

ASP .NET CORE MVC

version 2.1

Introduction

ASP

stands for **Active Server Pages**. was introduced in 1998 as Microsoft's first server side scripting language.

Developed on windows os only.

.NET Framework

is a software framework developed by Microsoft that runs primarily on Windows os. It includes a large class library

The main programming languages: C# and VB.NET

Last version: 4.7.1

Oh it's so easy

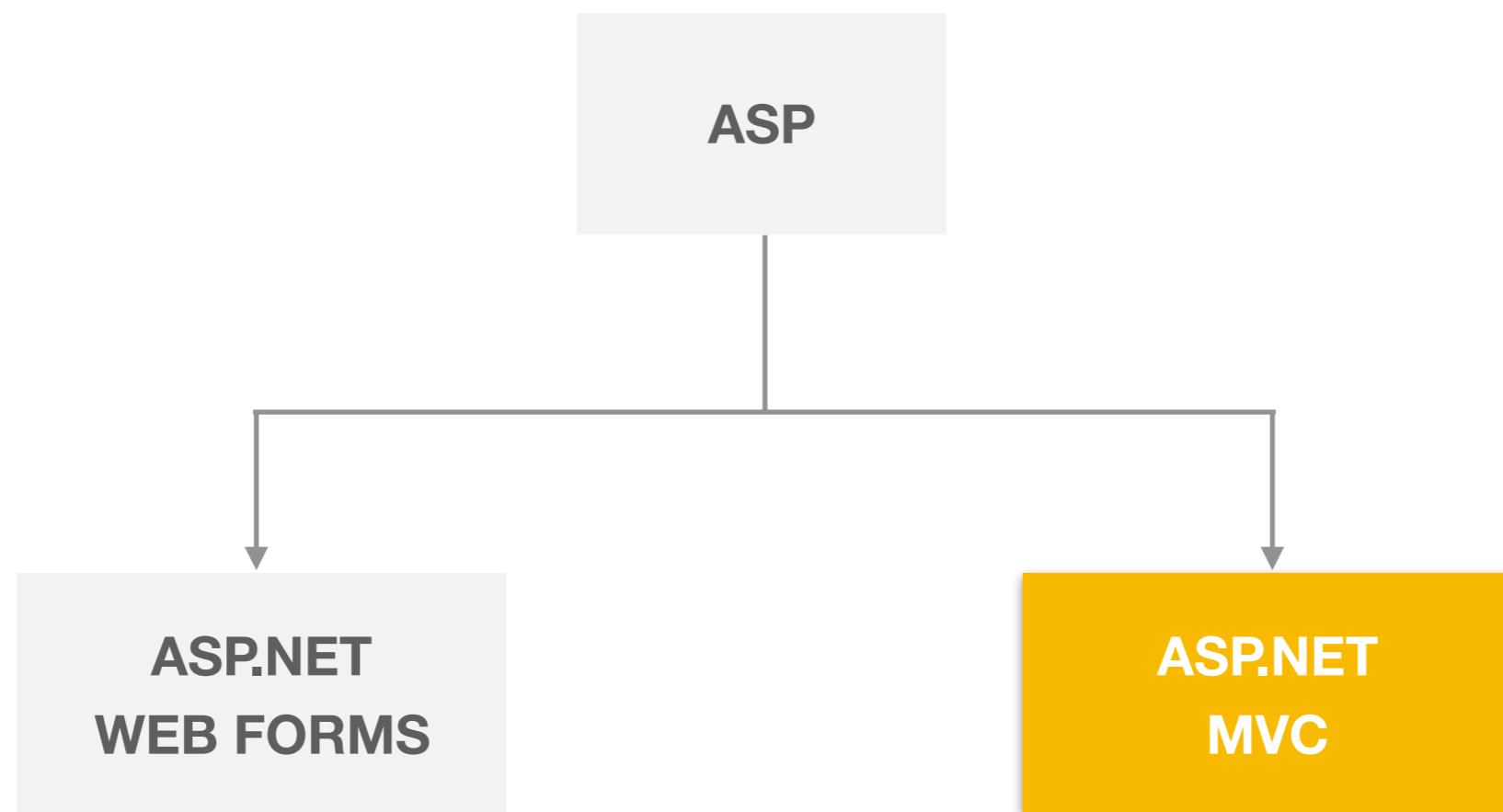


The screenshot shows the Microsoft Visual Studio IDE interface for an ASP.NET WebForm project named "travel".

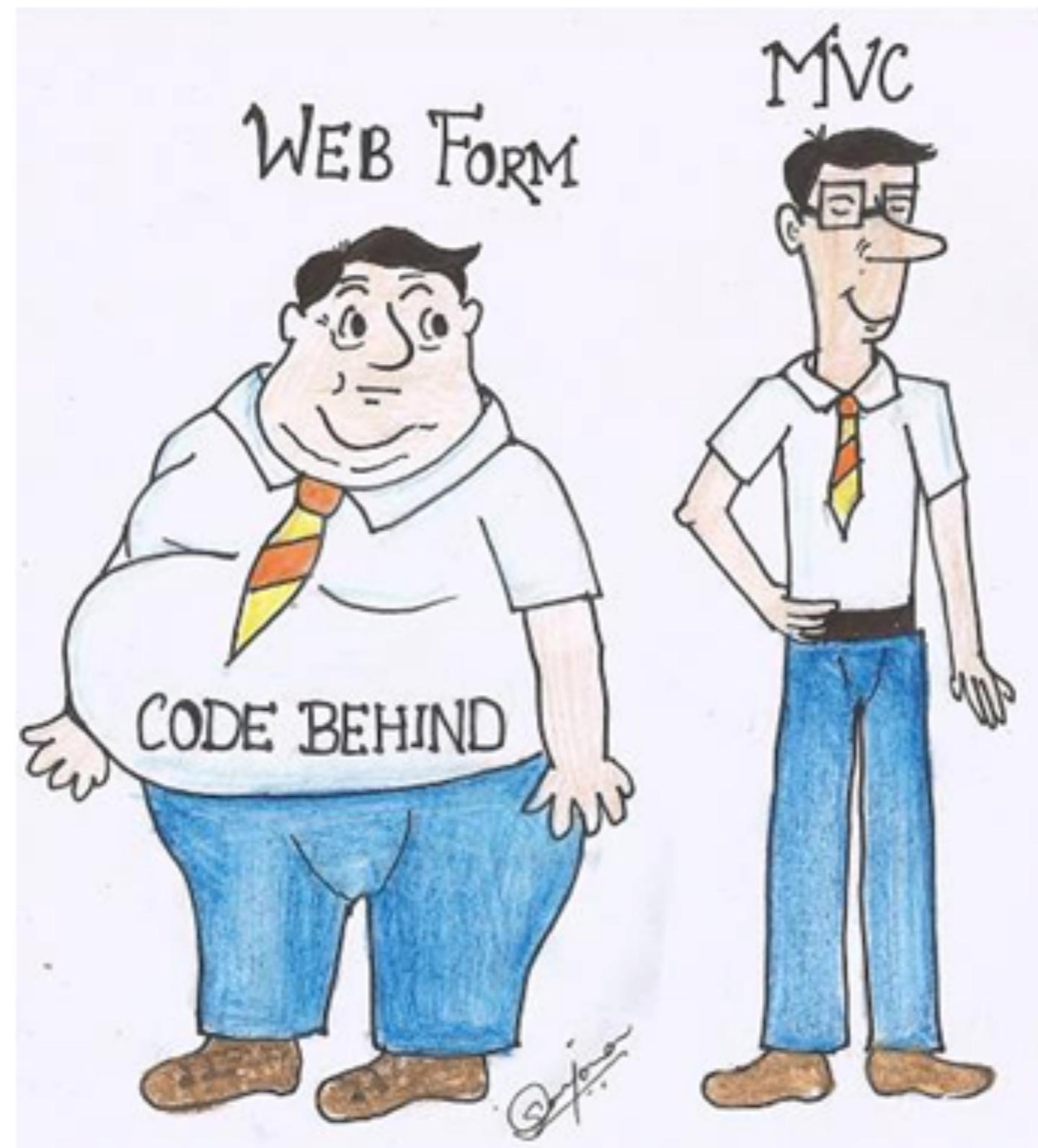
- Solution Explorer:** Shows the project structure with files like add.aspx, Default.aspx, Employee.aspx, travelform.aspx, and web.config.
- Toolbox:** Displays various ASP.NET server controls including CheckBox, CheckBoxList, DropDownList, FileUpload, HiddenField, HyperLink, Image, ImageButton, ImageMap, Label, LinkButton, ListBox, Literal, Localize, MultiView, Panel, PlaceHolder, RadioButton, RadioButtonList, Substitution, Table, and TextBox. The **TextBox** control is currently selected.
- Properties:** Shows settings for the selected control, including **EnableSession:** Explicit, **Id:** DOCUMENT, **Language:** VB, **Link:**, **MasterPageFile:**, **Strict:**, and **Style:**.
- Travelform.aspx:** The design view of the page contains the following content:
 - A label "Travel Web Form".
 - A question "What season do you plan to travel in?" followed by four radio buttons: Spring, Summer, Fall, and Winter.
 - A question "What continent do you plan to travel to?" followed by a dropdown menu.
 - A question "What tour guide book do you plan to use?" followed by three checkboxes: Lonely Planet, Fodor, and DK.
 - A question "Enter the temperature in Ferenheit to convert to Celcius:" followed by a text input field.
- Status Bar:** Shows tabs for Design, Split, Source, and the current selection <asp:TextBox#TextBox1>, along with other navigation icons.

```
<%@ Page Title="" Language="C#" MasterPageFile "~/Site.Master" AutoEventWireup="true" CodeBehind="Da
- <asp:Content ID="Content1" ContentPlaceHolderID="MainContent" runat="server">
  <h1>Data Binding Example</h1>
  <h4>
    <asp:Literal ID="ltError" runat="server" /></h4>
  <asp:GridView ID="gvColors" CssClass="table table-striped color-table" runat="server" AutoGenera
  <Columns>
    <asp:TemplateField>...</asp:TemplateField>
    <asp:BoundField DataField="name" HeaderText="Name" />
    <asp:BoundField DataField="hex" HeaderText="Hex" />
    <asp:TemplateField HeaderText="Color Swatch">
      <ItemTemplate>
        <div class="color-swatch">
          <div class="color-swatch" style='background-color:<%# Eval("hex") %>'>
            </div>
        </div>
      </ItemTemplate>
    </asp:TemplateField>
    <asp:CommandField ShowEditButton="true" />
```

