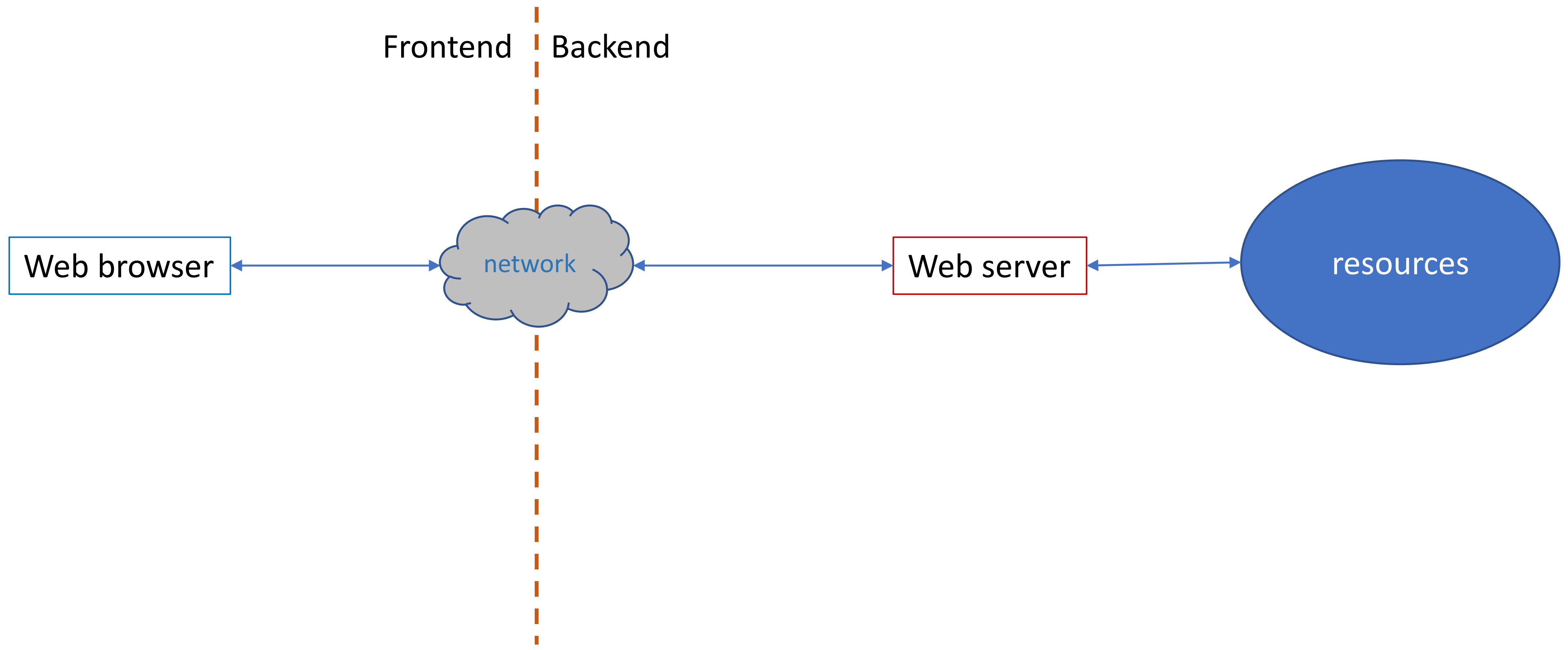
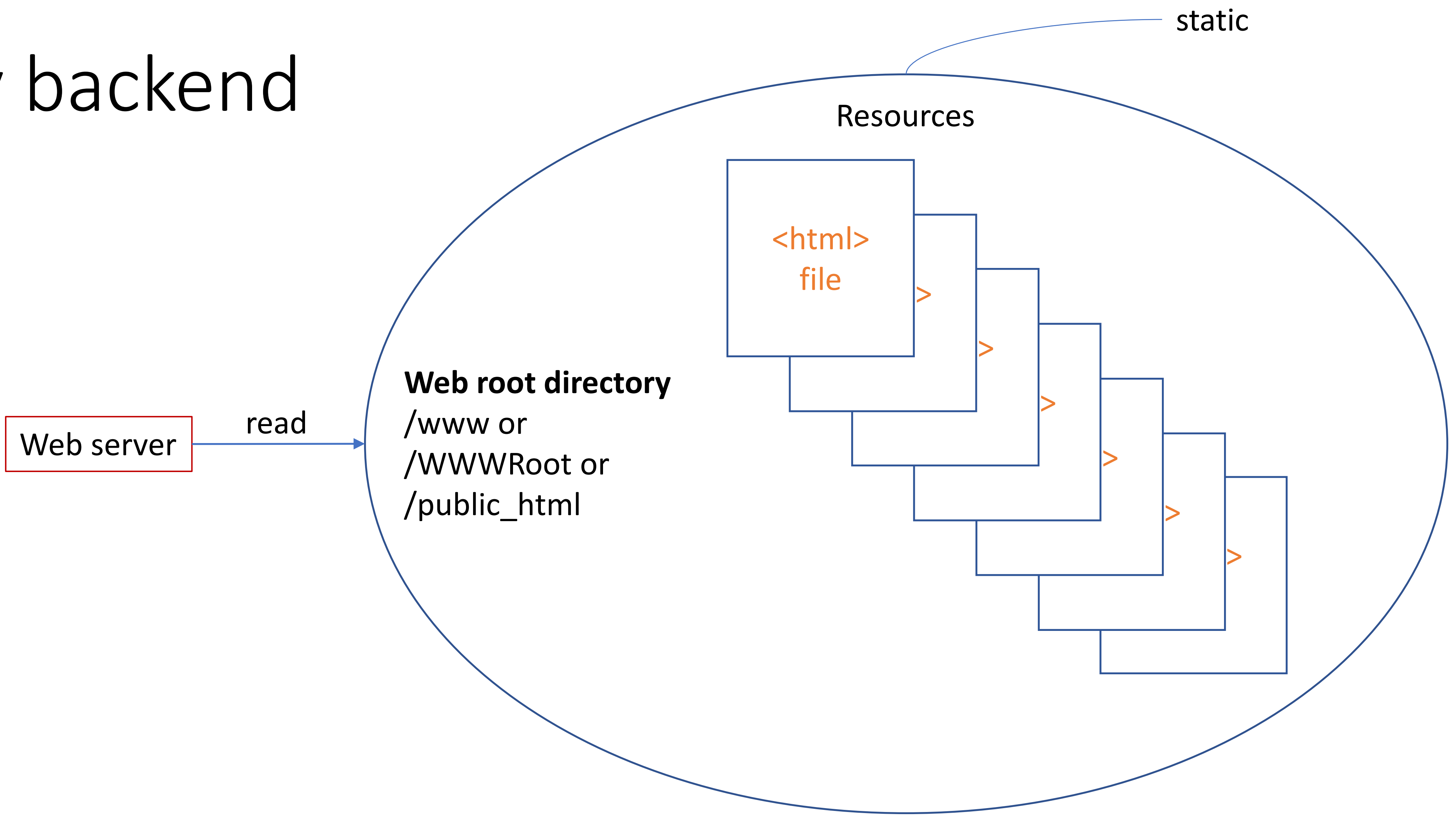
Backend

