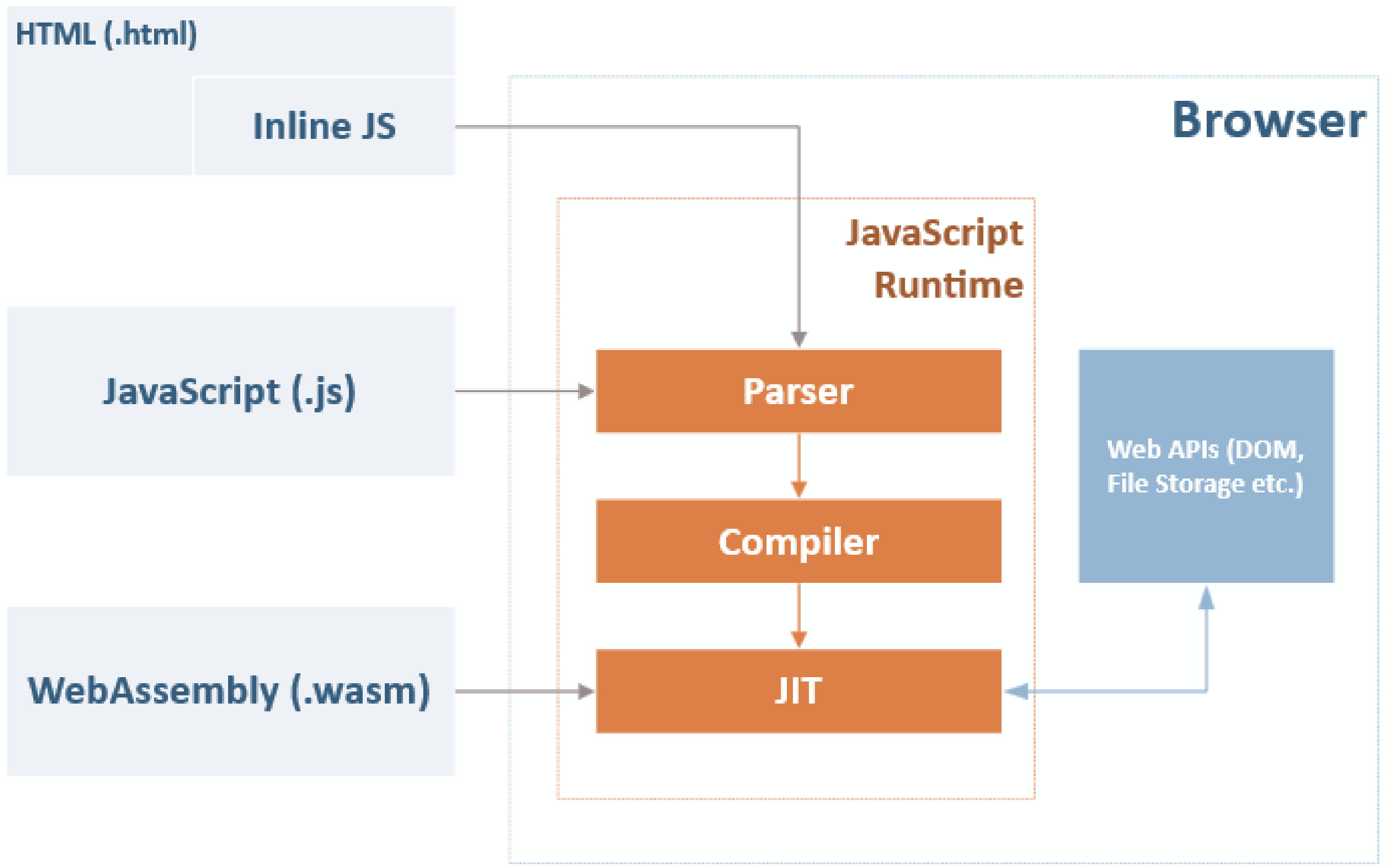
Introduction to Blazor
C# in the browser

WebAssembly

WebAssembly (abbreviated *Wasm*) is a binary instruction format for a stack-based virtual machine. Wasm is designed as a portable target for compilation of high-level languages like C/C++/Rust, enabling deployment on the web for client and server applications.

