Web Development with ASP.NET Core 6

WEEK 4

EXPERT NETWORK

The Sessions

1. Data Access
2. Concepts and Techniques
3. ASP.NET Core Introduction
4. ASP.NET Core Advanced
5. Deploy in the Cloud

*Note that each session builds upon the previous one.

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For this session

- Passing data to views
- Finishing CRUD
- Partial Views + Layout recap
- (View) Model Validation
- Middlewares

*We will start from https://github.com/AlexandruCristianStan/FII-Practic-EXN-2022.

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Pass data to views

- Strongly typed data
  - ViewModel
- Weakly typed data
  - ViewData
  - ViewBag

Strongly typed data

- Using a ViewModel to pass data to a view allows the view to take advantage of *strong* type checking
- *Strong typing* means that every variable and constant has an explicitly defined type (*string, int, DateTime etc.)*
- The validity of types used in a view is checked at ***compile time***
- In VS & VS Code, it unlocks Intellisense

Strongly typed data

```
public IActionResult Contact()
{
    ViewData["Message"] = "Your contact page.";

    var viewModel = new Address()
    {
        Name = "Microsoft",
        Street = "One Microsoft Way",
        City = "Redmond",
        State = "WA",
        PostalCode = "98052-6399"
    };

    return View(viewModel);
}
```

```
@model WebApplication1.ViewModels.Address

<h2>Contact</h2>
<address>
    @Model.Street<br>
    @Model.City, @Model.State @Model.PostalCode<br>
    <abbr title="Phone">P:</abbr> 425.555.0100
</address>
```

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Weakly typed data

- Weak types means that you don’t have explicitly declare the type of the data you are using
- Used primarily when you want to pass small amounts of data in and out of controllers and views
- ViewData (dictionary) & ViewBag (dynamic) can be used for weakly typed data. Both objects are accessible in Controllers & Views

Weakly typed data

```
public IActionResult SomeAction()
{
    ViewBag.Greeting = "Hello";
    ViewBag.Address  = new Address()
    {
        Name = "Steve",
        Street = "123 Main St",
        City = "Hudson",
        State = "OH",
        PostalCode = "44236"
    };

    return View();
}
```

```
@ViewBag.Greeting World!

<address>
    @ViewBag.Address.Name<br>
    @ViewBag.Address.Street<br>
    @ViewBag.Address.City, @ViewBag.Address.State @ViewBag.Address.PostalCode
</address>
```