History & ASP.Net Core Introduction

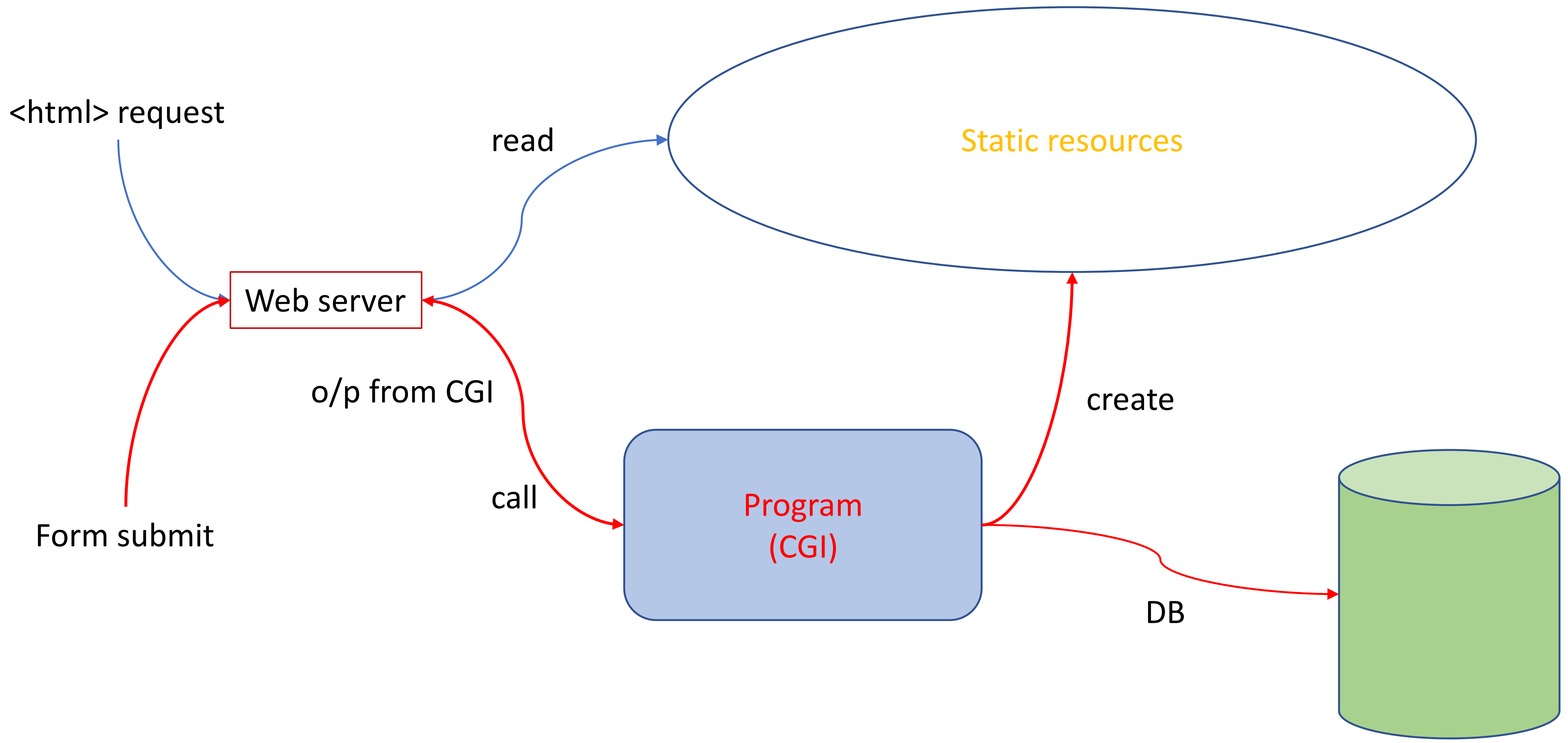
Web in general



Early backend

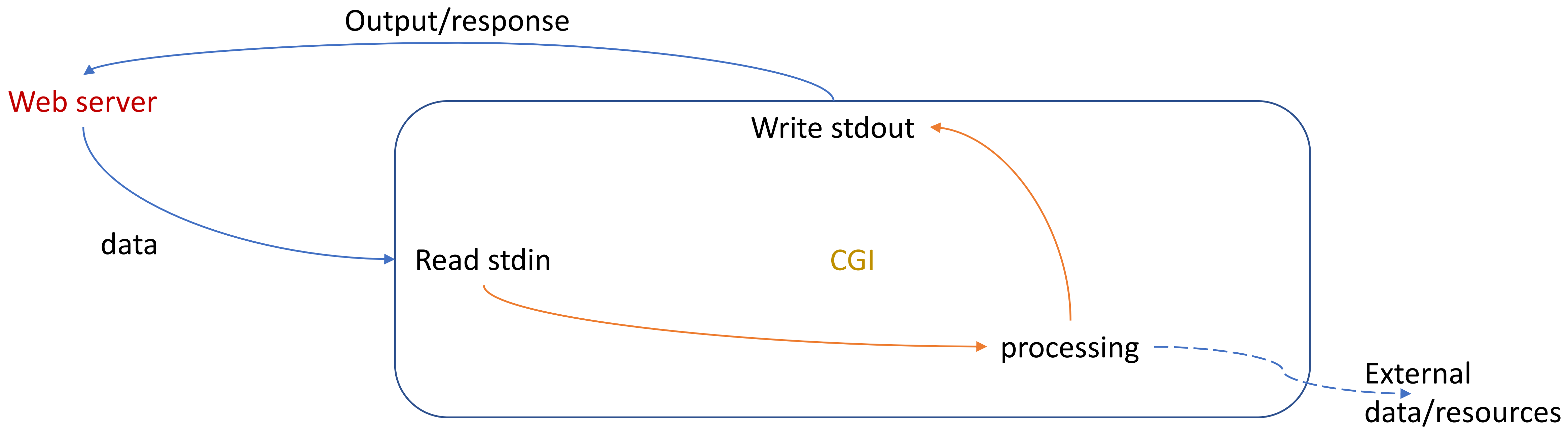


Early backend with data handling

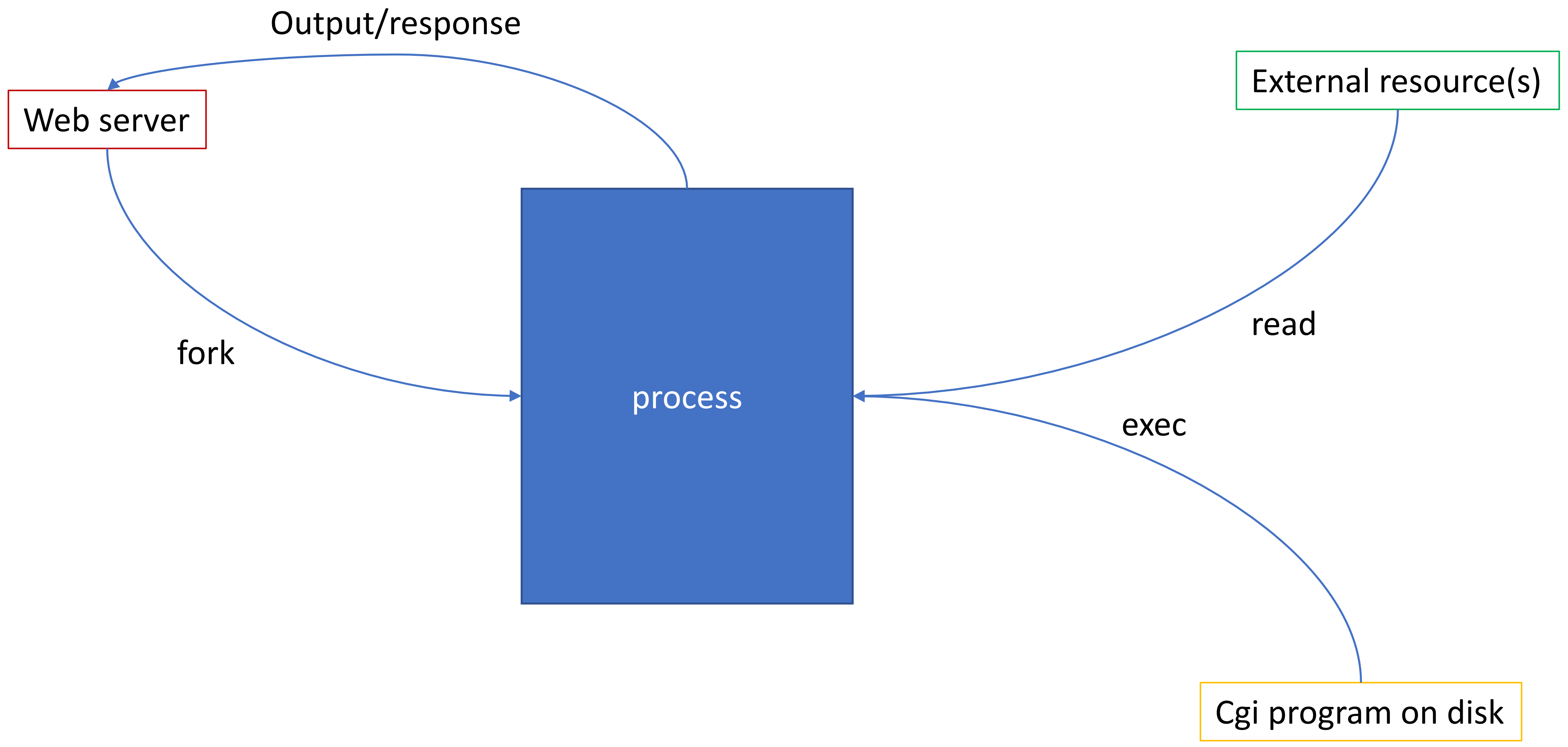


Early CGI

- Develop with language such as C/C++, perl, etc.
- Data transfer from web server to CGI via standard input
- Data transfer from CGI to web server via standard output