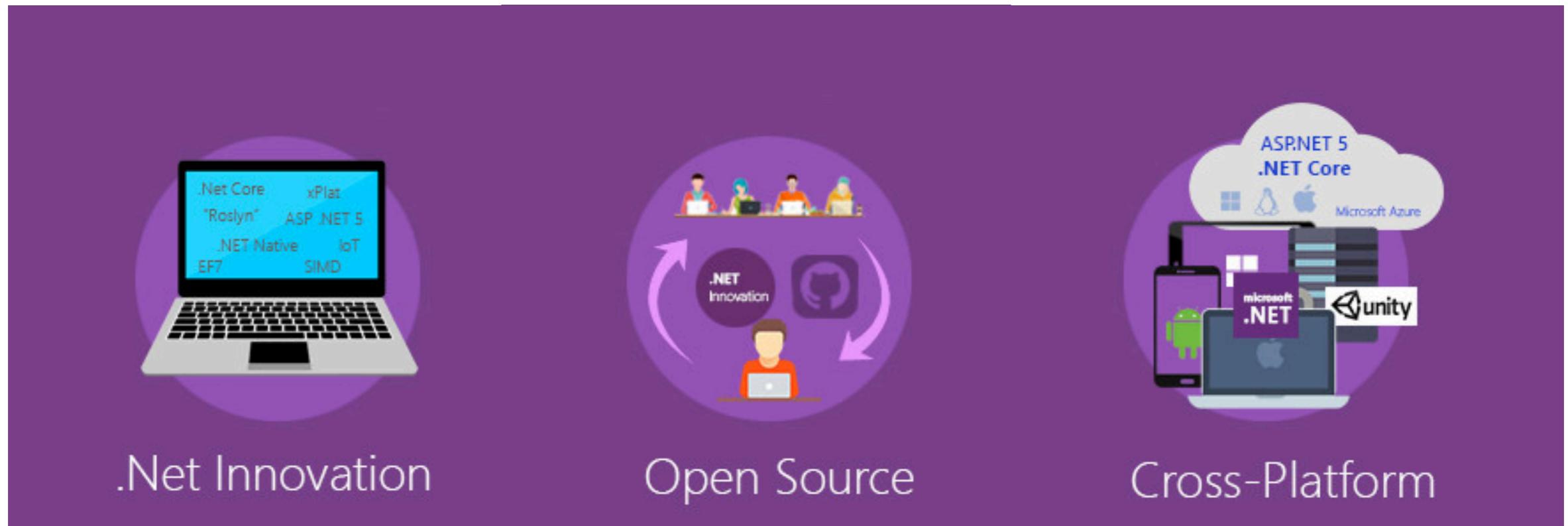




Web forms vs Mvc

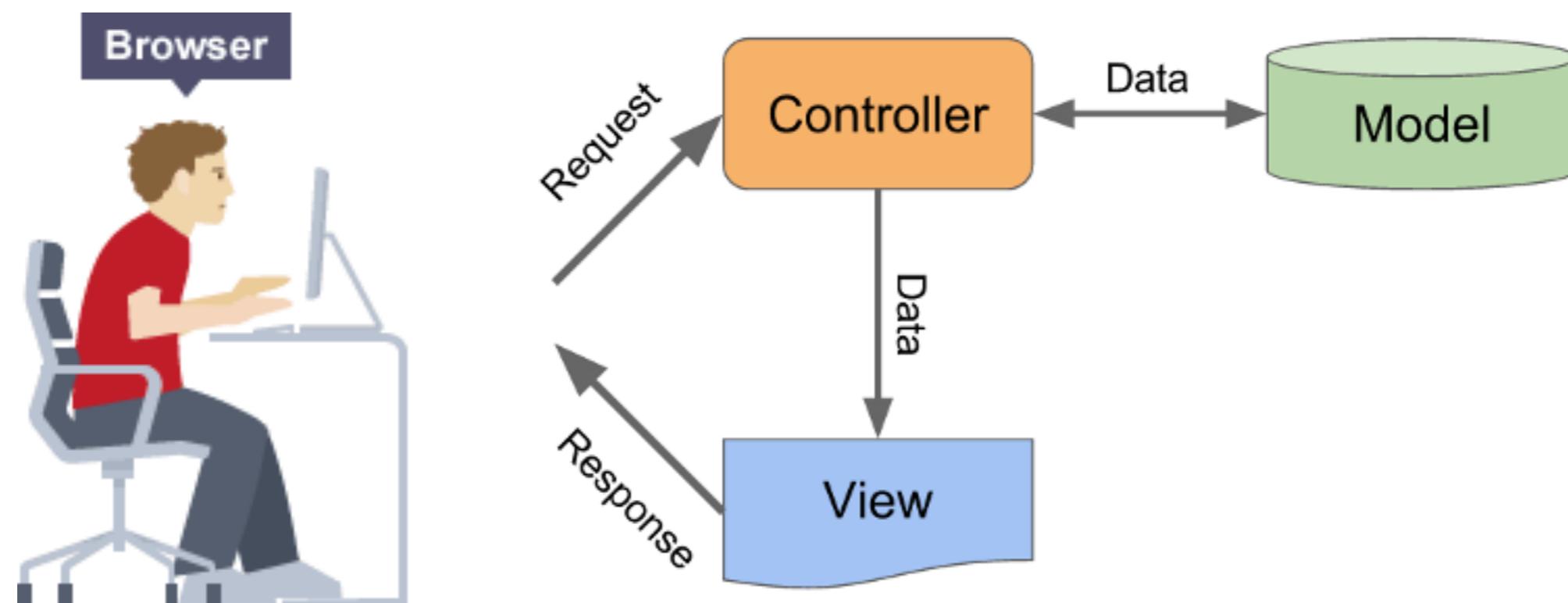


Asp.Net Web Forms	Asp.Net MVC
Asp.Net Web Form follow a traditional event driven development model.	Asp.Net MVC is a lightweight and follow MVC (Model, View, Controller) pattern based development model.
Asp.Net Web Form has server controls.	Asp.Net MVC has html helpers.
Asp.Net Web Form supports view state for state management at client side.	Asp.Net MVC does not support view state.
Asp.Net Web Form has file-based URLs means file name exist in the URLs must have its physically existence.	Asp.Net MVC has route-based URLs means URLs are divided into controllers and actions and moreover it is based on controller not on physical file.
Asp.Net Web Form follows Web Forms Syntax	Asp.Net MVC follow customizable syntax (Razor as default)
In Asp.Net Web Form, Web Forms(ASPX) i.e. views are tightly coupled to Code behind(ASPX.CS) i.e. logic.	In Asp.Net MVC, Views and logic are kept separately.
Asp.Net Web Form has Master Pages for consistent look and feels.	Asp.Net MVC has Layouts for consistent look and feels.
Asp.Net Web Form has User Controls for code re-usability.	Asp.Net MVC has Partial Views for code re-usability.
Asp.Net Web Form has built-in data controls and best for rapid development with powerful data access.	Asp.Net MVC is lightweight, provide full control over markup and support many features that allow fast & agile development. Hence it is best for developing interactive web application with latest web standards.
Asp.Net Web Form is not Open Source.	Asp.Net Web MVC is an Open Source.



ASP.NET Core is a cross-platform, high-performance, open-source framework for building modern, cloud-based, Internet-connected applications.