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Exercise 1: Finish the CRUD

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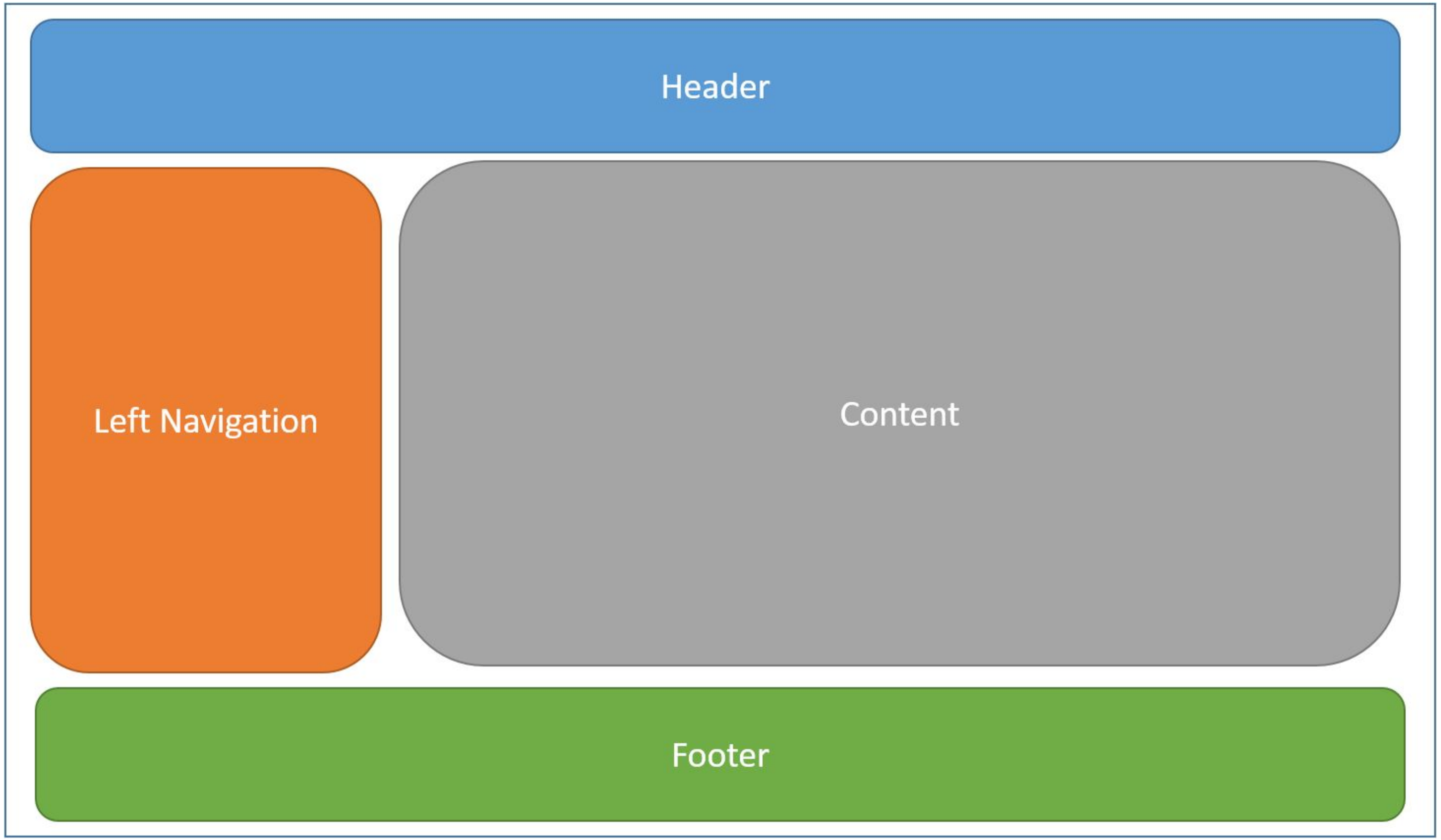
Layout



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Partial views

- A partial view is a Razor markup file (*.cshtml)* that renders HTML output *within* another markup language
- Partial views are an effective way to
    - Break up large markup files into smaller components
    - Reduce the duplication of common markup content across markup files
- In order to render a partial view use the following syntax:

```
<partial name="_PartialName.cshtml" />
```

Exercise 2: Partial Views

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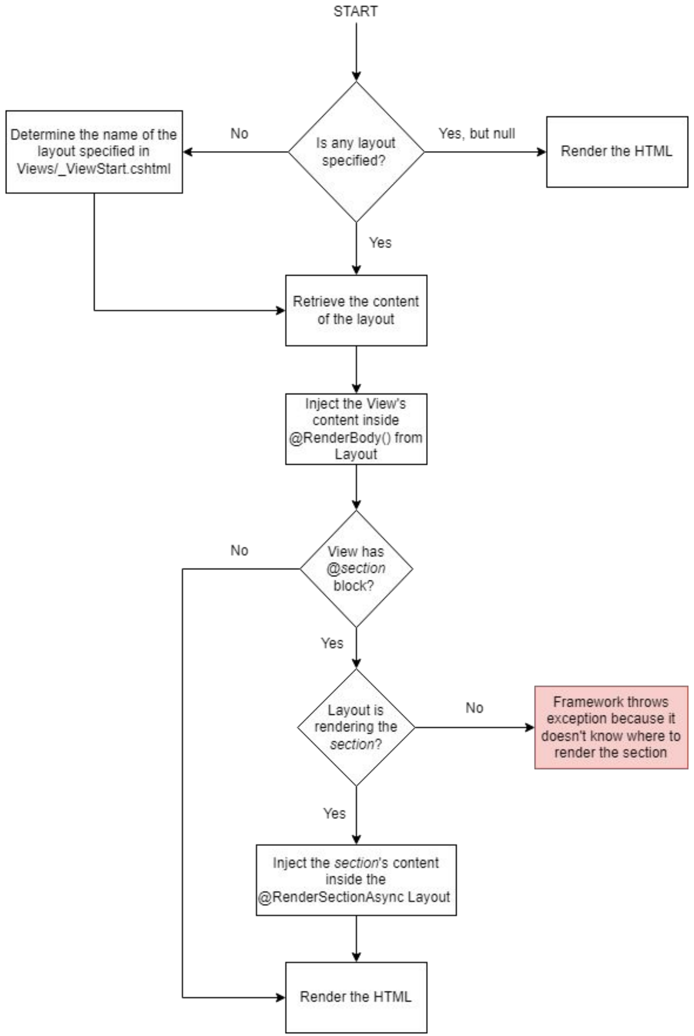
Layout rendering