WebAssembly

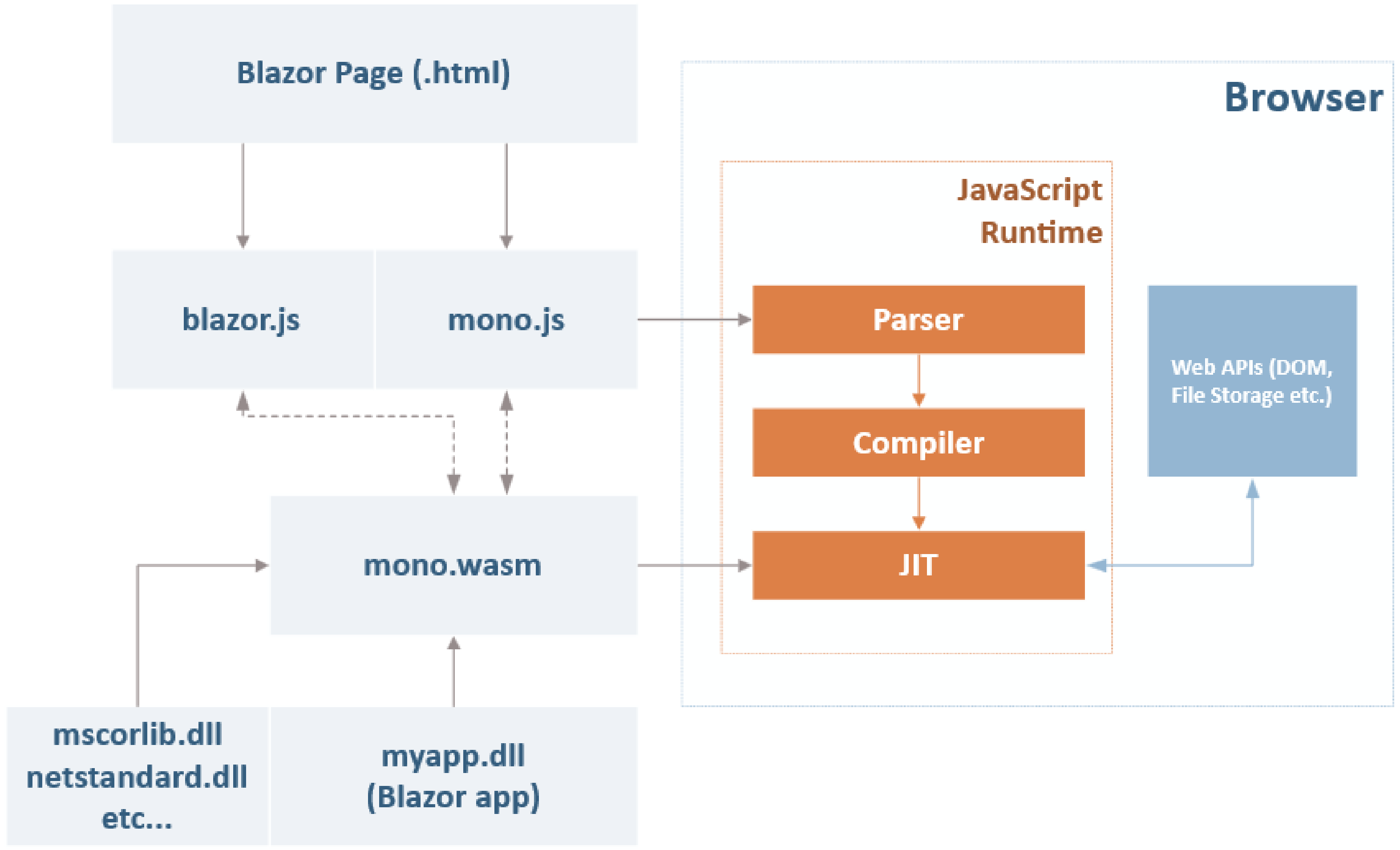


Mono

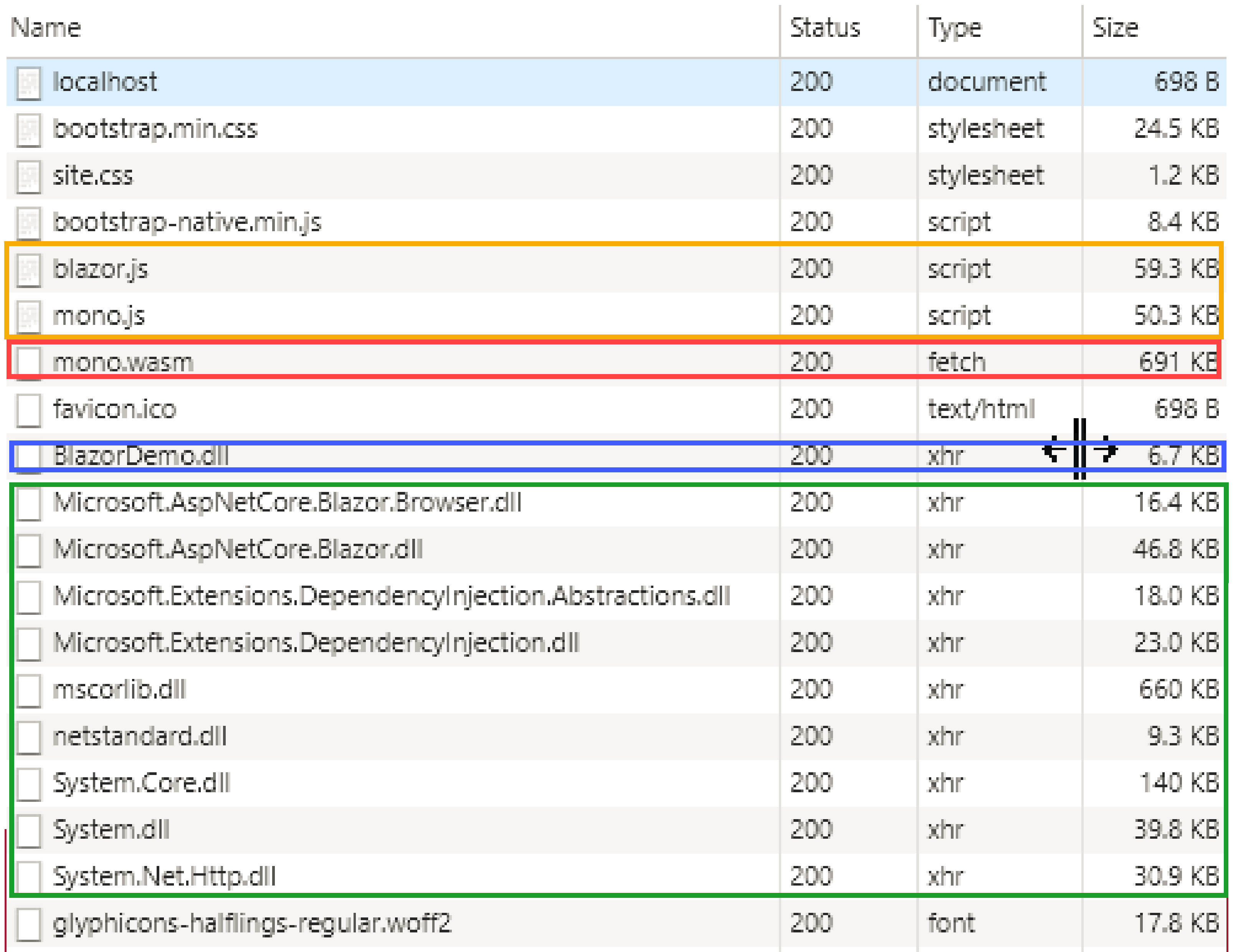
“Mono C runtime into web assembly, and then uses Mono’s IL interpreter to run managed code.”