MVC Pattern



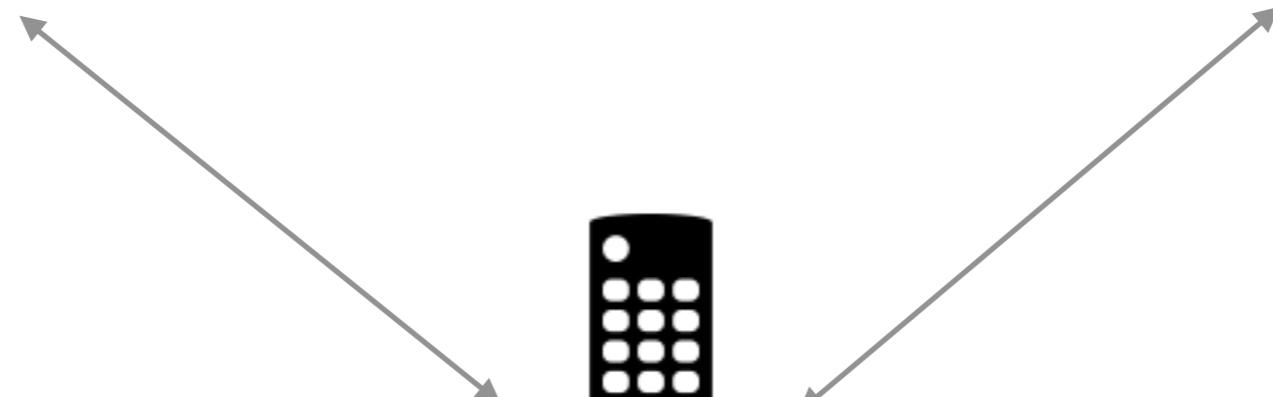


```
39 references
public class Product
{
    7 references
    public int ID { get; set; }
    35 references
    public string ProductID { get; set; }
    34 references
    public string Name { get; set; }
    34 references
    public string Detail { get; set; }
    34 references
    public decimal Price { get; set; }
    34 references
    public int Count { get; set; }
    34 references
    public string UrlImage { get; set; }
}
```

View



```
1  @model IEnumerable<CMPOS.Models.Product>
2
3  @{
4      ViewData["Title"] = "Products";
5
6      <ol class="breadcrumb">
7          <li>
8              <a asp-action="Index" >Home</a>
9          </li>
10         <li class="active">@ViewData["Title"]</li>
11     </ol>
12
13     <p><a asp-action="Create">Create New</a></p>
14
15     @using (Html.BeginForm("SearchProducts", "Product", FormMethod.Post, new {@Class="})
16
17         @Html.TextBox("txtSearch", null, new {@Class="form-control"})
18
19         <button type="submit" class="btn btn-primary">Search</button>
20
21     } <br/><br/>
22
23     <div class="modal fade" id="confirm-delete" tabindex="-1" role="dialog" aria-label="")
24         <div class="modal-dialog">
25             <div class="modal-content">
26                 <div class="modal-header">
27                     <h4>Warning</h4>
28                 </div>
29                 <div class="modal-body">
30                     Are you sure you want to delete all record?
```



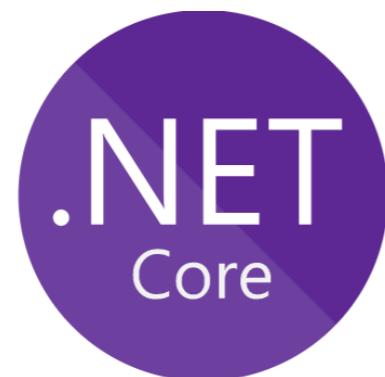
```
[HttpPost]
0 references
public async Task<IActionResult> SearchProducts(String txtSearch)
{
    if(string.IsNullOrEmpty(txtSearch)){
        return RedirectToAction("Index");
    }

    var _data = await context.Products.Where(o => o.ProductID.Contains(txtSearch)).ToListAsync();

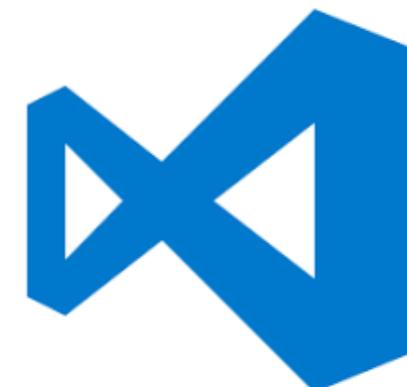
    if(_data.Count == 0){
        return View("Index", await context.Products.ToArrayAsync());
    }else{
        return View("Index", _data);
    }
}
```

Install Development Tools

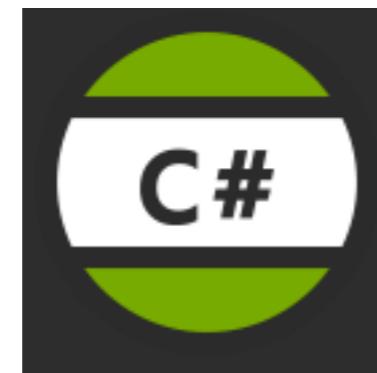
Development Tools



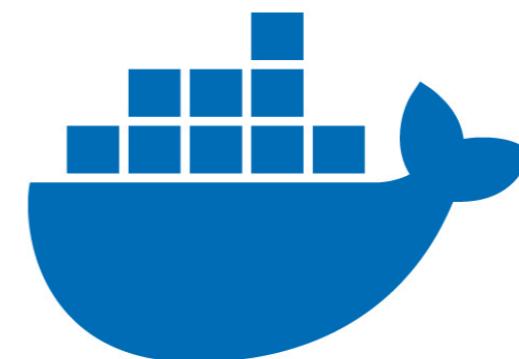
NET Core SDK (2.1)



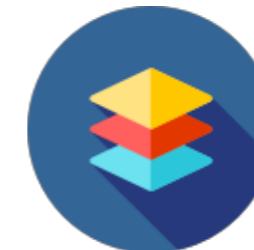
Visual Studio Code



C# EXTENSION



Docker



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AdminLTE

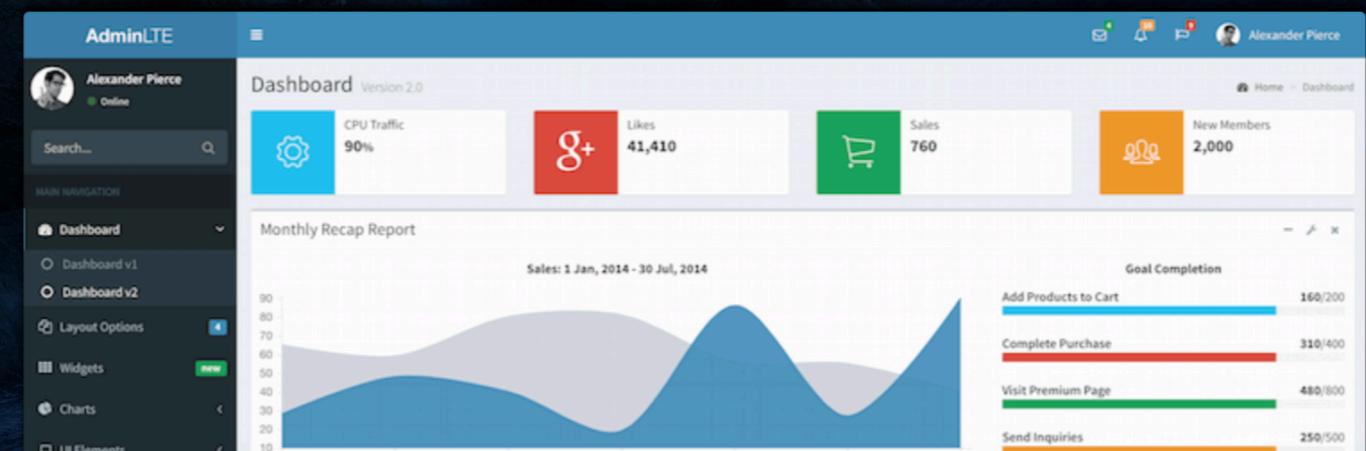
AdminLTE

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AdminLTE Control Panel Template

Best open source admin dashboard & control panel theme. Built on top of Bootstrap 3, AdminLTE provides a range of responsive, reusable, and commonly used components.

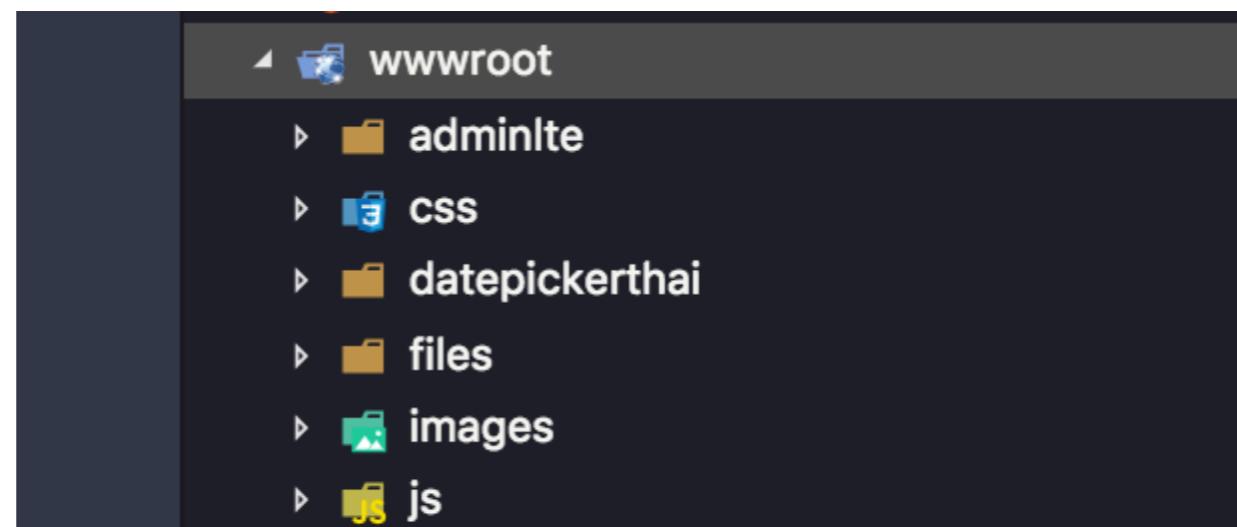
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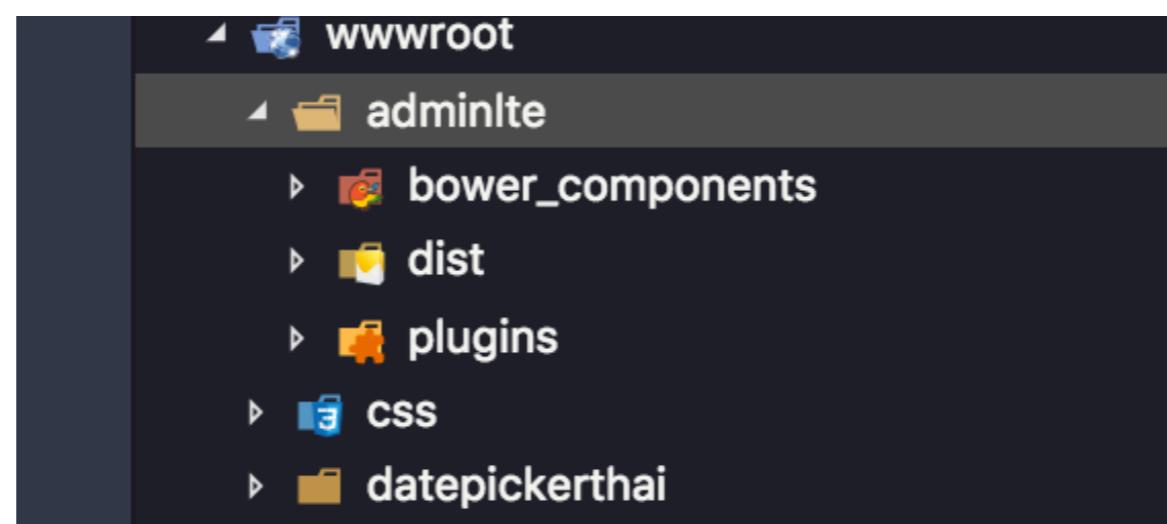
<https://adminlte.io/>

