MAPPING URLS TO RAZOR PAGES USING ROUTING

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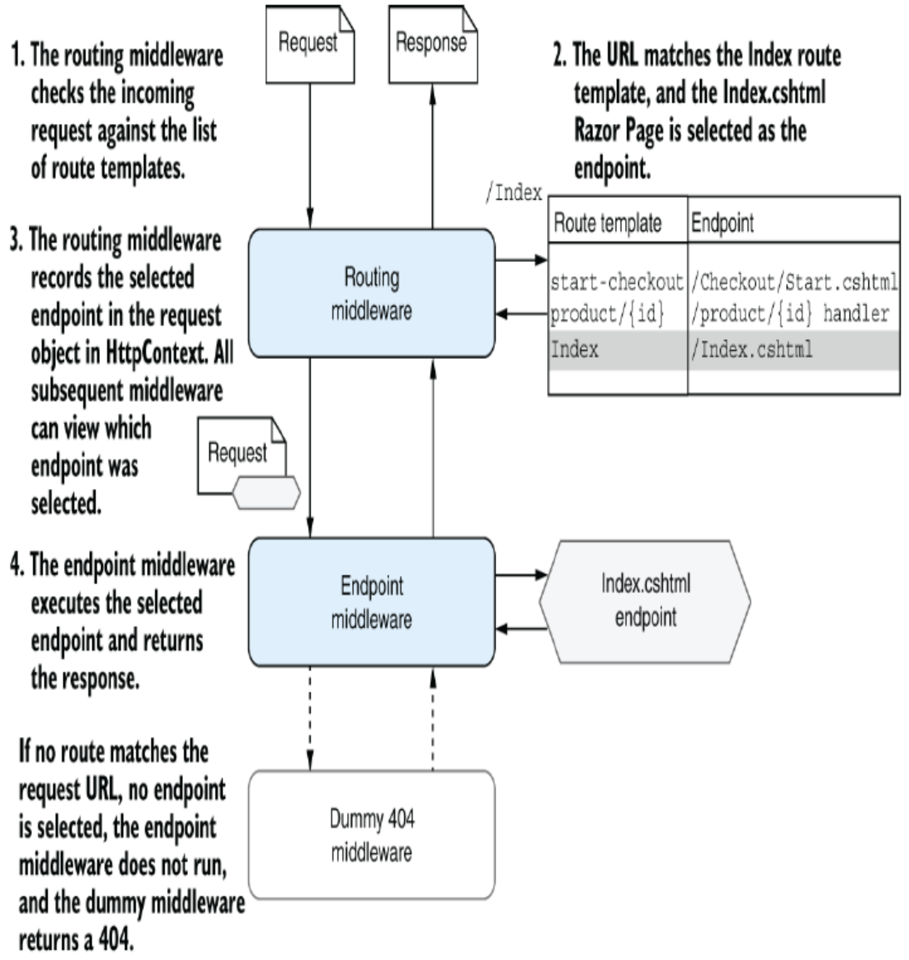
ROUTING IN ASP.NET CORE

```
WebApplicationBuilder builder = WebApplication.CreateBuilder(args);

builder.Services.AddRazorPages();      ❶

var app = builder.Build();

app.UseStaticFiles();
app.UseRouting();                      ❷
app.UseAuthorization();

app.MapRazorPages();                   ❸

app.Run();
```

ROUTING IN ASP.NET CORE

Routing in ASP.NET Core uses the same infrastructure and middleware whether you’re building minimal APIs, Razor Pages, or MVC controllers, **but** there are **some differences in how you define the mapping** between your route templates and your handlers in each case.



1. The routing middleware checks the incoming request against the list of route templates.

2. The URL matches the Index route template, and the Index.cshtml Razor Page is selected as the endpoint.

Route template	Endpoint
start-checkout	/Checkout/Start.cshtml
product/{id}	/product/{id} handler
Index	/Index.cshtml

3. The routing middleware records the selected endpoint in the request object in HttpContext. All subsequent middleware can view which endpoint was selected.

4. The endpoint middleware executes the selected endpoint and returns the response.

If no route matches the request URL, no endpoint is selected, the endpoint middleware does not run, and the dummy middleware returns a 404.