Miguel de Icaza – Aug 9, 2017

WASM and Mono

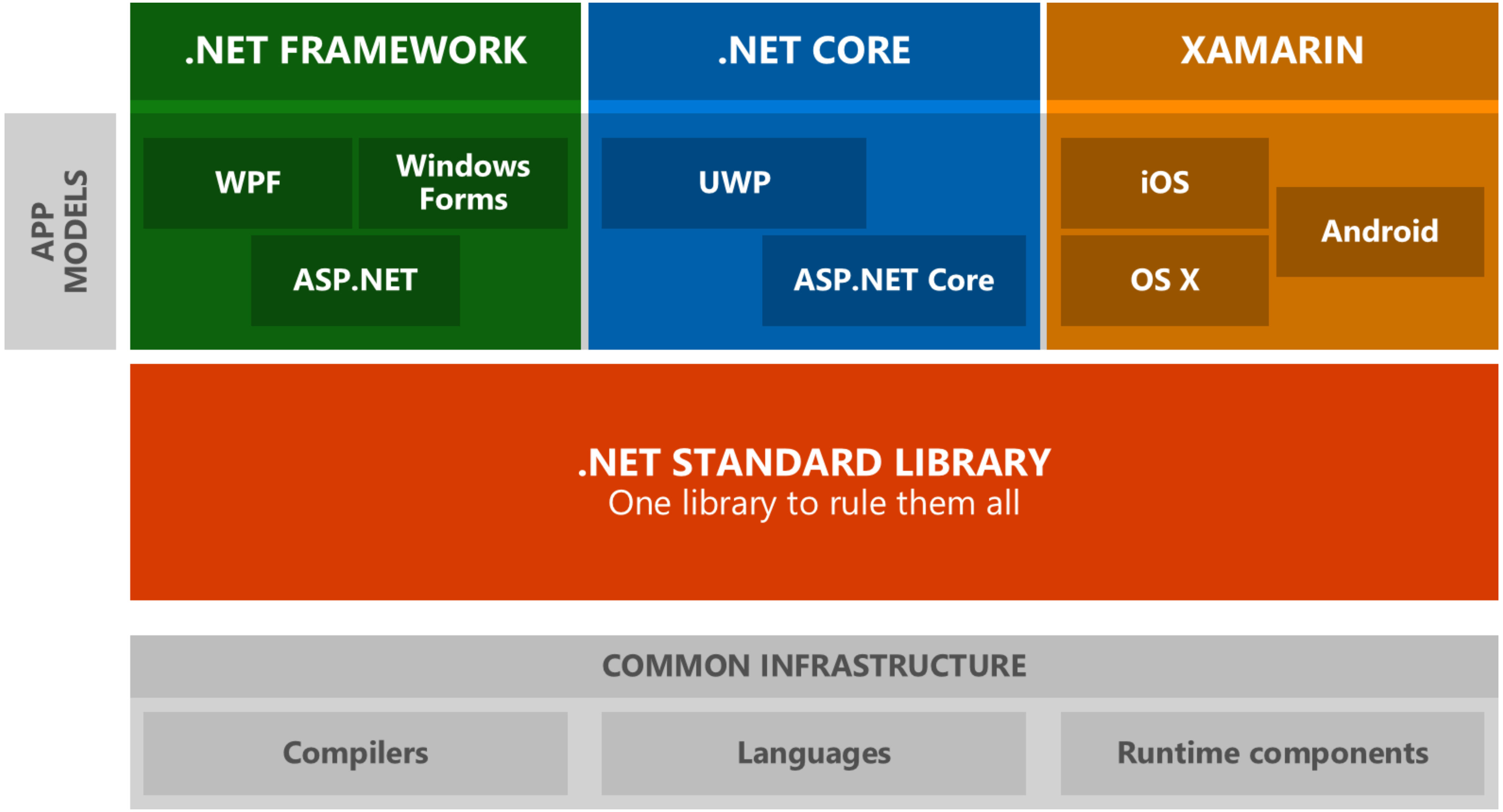


Example – network from web browser



Name	Status	Type	Size
localhost	200	document	698 B
bootstrap.min.css	200	stylesheet	24.5 KB
site.css	200	stylesheet	1.2 KB
bootstrap-native.min.js	200	script	8.4 KB
blazor.js	200	script	59.3 KB
mono.js	200	script	50.3 KB
mono.wasm	200	fetch	691 KB
favicon.ico	200	text/html	698 B
BlazorDemo.dll	200	xhr	6.7 KB
Microsoft.AspNetCore.Blazor.Browser.dll	200	xhr	16.4 KB
Microsoft.AspNetCore.Blazor.dll	200	xhr	46.8 KB
Microsoft.Extensions.DependencyInjection.Abstractions.dll	200	xhr	18.0 KB
Microsoft.Extensions.DependencyInjection.dll	200	xhr	23.0 KB
mscorlib.dll	200	xhr	660 KB
netstandard.dll	200	xhr	9.3 KB
System.Core.dll	200	xhr	140 KB
System.dll	200	xhr	39.8 KB
System.Net.Http.dll	200	xhr	30.9 KB
glyphicons-halflings-regular.woff2	200	font	17.8 KB

.NET Standard library



Blazor Elements

- Component Model
- Routing
- Layouts
- Forms and Validation
- Dependency Injection
- Javascript Interop

Blazor Lifecycle

OnInit

Ready to start after receiving parameters from the parent in the render tree.

