Build an EF and ASP.NET Core 2 App HOL

Welcome to the Build an Entity Framework Core and ASP.NET Core 2 Application in a Day Hands On Lab. This lab walks you through creating custom validation attributes and the related client-side scripts.

Prior to starting this lab, you must have completed Lab 4.

All labs and files are available at https://github.com/skimedic/dotnetcore_hol.

Part 1: Create the Server Side validation attributes

Step 1: Create the MustBeGreaterThanZeroAttribute attribute

1) Create a new folder in the MVC project named Validation.
2) Add a new class named MustBeGreaterThanZeroAttribute.cs.
3) Add the following using statements:

```
using System.ComponentModel.DataAnnotations;
using Microsoft.AspNetCore.Mvc.ModelBinding.Validation;
```

4) Update the code to the following:

```
public class MustBeGreaterThanZeroAttribute : ValidationAttribute, IClientModelValidator
{
  public MustBeGreaterThanZeroAttribute() : this("{0} must be greater than 0") { }
  public MustBeGreaterThanZeroAttribute(string errorMessage) : base(errorMessage) { }
  public override string FormatErrorMessage(string name)
  {
    return string.Format(ErrorMessageString, name);
  }
  protected override ValidationResult IsValid(object value, ValidationContext validationContext)
  {
    if (!int.TryParse(value.ToString(), out int result))
    {
      return new ValidationResult(FormatErrorMessage(validationContext.DisplayName));
    }
    if (result > 0)
    {
      return ValidationResult.Success;
    };
    return new ValidationResult(FormatErrorMessage(validationContext.DisplayName));
  }
  public void AddValidation(ClientModelValidationContext context)
  {
    string propertyDisplayName = context.ModelMetadata.DisplayName ?? context.ModelMetadata.PropertyName;
    string errorMessage = FormatErrorMessage(propertyDisplayName);
    context.Attributes.Add("data-val-greaterthanzero", errorMessage);
  }
}
```

Step 2: Create the MustNotBeGreaterThanAttribute attribute

1) Add a new class named MustNotBeGreaterThanAttribute.cs.
2) Add the following using statements to the top of the file:

```
using System;
using System.ComponentModel.DataAnnotations;
using System.Linq;
using System.Reflection;
using Microsoft.AspNetCore.Mvc.ModelBinding.Validation;
```

3) Update the class to match the following:

```
[AttributeUsage(AttributeTargets.Property, AllowMultiple = true)]
public class MustNotBeGreaterThanAttribute : ValidationAttribute, IClientModelValidator
{
  readonly string _otherPropertyName;
  string _otherPropertyDisplayName;
  readonly string _prefix;
  public MustNotBeGreaterThanAttribute(string otherPropertyName, string prefix = "")
     : this(otherPropertyName, "{0} must not be greater than {1}", prefix) { }
  public MustNotBeGreaterThanAttribute(string otherPropertyName, string errorMessage, string prefix)
     : base(errorMessage)
  {
    _otherPropertyName = otherPropertyName;
    _otherPropertyDisplayName = otherPropertyName;
    _prefix = prefix;
  }
  public override string FormatErrorMessage(string name)
  {
    return string.Format(ErrorMessageString, name, _otherPropertyDisplayName);
  }
  internal void SetOtherPropertyName(PropertyInfo otherPropertyInfo)
  {
    var displayAttribute = otherPropertyInfo.GetCustomAttributes<DisplayAttribute>().FirstOrDefault();
    _otherPropertyDisplayName = displayAttribute?.Name ?? _otherPropertyName;
  }
  protected override ValidationResult IsValid(object value, ValidationContext validationContext)
  {
    var otherPropertyInfo = validationContext.ObjectType.GetProperty(_otherPropertyName);
    SetOtherPropertyName(otherPropertyInfo);
    if (!int.TryParse(value.ToString(), out int toValidate))
    {
      return new ValidationResult($"{validationContext.DisplayName} must be numeric.");
    }
    var otherValue = (int)otherPropertyInfo.GetValue(validationContext.ObjectInstance, null);
    return toValidate > otherValue
      ? new ValidationResult(FormatErrorMessage(validationContext.DisplayName))
      : ValidationResult.Success;
  }
  public void AddValidation(ClientModelValidationContext context)
  {
    string propertyDisplayName = context.ModelMetadata.GetDisplayName();
    var propertyInfo = context.ModelMetadata.ContainerType.GetProperty(_otherPropertyName);
    SetOtherPropertyName(propertyInfo);
    string errorMessage = FormatErrorMessage(propertyDisplayName);
    context.Attributes.Add("data-val-notgreaterthan", errorMessage);
    context.Attributes.Add("data-val-notgreaterthan-otherpropertyname", _otherPropertyName);
    context.Attributes.Add("data-val-notgreaterthan-prefix", _prefix);
  }
}
```