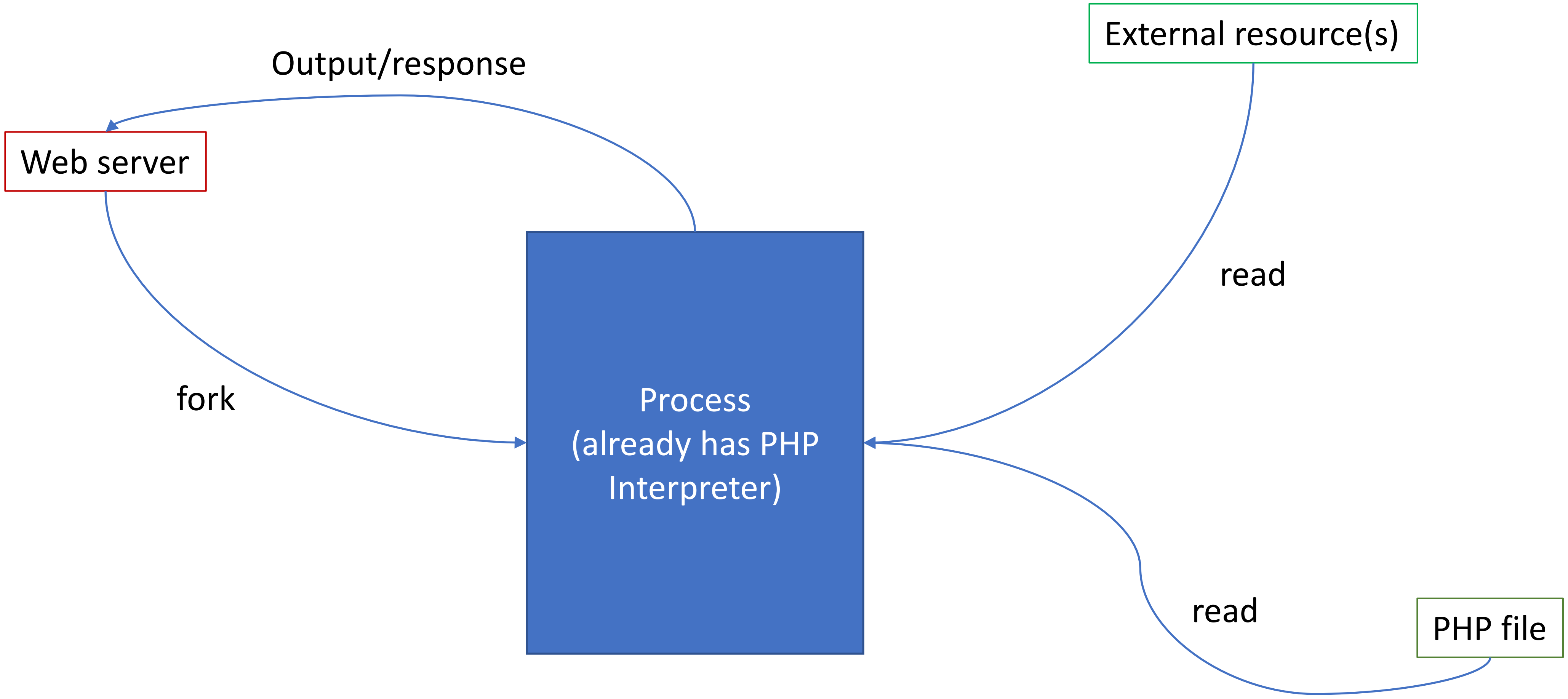
Execution


Output/response
Web server
External resource(s)
fork
process
read
exec
Cgi program on disk

PHP (ASP)

- Easier data input handling
  - Automatic generate $_GET or $_POST
- Easier coding
  - Coding in html file
  - <?php …. ?>
- Integrates PHP interpreter into web server (option)
  - Speed up execution

Execution



Output/response
External resource(s)
Web server
read
fork
Process (already has PHP Interpreter)
read
PHP file

ASP

- Classic ASP
- Active Server Page
- Developed by Microsoft
- Same concepts as PHP
- ASP command written within <% … %>
- Based on VBScript syntax

Example: ASP code

```
<!DOCTYPE html>
<html>
<body>

<p>ASP example: output HTML tag</p>

<%
response.write("<h1>Hello World!</h1>")
%>

</body>
</html>
```

Example: what browser receive

```
<!DOCTYPE html>
<html>
<body>

<p>ASP example: output HTML tag</p>

<h1>Hello World!</h1>

</body>
</html>
```

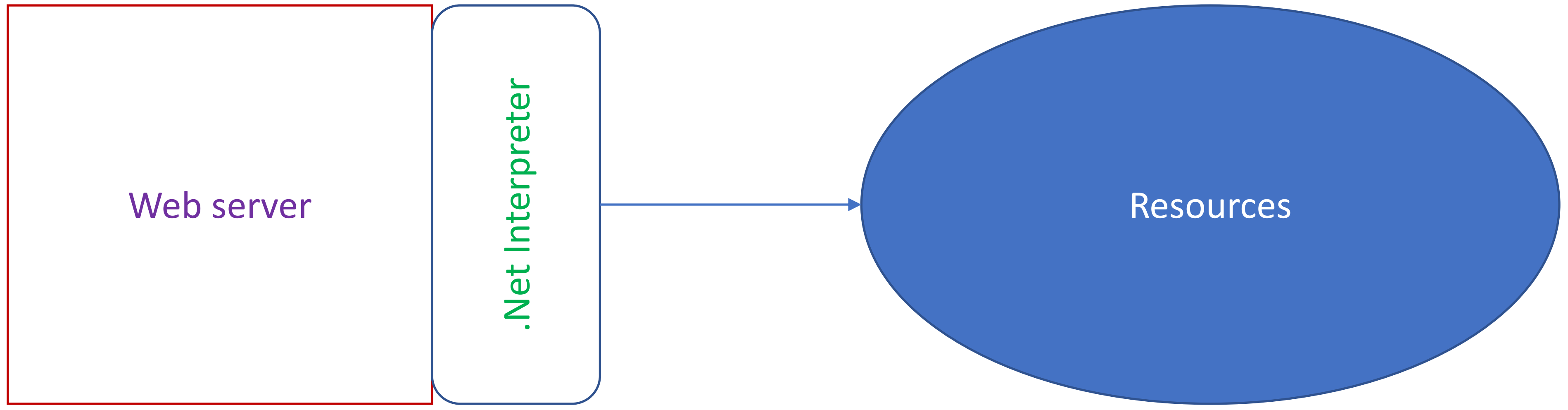
ASP.Net

- Release in 2002 as a successor to ASP
- Normally used c# syntax
- Uses .aspx as an extension
- Tutorial: https://www.w3schools.com/asp/webpages_intro.asp

Example:

```
<!DOCTYPE html>
<html>
<body>
@{
if (IsPost)
{
string companyname = Request["CompanyName"];
string contactname = Request["ContactName"];
<p>You entered: <br>
Company Name: @companyname <br>
Contact Name: @contactname </p>
}
else
{
<form method="post" action="">
Company Name:<br>
<input type="text" name="CompanyName" value=""><br>
Contact Name:<br><br>
<input type="text" name="ContactName" value=""><br><br>
<input type="submit" value="Submit" class="submit">
</form>
}
}
</body>
</html>
```

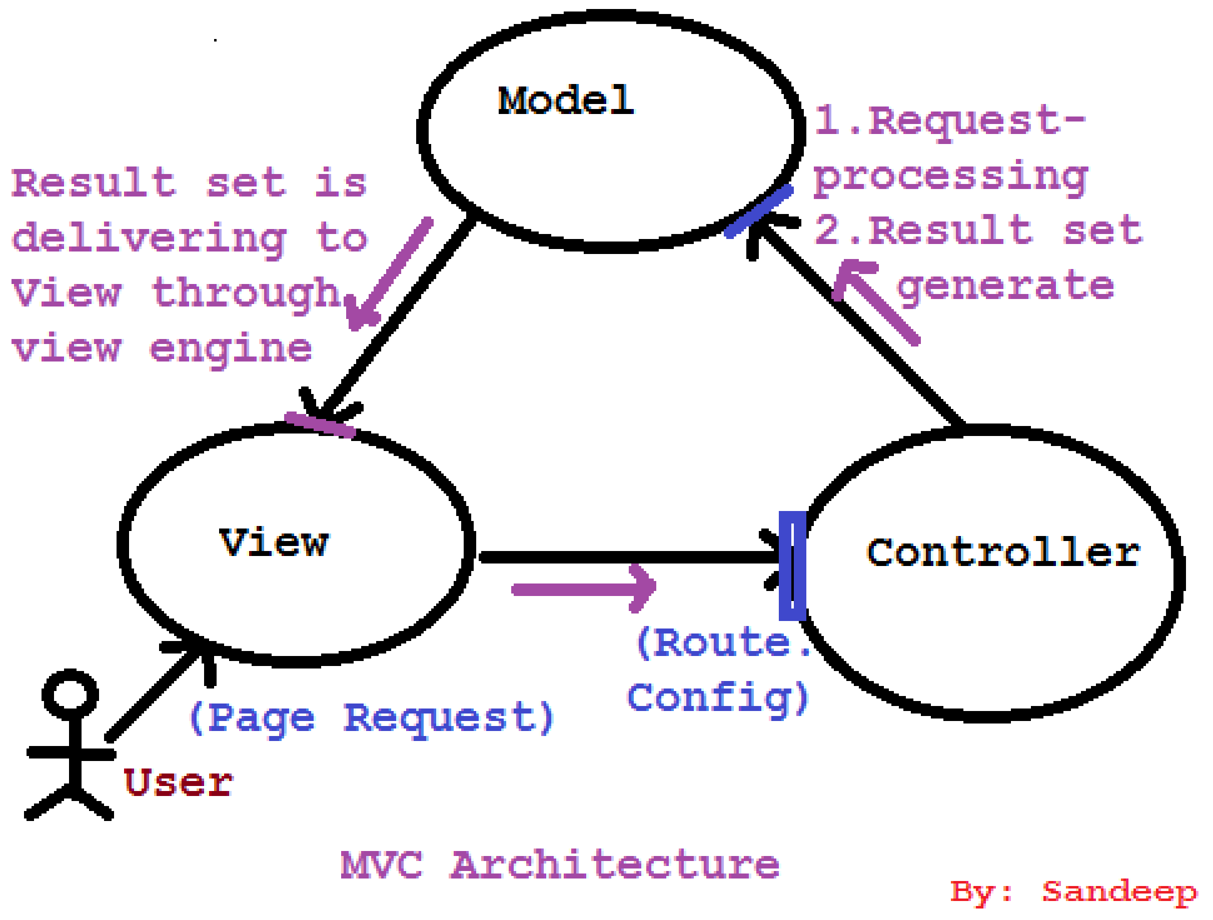
ASP/ASP.Net



ASP.Net MVC → ASP.Net Core MVC (2016)