version [2.4.3](#)

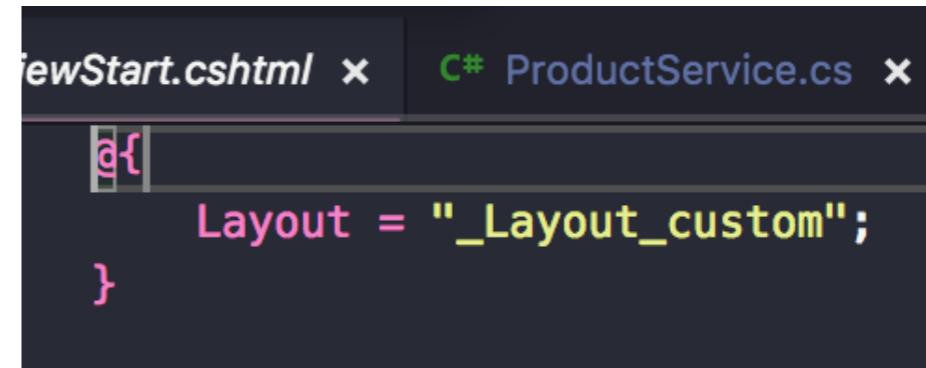
- Create Folder adminlte (wwwroot)



- Copy and Paste (bower_components, dist, plugins)



- Copy _Layout_custom.cshtml
- Set _ViewStart.cshtml



```
_ViewStart.cshtml x C# ProductService.cs x
@{
    Layout = "_Layout_custom";
}
```



CMS Portal

MAIN NAVIGATION

- Database
- Layout Options (4)
- Widgets (new)
- Mailbox (5, 16, 12)

LABELS

- Important
- Warning

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Basic

```
<a href="/Home/OneParameter/1">One Param</a>

<a href="/Home/TwoParameter?param1=code&param2=mobile" >Two Param</a>

@Html.ActionLink("Html helper", "TwoParameter", new {param1 = "Code", param2 = "Mobiles"})

<a asp-controller="Product" asp-action="Index" asp-route-name="tanakorn" asp-route-id="s1150">

<a asp-route="productall">Print</a>
```

Hyperlink

```
0 references
public IActionResult DownloadImage()
{
    return File("~/images/images.jpg", "image/jpeg", "name.jpg");
}

0 references
public IActionResult DownloadExcel()
{
    return File("sample.xls", "application/vnd.openxmlformats-officedocument.spreadsheetml.sheet", "name.xls");
}
```

Download

```
0 references
public IActionResult Link()
{
    return Redirect("http://www.codemobiles.com");
}

0 references
public IActionResult RedirectAction()
{
    return RedirectToAction("Dummy");
}

0 references
public IActionResult RedirectController()
{
    return RedirectToAction("Dummy", "Home");
}

0 references
public IActionResult RedirectRoute()
{
    return RedirectToRoute(new { controller = "Home", action = "Dummy" });
}
```

Redirect

```
{  
    Product _data = new Product();  
    _data.Name = "ASP.NET CORE";  
    _data.Detail = "MVC BIND";  
  
    ViewBag.data1 = "ViewBag";  
    ViewData["data2"] = "ViewData";  
  
    List<string> _list = new List<string>();  
    _list.Add("TEXT1");  
    _list.Add("TEXT2");  
  
    ViewBag.list1 = _list;  
    ViewData["list2"] = _list;  
}
```

- ViewData[“key”] (dictionary object: List, Enumerable, array, ...) *type cast
- ViewBag.key (dynamic object: int, float, string, ...)

Note: Since both refer to the same underlying ViewData collection, you can mix and match between ViewData and ViewBag when reading and writing values, if convenient.

<https://stackoverflow.com/questions/34635874/is-viewdata-the-new-standard-over-viewbag-for-asp-net-5-core>

```
[ActionName("Singleton")]
```

```
0 references
```

```
public IActionResult Index()
```

```
{
```

```
[ActionName("test")]
```

```
0 references
```

```
public async Task<IActionResult> Index()
```

```
{
```

```
    return View("Index");
```

```
}
```

```
[NonAction]
```

```
0 references
```

```
public IActionResult Index()
```

```
{
```

Action

```
    </div>
    <div>
        @RenderSection("Scripts", required: false)
    body>
```

```
@section Scripts {
    <!-- DataTables --&gt;
    &lt;script src="~/AdminLTE/plugins/datatables/jquery.dataTables.min.js"&gt;</pre>
```

RenderSection

Data Annotation & Form Validation

● Data Annotation

[MinLength(x)]

[Required]

[MaxLength(x)]

[EmailAddress]

[Range(min, max)]

[Phone]

[DataType(DataType.xxxxx)]

[CreditCard]

[Compare("attribute")]

[Url]

[RegularExpression(@"^[A-Z]+[a-zA-Z"-'\s]*\$")]

[HiddenInput]

[Display(Name = "")]

● Attribute

ErrorMessage

Prompt

Name

● Create ViewModels

```
[DataType(DataType.Password)]
[Required]
[MaxLength(40, ErrorMessage = "Warning: Max Length = 40"), MinLength(8)]
0 references
public string Password { get; set; }

[Compare("Password")]
0 references
public string PasswordAgain { get; set; }
```

● Using _ViewImports.cshtml

```
gisterController.cs      @ Index.cshtml      @ _ViewImports.cshtml x
@using CMLOGIN
@using CMLOGIN.Models
@using CMLOGIN.ViewModels
@addTagHelper *, Microsoft.AspNetCore.Mvc.TagHelpers
```

Send to View

```
0 references
public IActionResult CreateProduct()
{
    ViewBag.size = new int[4];
    ViewData["CategoryList"] = new SelectList(Context.Category, "Ca
    ViewData["hostFiles"] = getHost(HttpContext) + mFolder;
    return View(new ProductValidViewModel());
}
```

Receive from View

```
[HttpPost]
[ValidateAntiForgeryToken]
0 references
public IActionResult Create(ProductValidViewModel product, int size_
{
    if (ModelState.IsValid)
    {
        Product _data = new Product();
        _data.CodeName = product.CodeName;
        data.Name = product.Name;
```

- cshtml

```
index.cshtml          ProductService.cs           de...
1 @model ProductValidViewModel
2
```

```
<div class="form-group" style="margin-top:20px">
    <label asp-for="CodeName" class="col-sm-2 control-label"></label>
    <div class="col-sm-10">
        <input asp-for="CodeName" class="form-control" />
        <span asp-validation-for="CodeName" style="color: #c00000"></span>
    </div>
</div>
```

Tag Helper

● Anchor

https://localhost:5001/product/pay/test

```
[Route("[controller]/[action]/test", Name = "test")]
public IActionResult pay() => View();
```

```
<a asp-route="test">Test Pay</a>
```

```
<a asp-controller="Home" asp-action="Pay" asp-route-id="5"
asp-route-name="tanakorn" >pay</a>
```

```
@{
    var parms = new Dictionary<string, string> {
        { "name", "tanakorn" }, { "age", "30" }
    };
}
```

```
<a asp-route="test" asp-all-route-data="params">asp-all-route-data</a>
```

- Form

```
<form asp-controller="home" asp-action="Register" method="post">

    <label asp-for="Name"></label>

    <input asp-for="name" />

    <span asp-validation-for="name"></span>

    <div asp-validation-summary="All"></div>

</form>
```

Mark: Antiforgery tokens by method=post;

