Session 6

Action Methods and Advanced Concepts in MVC

Session Overview

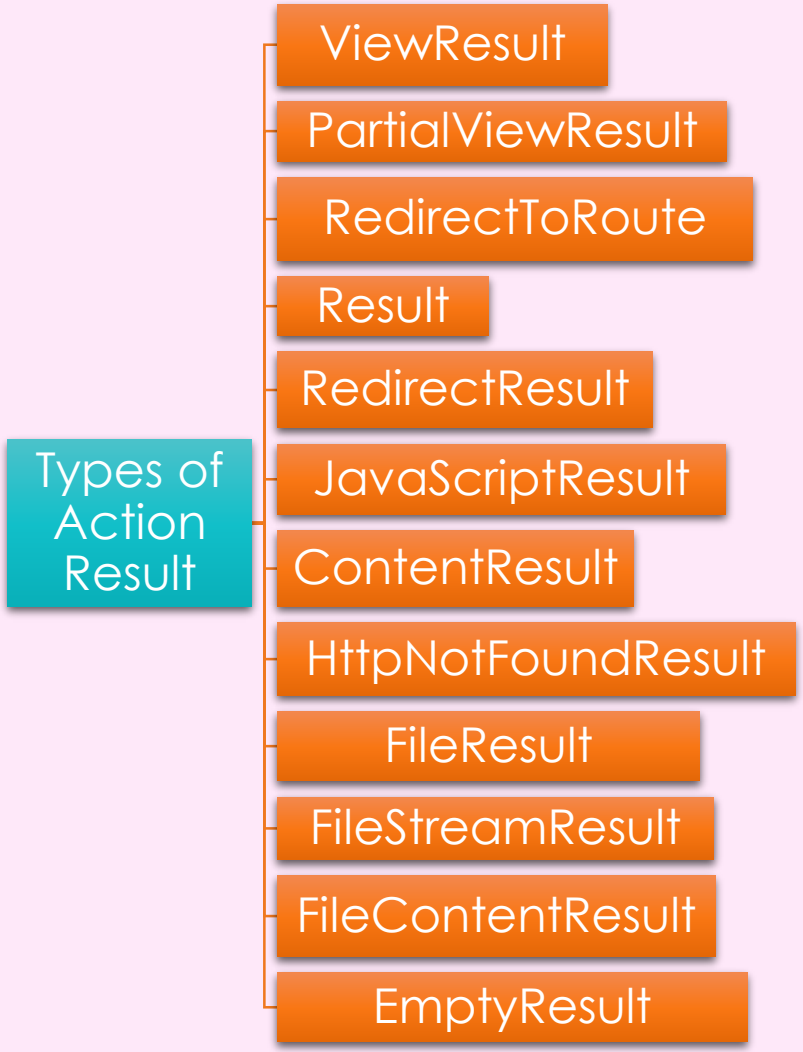
- Explain Action Methods in MVC
- Compare Web API and SOAP
- Describe Route Config Declaration
- Describe the process for Sharing data for ASP.NET Core MVC
- Explain Bundling and Minification in MVC
- Explain Areas in MVC

