Microsoft® Official Course

Module07

Structuring ASP.NET MVC 4 Web Applications

Microsoft®

Module Overview

- Analyzing Information Architecture
- Configuring Routes
- Creating a Navigation Structure

Lesson 1: Analyzing Information Architecture

- What Is Information Architecture?
- What Is Search Engine Optimization?

What Is Information Architecture?

- Planning a Logical Hierarchy.
- Presenting a Hierarchy in Navigation Controls
- Presenting a Hierarchy in URLs

MVC Model:

- **Boiler**
- **Category**
- **FAQQuestion**
- **Installation Manual**
- **User Manual**

Information Architecture:

- **Category**
  - **Furnace**
    - **FAQQuestion**
    - **Installation Manual**
    - **User Manual**

What Is Search Engine Optimization?

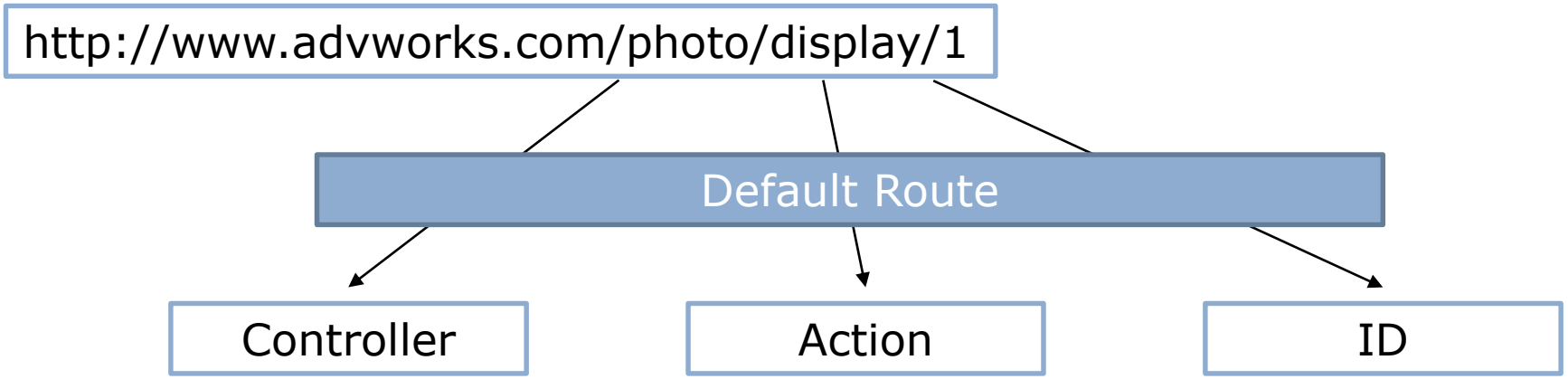
- Use meaningful <title> elements
- Use accurate <meta name="keyword"> tags
- Use accurate <meta name="description"> tags
- Use different <title> <meta> elements on each page
- Choose a domain name that includes keywords
- Use keywords in heading elements
- Ensure that navigation controls enable web bots to crawl your entire web application
- Ensure that URLs do not include GUIDs or long query text

Lesson 2: Configuring Routes

- The ASP.NET Routing Engine
- Adding and Configuring Routes
- Using Routes to Pass Parameters
- Unit Tests and Routes

The ASP.NET Routing Engine

- The default route:



- Custom routes:
  - To make URLs easier for site visitors to understand
  - To improve search engine rankings
- Controller factories and routes

Adding and Configuring Routes

- Understand the properties of a route:
  - Includes Name, URL, Constraints and Defaults
- Analyze the default route code:
  - Specifies **Name**, **URL** ,and **Defaults** properties
- Create Custom Routes:
  - Involves calling the **routes.MapRoute()** method
- Understand the precedence of routes:
  - Add routes to the **RouteTable.Routes** collection in the appropriate order

```
routes.MapRoute(
   name: "Default",
   url: "{controller}/{action}/{id}",
   defaults: new {
      controller = "Home",
      action = "Index",
      id = UrlParameter.Optional }
);
```

```
routes.MapRoute(
   name: "PhotoRoute",
   url: "photo/{id}",
   defaults: new {
      controller = "Photo",
      action = "Details" },
   constraints: new {
      id = "[0-9]+" }
);
```

Using Routes to Pass Parameters

- You can access the values of these variables by:
  - Using the **RouteData.Values** collection
  - Using the model binding to pass appropriate parameters to actions

```
public void ActionMethod Display (int PhotoID)
{
   return View(PhotoID);
}
```

- You can use optional parameters to match a route, regardless of whether parameter values are supplied

```
routes.MapRoute(
   name: "ProductRoute",
   url: "product/{id}/{color}",
   defaults: new { color = UrlParameter.Optional }
)
```

Unit Tests and Routes

A Unit Test for the Routing Table:

```
[TestMethod]
public void Test_Default_Route_ControllerOnly()
{
   //Arrange
   var context = new FakeHttpContextForRouting(
      requestUrl: "~/ControllerName");
   var routes = new RouteCollection();
   MyMVCApplication.RouteConfig.RegisterRoutes(routes);

   // Act
   RouteData routeData = routes.GetRouteData(context);

   // Assert
   Assert.AreEqual("ControllerName", routeData.Values["controller"]);
   Assert.AreEqual("Index", routeData.Values["action"]);
   Assert.AreEqual(UrlParameter.Optional, routeData.Values["id"]);
}
```

Lesson 3: Creating a Navigation Structure

- The Importance of Well-Designed Navigation
- Configuring the MVC Site Map Provider
- Adding Menu Controls

The Importance of Well-Designed Navigation

- Ensure that users can easily decide what link to click on each page
- Provide navigation controls, such as:
  - Top Menus
  - Tree Views
  - Breadcrumb Trails
  - Footer Menus
- Use the MVC Site Map Provider to rapidly build information architecture and navigation controls

Configuring the MVC Site Map Provider

```
<?xml version="1.0" encoding="utf-8" ?>
<mvcSiteMap xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns="http://mvcsitemap.codeplex.com/schemas/MvcSiteMap-File-3.0"
  xsi:schemaLocation=
    "http://mvcsitemap.codeplex.com/schemas/
      MvcSiteMap-File-3.0 MvcSiteMapSchema.xsd“
  enableLocalization="true">

  <mvcSiteMapNode title="Home" controller="Home" action="Index">
    <mvcSiteMapNode title="Products" controller="Product" action="Index">
      <mvcSiteMapNode title="Bikes" controller="Category" action="Display“ />
    </mvcSiteMapNode>
    <mvcSiteMapNode title="Latest News" controller="Article"
      action="DisplayLatest" >
    <mvcSiteMapNode title="About Us" controller="Home" action="About" />
  </mvcSiteMapNode>

</mvcSiteMap>
```

Adding Menu Controls

- Rendering a Menu:

```
@Html.MvcSiteMap().Menu(false,false, true)
```

- Rendering a Breadcrumb Trail:

```
@Html.MvcSiteMap().SiteMapPath()
```