● Select

```
        }

        List<SelectListItem> Experience = new List<SelectListItem>{
            new SelectListItem { Value = "1", Text = "1" },
            new SelectListItem { Value = "2", Text = "2" },
            new SelectListItem { Value = "3", Text = "3" },
        };

        ViewData["Experience"] = new SelectList(Experience, "Value", "Text");

        //-----

        var NorthAmericaGroup = new SelectListGroup { Name = "North America" };
        var EuropeGroup = new SelectListGroup { Name = "Europe" };

        List<SelectListItem> CountriesGroup = new List<SelectListItem> {
            new SelectListItem
            {
                Value = "MEX",
                Text = "Mexico",
                Group = NorthAmericaGroup
            },
            new SelectListItem
            {
                Value = "CAN",
                Text = "Canada",
                Group = NorthAmericaGroup
            }
        };
    }
}
```

● Select

```
<form style="margin-left:5%" asp-action="FormList" method="POST" role="form">
    <div class="form-group">
        <label asp-for="@Model.user.Experience"></label>
        <select class="form-control" asp-for="@Model.user.Experience" asp-items="ViewBag.Experience"></select>
    </div>

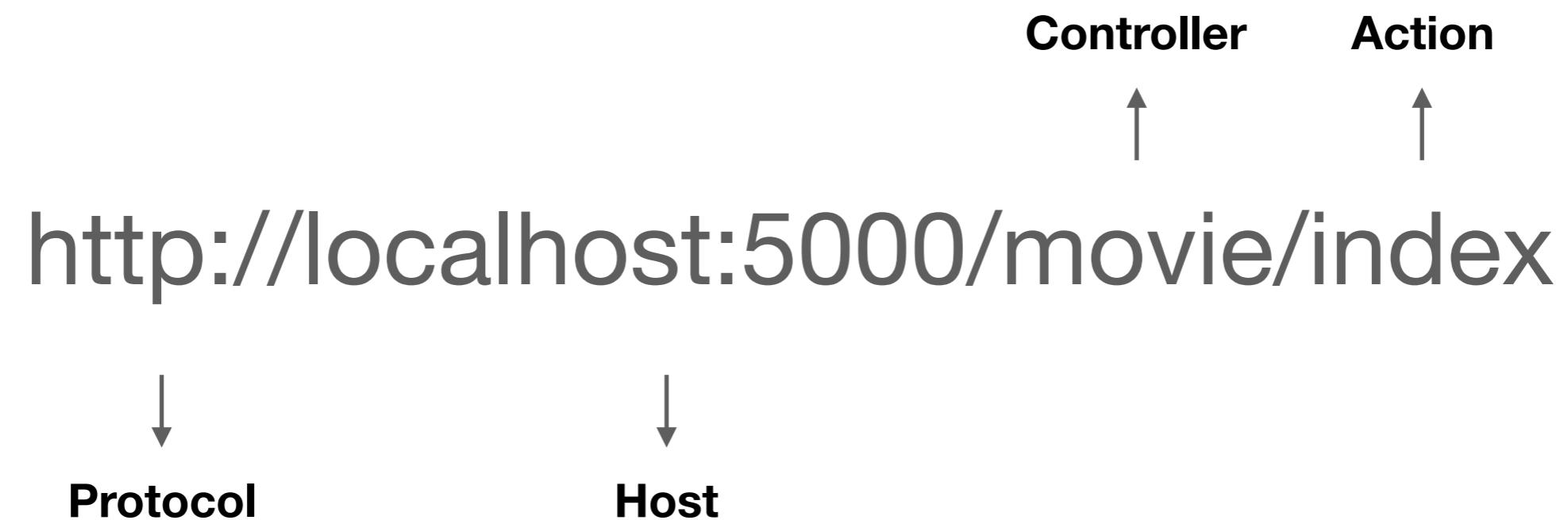
    <div class="form-group">
        <label asp-for="@Model.user.Job"></label>
        <select class="form-control" asp-for="@Model.skillViewModel.Skill" asp-items="@Model.skillViewModel.Skills"></select>
    </div>

    <div class="form-group">
        <label asp-for="@Model.user.Country"></label>
        <select class="form-control" asp-for="@Model.user.Country" asp-items="ViewBag.CountriesGroup"></select>
    </div>

    <div class="form-group">
        <label asp-for="@Model.user.Favorite"></label>
        <select class="form-control" asp-for="@Model.user.Favorite" asp-items="ViewBag.FavoritesMul"></select>
    </div>

    <button type="submit" class="btn btn-primary">Submit</button>
</form>
```

Route



Default Routes

```
routes.MapRoute(  
    name: "default",  
    template: "{controller=Home}/{action=Index}/{id?}");
```

```
routes.MapRoute(  
    name: "default",  
    template: "{controller}/{action}/{id?}",  
    defaults: new { controller = "Home", action = "Index" });
```

http://localhost:5000/

Extending Default Routes

```
routes.MapRoute(  
    name: "about-route-custom",  
    template: "about",  
    defaults: new { controller = "Home", action = "About" });
```

http://localhost:5000/About

Note:

- name: unique
- controller do not have “s”

Extending Default Routes (cont.)

```
routes.MapRoute(  
    name: "contact-route-custom",  
    template: "codemobiles",  
    defaults: new { controller = "Home", action = "Contact" });
```

http://localhost:5000/codemobiles

Extending Default Routes (cont.)

```
routes.MapRoute(  
    name: "contact-route",  
    template: "{controller}/codemobiles",  
    defaults: new { controller = "Home", action = "Contact" });
```

<http://localhost:5000/Home/codemobiles>

```
routes  
.MapRoute(name: "default", template: "{controller=Home}/{action=Index}/{id?}")  
.MapRoute(name: "products", template: "codemobiles/{controller=products}/{action=Index}/{id?}");
```

Using Attributes

```
[Route("Route")]
public class RouteController : Controller
{
    [Route("Dashboard")]
    public IActionResult Index()
    {
        return View();
    }

    [Route("[action]")]
    public IActionResult About()
    {
        return View();
    }
}
```

```
[Route("[controller]")]
public class RouteController : Controller
{
    [Route("Dashboard")]
    public IActionResult Index()
    {
        return View();
    }

    [Route("[action]")]
    public IActionResult About()
    {
        return View();
    }
}
```

<http://localhost:5000/route/about>
<http://localhost:5000/route/dashboard>

Using Attributes (cont.)

```
[Route("Custom/Route")]
public class RouteController : Controller
{
    [Route("")]
    public String IndexV2()
    {
        return "Index";
    }
}
```

<http://localhost:5000/Custom/route/>

Multiple Route Controller

```
[Route("")]  
[Route(" [controller]")]  
[Route("codemobile")]  
[Route("custom/asp")]  
2 references  
public class ProductsController : Cont  
{
```

http://localhost:5000/
http://localhost:5000/products
http://localhost:5000/codemobile
http://localhost:5000/custom/asp

Without Route Controller

```
public class RouteController : Controller
{
    [Route("default_custom_contact")]
    public IActionResult Contact()
    {
        return View();
    }
}
```

http://localhost:5000/default_custom_contact

```
public class RouteController : Controller
{
    [Route("")]
    public String IndexV2()
    {
        return "Index";
    }
}
```

<http://localhost:5000/>

NuGet (Package Manager)

Create .NET apps faster with NuGet

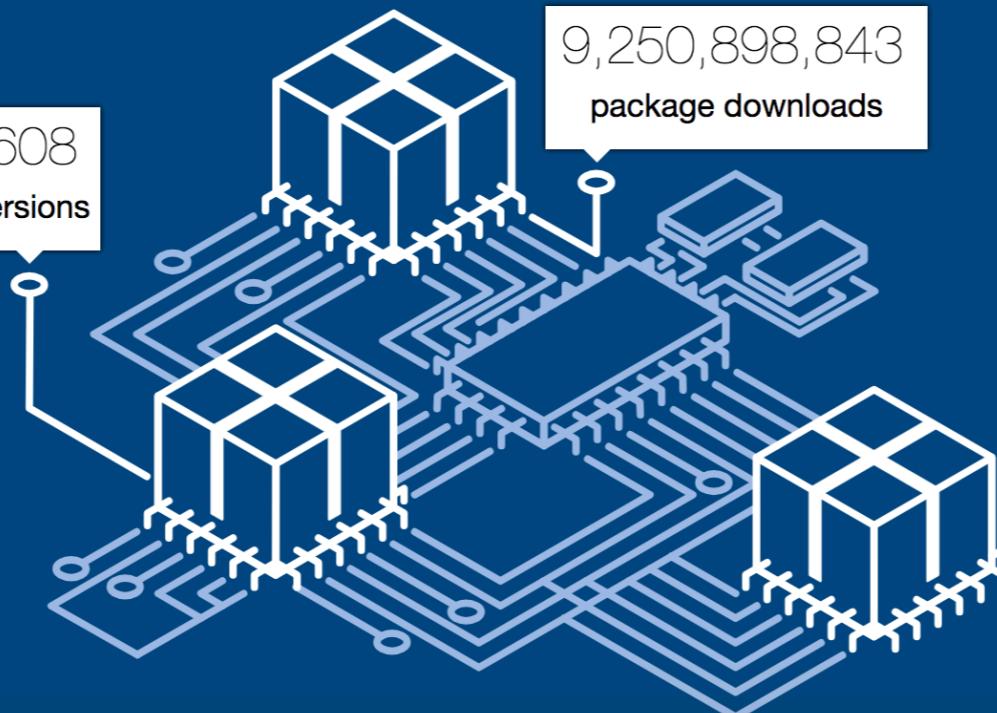
Search for packages...