START
Is any layout specified?
No
Determine the name of the layout specified in Views/_ViewStart.cshtml
Yes, but null
Render the HTML
Yes
Retrieve the content of the layout
Inject the View's content inside @RenderBody() from Layout
View has @*section* block?
No
Yes
Layout is rendering the *section*?
No
Framework throws exception because it doesn't know where to render the section
Yes
Inject the *section*'s content inside the @RenderSectionAsync Layout
Render the HTML

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Exercise 2: Layout rendering

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DISCUSSION:
(View) Model Validation Types

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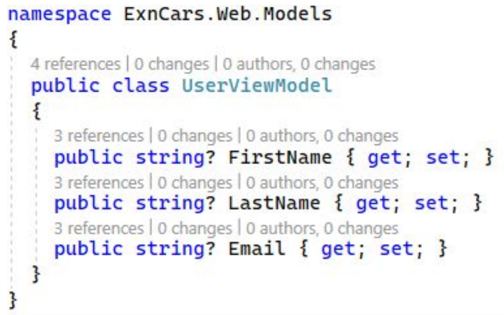
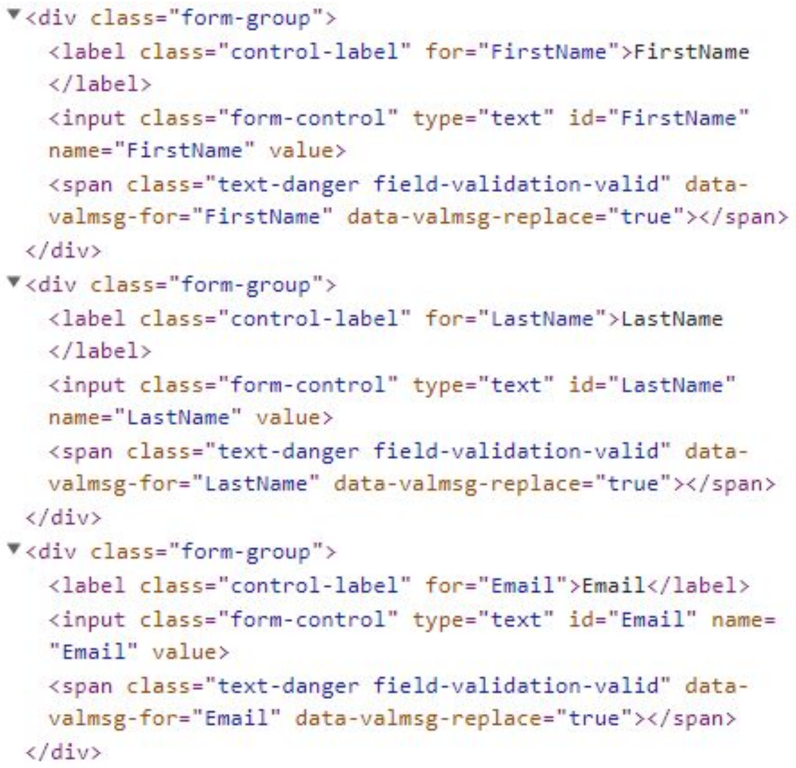
FE View Model Validation



```
namespace ExnCars.Web.Models
{
    4 references | 0 changes | 0 authors, 0 changes
    public class UserViewModel
    {
        3 references | 0 changes | 0 authors, 0 changes
        public string? FirstName { get; set; }
        3 references | 0 changes | 0 authors, 0 changes
        public string? LastName { get; set; }
        3 references | 0 changes | 0 authors, 0 changes
        public string? Email { get; set; }
    }
}
```



```
▼<div class="form-group">
   <label class="control-label" for="FirstName">FirstName
   </label>
   <input class="form-control" type="text" id="FirstName"
   name="FirstName" value>
   <span class="text-danger field-validation-valid" data-
   valmsg-for="FirstName" data-valmsg-replace="true"></span>
 </div>
▼<div class="form-group">
   <label class="control-label" for="LastName">LastName
   </label>
   <input class="form-control" type="text" id="LastName"
   name="LastName" value>
   <span class="text-danger field-validation-valid" data-
   valmsg-for="LastName" data-valmsg-replace="true"></span>
 </div>
▼<div class="form-group">
   <label class="control-label" for="Email">Email</label>
   <input class="form-control" type="text" id="Email" name=
   "Email" value>
   <span class="text-danger field-validation-valid" data-
   valmsg-for="Email" data-valmsg-replace="true"></span>
 </div>
```

