Razor Views

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Agenda

- Understanding Views
- Passing data from controllers to views
- Strongly typed views and View models
- Code blocks and code expressions
- Html Encoding
- Layouts and _ViewStart.cshtml
- Partial Views

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What is a View

- A view provides templating system
- A view represents UI of your application
- A view can transforms the contents of models to HTML
- A view can be ASPX or Razor

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Razor View Engine

- Introduced with ASP.NET MVC 3
- A clean, lightweight and simple view engine
- Razor is not a language, it’s a syntax
- It minimizes amount of syntax and extra characters
- Visual Studio provides IntelliSense support for Razor
- A Razor view has .cshtml or .vbhtml file extensions.

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Accessing View

- Views cannot be accessed directly
- Views are rendered by Controllers
- Controllers also pass data to Views

```
public class HomeController : Controller
{
    public ActionResult Index()
    {
       ViewBag.Message = "Hello MVC";
        return View();
    }
```


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A Simple View

Index.cshtml* HomeController.cs

```
@{
    Layout = null;
}

<!DOCTYPE html>
<html>
<head>
    <title>Index Page</title>
</head>
<body>
    <h2>@ViewBag.Message</h2>
</body>
</html>
```


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Views Conventions

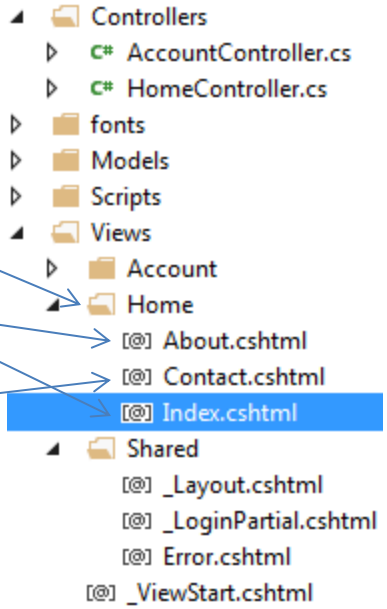
```
public class HomeController : Controller
{
    public ActionResult Index()
    {
       ViewBag.Message = "Hello MVC";
        return View();
    }

    public ActionResult About()
    {
        ViewBag.Message = "Your application description page.";

        return View();
    }

    public ActionResult Contact()
    {
        ViewBag.Message = "Your contact page.";

        return View();
    }
}
```



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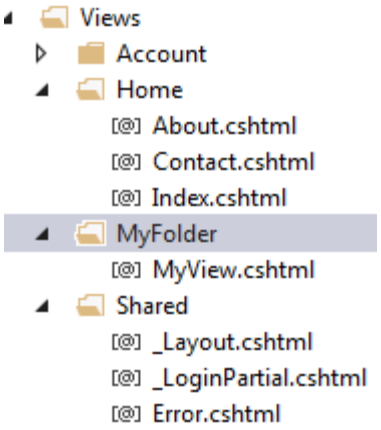
Overriding Conventions

```
public class HomeController : Controller
{
    public ActionResult Index()
    {
        ViewBag.Message = "Hello MVC";
        return View("About");
    }
```

```
public class HomeController : Controller
{
    public ActionResult Index()
    {
        ViewBag.Message = "Hello MVC";
        return View(@"~\Views\MyFolder\MyView.cshtml");
    }
```



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ViewData

- Used to pass data from Controllers to Views
- Dictionary object derived from ViewDataDictionary class
- Property of a ControllerBase class
- Life ends with current request
- Value set to null if redirected
- Needs type casting

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ViewBag

- Used to pass data from controllers to views
- It is a dynamic wrapper around ViewData
- Property of a ControllerBase class
- Life ends with current request
- Value set to null if redirected
- Doesn’t require type casting

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ViewBag or ViewData?

- Technically both the statements below are same

```
ViewData["Message"] = "Hello MVC";

ViewBag.Message = "Hello MVC";
```

- ViewData can be accessed from ViewBag

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TempData

- A dictionary object derived from TempDataDictionary
- Used to pass data to subsequent request
- Life ends after a single redirect
- Needs type casting
- Property of a ControllerBase class

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Session Objects

- Used to pass data within application
- Session objects derived from HttpSessionState class
- Value is accessible to all request
- Requires type casting

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Strongly Typed Views

- Strongly Typed Views use Model object
- Model objects are suitable to pass large amount of data to views
- Internally it uses Model property of ViewData
- Use @model declaration to create strongly typed view
- Use @Model to access properties of model object