1,262,608
package versions

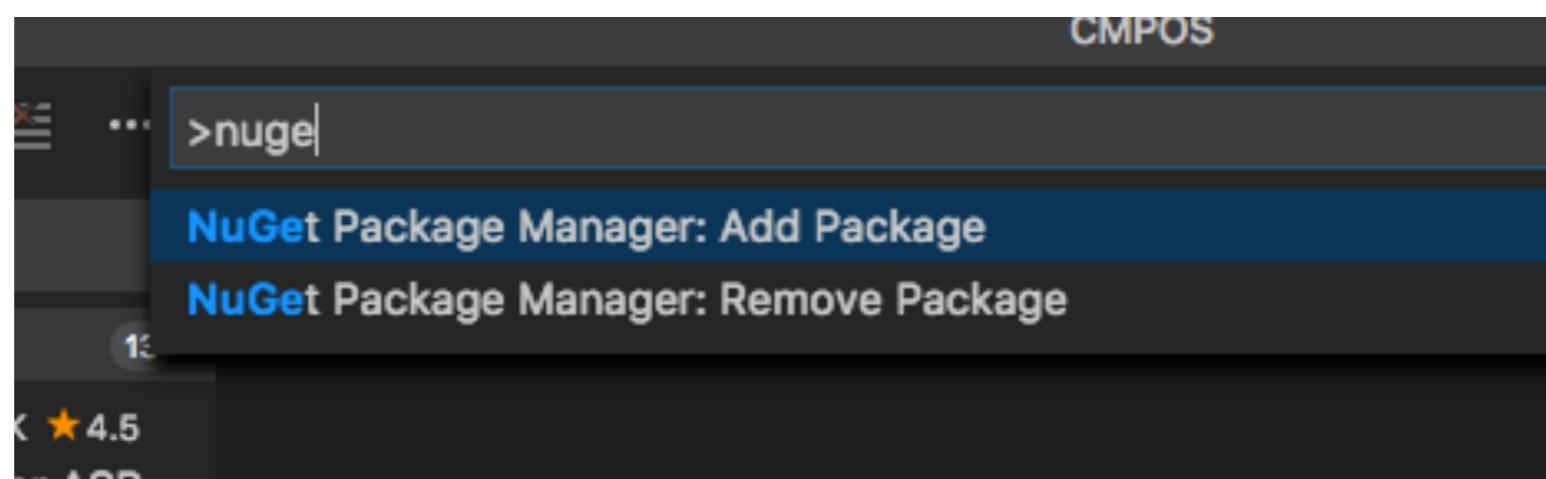
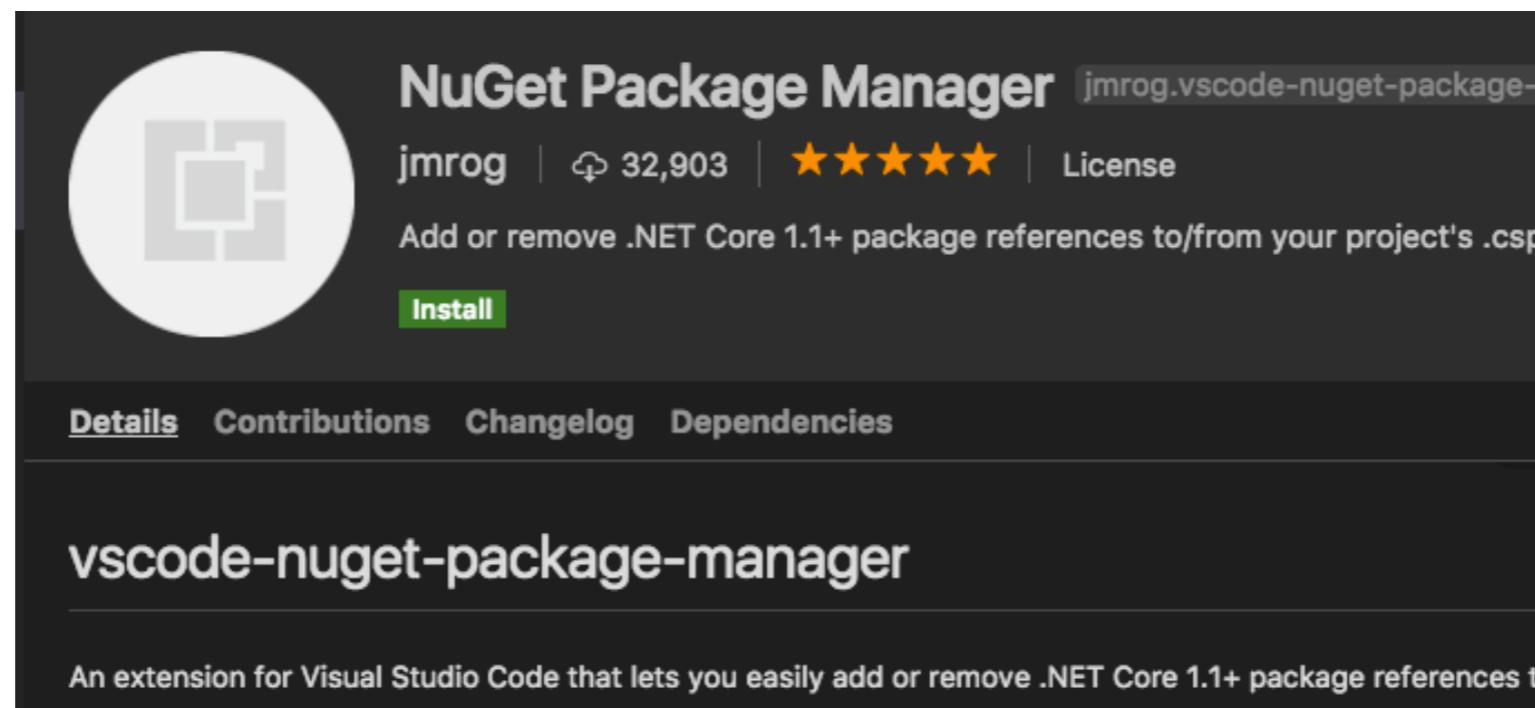
9,250,898,843
package downloads

118,548
unique packages



<https://www.nuget.org/>

Extension VSCode



Dependency Injection

“Dependency Injection” is a 25-dollar term for a 5-cent concept”



Person need have money

```
namespace CMPOS.Models
{
    0 references
    public class Person
    {
        2 references
        Money money;

        0 references
        public Person()
        {
            this.money = new Money();
        }
    }
}
```

Without Injection

```
0 references
public class Person
{
    1 reference
    Money money;

    0 references
    public Person()
    {
    }

    0 references
    public Person(Money money)
    {
        this.money = money;
    }
}
```

Use Injection

Problems Without Injection:

Coupling, Bug (in case money class), Hard test

Dependency injection into views

Create Service

```
6
7  namespace MYPOS.Services
8  {
9      public class ProductService
10     {
11         public DatabaseContext Context { get; }
12
13         public ProductService(DatabaseContext context)
14         {
15             this.Context = context;
16         }
17
18         public async Task<IEnumerable<Product>> getProducts()
19         {
20             var data = await Context.Products.ToListAsync();
21             return data;
22         }
23     }
}
```

The service provides static data or dynamic data.

Register DI (startup.cs)

Singleton : Value Static

Transient : Value Dynamic

```
// This method gets called by the runtime. Use this method to add services to the container.
0 references
public void ConfigureServices(IServiceCollection services)
{
    services.AddTransient<ProductService>(); // data dynamic from database

    services.AddSingleton<ProductService>(); // data static
}
```

Inject to view

```
290
291 @inject ProductService blah
292
293 @{
294 | | IEnumarable<Product> _data = await blah.getProduct();
295 }
296
297 @foreach(var item in _data){
298 | | <p>@item.Name;</p>
299 }
300
```

Partial Views

What are Partial Views?

A partial view is a view that's rendered within another view. The HTML output generated by executing the partial view is rendered into the calling (or parent) view. Like views, partial views use the .cshtml file extension.

```
@await Html.PartialAsync("name_view")
```