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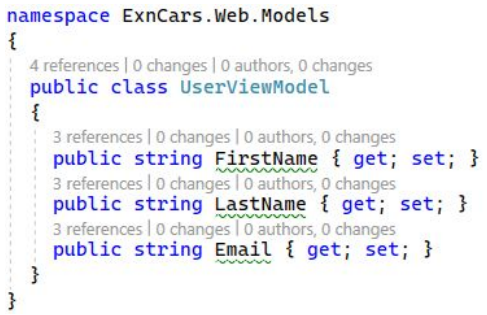
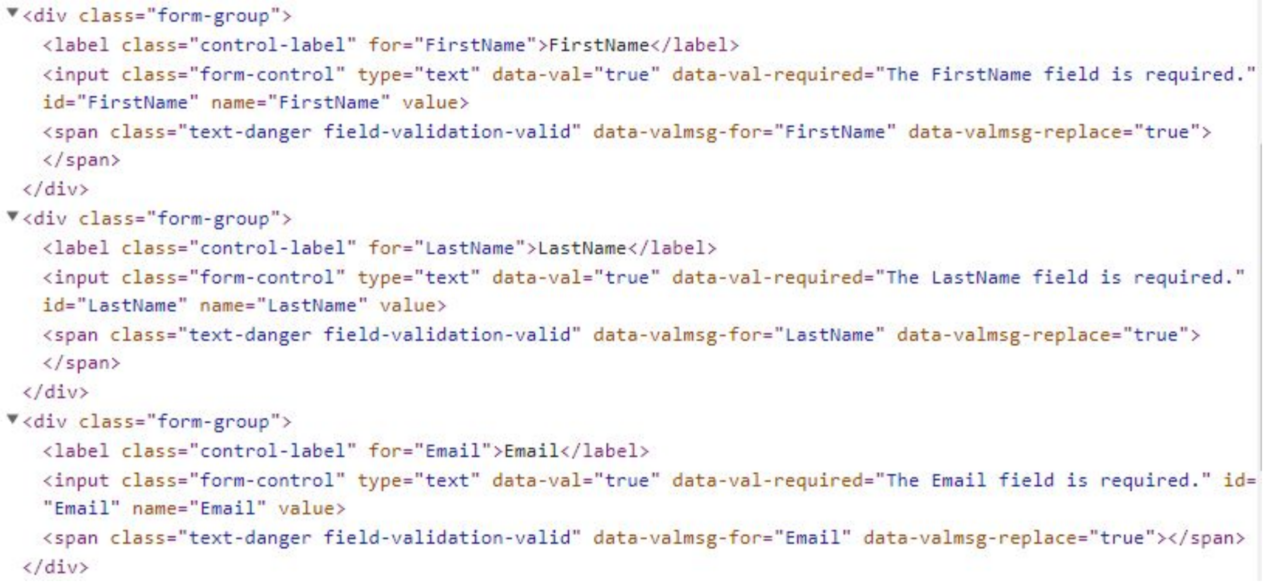
FE View Model Validation



```
namespace ExnCars.Web.Models
{
    4 references | 0 changes | 0 authors, 0 changes
    public class UserViewModel
    {
        3 references | 0 changes | 0 authors, 0 changes
        public string FirstName { get; set; }
        3 references | 0 changes | 0 authors, 0 changes
        public string LastName { get; set; }
        3 references | 0 changes | 0 authors, 0 changes
        public string Email { get; set; }
    }
}
```



```
▼<div class="form-group">
   <label class="control-label" for="FirstName">FirstName</label>
   <input class="form-control" type="text" data-val="true" data-val-required="The FirstName field is required."
   id="FirstName" name="FirstName" value>
   <span class="text-danger field-validation-valid" data-valmsg-for="FirstName" data-valmsg-replace="true">
   </span>
 </div>
▼<div class="form-group">
   <label class="control-label" for="LastName">LastName</label>
   <input class="form-control" type="text" data-val="true" data-val-required="The LastName field is required."
   id="LastName" name="LastName" value>
   <span class="text-danger field-validation-valid" data-valmsg-for="LastName" data-valmsg-replace="true">
   </span>
 </div>
▼<div class="form-group">
   <label class="control-label" for="Email">Email</label>
   <input class="form-control" type="text" data-val="true" data-val-required="The Email field is required." id=
   "Email" name="Email" value>
   <span class="text-danger field-validation-valid" data-valmsg-for="Email" data-valmsg-replace="true"></span>
 </div>
```