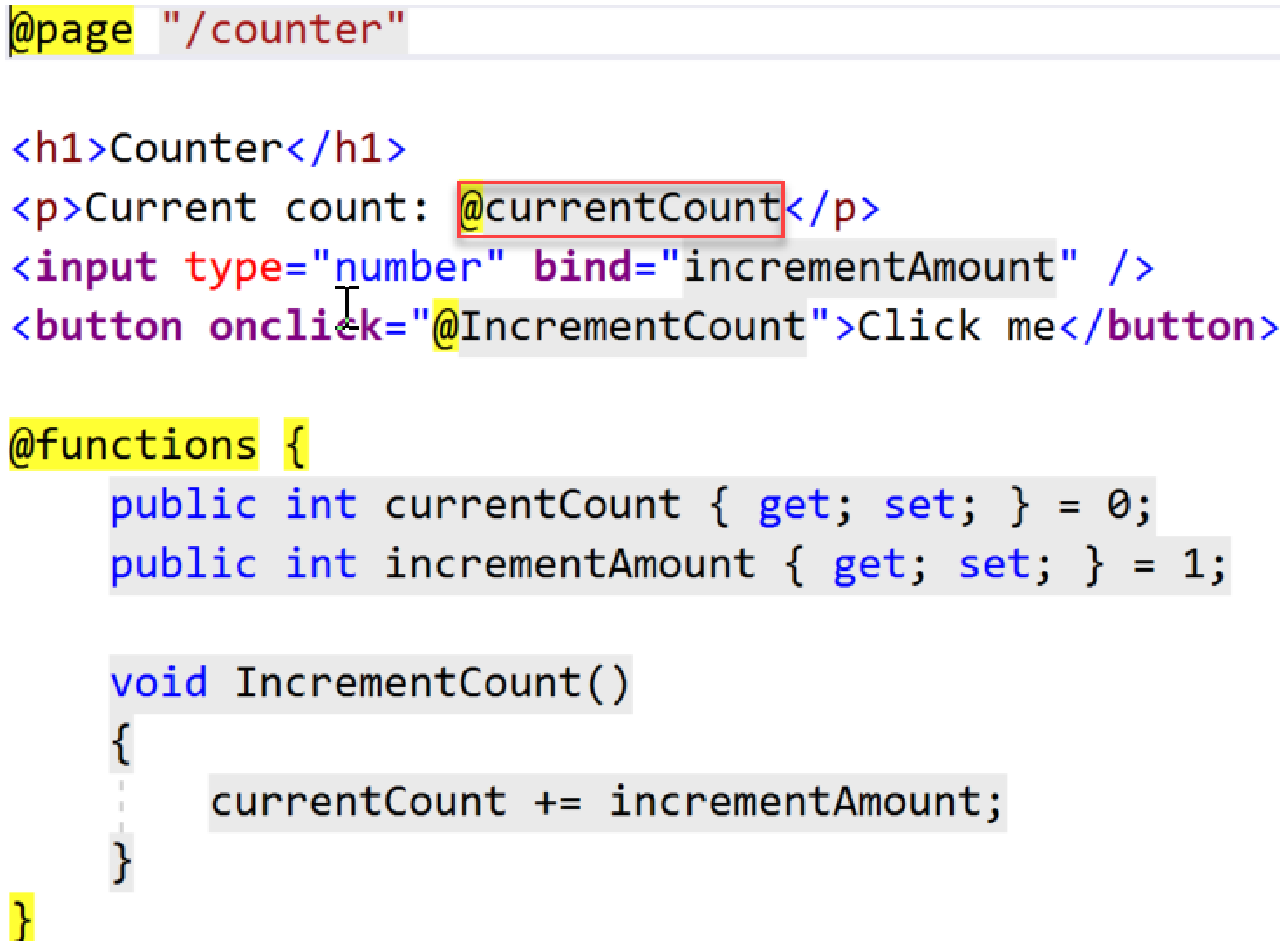
OnParametersSet

Invoked when component receives params from the parent in the render tree.

ShouldRender

Suppress refreshing the UI.

One-way data binding



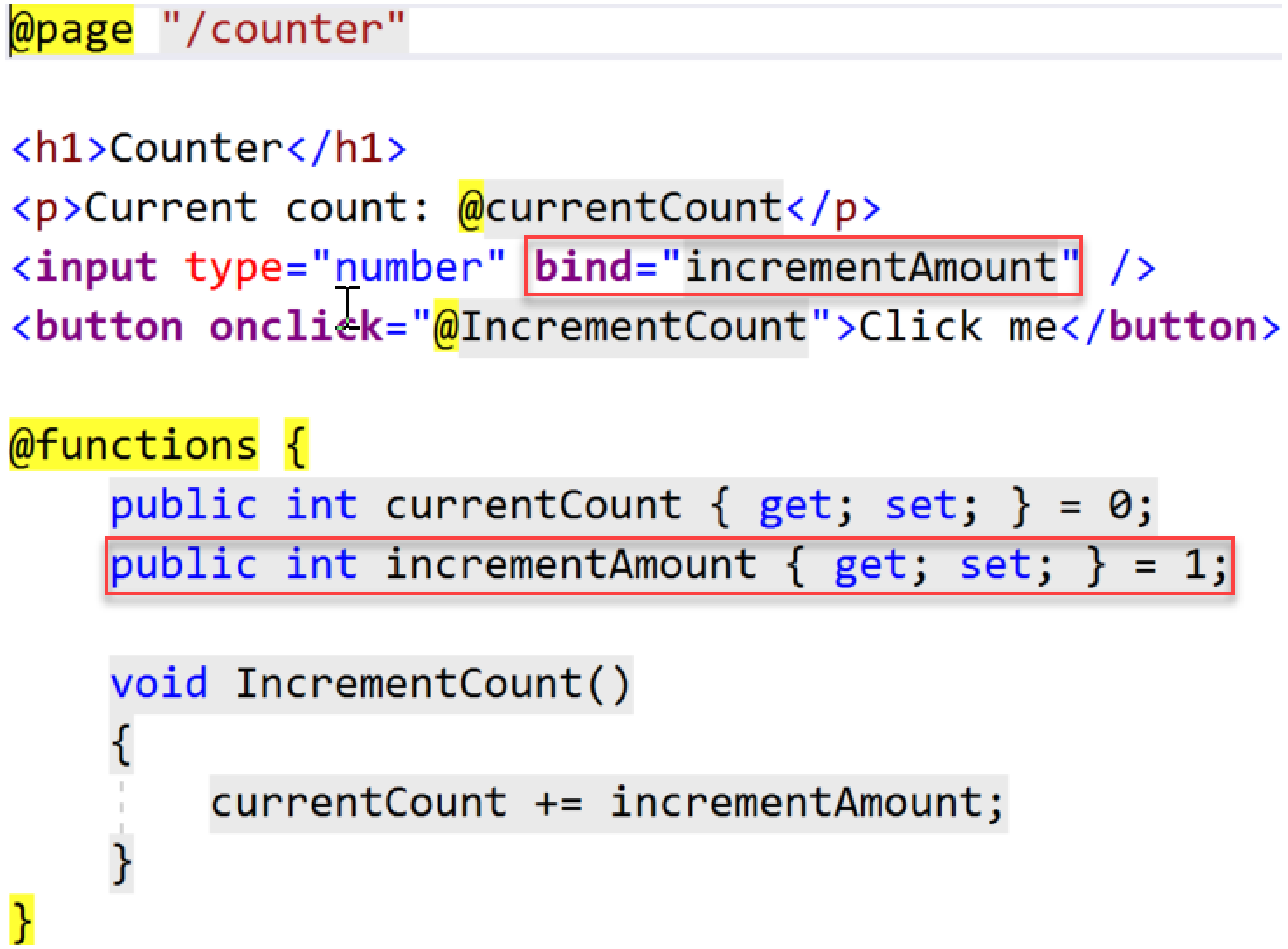
```
@page "/counter"

<h1>Counter</h1>
<p>Current count: @currentCount</p>
<input type="number" bind="incrementAmount" />
<button onclick="@IncrementCount">Click me</button>

@functions {
    public int currentCount { get; set; } = 0;
    public int incrementAmount { get; set; } = 1;

    void IncrementCount()
    {
        currentCount += incrementAmount;
    }
}
```