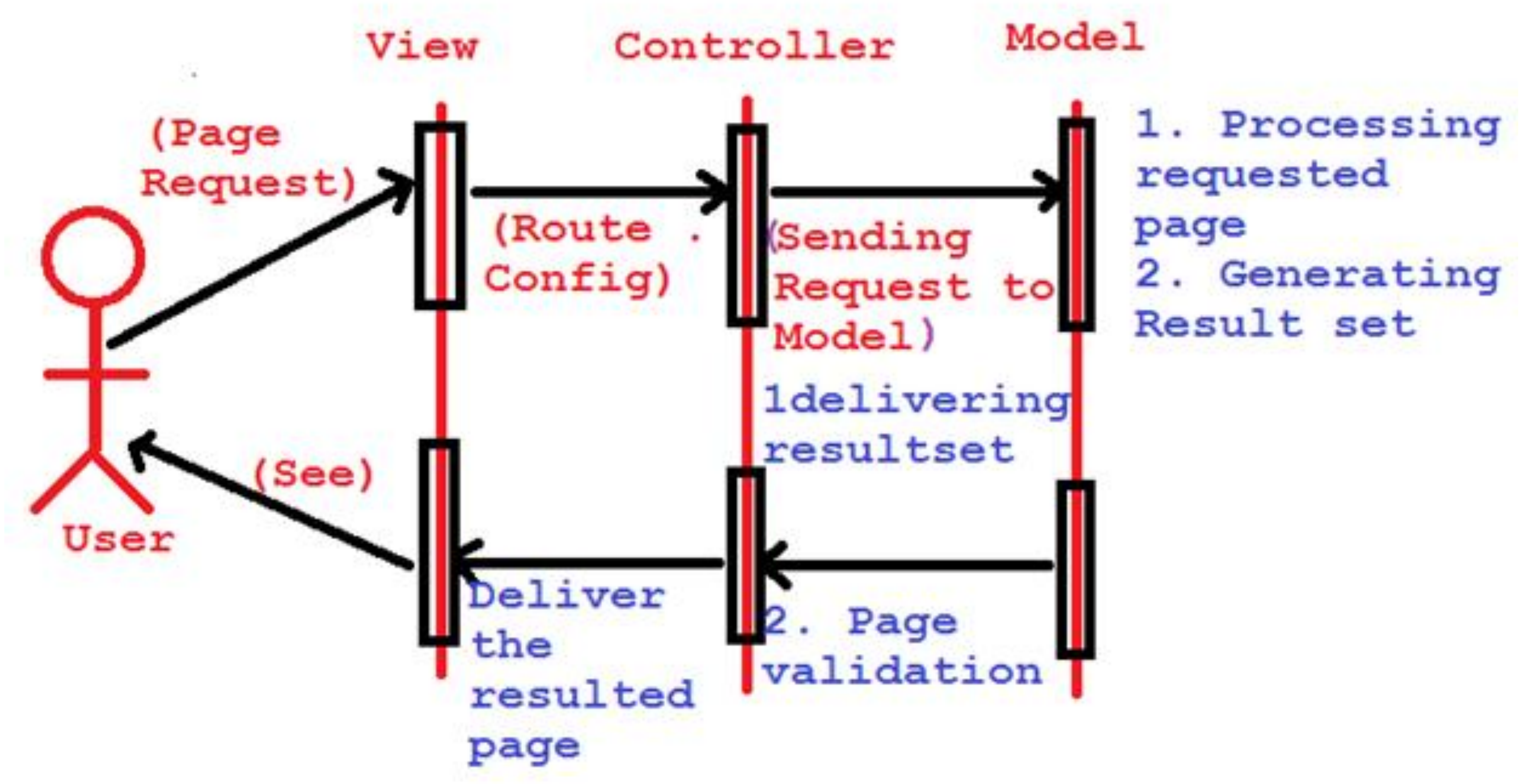
- MVC = Model View Controller
  - Model represent data
  - View is UI
  - Controller is the request handler

MVC Architecture



Ref: https://www.c-sharpcorner.com/UploadFile/18585c/mvc-architecture-mvc-life-cycle/

Life cycle of MVC



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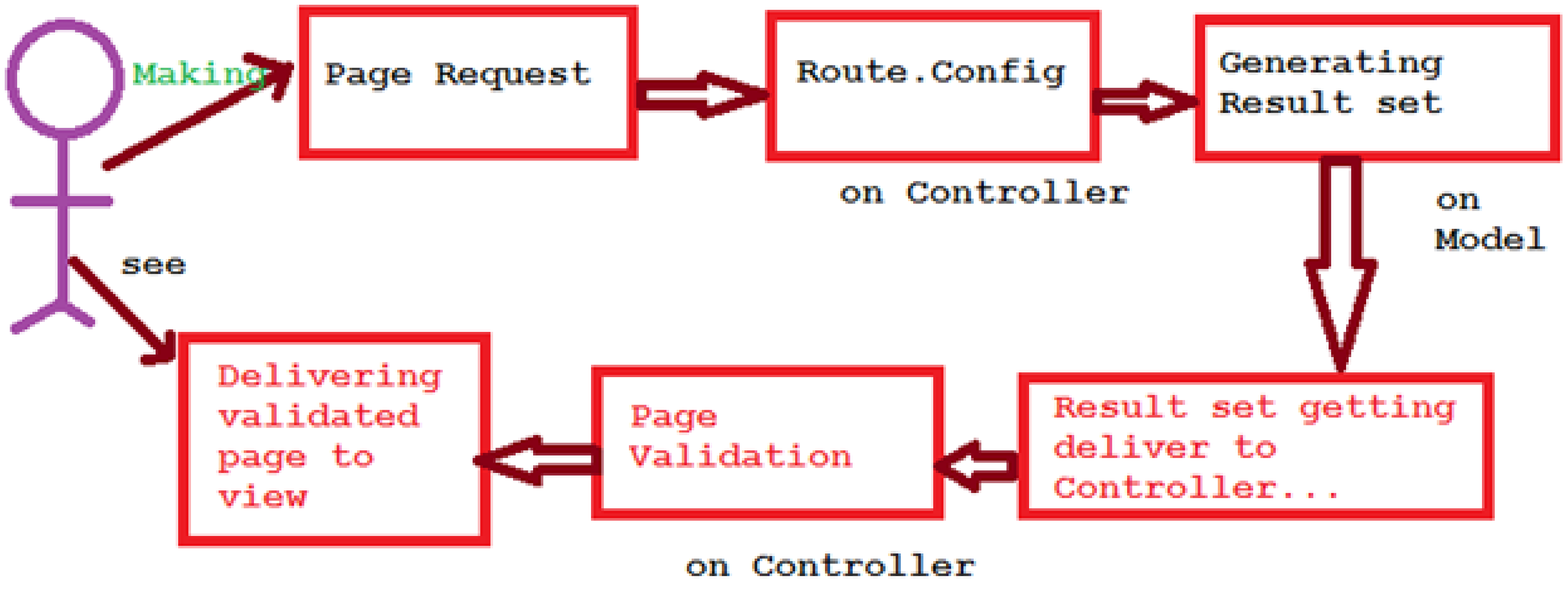
Live cycle of MVC



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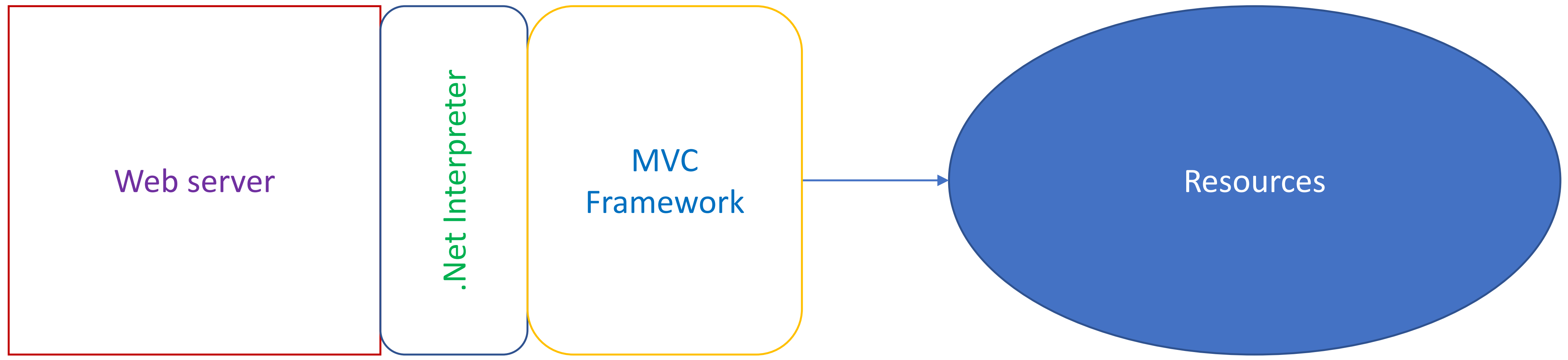
ASP.Net Core MVC