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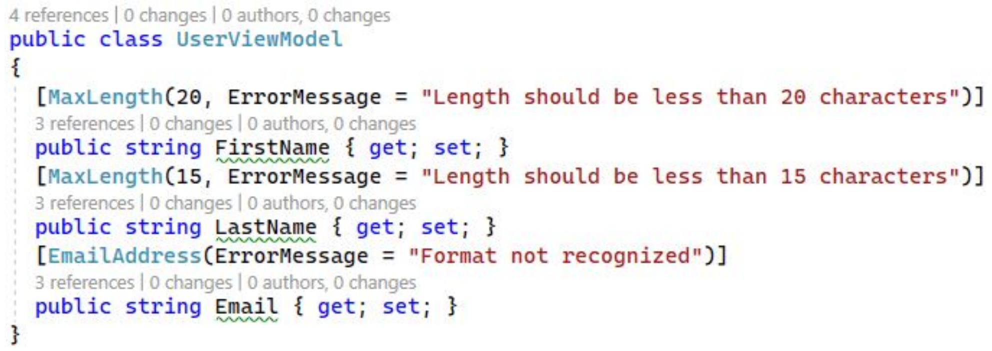
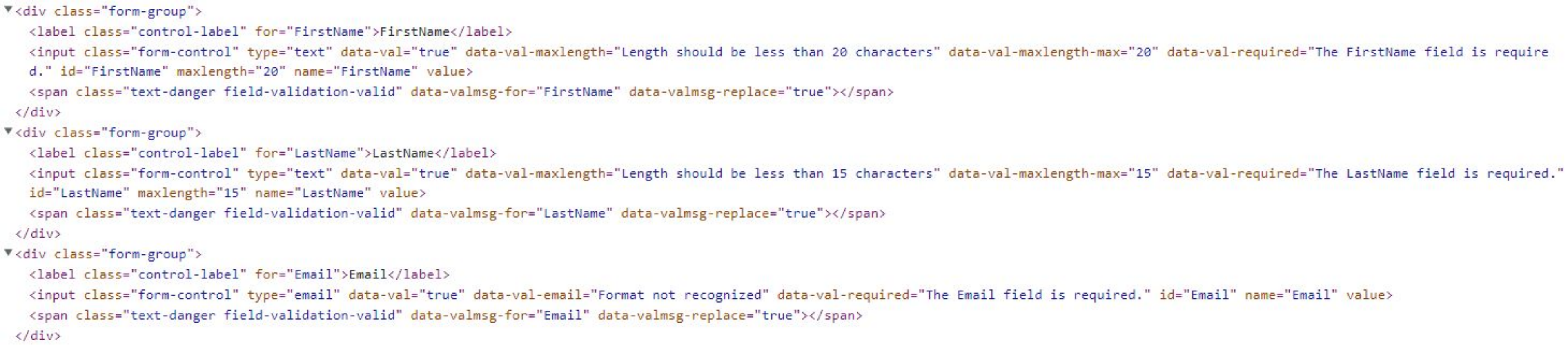
FE View Model Validation