Action Methods in MVC

Action Methods in MVC

Controller with Action Methods

ASP.NET MVC ActionResult



Comparison between Web API and SOAP

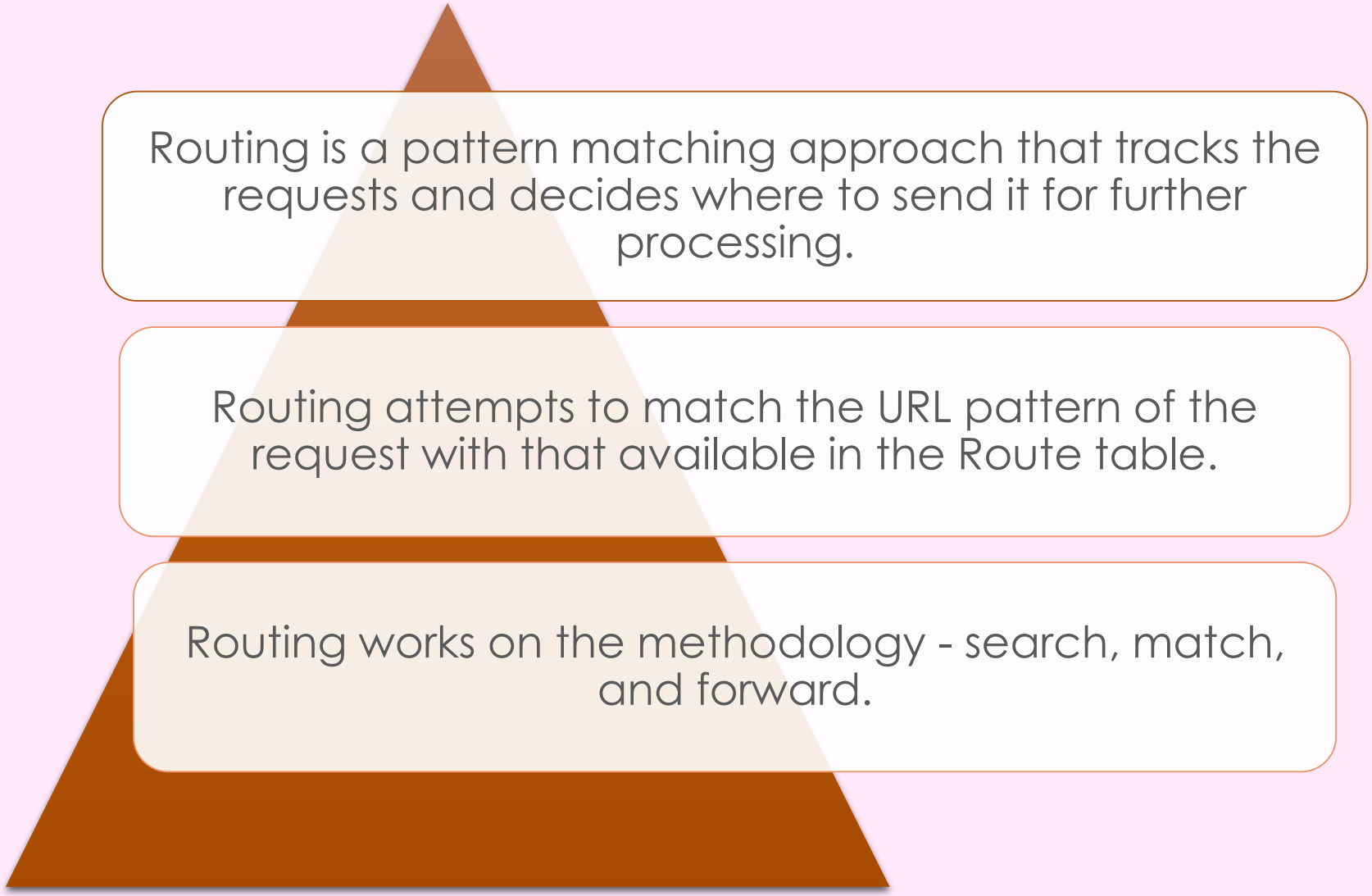
REST	SOAP
Works using regular interfaces to access specific resources.	Works through various interfaces.
Reveals components of application ideas as services.	Reveals components of application ideas as data.
Accesses data.	Executes operations through a structured set of messaging design.
Offers an easy way to access Web services as compared to SOAP by using HTTP.	Proves to be a popular protocol, designed by Microsoft.

REST supports various data formats, but SOAP supports only XML.

REST has an edge over SOAP as it uses caching for storing information which cannot be edited and is faster and easier than SOAP.

Despite so many benefits of REST over SOAP, there are still cases where SOAP is highly recommended.

Route Config Declaration



Routing is a pattern matching approach that tracks the requests and decides where to send it for further processing.

Routing attempts to match the URL pattern of the request with that available in the Route table.

