.html https://evolpin.wordpress.com/2011/03/15/asp-net-mvc-ajax-using-jquery-quick-start-sample/
• Client validations	https://msdn.microsoft.com/en-us/library/gg508808(VS.98).aspx http://www.codeproject.com/Articles/718004/ASP-NET-MVC-Client-Side-Validation

10.3   Additional References

11. Deploying ASP.NET MVC Applications

11.1 Introduction

These resources show how to deploy (publish) an ASP.NET MVC web application

11.2 Reference Material

Topic Name	Reference
Deploying MVC applications	http://www.asp.net/whitepapers/aspnet-web-deployment-content-map#understanding http://www.windowsazure.com/en-us/documentation/articles/web-sites-dotnet-get-started/ http://msdn.microsoft.com/en-us/library/dd394698.aspx http://www.asp.net/whitepapers/aspnet-web-deployment-content-map#fromvs http://www.asp.net/whitepapers/aspnet-web-deployment-content-map#package

11.3   Additional References

12 Membership, Authorization and Security

13.1   Introduction

The ASP.NET membership system was introduced with ASP.NET 2.0 back in 2005, and since then there have been many changes in the ways web applications typically handle authentication and authorization. ASP.NET Identity is a fresh look at what the membership system should be when you are building modern applications for the web, phone, or tablet.

13.2   Reference Material

Topic Name	Reference
• Using Authorize Attribute to require login	http://www.dotnetcurry.com/aspnet-mvc/957/aspnet-mvc-authentication-filters http://blogs.msdn.com/b/rickandy/archive/2012/03/23/securing-your-asp-net-mvc-4-app-and-the-new-allowanonymous-attribute.aspx https://msdn.microsoft.com/en-us/library/system.web.mvc.authorizeattribute(v=vs.98).aspx
• ASP.NET Identity	http://www.asp.net/identity/overview/getting-started/introduction-to-aspnet-identity
• Secure MVC application with OAuth and membership	http://www.codeproject.com/Articles/654846/Security-In-ASP-NET-MVC http://azure.microsoft.com/en-us/documentation/articles/web-sites-dotnet-deploy-aspnet-mvc-app-membership-oauth-sql-database/

13.3 Additional References

13 Unit testing MVC applications

13.3   Introduction

To demonstrate how you can write unit tests for the controllers in your ASP.NET MVC applications. How to build three different types of unit tests. You learn how to test the view returned by a controller action, how to test the View Data returned by a controller action, and how to test whether or not one controller action redirects you to a second controller action.

13.4   Reference Material

Topic Name	Reference
Creating unit test cases for MVC applications	http://www.codeproject.com/Articles/579035/Creating-Unit-Testable-Applications-in-ASP-NET-MVC https://msdn.microsoft.com/en-us/library/gg416511(v=vs.98).aspx http://www.asp.net/mvc/overview/older-versions-1/unit-testing/creating-unit-tests-for-asp-net-mvc-applications-cs

13.5   Additional References

14 Mobile Web Development

14.3   Introduction

The basics of how to work with mobile features in an ASP.NET MVC Web application

14.4   Reference Material

Topic Name	Reference

• Demonstrate the features as
   o   Adaptive Rendering
   o   Display Modes
   o   Media Queries
	http://www.codeproject.com/Articles/739427/MVC-Adaptive-Rendering-Device-Views
	
	http://www.asp.net/mvc/overview/older-versions/aspnet-mvc-4-mobile-features

14.5   Additional References

15 Web Optimization

15.3   Introduction

Bundling and minification are two techniques you can use in ASP.NET 4.5 to improve request load time. Bundling and minification improves load time by reducing the

number of requests to the server and reducing the size of requested assets (such as CSS and JavaScript.)

15.4   Reference Material

Topic Name	Reference
• Introduction to Bundling and Minification for improving application performance	http://www.asp.net/mvc/overview/performance/bundling-and-minification
• Using Asynchronous methods and Asynchronous controller	http://blog.stephencleary.com/2012/02/async-and-await.html http://www.asp.net/mvc/overview/performance/using-asynchronous-methods-in-aspnet-mvc-4 https://msdn.microsoft.com/en-in/library/ee728598(v=vs.100).aspx

15.5   Additional References

16   Web API

16.3   Introduction
ASP.NET Web API is a framework that makes it easy to build HTTP services that reach a broad range of clients, including browsers and mobile devices. ASP.NET Web API is an ideal platform for building RESTful applications on the .NET Framework

16.4   Reference Material

Topic Name	Reference
• Introduction to Web API	http://asp.net/web-api
• Getting started using Web API	http://www.asp.net/web-api/overview/getting-started-with-aspnet-web-api/tutorial-your-first-web-api
• Working with API controller	http://www.asp.net/web-api/overview/web-api-routing-and-actions/routing-in-aspnet-web-api

16.5   Additional References

17   Best Practices

17.3   Introduction

This topics gives the idea of the best practices that needs to be followed in ASP.NET MVC web development.

17.4   Reference Material

Topic Name	Reference
ASP.NET MVC Best practices	• http://blogs.msdn.com/b/aspnetue/archive/2010/09/17/second_2d00_post.aspx • http://codeclimber.net.nz/archive/2009/10/27/12-asp.net-mvc-best-practices.aspx • http://weblogs.asp.net/rashid/asp-net-mvc-best-practices-part-1 • http://weblogs.asp.net/rashid/asp-net-mvc-best-practices-part-2

17.5   Additional References