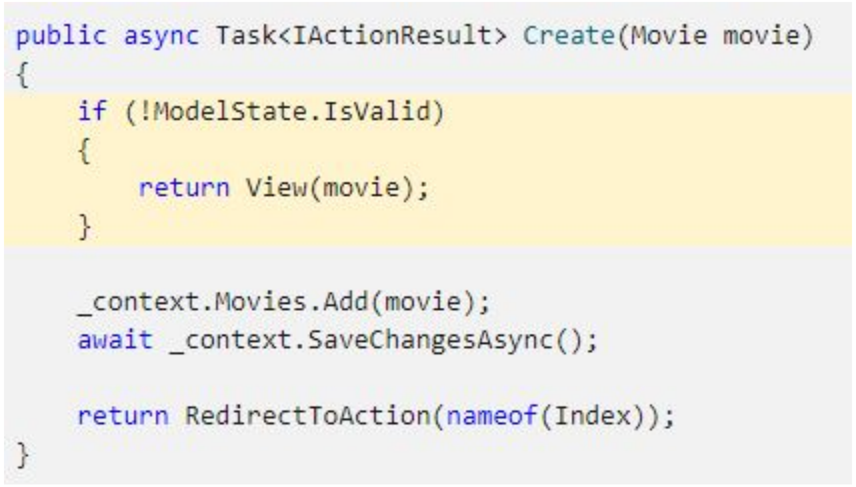


```
4 references | 0 changes | 0 authors, 0 changes
public class UserViewModel
{
    [MaxLength(20, ErrorMessage = "Length should be less than 20 characters")]
    3 references | 0 changes | 0 authors, 0 changes
    public string FirstName { get; set; }
    [MaxLength(15, ErrorMessage = "Length should be less than 15 characters")]
    3 references | 0 changes | 0 authors, 0 changes
    public string LastName { get; set; }
    [EmailAddress(ErrorMessage = "Format not recognized")]
    3 references | 0 changes | 0 authors, 0 changes
    public string Email { get; set; }
}
```



```
▼<div class="form-group">
   <label class="control-label" for="FirstName">FirstName</label>
   <input class="form-control" type="text" data-val="true" data-val-maxlength="Length should be less than 20 characters" data-val-maxlength-max="20" data-val-required="The FirstName field is require
   d." id="FirstName" maxlength="20" name="FirstName" value>
   <span class="text-danger field-validation-valid" data-valmsg-for="FirstName" data-valmsg-replace="true"></span>
 </div>
▼<div class="form-group">
   <label class="control-label" for="LastName">LastName</label>
   <input class="form-control" type="text" data-val="true" data-val-maxlength="Length should be less than 15 characters" data-val-maxlength-max="15" data-val-required="The LastName field is required."
   id="LastName" maxlength="15" name="LastName" value>
   <span class="text-danger field-validation-valid" data-valmsg-for="LastName" data-valmsg-replace="true"></span>
 </div>
▼<div class="form-group">
   <label class="control-label" for="Email">Email</label>
   <input class="form-control" type="email" data-val="true" data-val-email="Format not recognized" data-val-required="The Email field is required." id="Email" name="Email" value>
   <span class="text-danger field-validation-valid" data-valmsg-for="Email" data-valmsg-replace="true"></span>
 </div>
```

BE View Model Validation



```
public async Task<IActionResult> Create(Movie movie)
{
    if (!ModelState.IsValid)
    {
        return View(movie);
    }

    _context.Movies.Add(movie);
    await _context.SaveChangesAsync();

    return RedirectToAction(nameof(Index));
}
```

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Exercise 3: Frontend & Backend View Model Validation

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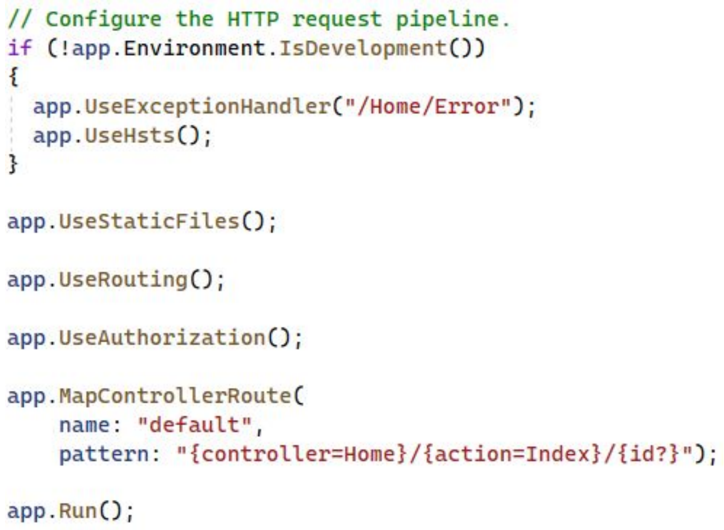
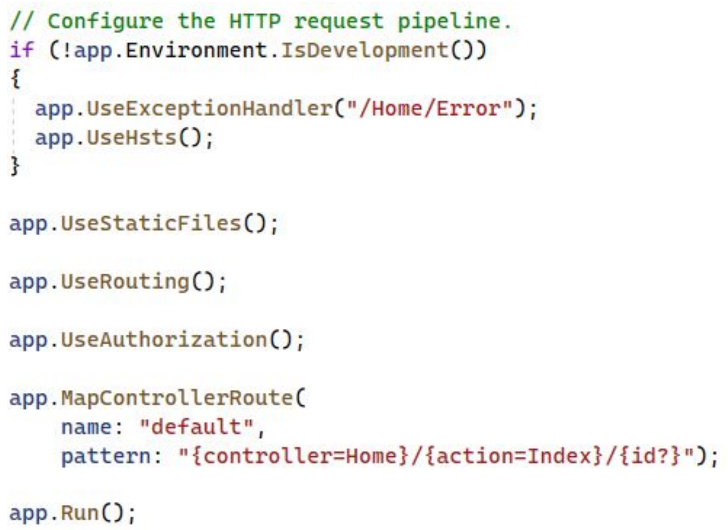
HTTP Request Pipeline