Routing works on the methodology - search, match, and forward.

Bundling and Minification in MVC (1-2)

Bundling

- Process of creating bundles for JavaScript and CSS files.

Minification

- Process to eliminate redundant whitespaces, line breaks, and comments from the code thus, reducing its size.

Bundle classes supported by MVC 5:

ScriptBundle	StyleBundle	DynamicFolderBundle
Helps in minification of one or more JavaScript files.	Helps in minification of single or multiple CSS style sheet files.	Bundle object created by ASP.NET from a folder having same type of files.

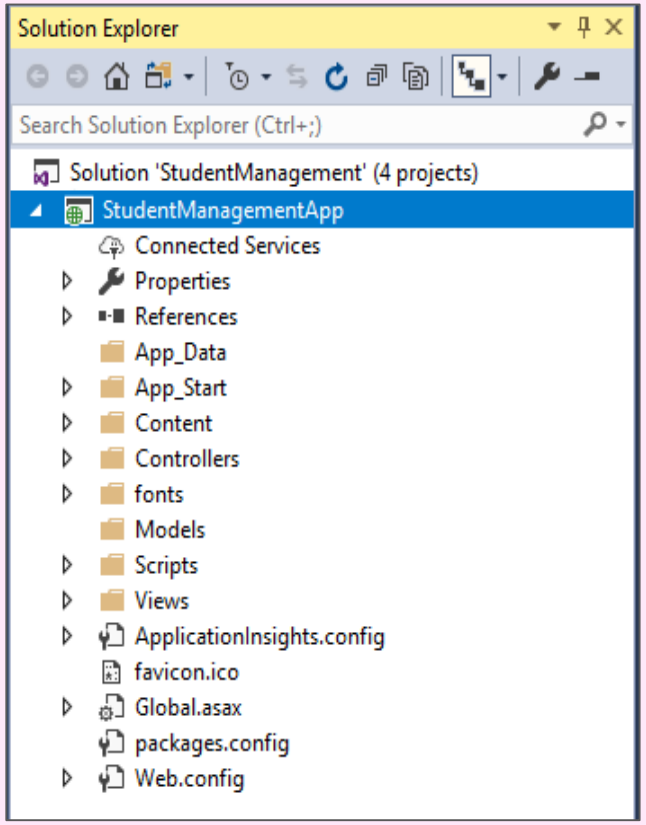
Bundling and Minification in MVC (2-2)

1. Generate an instance of ScriptBundle class by including the bundle name as a constructor parameter.
2. Assign a name to the bundle that can be easily identified.
3. With the help of Include method, add multiple 'JS' files into a bundle.
4. Include the bundle into the BundleCollection instance.
5. Set BundleTable.EnableOptimizations=True.

Wildcards

CDN (Content Delivery Network)

Areas in ASP.NET MVC (1-3)