Two-way data binding



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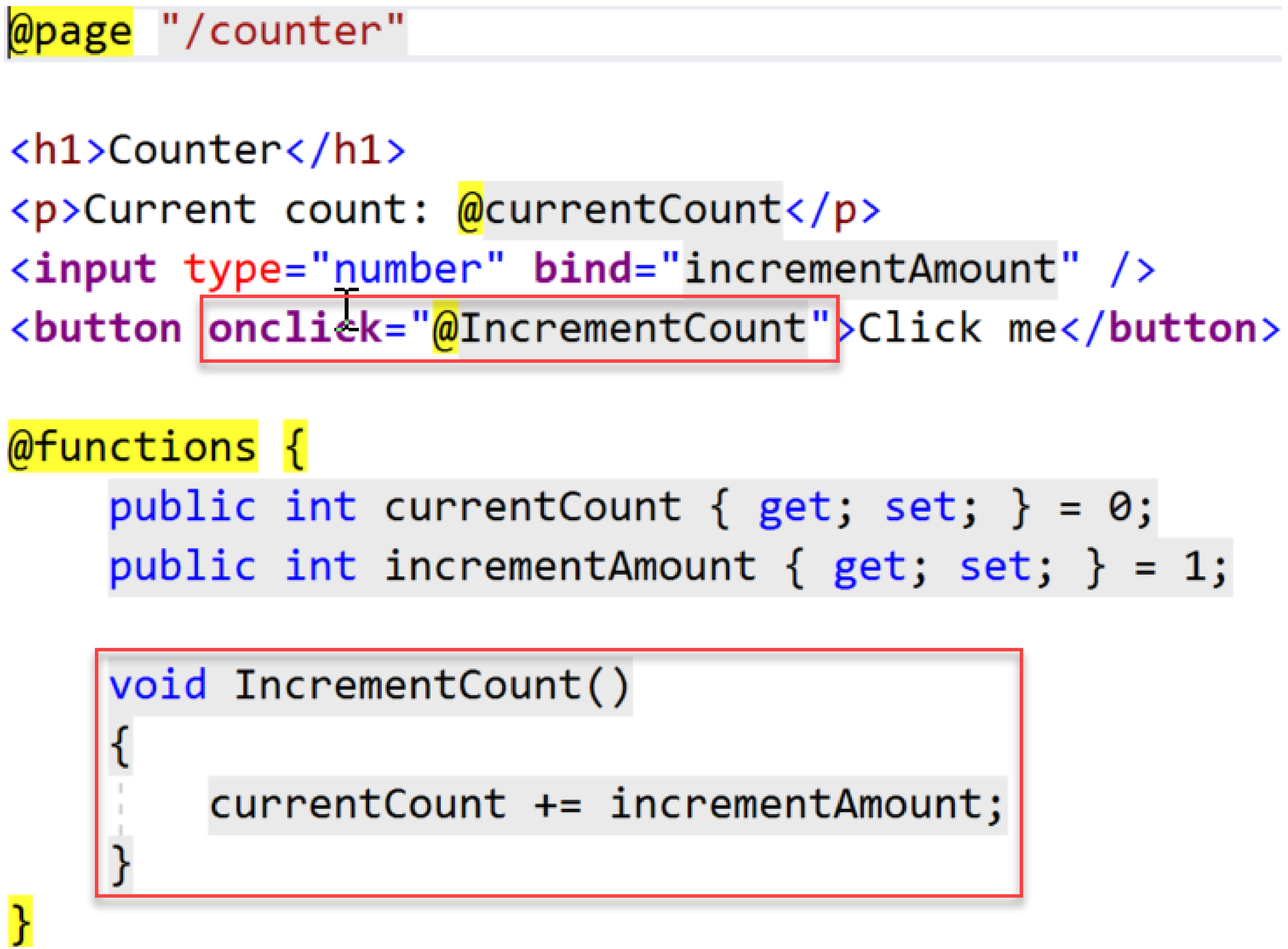
```

Event binding



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