Part 2: Create the Client-Side validation scripts

Step 1: Create the Validators

1) Add a new folder named validations under the wwwroot/js folder.
2) Add a new JavaScript file named validators.js in the new folder.
3) Update the code to match the following:

```
$.validator.addMethod("greaterthanzero", function (value, element, params) {
    return value > 0;
});

$.validator.unobtrusive.adapters.add("greaterthanzero", function (options) {
    options.rules["greaterthanzero"] = true;
    options.messages["greaterthanzero"] = options.message;
});
$.validator.addMethod("notgreaterthan", function (value, element, params) {
    return +value <= +$(params).val();
});
$.validator.unobtrusive.adapters.add("notgreaterthan", ["otherpropertyname","prefix"], function (options) {
    options.rules["notgreaterthan"] = "#" + options.params.prefix + options.params.otherpropertyname;
    options.messages["notgreaterthan"] = options.message;
});
```

Step 2: Create the formatter code

1) Create a new JavaScript file named errorFormatting.js in the validations folder.
2) Update the code to match the following:

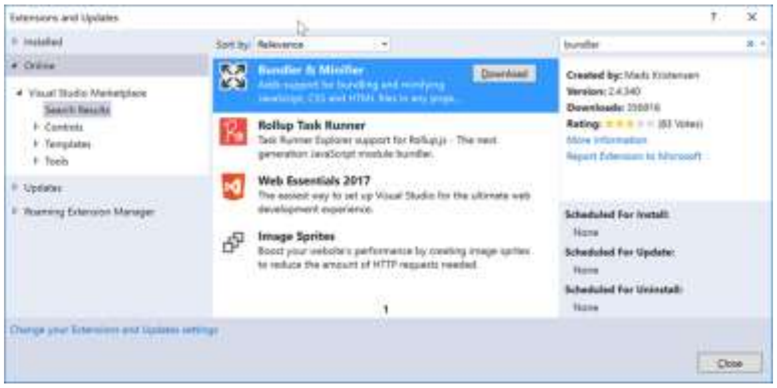
```
$.validator.setDefaults({
    highlight: function (element, errorClass, validClass) {
        if (element.type === "radio") {
            this.findByName(element.name).addClass(errorClass).removeClass(validClass);
        } else {
            $(element).addClass(errorClass).removeClass(validClass);
            $(element).closest('.form-group').addClass('has-error'); //.removeClass('has-success');
        }
    },
    unhighlight: function (element, errorClass, validClass) {
        if (element.type === "radio") {
            this.findByName(element.name).removeClass(errorClass).addClass(validClass);
        } else {
            $(element).removeClass(errorClass).addClass(validClass);
            $(element).closest('.form-group').removeClass('has-error');  //.addClass('has-success');
        }
    }
});
```

Part 3: Bundle and Minify the JavaScript

Step 1: Add BundlerMinifier Visual Studio Extension

The BunlderMinifier Visual Studio extension adds context menus in the Solution Explorer for bundling and minifying files.

1) Select Tools -> Extensions and Updates
2) Select Online in the left rail, and enter BundlerMinifier in the search box:



Bundler & Minifier
Adds support for bundling and minifying JavaScript, CSS and HTML files in any proje...

Rollup Task Runner
Task Runner Explorer support for Rollup.js - The next generation JavaScript module bundler.

Web Essentials 2017
The easiest way to set up Visual Studio for the ultimate web development experience.

Image Sprites
Boost your website's performance by creating image sprites to reduce the amount of HTTP requests needed.

Created by: Mads Kristensen
Version: 2.4.340
Downloads: 358816
Rating: (83 Votes)
More information
Report Extension to Microsoft

Scheduled For Install:
None
Scheduled For Update:
None
Scheduled For Uninstall:
None

3) Click Download. This requires a restart of Visual Studio.