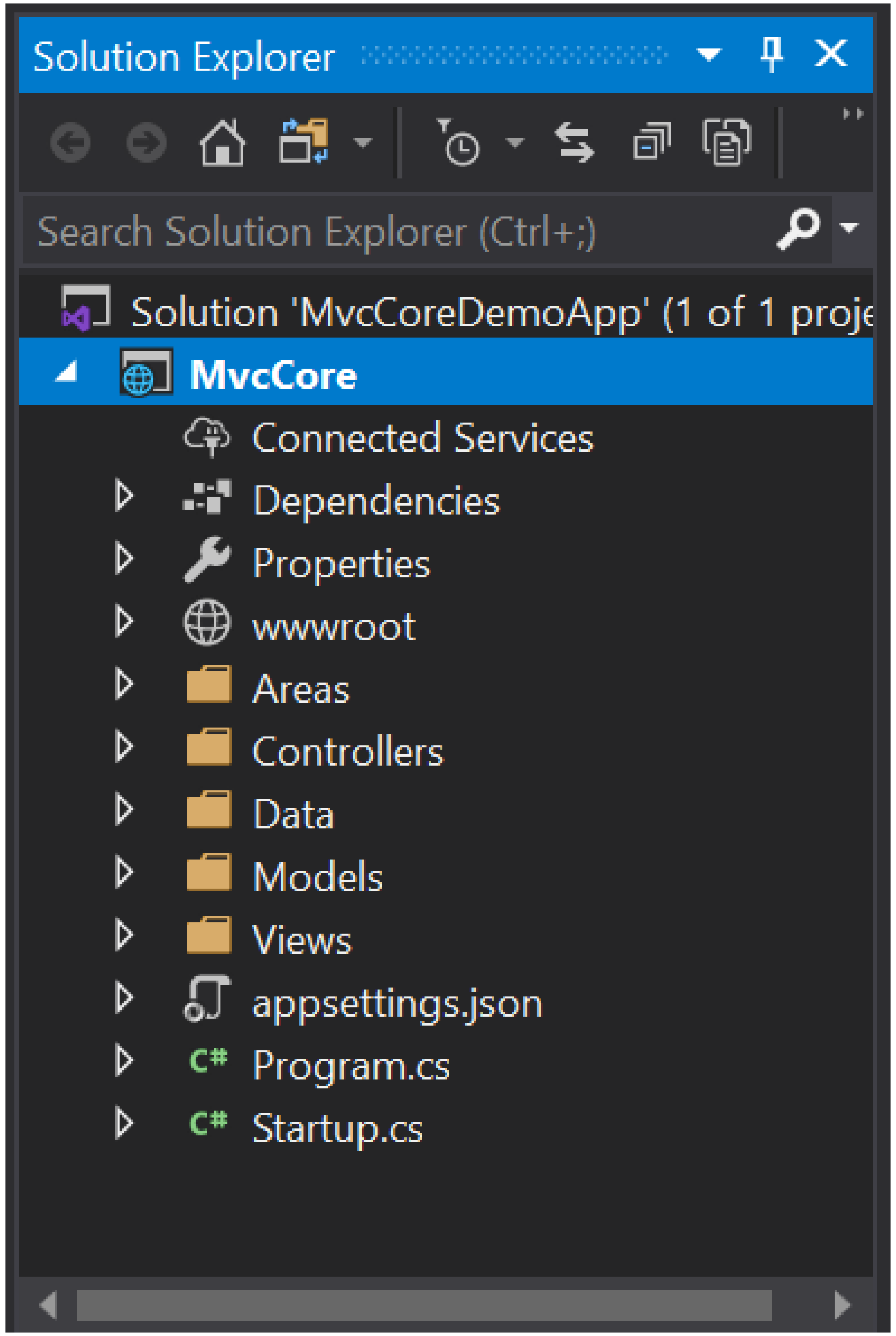


ASP.Net Core MVC Tutorial

- VDO Clip: ASP.Net Core Introduction: https://www.youtube.com/watch?v=1ck9LIBxO14

- ASP.Net Core Web Tutorial:
  - https://asp.mvc-tutorial.com/
  - https://www.tektutorialshub.com/asp-net-core-tutorial/