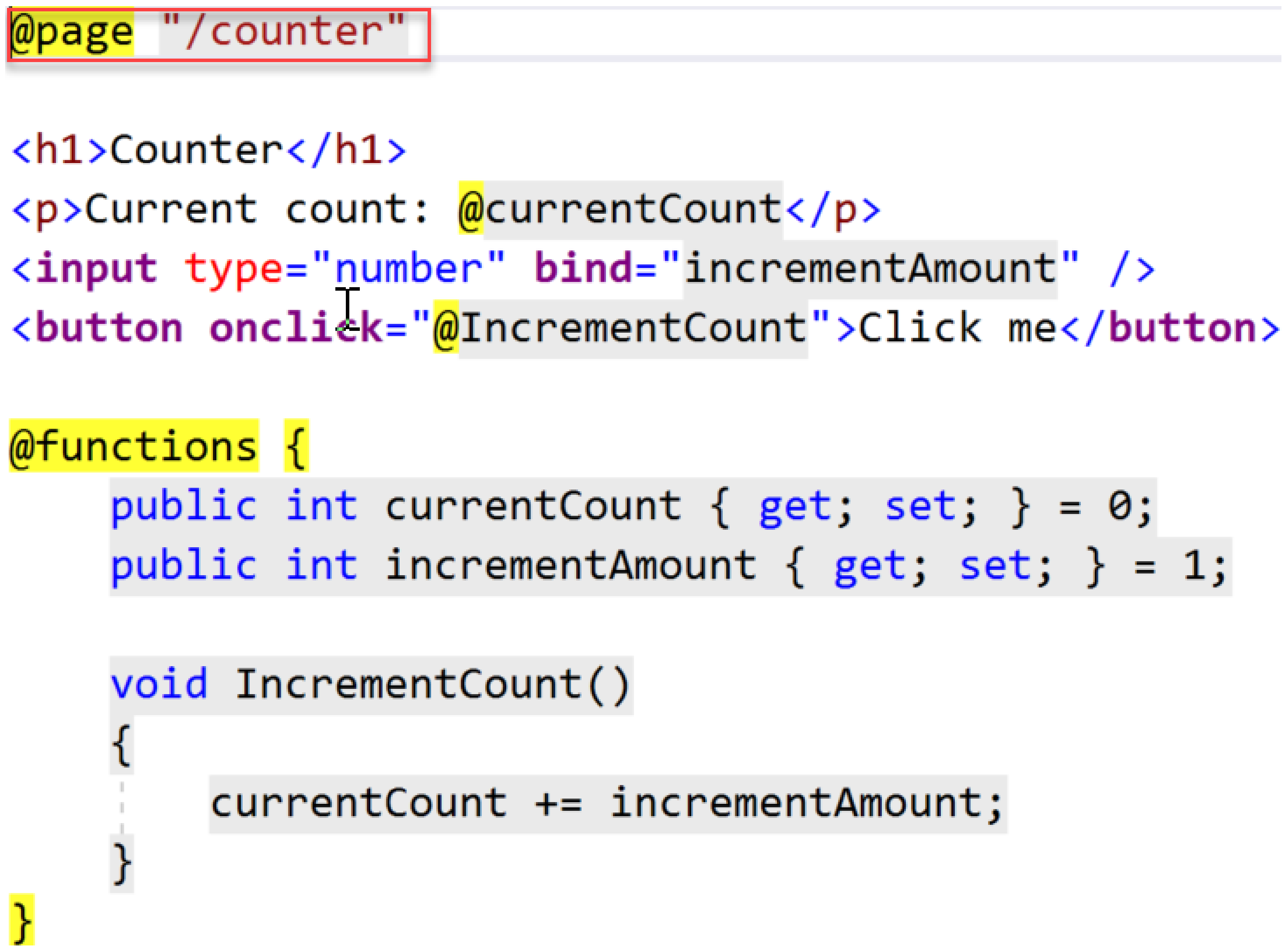
Client side routing



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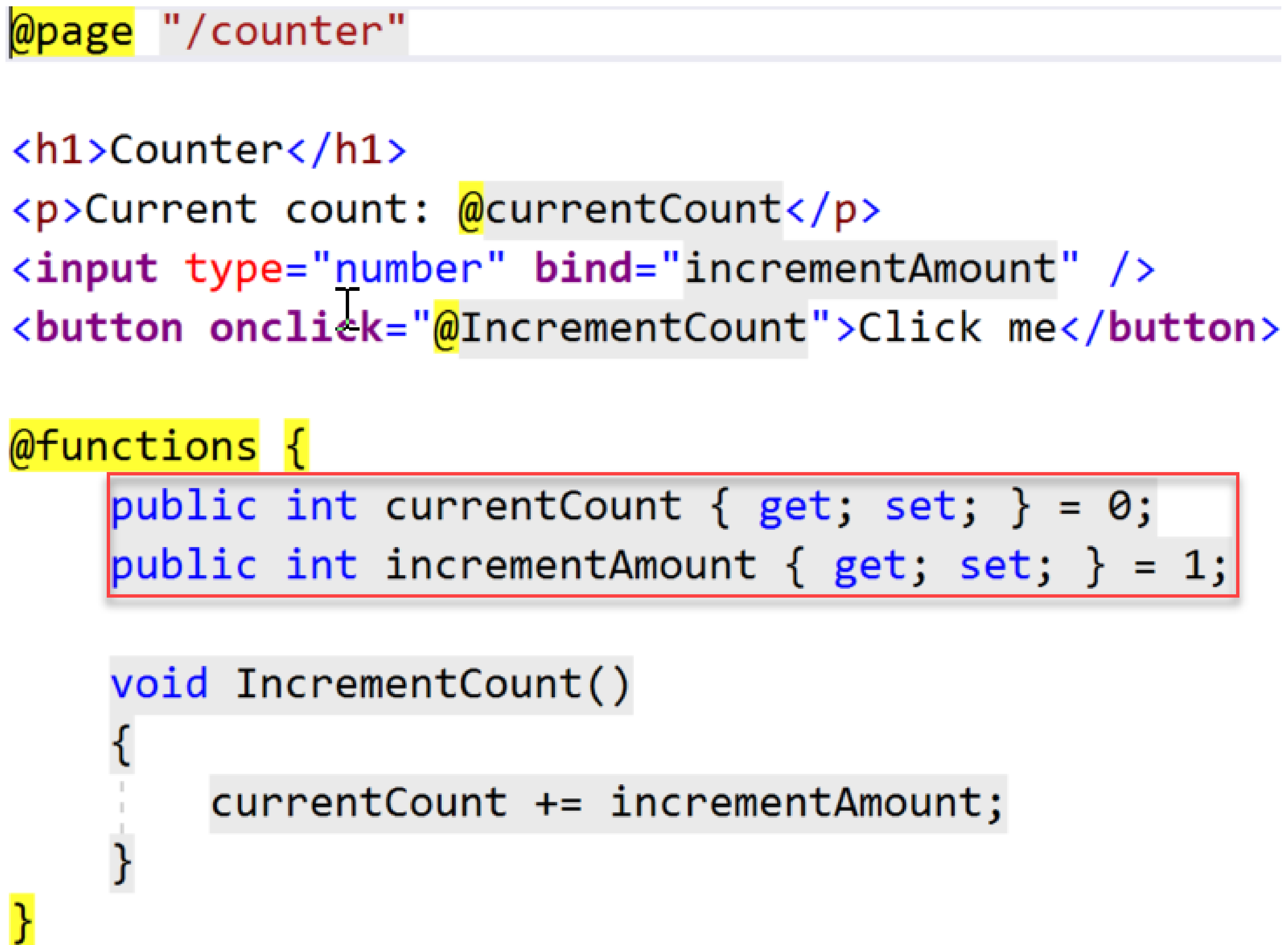
```