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A Strongly Typed View

Index.cshtml | Movie.cs | HomeController.cs

```
@using MvcDemo.Models
@model IEnumerable<MvcDemo.Models.Movie>

@{
    ViewBag.Title = "Index";
}

<h2>Movies</h2>

@foreach(Movie m in Model)
{
    <li>Title : @m.Title, Genre : @m.Genre</li>
}
```


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Razor Syntax

- @ symbol is the key transition character in Razor
- @ character switches from markup to code and back to markup
- Razor supports **Code Expressions** and **Code Blocks**

```
@{
    ViewBag.Title = "Index";
    var client = "Microsoft";
}
```

Code Block

```
<h3>Client's Name is @client.</h3>
```

Code Expression

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Code Expressions

- Code expressions are inline code
- Code expressions can be **Implicit** or **Explicit**

```
@{
    ViewBag.Title = "Index";
    string[] clients = new string[] { "Microsoft", "Oracle", "IBM" };
}

<h4>Listing @clients.Count() clients details</h4>

@foreach(var client in clients)
{
    <li>Client's URL : http://www.@client.com</li> //error
    <li>Client's URL : http://www.@(client).com</li>
}
```


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Code Expressions

- Razor understands general pattern of email address

```
<h4>email : sushantba@cybage.com</h4>
```

- Tell Razor, its not an email address

```
<h4>Listing@clients.Count() clients details</h4>@*email address*@

<h4>Listing@(clients.Count()) clients details</h4>@*Explicit code expression*@
```

- How to display Twitter Handles?

```
<h4>Twitter Handles : @Sushant</h4>@*Wrong-Error*@
<h4>Twitter Handles : @@Sushant</h4>@*Correct-No Error*@
```


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HTML Encoding

- Never trust user input
- Never try to display user input as it is
- It may cause XSS or Cross-site Script Injection attacks
- Razor views are by default HTML encoded

```
@{
    string message = "Hello MVC<script>alert('XSS Attack');</script>";
}
<h3>User input with HTML Encoded : @message</h3>
<h3>User input without HTML Encoding : @Html.Raw(message)</h3>
```


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Mixing Code and Plain Text

```
@if(Model.Count() == 0){
    @:The model is empty
    @:Or
    <text>The model is empty</text>
}
else{
    foreach(var m in Model){
        <li>Title : @m.Title</li>
    }
}
```


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Layouts

- Helps maintain a consistent look and feel across multiple views
- Purpose of layout is similar to master pages in web forms
- @RenderBody() renders view specific content.

```
@{
    Layout = "~/Views/Shared/_Layout.cshtml";
    ViewBag.Title = "Index";
}
```

```
<h3>Weclome to Index</h3>
```


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ViewStart

- _ViewStart.cshtml is used to set common layout for multiple views
- The code inside _ViewStart.cshtml executes before any views inside the Views directory
- The code below executes before each view you try to render
- A view can override the Layout property to set different Layout

_ViewStart.cshtml*

```
@{
    Layout = "~/Views/Shared/_Layout.cshtml";
}
```


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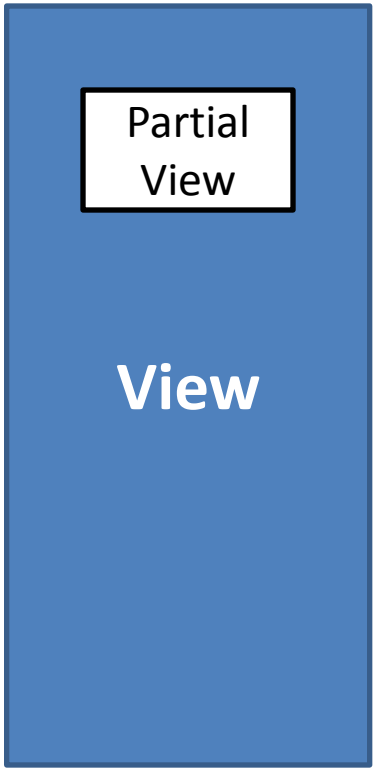
Partial View

- Partial Views render a portion of a view content
- Similar concept like user controls in web forms
- It simplifies complexity of a view
- Partial views are reusable in multiple views
- Useful in case of partial updates using an AJAX call.



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Bibliography, Important Links

- http://www.asp.net/mvc/tutorials/older-versions/views/asp-net-mvc-views-overview-cs

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