CONVENTION-BASED ROUTING VS. EXPLICIT ROUTING

- Routing is a key part of ASP.NET Core, as it maps the incoming request's URL to a specific endpoint to execute.
- Two ways to define these URL-endpoint mappings in your application:
  - Using global, **convention-based routing**
  - Using **explicit routing**, where each endpoint is mapped with a single route template.

CONVENTION-BASED ROUTING VS. EXPLICIT ROUTING

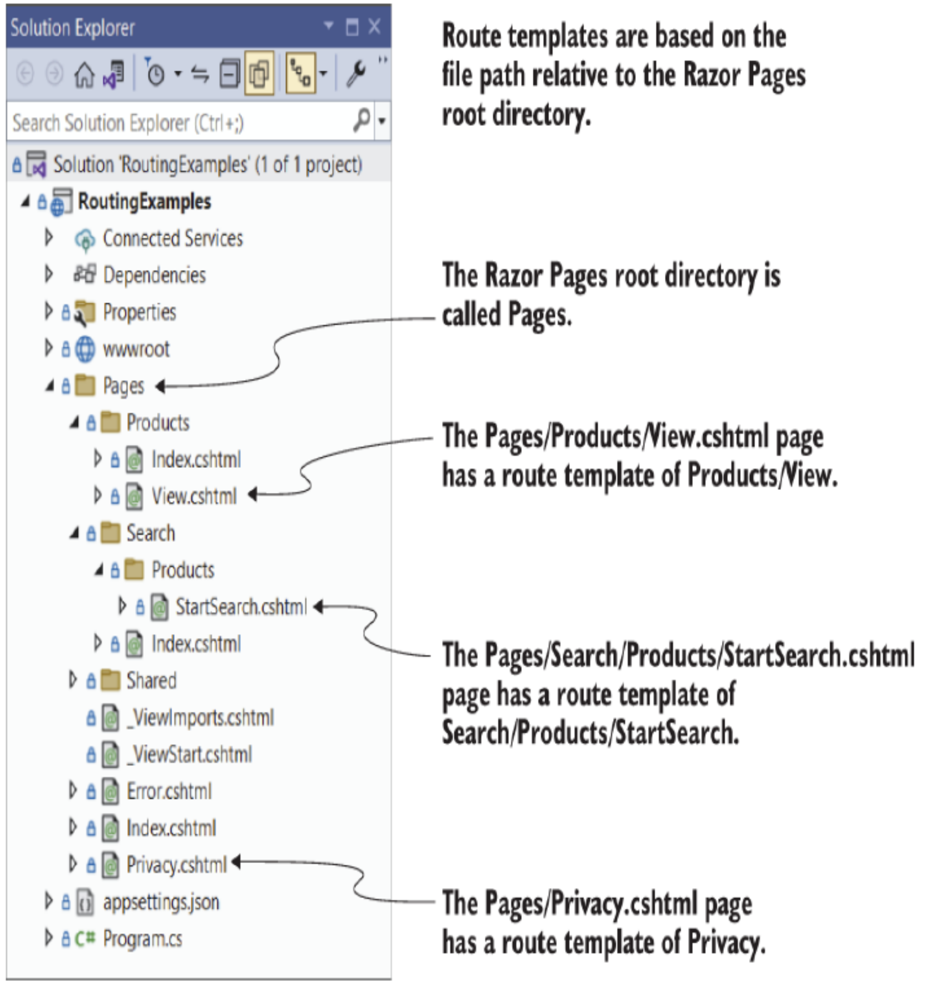
- **Convention-based routing** is **defined globally** for your application. You can use convention-based routes to map endpoints (MVC controller actions specifically) to URLs, but those MVC controllers must adhere strictly to the conventions you define.
- Alternatively, you can use **explicit routing** to tie a given URL to a **specific** endpoint.
  - You've seen this approach with minimal APIs, where each endpoint is **directly** associated with a route template.
- You can also use explicit routing with MVC controllers by placing **[Route]** attributes on the action methods themselves, hence explicit-routing is also often called attribute-routing.