Configuration

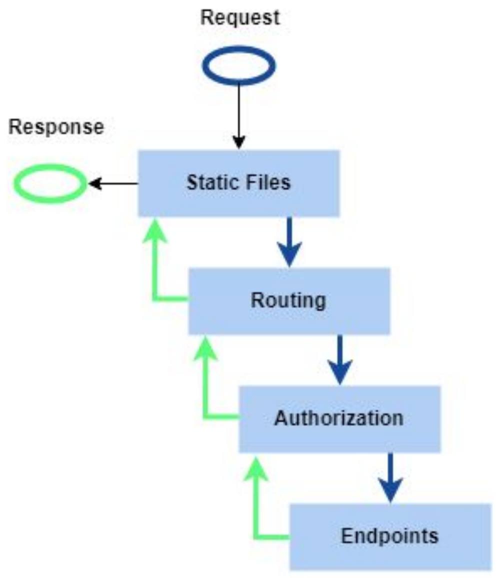


```
// Configure the HTTP request pipeline.
if (!app.Environment.IsDevelopment())
{
    app.UseExceptionHandler("/Home/Error");
    app.UseHsts();
}

app.UseStaticFiles();

app.UseRouting();

app.UseAuthorization();

app.MapControllerRoute(
    name: "default",
    pattern: "{controller=Home}/{action=Index}/{id?}");

app.Run();
```

HTTP Request Pipeline (DEV)



```
// Configure the HTTP request pipeline.
if (!app.Environment.IsDevelopment())
{
    app.UseExceptionHandler("/Home/Error");
    app.UseHsts();
}

app.UseStaticFiles();

app.UseRouting();

app.UseAuthorization();

app.MapControllerRoute(
    name: "default",
    pattern: "{controller=Home}/{action=Index}/{id?}");

app.Run();
```



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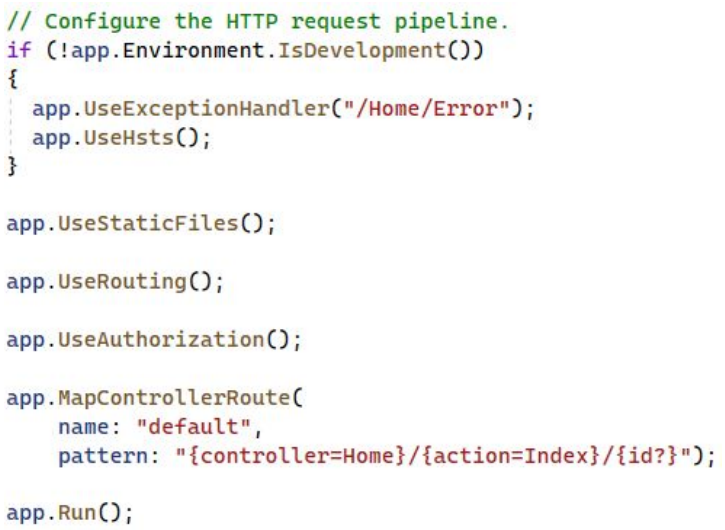
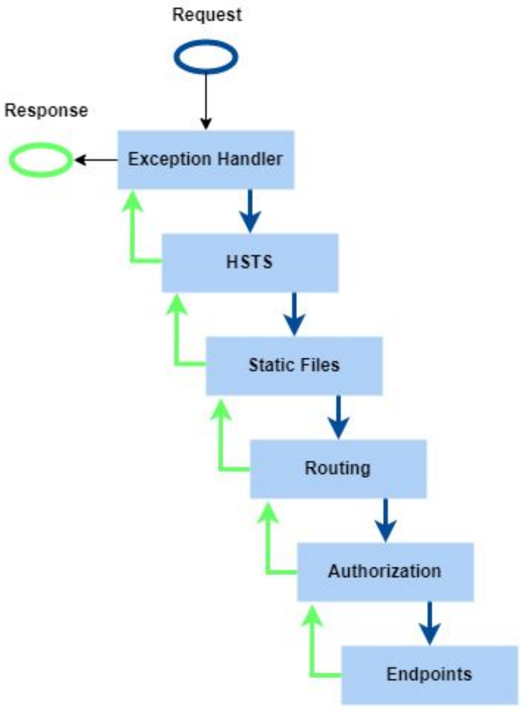
HTTP Request Pipeline (PROD)



```
// Configure the HTTP request pipeline.
if (!app.Environment.IsDevelopment())
{
    app.UseExceptionHandler("/Home/Error");
    app.UseHsts();
}

app.UseStaticFiles();

app.UseRouting();

app.UseAuthorization();

app.MapControllerRoute(
    name: "default",
    pattern: "{controller=Home}/{action=Index}/{id?}");

app.Run();
```



