



Session 13

Action Methods in MVC

Session Overview

- Explain action methods in MVC
- Describe Web API and SOAP
- Explain route config declaration

Action Methods in MVC

Action methods in ASP.NET, process requests and produce responses in the form of ActionResult.

Actions normally have direct mapping with user interactions.

Browser sends a request to the controller, which in turn, invokes the method. If the method cannot be located in the controller, then it displays an HttpNotFound exception.

URL	Controller	Action
/PersonDetails/Index	PersonDetails	Index
Action Method Elements		

Controller with Action Methods in ASP.NET MVC

Action methods always return different view results. In ASP.NET, a method with ActionResult is known as an action method.

ASP.NET MVC ActionResult (1-3)

`ActionResult` signifies the result of action methods or return types of action methods that are described in `System.Web.Mvc` namespace.

`ActionResult` is an abstract class, which serves as a base class for various types of action results.

The return value of an action method is a view, which is derived from `ViewResult` base class.

A custom `ActionResult` return type can be developed by creating a class that inherits from `ActionResult` abstract class.

ASP.NET MVC ActionResult (2-3)

Action Result	Helper Method	Description
ViewResult	View	Displays a view as an online page.
PartialViewResult	PartialView	Displays a partial view, which describes a fraction of a view that can be extended inside another view.
RedirectToRouteResult	RedirectToAction or RedirectToRoute	Diverts to another action method.
RedirectResult	Redirect	Diverts to another action method by using its URL.
JavaScriptResult	JavaScript	Returns an executable script.
ContentResult	Content	Results in a user-defined content type.

ASP.NET MVC ActionResult (3-3)

Action Result	Helper Method	Description
HttpNotFoundResult	HttpNotFound	Shows that the requested resource was not found.
FileResult	File	Returns a binary result to write to the outcome.
FileStreamResult	Controller.File(Stream, String) or Controller.File(Stream, String String)	Communicates the binary content to the response through a stream.
FileContentResult	Controller.File(Byte[], String) or Controller.File(Byte[], String, String)	Communicates the contents of a binary file to the response.
EmptyResult	(None)	Displays a return value if the action method must return a null result (void).

ActionResult

Comparison between Web API and SOAP

There are two different types of communication protocols in Web services

- Simple Object Access Protocol (SOAP)
- Representational State Transfer (REST)

Of late, it has been overshadowed by REST.

SOAP was used in Web service interfaces as a standard protocol for a long time

REST or RESTful Services

REST refers to the architectural concept which assists in accessing and modifying Web resources discovered through URI.

To recognize the resources on the server, REST requires each resource to have a unique URI.

It returns the output in formats, such as XML, HTML, and JSON.

REST describes a set of protocol using which data can be transmitted over a standardized interface (such as HTTP).

Creating RESTful Services in ASP.NET

RESTful service can be created employing ASP.NET Web API framework.

ASP.NET Web API has action, action filters, controllers, model binding, routing, and model validations.

The Web API project is facilitated in IIS or published in a different procedure.

In the REST architecture, an API not having hypermedia cannot be completely RESTful.

Web API framework utilizes the REST design's potential of HTTP programming model to allow lightweight Web services to support many clients.

Differences between SOAP and REST

REST	SOAP
REST works using regular interfaces to access specific resources.	SOAP works through various interfaces.
REST reveals components of application ideas as services	SOAP reveals components of application ideas as data.
REST accesses data.	SOAP executes operations through a structured set of messaging design.
REST offered an easy way to access Web services as compared to SOAP by using HTTP.	SOAP was designed by Microsoft and proved to be a popular protocol.

Benefits of REST Over SOAP

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

When it comes to performance, REST has an edge over SOAP.

Existing Websites can be used without adding refactor site infrastructure.

Benefits of SOAP Over REST

- SOAP is applied when WS-Security is desired.
- SOAP has an additional feature of retry to check for failed connection.
- SOAP is designed using HTTP protocol that makes it simpler to work.
- ACID-compliant transactions are carried with the help of SOAP.

SOAP is also used when an application is designed with limited codes.

SOAP is compatible with other technologies.

Choosing between REST and SOAP

- SOAP Web service performs a POST operation at all times. On the other hand, while working with REST, there is an option to select HTTP methods, such as POST, DELETE, GET, and PUT.

SOAP provides better security and reliability to the applications.

REST is easy to implement as it has lesser code, whereas, SOAP is helpful when an API that is ever changing and complex is published.

Route Config Declaration

Routing can be defined as a pattern matching approach that tracks the requests and decides where to send it for further processing. It attempts to match the URL pattern of the request with that available in the Route table.

Summary

- Action Methods in MVC process requests and produce responses to it.
- There are two different types of communication protocols in Web services namely, SOAP (Simple Object Access Protocol) and REST (Representational State Transfer).
- REST refers to the architectural concept that helps in developing simple Web services.
- SOAP is used in Web service interfaces as a standard protocol.
- Routing can be defined as a pattern matching approach that tracks the requests and decides where to send it for further processing.