ROUTING REQUESTS TO RAZOR PAGES

- Razor Pages use **explicit routing** by creating **route templates based on conventions.**
- For every Razor Page in your application, the framework uses the path of the Razor Page file relative to the Razor Pages root directory (Pages/), excluding the file extension (.cshtml).
- If you have a Razor Page located at the path Pages/Products/View.cshtml, the framework creates a route template with the value "Products/View"

ROUTING REQUESTS TO RAZOR PAGES

Remember that routing is not case-sensitive



```
Solution 'RoutingExamples' (1 of 1 project)
  RoutingExamples
    Connected Services
    Dependencies
    Properties
    wwwroot
    Pages
      Products
        Index.cshtml
        View.cshtml
      Search
        Products
          StartSearch.cshtml
        Index.cshtml
      Shared
      _ViewImports.cshtml
      _ViewStart.cshtml
      Error.cshtml
      Index.cshtml
      Privacy.cshtml
    appsettings.json
    Program.cs
```

Route templates are based on the file path relative to the Razor Pages root directory.

The Razor Pages root directory is called Pages.

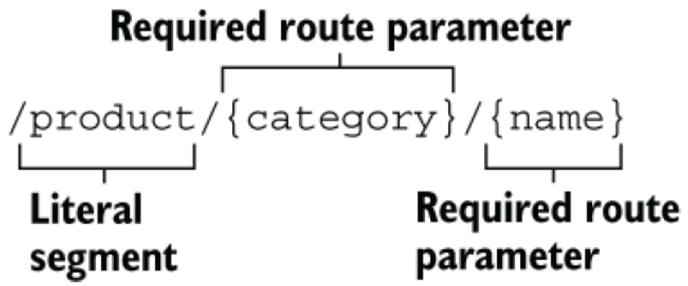
The Pages/Products/View.cshtml page has a route template of Products/View.

The Pages/Search/Products/StartSearch.cshtml page has a route template of Search/Products/StartSearch.

The Pages/Privacy.cshtml page has a route template of Privacy.

CUSTOMIZING RAZOR PAGE ROUTE TEMPLATES

- The route templates for a Razor Page are based on the file path by default, but you're also able to customize or replace the final template for each page.
- By default, Razor Pages have URLs consisting of a series of literal segments, such as "ToDo/Index".



ADDING A SEGMENT TO A RAZOR PAGE ROUTE TEMPLATE

- To **customize** the Razor Page route template, **you update the @page directive** at the top of the Razor Page's .cshtml file.
- To **add** an extra segment to a Razor Page's route template, add a **space** followed by the extra route template segment, after the @page statement.

```
@page "Extra"
```

- The default route template for the Razor Page at Pages/Privacy.xhtml, for example, is "**Privacy**".
  - With the preceding directive, the new route template for the page would be "**Privacy/Extra**".

ADDING A SEGMENT TO A RAZOR PAGE ROUTE TEMPLATE

- The most common reason for customizing a Razor Page's route template like this is to add a route parameter.
- @page "{category}/{name}“ would match all the following URLs:
  - /products/bags/white-rucksack
  - /products/shoes/black-size9
  - /Products/phones/iPhoneX
- You can use the **same routing features** you learned about in chapter 6 with Razor Pages, including **optional** parameters, **default** parameters, and **constraints**.