Componet properties



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@page "/counter"

<h1>Counter</h1>
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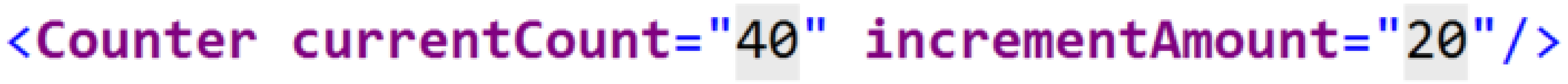
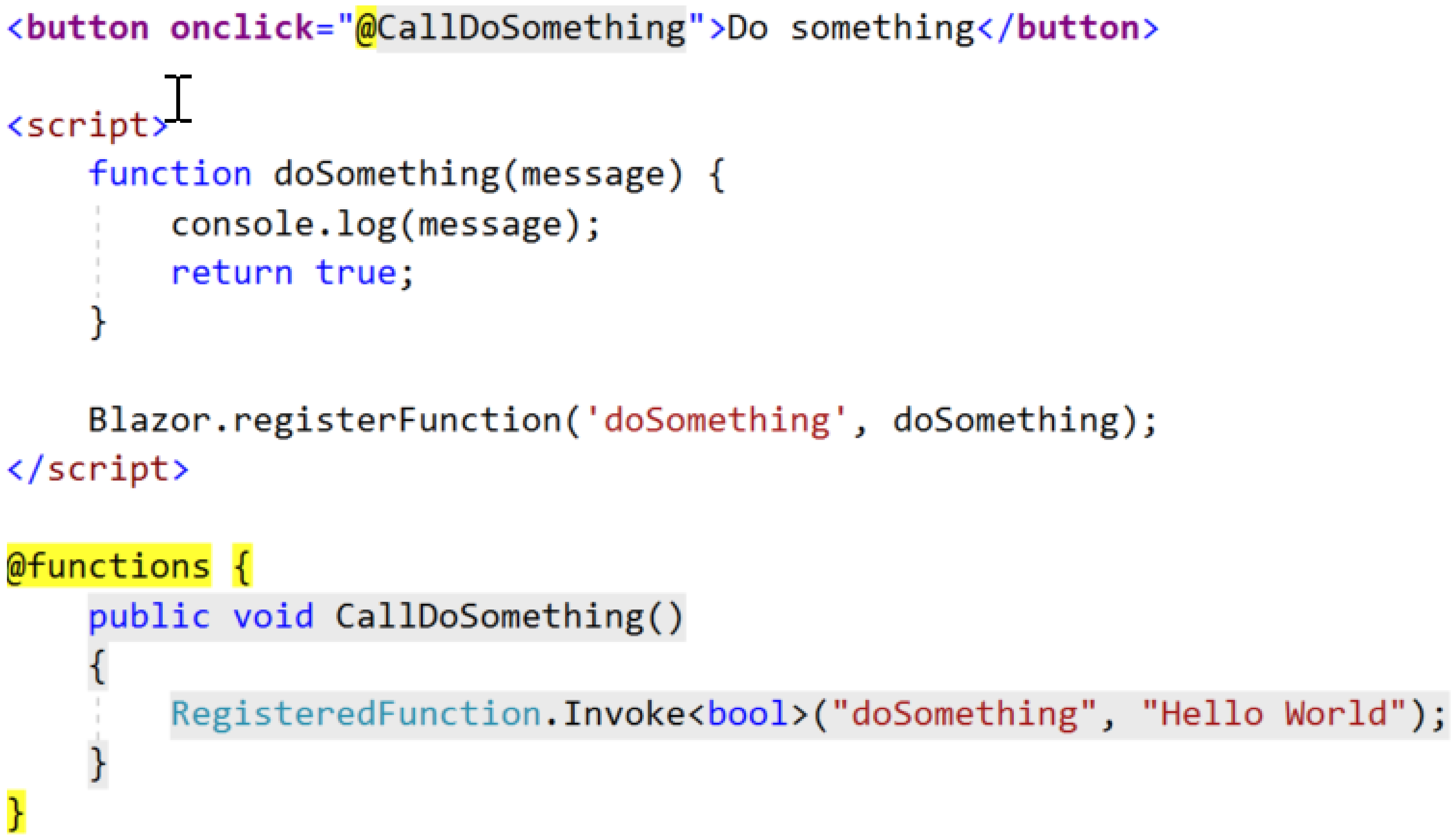
    void IncrementCount()
    {
        currentCount += incrementAmount;
    }
}
```

Component usage