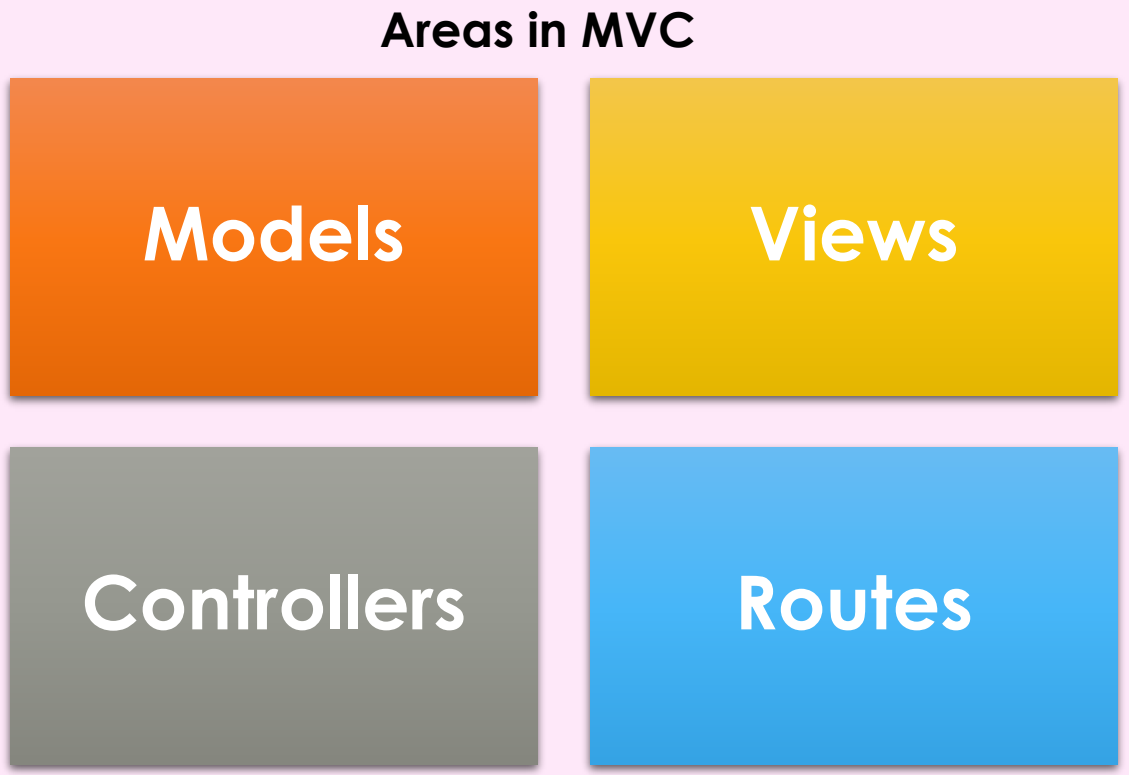


Figure 6.1: Project Folder Structure

Areas in ASP.NET MVC (2-3)

In the **Solution Explorer** view, right-click the project name.

Select **Add Area**.

Name the area and click **Add**.

Follow steps 1 to 3 and create Areas for Professor and Administrator.

Go to **Global.asax.cs** file and observe the Application_Start() method.

Areas in ASP.NET MVC (3-3)

Add '**HomeController**' to the areas : Professor, Administrator, Student, Main Area. The action method **Index()** is now part of all the HomeControllers.

To all the Areas, insert 'Index' views by copying and pasting the following in their respective views:. Syntax: <h1>Area Name Index View</h1>

Create the application and go to **/MVCDemo**. To rectify the error, include RegisterRoutes() method in the **RouteConfig.cs** file available in the **App_Start** folder.

Now, /MVCDemo/Student displays an error which states "Resource cannot be found". To rectify the error, modify RegisterArea() area method in StudentAreaRegistration.cs file under the Student folder.

Open **http://location/MVCDemoStudent.** To rectify the error go to Visual Studio, click **Tools** **Library Package Manager** **Package Manager Console**. In the window that appears, enter the command: **Install-Package Microsoft.Web.Optimization -Pre** and press **Enter**.

Introduction to Data Sharing (1-2)