REPLACING A RAZOR PAGE ROUTE TEMPLATE COMPLETELY

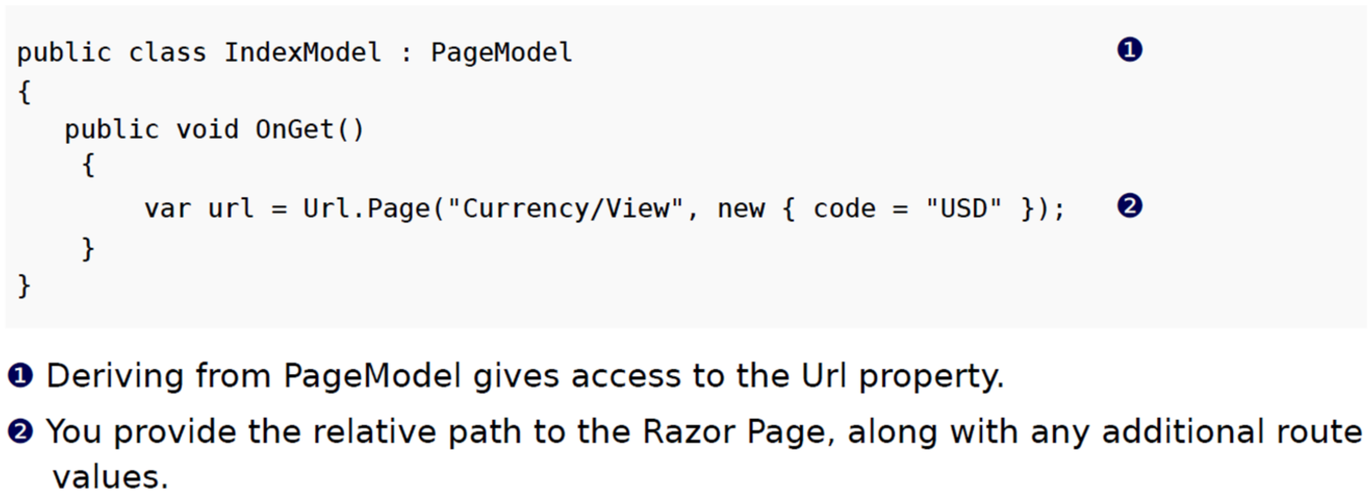
- To specify a custom route for a Razor Page, prefix the route with / in the @page directive.
  - This directive includes the "/" at the start of the route, indicating that this is a **custom** route template, instead of an **addition**.
- @page "/{category}/{name}“
- @page "/checkout"

GENERATING URLS FOR RAZOR PAGES

- One of the benefits of using convention-based routing in Razor Pages is that your URLs can be somewhat fluid.
- If you rename a Razor Page, the URL associated with that page also changes.
- Renaming the Pages/Cart.cshtml page to Pages/Basket/View.cshtml, for example, causes the URL you use to access the page to change from /Cart to /Basket/View.

GENERATING URLS FOR A RAZOR PAGE

- The **Url** property is an instance of **IUrlHelper** that allows you to easily generate URLs for your application by referencing other Razor Pages by their file path.
- IUrlHelper has several different **overloads** of the Page() method.
  - Some of these methods allow you to specify a specific page handler, others let you generate an absolute URL instead of a relative URL, and some let you pass in additional route values.



```
public class IndexModel : PageModel                                    ❶
{
   public void OnGet()
    {
        var url = Url.Page("Currency/View", new { code = "USD" });    ❷
    }
}
```

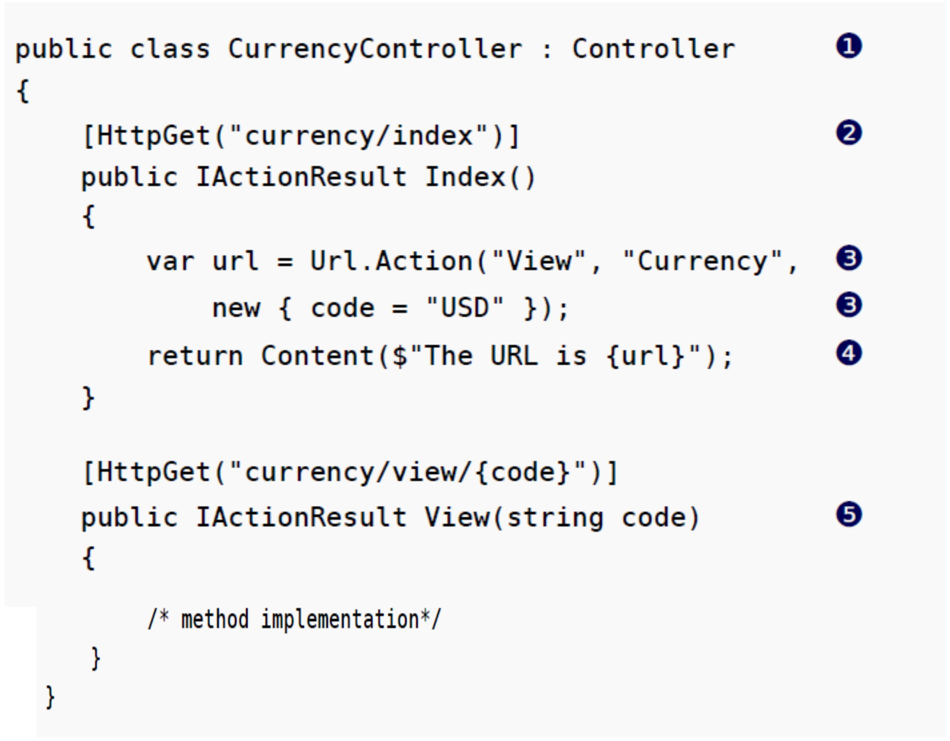
❶ Deriving from PageModel gives access to the Url property.