```
<Counter currentCount="40" incrementAmount="20"/>
```

JavaScript interop – C# calling JavaScript



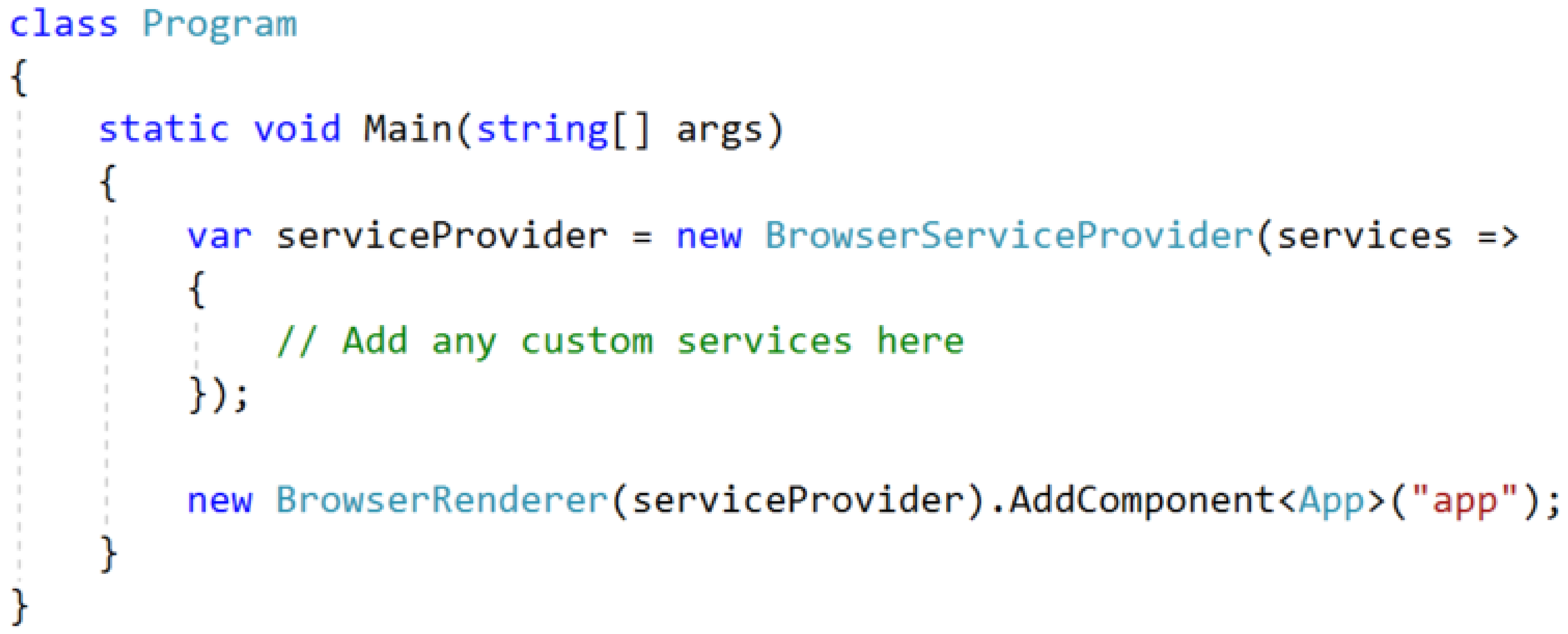
```
<button onclick="@CallDoSomething">Do something</button>

<script>
    function doSomething(message) {
        console.log(message);
        return true;
    }

    Blazor.registerFunction('doSomething', doSomething);
</script>

@functions {
    public void CallDoSomething()
    {
        RegisteredFunction.Invoke<bool>("doSomething", "Hello World");
    }
}
```

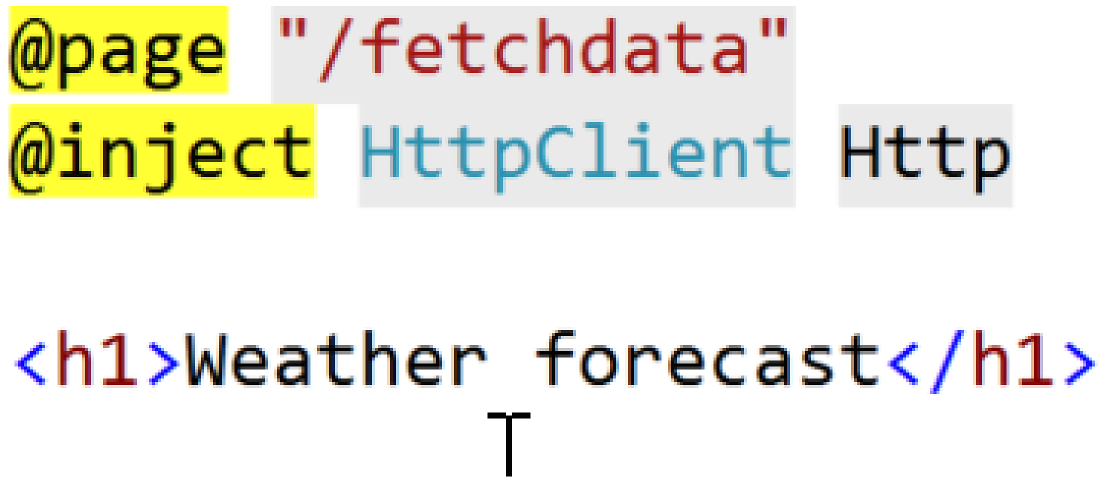
Dependency Injection



```
class Program
{
    static void Main(string[] args)
    {
        var serviceProvider = new BrowserServiceProvider(services =>
        {
            // Add any custom services here
        });

        new BrowserRenderer(serviceProvider).AddComponent<App>("app");
    }
}
```

Dependency Injection



```
@page "/fetchdata"
@inject HttpClient Http

<h1>Weather forecast</h1>
```

Thanks for your attention!