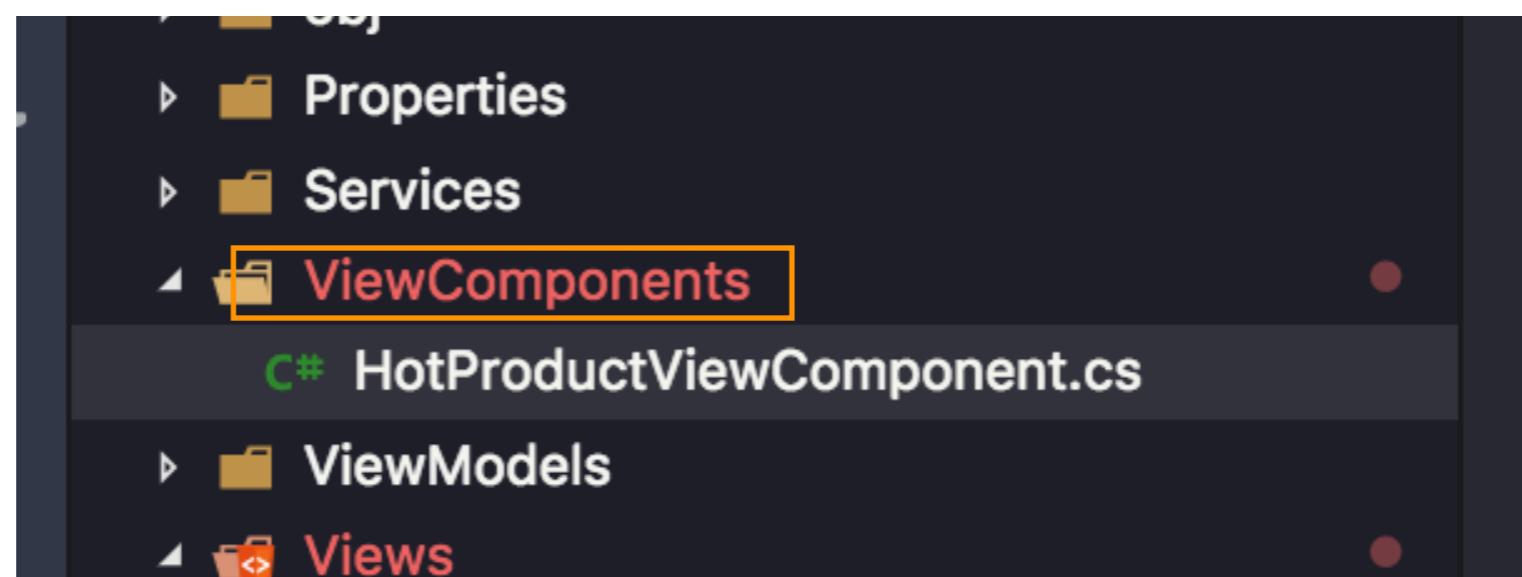
Note: If your views need to execute code, the recommended pattern is to use a **view component** instead of a partial view.

View Component

What are View components?

View components are similar to partial views, but they're much more powerful. View components don't use model binding, and only depend on the data provided when calling into it.

Add a ViewComponent class



Mark: recommended the name ends with the suffix ViewComponents

Add a ViewComponent class (cont.)

```
using Microsoft.AspNetCore.Mvc;
using Microsoft.AspNetCore.Mvc.ViewComponents;
using System.Collections.Generic;
using System.Linq;
using System.Threading.Tasks;
using MYPOS.Data;
using MYPOS.Models;

namespace MYPOS.ViewComponents
{
    public class HotProductViewComponent : ViewComponent
    {
        public DatabaseContext Context { get; }

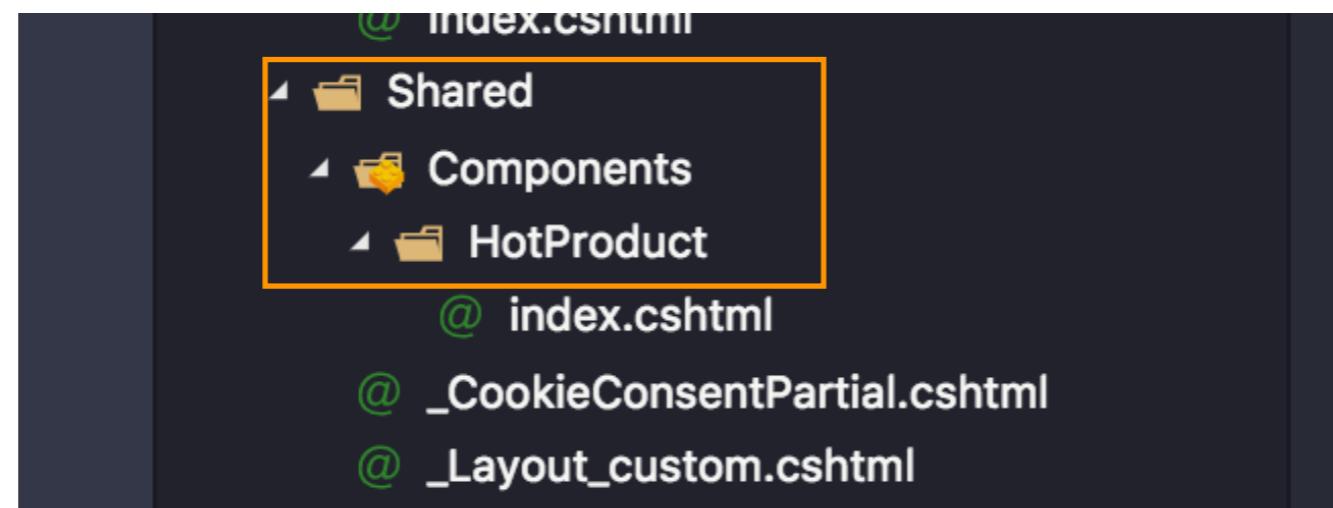
        public HotProductViewComponent(DatabaseContext context)
        {
            this.Context = context;
        }

        public async Task<IViewComponentResult> InvokeAsync()
        {
            var items = await Context.Products.OrderByDescending(u =>
                u.Rating).Take(5).ToListAsync();
            return View("index", items);
        }
    }
}
```

Note: default name of view is 'default.cshtml'

View Component

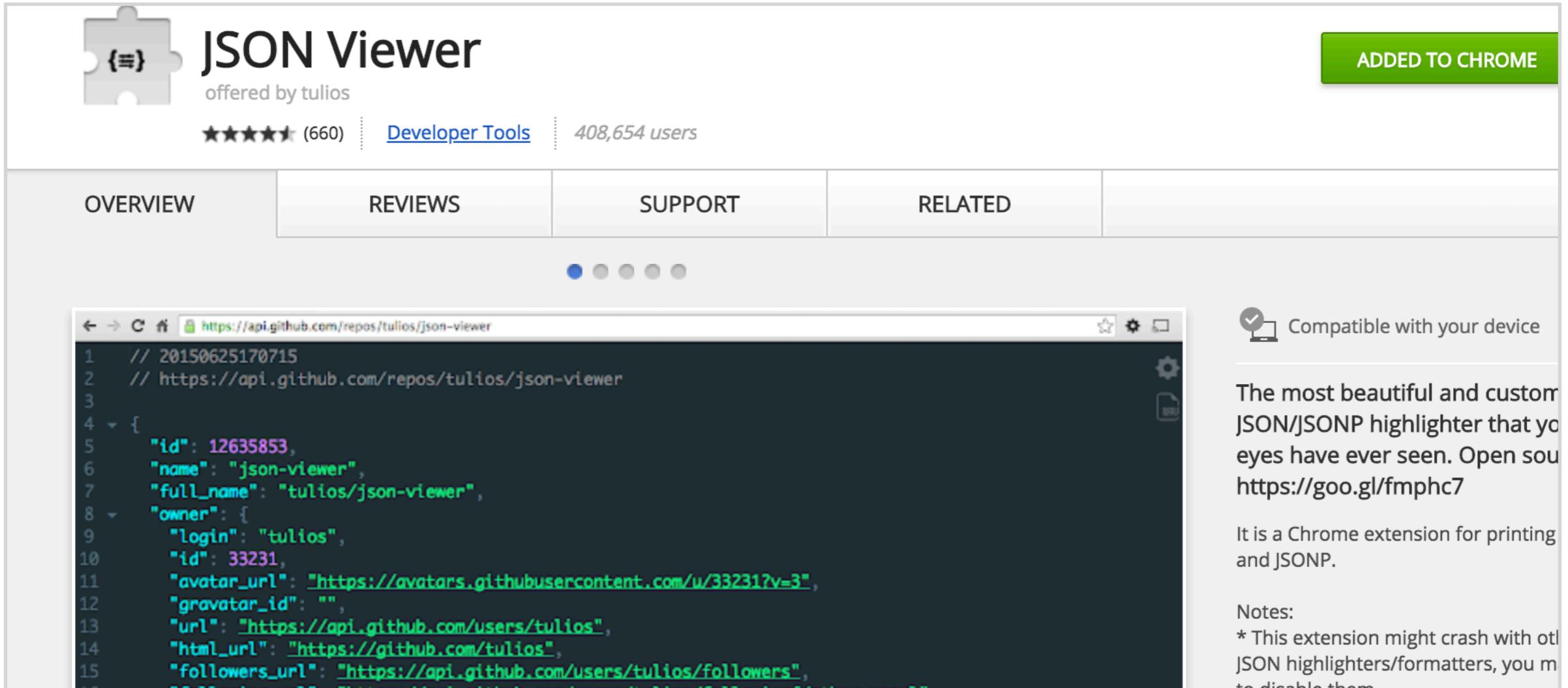
Add a ViewComponent View



```
@await Component.InvokeAsync("HotProduct")
```

JSON Feed

Json Viewer



The screenshot shows the 'OVERVIEW' tab of the JSON Viewer extension page. The title 'JSON Viewer' is displayed with a puzzle piece icon. It's offered by tulios, has a rating of 4.5 stars (660 reviews), and 408,654 users. A green button labeled 'ADDED TO CHROME' is visible. Below the tabs are five small circular icons. The main content area shows a dark-themed code editor with JSON code from a GitHub API endpoint. The code includes fields like id, name, full_name, owner, login, id, avatar_url, gravatar_id, url, html_url, followers_url, and following_url. To the right of the code editor, there's a note about compatibility with devices, a brief description of the extension's purpose, and a section for notes and compatibility information.