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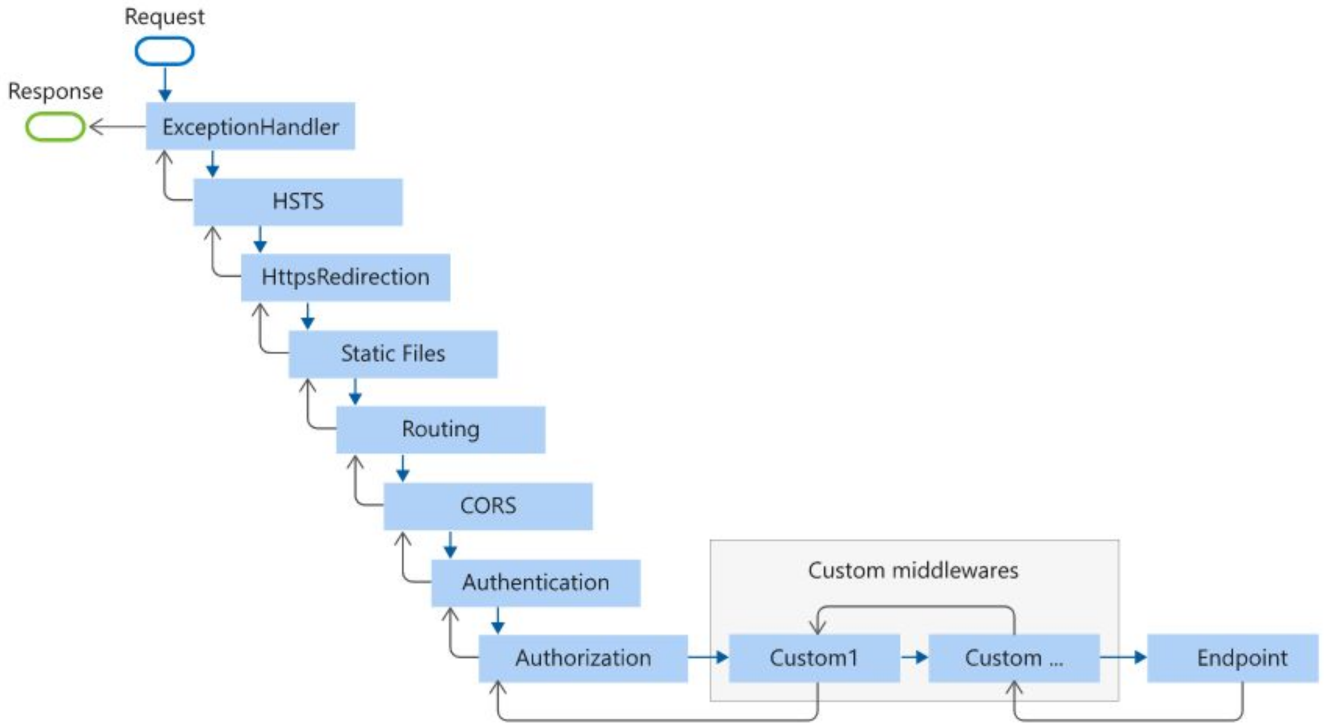
Most used pipeline



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Exercise 4: Middleware (NoMaliciousQueryStrings)

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