ViewData

ViewBag

TempData

Strongly typed view

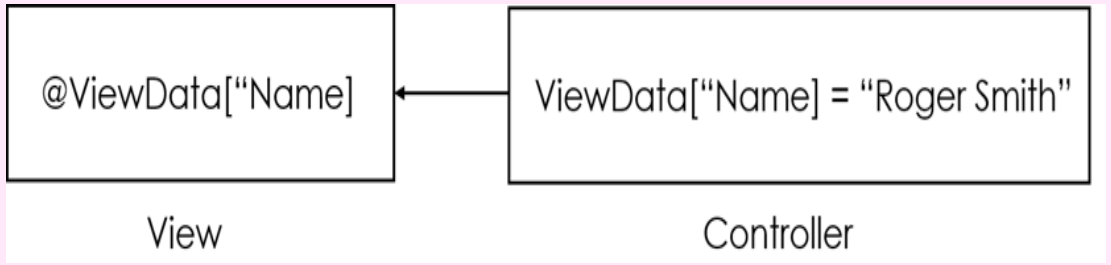


Figure 6.2: ViewData

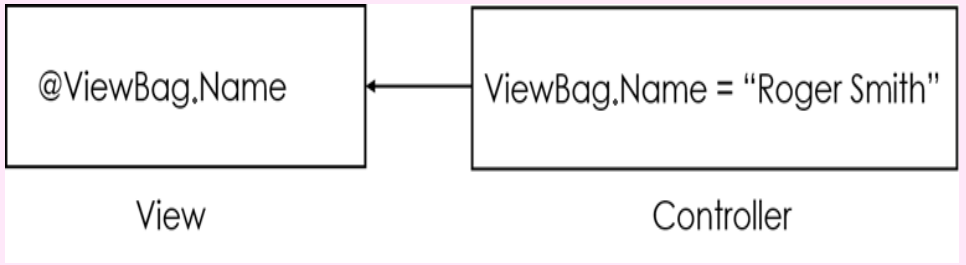


Figure 6.3: ViewBag

Introduction to Data Sharing (2-2)

Important features of strongly typed view:

Automatic Scaffolding	IntelliSense Support	Compile Time Type Checking
Depending on the selected template and model, it creates a view with skeleton.	Visual Studio is used to show IntelliSense with the help of the model.	Problems with data type are detected by the compiler and compiler errors are thrown rather than runtime errors.

Advantages of strongly typed view over standard view:

- It retrieves values from `ViewData.Model`, rather than setting them in properties.
- It supports IntelliSense and type safety.
- It does not include any unnecessary casting between types in ViewData.
- It implements compile-time checks.

Data Sharing Techniques (1-2)

Scenarios when ViewData, ViewBag, and TempData help to carry or transfer data

- Controller to view
- One controller to another controller
- One action to another action
- Between subsequent HTTP requests

`Scenarios to use ViewData` and `ViewBag` objects

- To lookup data when it is included as drop-down list into an entity
- When shopping cart components are included
- When user profile widget or any widgets are included
- When aggregate data is included in small amounts

Data Sharing Techniques (2-2)

ViewData	ViewBag	TempData
It transfers data from the controller to the view. It can be accessed using strings as keys.	A dynamic wrapper around ViewData is ViewBag.	If data is required for the next request also, then use TempData. Note that the data will be gone after the next request.
It obtains a null value in case of redirection. However, it also requires typecasting for complex data types.	It is found only in ASP.NET MVC 3 onwards. It can handle complex data types without typecasting. It obtains a null value in case of a redirection.	Data is passed from the current request to the subsequent request (redirection) using TempData. Due to this reason, TempData value will not be null.

Summary (1-2)

- ✓ In an MVC application, a controller is auto-generated and will have one or more action methods.
- ✓ There are two different types of communication protocols in Web services,

  SOAP and REST.
- ✓ REST supports various data formats, but SOAP supports only XML. Browser-based clients preferably pick REST.
- ✓ REST uses HTTP protocol, which is specified with the right usage of HTTP verbs, such as GET, POST, PUT, and DELETE. SOAP is designed using HTTP protocol that makes it simpler to work with various firewalls and securities.
- ✓ Routing can be defined as a pattern-matching approach that tracks requests and decides where to send it for further processing.

Summary (2-2)

- A bundle can be defined as a logically grouped set of files having a unique name. It is then loaded with only one HTTP request.
- Minification is the process in which redundant whitespaces, line breaks, and comments are eliminated from the code thus, reducing its size.
- `ScriptBundle` class in ASP.NET MVC API does the bundling and minification for JavaScript.
- Content Delivery Network (CDN) helps to load script files. The `jquery` library can be loaded from the CDN.
- Areas are logical groupings of Controllers, Views, Models, and all related files to a module in the MVC application.
- ViewData is called as a KeyValue pair object or a Dictionary object. Using ViewData, developers can transfer data from a controller to a view.
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