Project Structure

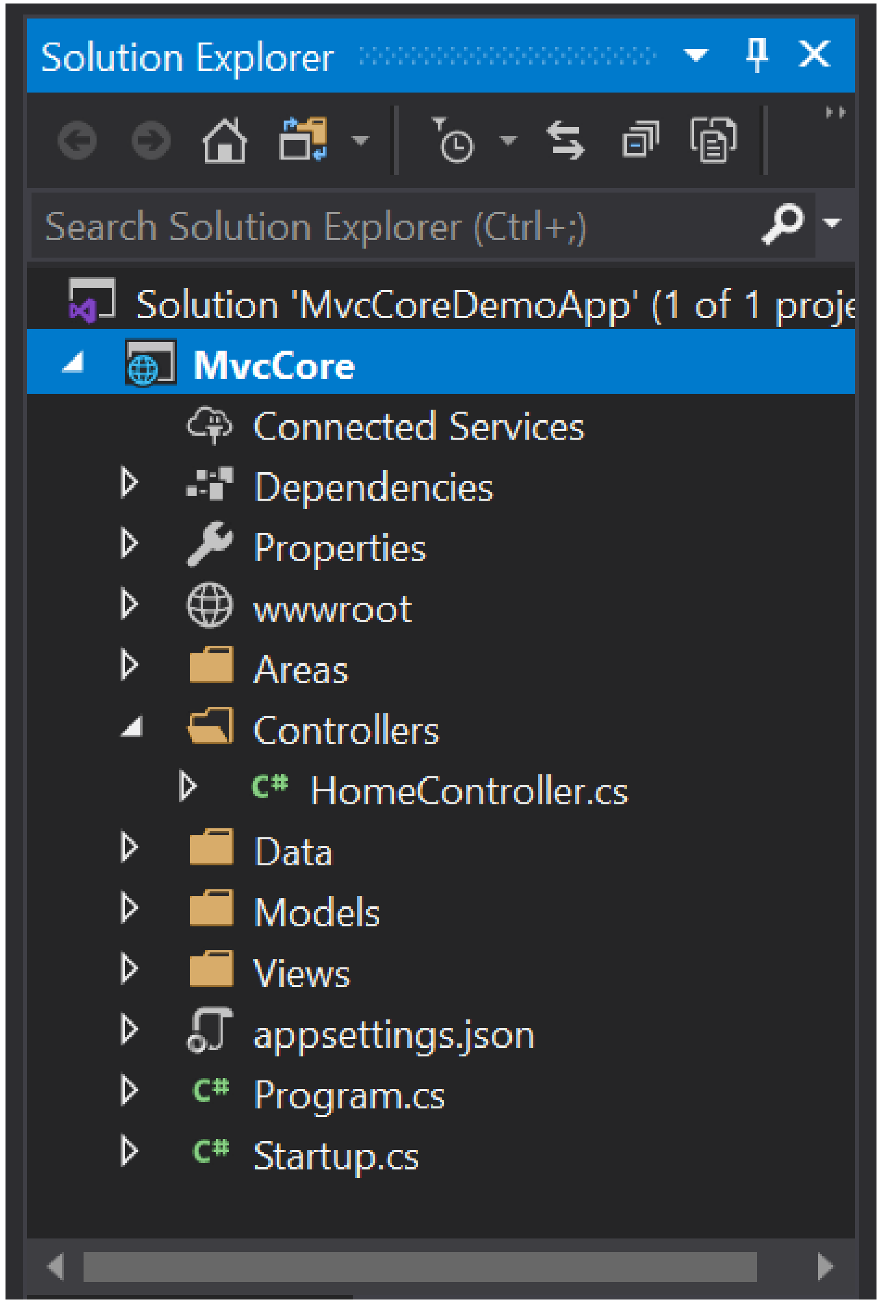


Solution 'MvcCoreDemoApp' (1 of 1 proje

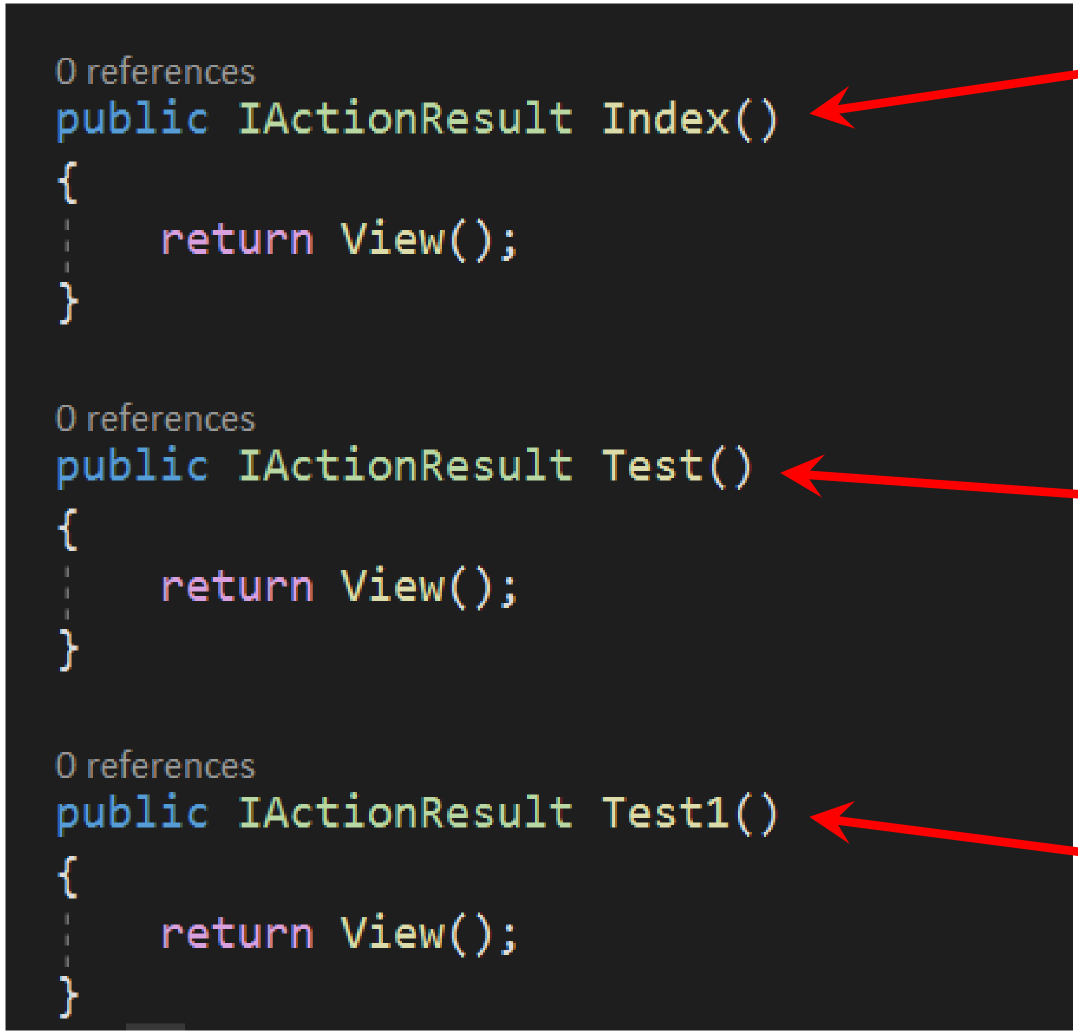
- MvcCore
  - Connected Services
  - Dependencies
  - Properties
  - wwwroot
  - Areas
  - Controllers
  - Data
  - Models
  - Views
  - appsettings.json
  - Program.cs
  - Startup.cs

Controller

- Routing to resource
  - From picture there is 1 (virtual) directory in this web site
    - Named: Home
  - http://host/home
- In HomeController.cs contain methods for rendering pages
  - Each method correspond to 1 page



HomeController.cs



```
0 references
public IActionResult Index()
{
    return View();
}

0 references
public IActionResult Test()
{
    return View();
}

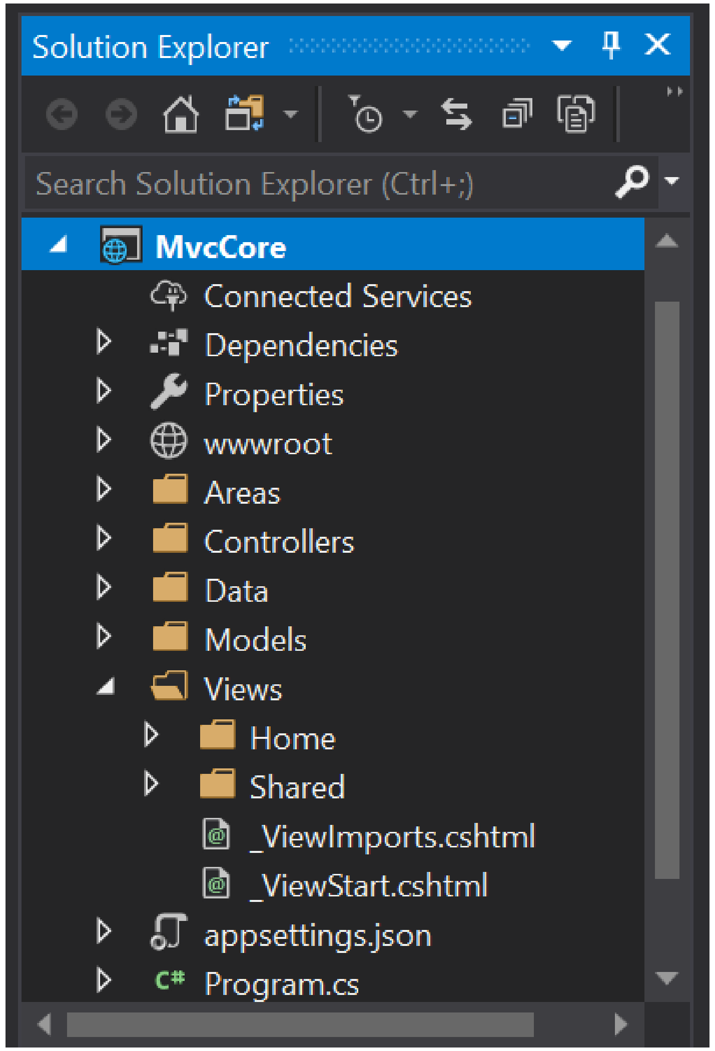
0 references
public IActionResult Test1()
{
    return View();
}
```

http://host/Home or http://host/Home/index

http://host/Home/Test

http://host/Home/Test1

View



Solution Explorer

Search Solution Explorer (Ctrl+;)

```
◢ MvcCore
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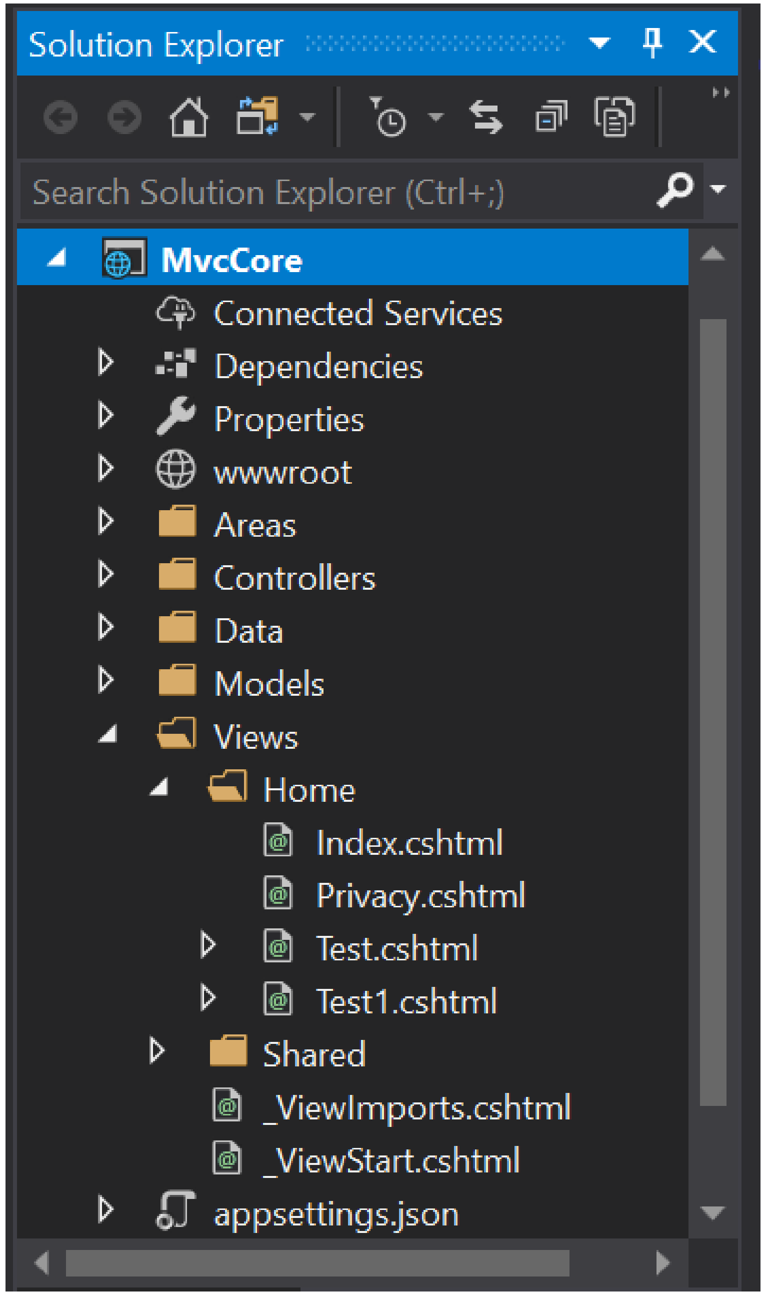
  ▷ Dependencies
  ▷ Properties
  ▷ wwwroot
  ▷ Areas
  ▷ Controllers
  ▷ Data
  ▷ Models
  ◢ Views
    ▷ Home
    ▷ Shared
      _ViewImports.cshtml
      _ViewStart.cshtml
  ▷ appsettings.json
  ▷ Program.cs
```