Step 2: Update the bundleconfig.json

1) Open the bundleconfig.json file and add the following to the end of the file (make sure to add a comma after the last block before adding the new code):

```
 {
   "outputFileName": "wwwroot/js/validations/validations.min.js",
   "inputFiles": [
     "wwwroot/js/validations/*.js"
   ],
   "minify": {
     "enabled": true,
     "renameLocals": true
   },
   "sourceMap": false
 }
```

Step 3: Add BundlerMinifier.Core

This package provides bundling and minification commands for the .NET Core CLI

1) Right click on the SpyStore_HOL.MVC project and select Edit SpyStore_HOL.MVC.csproj.
2) Add the following after the existing DotNetCliToolReference:

```
<DotNetCliToolReference Include="BundlerMinifier.Core" Version="2.4.337" />
```

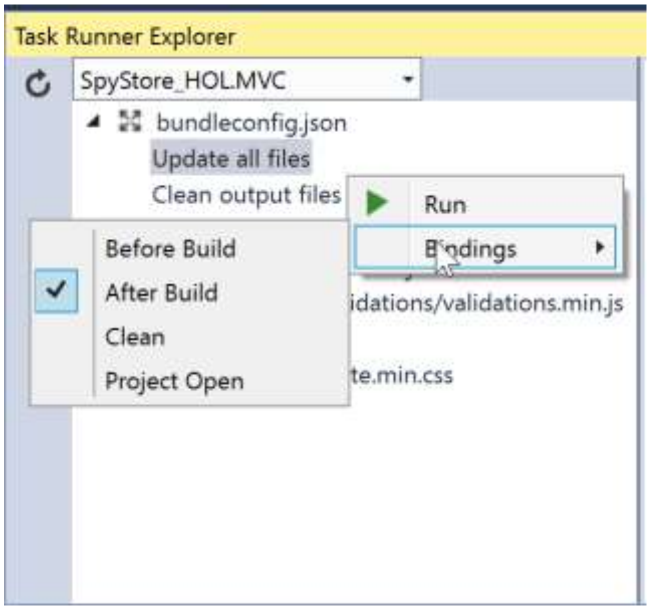
3) Open the Package Manager Console
4) Change to the SpyStore_HOL.MVC directory:

```
cd .\SpyStore_HOL.MVC
```

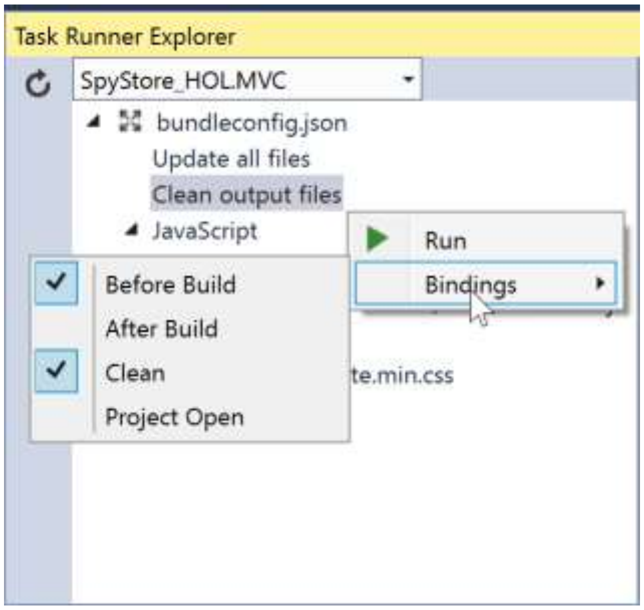
5) Enter “dotnet bundle” to execute the settings in bundleconfig.json
6) Enter “dotnet bundle” -h for help

Step 4: Update the Task Runner Explorer

1) Open the Task Runner Explorer by select View -> Other Windows -> Task Runner Explorer.
2) Right click on Update All Files, select Bindings -> After Build



3) Right click on Clean Output Files, and select Bindings -> Before Build and Bindings -> Clean:



Part 4: Update the _ValidationScriptsPartial.cshtml

1) Open Views\Shared_ValidationScriptsPartial.cshtml.
2) Add the following to the block defined as the “Development” environment:

```
<script src="~/js/validations/validators.js" asp-append-version="true"></script>
<script src="~/js/validations/errorFormatting.js" asp-append-version="true"></script>
```

3) Add the following to the block defined as the “Staging,Production” environment:

```
<script src="~/js/validations/validations.min.js"></script>
```

Summary

The lab created the custom validation attribute, client-side validation scripts and formatting, bundled and minified the scripts, and updated the validation partial view.

Next steps

In the next part of this tutorial series, you will create a View Component to create the menu items.