❷ You provide the relative path to the Razor Page, along with any additional route values.

GENERATING URLS FOR AN MVC CONTROLLER

- Similar to Razor Pages.
- The main difference is that you use the **Action** method on the IUrlHelper, and you provide an MVC **controller** name and action name instead of a **page path**.

GENERATING URLS FOR AN MVC CONTROLLER



```
public class CurrencyController : Controller          ❶
{
    [HttpGet("currency/index")]                       ❷
    public IActionResult Index()
    {
        var url = Url.Action("View", "Currency",      ❸
            new { code = "USD" });                    ❸
        return Content($"The URL is {url}");          ❹
    }

    [HttpGet("currency/view/{code}")]
    public IActionResult View(string code)            ❺
    {
        /* method implementation*/
    }
}
```

❶ Deriving from Controller gives access to the Url property.

❷ Explicit route templates using attributes

❸ You provide the action and controller name to generate, along with any additional route values.

❹ Returns "The URL is /Currency/View/USD"

❺ The URL generated a route to this action method.

GENERATING URLS WITH LINKGENERATOR

- LinkGenerator has various analogous methods for generating URLs for Razor Pages and MVC actions, such as GetPathByPage(), GetPathByAction(), and GetUriByPage(), as shown in the following listing.

GENERATING URLS WITH LINKGENERATOR

```
public class CurrencyModel : PageModel
{
    private readonly LinkGenerator _link;                      ❶
    public CurrencyModel(LinkGenerator linkGenerator)          ❶
    {                                                          ❶
        _link = linkGenerator;                                 ❶
    }                                                          ❶

    public void OnGet ()
    {
        var url1 = Url.Page("Currency/View", new { id = 5 });  ❷
        var url3 = _link.GetPathByPage(                        ❸
                       HttpContext,                            ❸
                       "/Currency/View",                       ❸
                       values: new { id = 5 });                ❸
        var url2 = _link.GetPathByPage(                        ❹
                       "/Currency/View",                       ❹
                       values: new { id = 5 });                ❹
        var url4 = _link.GetUriByPage(                         ❺
                       page: "/Currency/View",                 ❺
                       handler: null,                          ❺
                       values: new { id = 5 },                 ❺
                       scheme: "https",                        ❺
                       host: new HostString("example.com"));   ❺
    }
}
```

CUSTOMIZING CONVENTIONS WITH RAZOR PAGES

```
WebApplicationBuilder builder = WebApplication.CreateBuilder(args);
builder.Services.AddRazorPages();

builder.Services.Configure<RouteOptions>(o =>      ❶
{                                                  ❶
    o.LowercaseUrls = true;                        ❶
    o.LowercaseQueryStrings = true;                ❶
    o.AppendTrailingSlash = true;                  ❶
});
```

```
WebApplication app = builder.Build();

app.MapRazorPages();

app.Run();
```

❶ Changes the conventions used to generate URLs. By default, these properties are false.

ADVICE

- Avoid replacing the route template with an absolute path in a page’s @page directive.
- Avoid adding literal segments to the @page directive. Rely on the file hierarchy instead.
- Avoid adding additional route templates to a Razor Page with the AddPageRoute() convention. Having multiple URLs to access a page can often be confusing.
- Do add route parameters to the @page directive to make your routes dynamic, as in @page “ {name}".
- Do consider using global conventions when you want to change the route templates for all your Razor Pages, such as using kebab-case, as you saw earlier.