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  ◢ Views
    ◢ Home
        Index.cshtml
        Privacy.cshtml
      ▷ Test.cshtml
      ▷ Test1.cshtml
    ▷ Shared
      _ViewImports.cshtml
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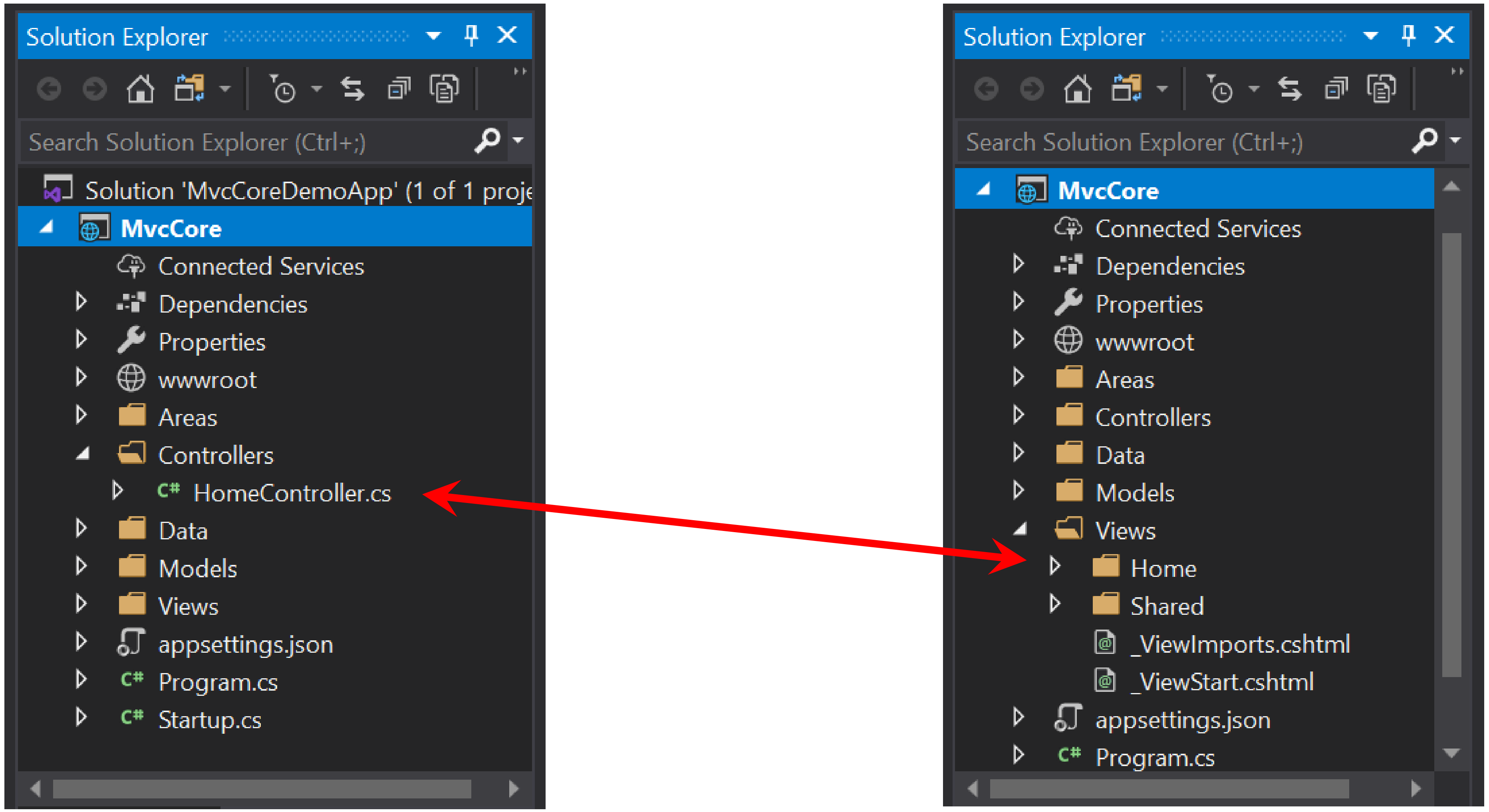
  ▷ appsettings.json
```

Controller - View



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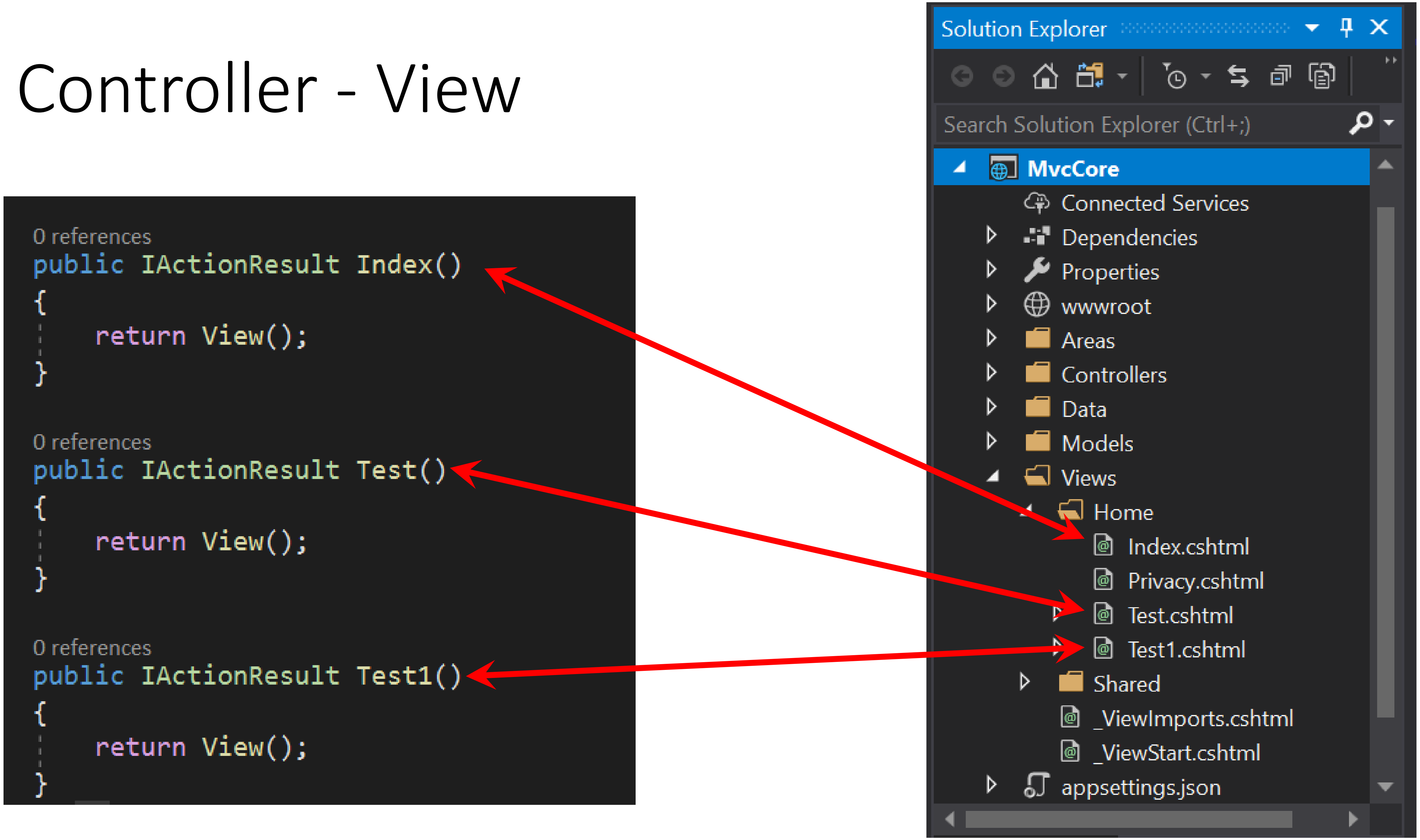
Controller - View



```
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{
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}

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{
    return View();
}

0 references
public IActionResult Test1()
{
    return View();
}
```

```
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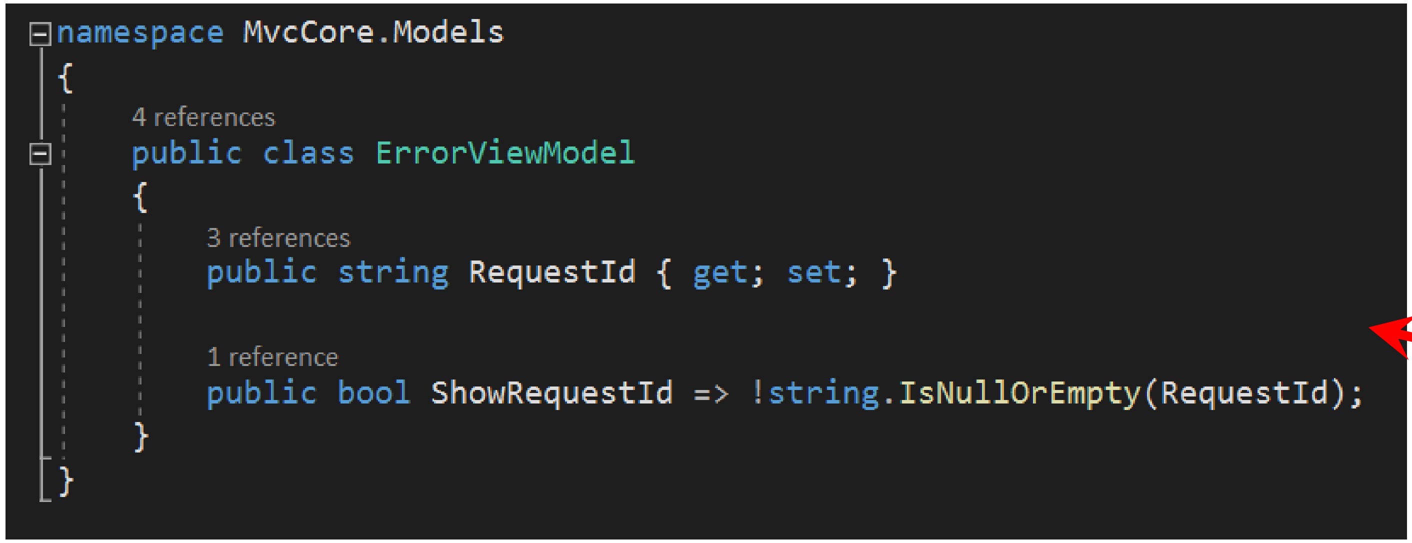
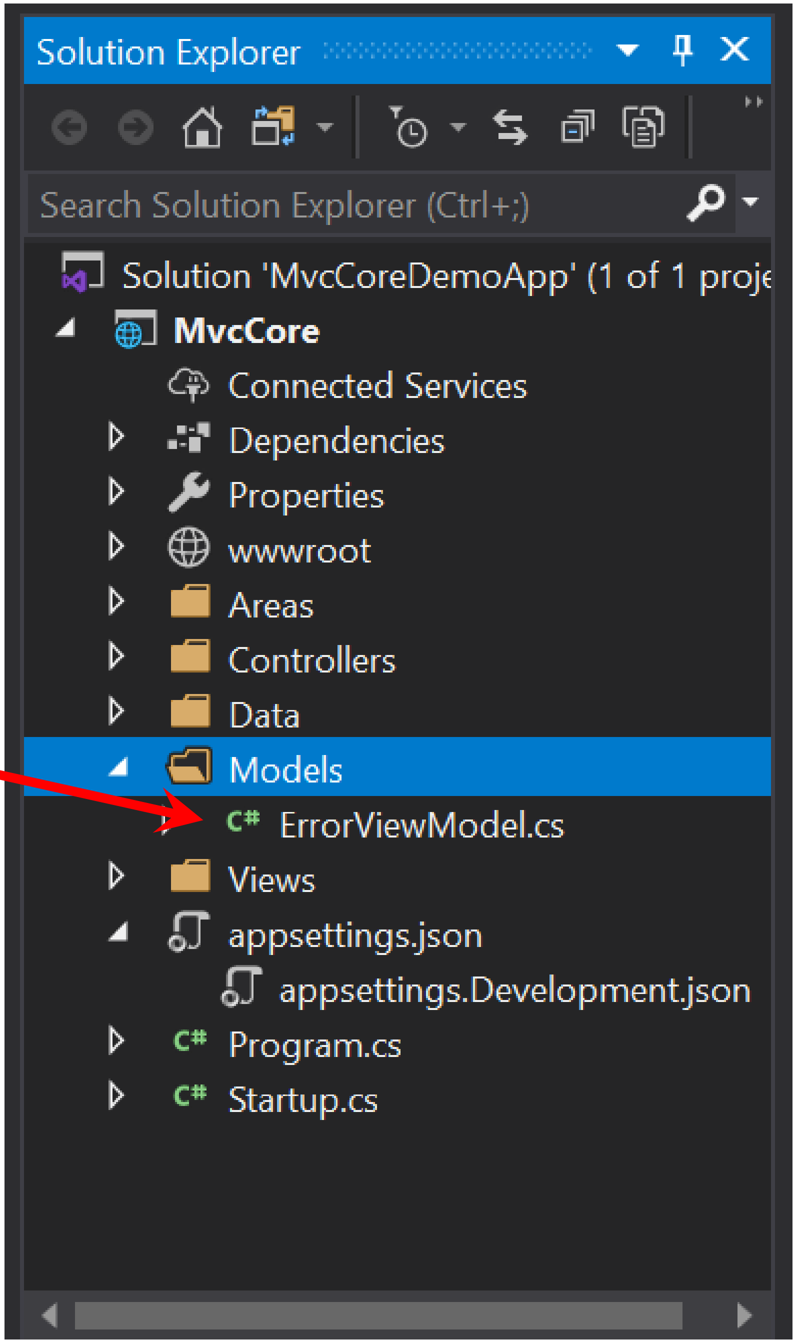
```

Model

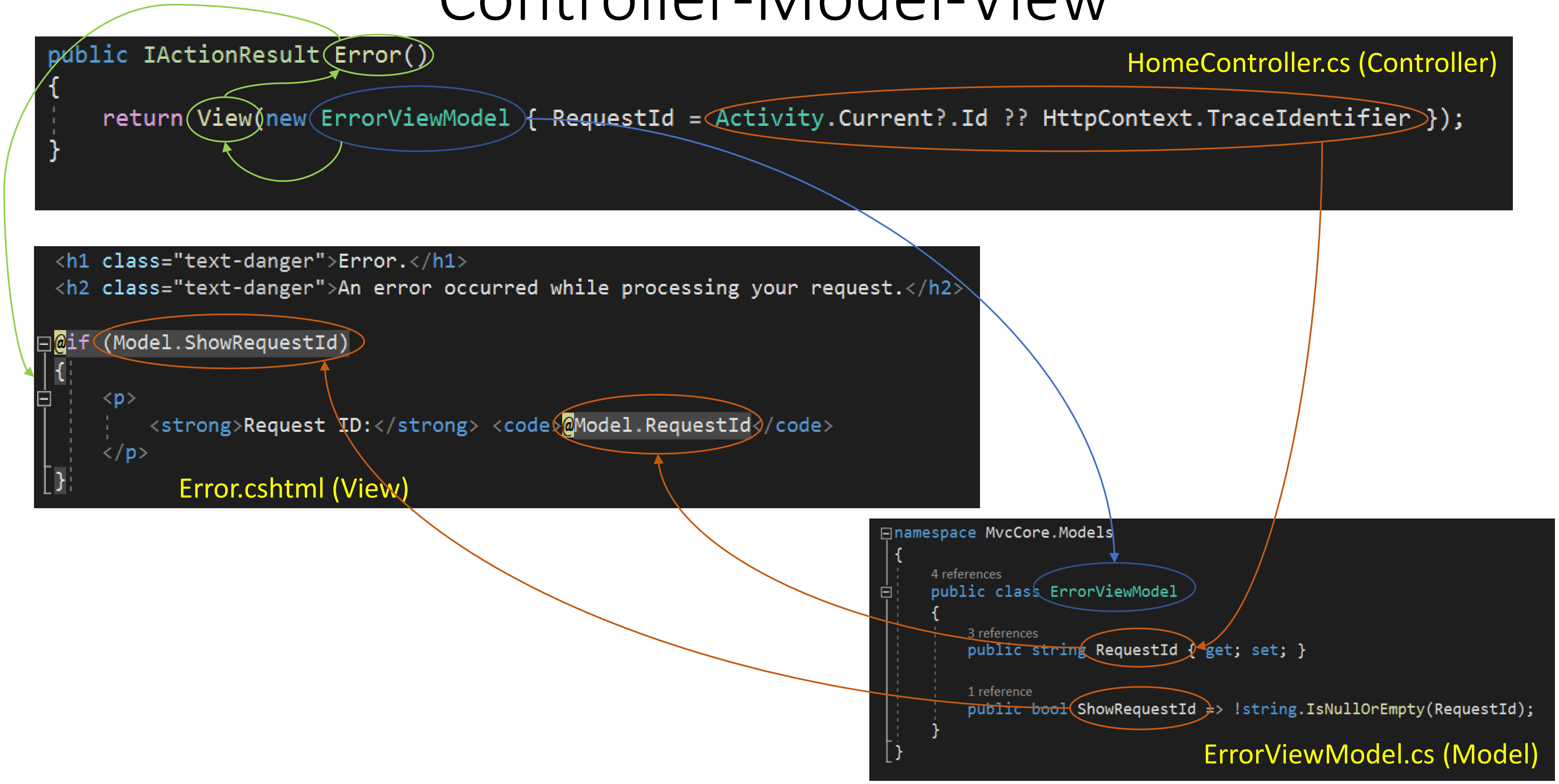


```
namespace MvcCore.Models
{
    4 references
    public class ErrorViewModel
    {
        3 references
        public string RequestId { get; set; }

        1 reference
        public bool ShowRequestId => !string.IsNullOrEmpty(RequestId);
    }
}
```



Controller-Model-View



```
public IActionResult Error()
{
    return View(new ErrorViewModel { RequestId = Activity.Current?.Id ?? HttpContext.TraceIdentifier });
}
```

HomeController.cs (Controller)

```
<h1 class="text-danger">Error.</h1>
<h2 class="text-danger">An error occurred while processing your request.</h2>

@if (Model.ShowRequestId)
{
    <p>
        <strong>Request ID:</strong> <code>@Model.RequestId</code>
    </p>
}
```

Error.cshtml (View)

```
namespace MvcCore.Models
{
    4 references
    public class ErrorViewModel
    {
        3 references
        public string RequestId { get; set; }

        1 reference
        public bool ShowRequestId => !string.IsNullOrEmpty(RequestId);
    }
}
```

ErrorViewModel.cs (Model)