JSON Viewer
offered by tulios

★★★★★ (660) | [Developer Tools](#) | 408,654 users

OVERVIEW REVIEWS SUPPORT RELATED

1 // 20150625170715
2 // https://api.github.com/repos/tulios/json-viewer
3
4 {
5 "id": 12635853,
6 "name": "json-viewer",
7 "full_name": "tulios/json-viewer",
8 "owner": {
9 "login": "tulios",
10 "id": 33231,
11 "avatar_url": "https://avatars.githubusercontent.com/u/33231?v=3",
12 "gravatar_id": "",
13 "url": "https://api.github.com/users/tulios",
14 "html_url": "https://github.com/tulios",
15 "followers_url": "https://api.github.com/users/tulios/followers",
16 "following_url": "https://api.github.com/users/tulios/following/other_users"

Compatible with your device

The most beautiful and custom JSON/JSONP highlighter that your eyes have ever seen. Open source at <https://goo.gl/fmphpc7>

It is a Chrome extension for printing and JSONP.

Notes:
* This extension might crash with other JSON highlighters/formatters, you may need to disable them

Google chrome extension

JSONPlaceholder



JSONPlaceholder

Fake Online REST API for Testing and Prototyping
powered by [JSON Server](#) and [lowdb](#)

<https://jsonplaceholder.typicode.com/>

Generate Class

<http://json2csharp.com/>

Note: issue next page

Note: rename class

Generate Class (cont.)

, พอร์ตเสียบแจ็คพาวเวอร์, ICS
อะแดปเตอร์สำหรับแปลงไฟ AC ที่
เปลี่ยน Chip ตัวใหม่เข้ามาแทนที่

"price": 280.0,

"unitsInStock": 100,
"categoryID": 1,
"image": "<http://dy.l>
"category": null

},
{
"id": 2

ของดาวน์โหลดจะบรรจุกับด้วย 14 pins เอาท์พุตได้), 6 pins อนาคตอีก , ICSP header และ ปุ่มสำหรับหรือสามารถต่อพาวเวอร์โดยใช้สามารถบัดกรีใช้งานโดยไม่ต้องก้าวตัวใหม่เข้ามาแทนที่ และเริ่มการ

```
7 "price": 280,
8 "unitsInStock": 100,
9 "categoryID": 1,
10 "image": "http://dy.lnwfile.com/NodeMCU_Development.jpg",
11 "category": null
12 },
13 {
14     "id": 2,
15     "productID": "cm-0005",
16     "name": "NodeMCU Development Board (WiFi + Bluetooth)"
```

Note: copy json from browser is best case

Note: json viewer switch to raw

GET HTTP Method

```
0 references
public async Task<IActionResult> Index()
{
    using (var client = new HttpClient())
    {
        try
        {
            const string baseUrl = "http://192.168.0.49:1150";
            const string function = "/api";

            client.BaseAddress = new Uri(baseUrl);
            var response = await client.GetAsync(function); // Get http method
            response.EnsureSuccessStatusCode();

            var stringResponse = await response.Content.ReadAsStringAsync();
            IEnumerable<JsonProduct> result = JsonConvert.DeserializeObject<IEnumerable<JsonProduct>>(stringResponse);

            return View(result);
        }
        catch (HttpRequestException e)
        {
            Console.WriteLine($"Request exception: {e.Message}");
        }
    }
    return NotFound();
}
```

Note: Used IEnumerable when server return json array

GET HTTP Method (cont.)

```
0 references
public async Task<IActionResult> detail(int id)
{
    using (var client = new HttpClient())
    {
        try
        {
            const string baseUrl = "http://192.168.0.49:1150";
            string function = $"{"/api/{id}"};

            client.BaseAddress = new Uri(baseUrl);
            var response = await client.GetAsync(function); // Get http method
            response.EnsureSuccessStatusCode();

            var stringResponse = await response.Content.ReadAsStringAsync();
            JsonProduct result = JsonConvert.DeserializeObject<JsonProduct>(stringResponse);

            return View(result);
        }
        catch (HttpRequestException e)
        {
            Console.WriteLine($"Request exception: {e.Message}");
        }
    }
    return NotFound();
}
```

Note: server return json object

POST, PUT HTTP Method (Json)

```
JsonProduct _dummy = new JsonProduct
{
    productID = "cm-0009",
    name = "Tanakorn",
    detail = "Asp.net core",
    price = 280,
    unitsInStock = 20,
    categoryID = 1,
    image = "http://static3.businessinsider.com/image/5654150584307663008b4ed8-4608-3456/img_2168.jpg"
};

using (var client = new HttpClient())
{
    try
    {
        const string baseUrl = "http://192.168.0.49:1150";
        const string function = "/api";

        client.BaseAddress = new Uri(baseUrl);
        var response = await client.PostAsJsonAsync(function, _dummy); // Post http method (Json Format)
        response.EnsureSuccessStatusCode();

        var stringResponse = await response.Content.ReadAsStringAsync();

        return RedirectToAction("index");
    }
}
```

Note: PostAsJsonAsync, PutAsJsonAsync (server support json)

Delete HTTP Method

```
0 references
public async Task<IActionResult> delete(int id)
{
    using (var client = new HttpClient())
    {
        try
        {
            const string baseUrl = "http://192.168.0.49:1150";
            string function = $"{"/api?id={id}"};

            client.BaseAddress = new Uri(baseUrl);
            var response = await client.DeleteAsync(function); // Delete http method
            response.EnsureSuccessStatusCode();

            var stringResponse = await response.Content.ReadAsStringAsync();

            return RedirectToAction("index");
        }
        catch (HttpRequestException e)
    }
}
```

POST HTTP Method (Form)

```
0 references
public async Task<IActionResult> CreateForm()
{
    using (var client = new HttpClient())
    {
        try
        {
            const string baseUrl = "http://192.168.0.49:1150";
            const string function = "/api/postform";

            var postData = new List<KeyValuePair<string, string>>();
            postData.Add(new KeyValuePair<string, string>("username", "admin"));
            postData.Add(new KeyValuePair<string, string>("password", "password"));

            var content = new System.Net.Http.FormUrlEncodedContent(postData);

            client.BaseAddress = new Uri(baseUrl);
            var response = await client.PostAsync(function, content);
            response.EnsureSuccessStatusCode(); // Throw in not success

            var stringResponse = await response.Content.ReadAsStringAsync();

            return RedirectToAction("index");
        }
    }
}
```

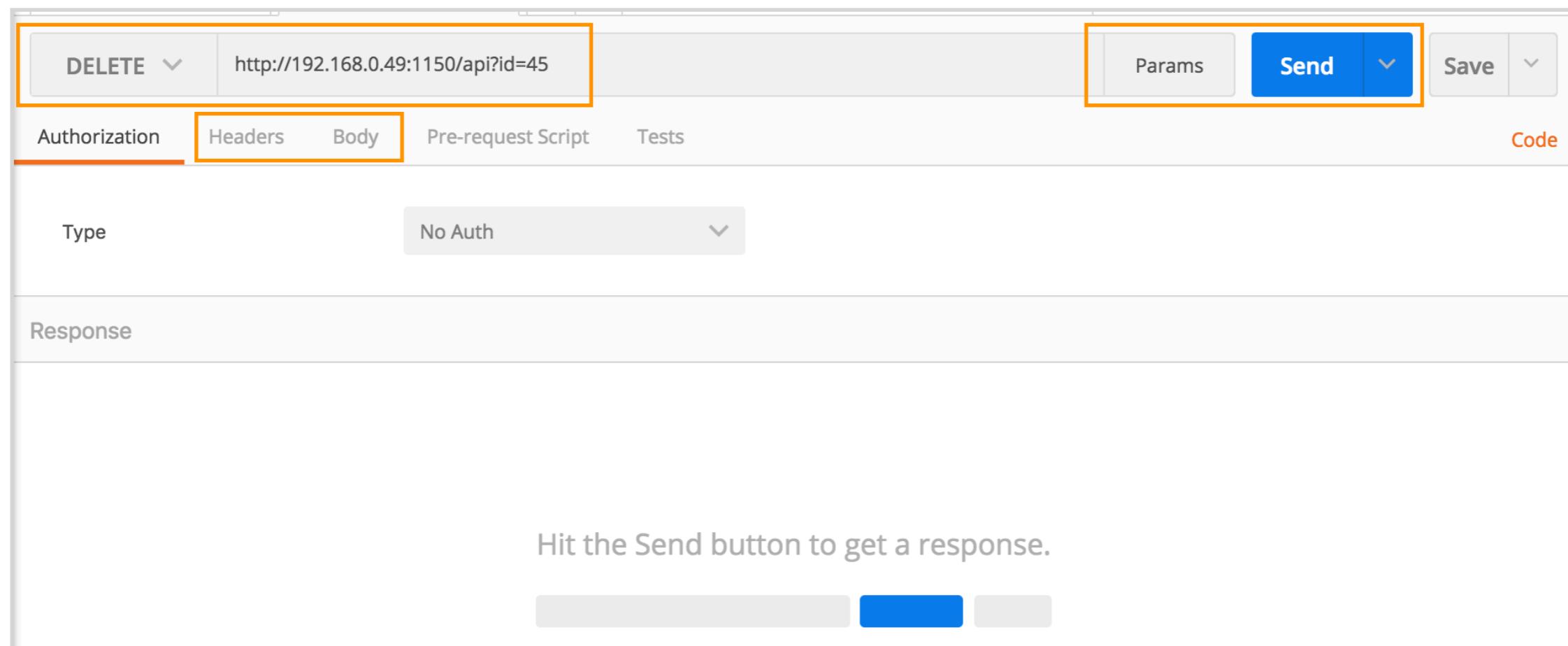
WEB API

Postman

The image shows the official website for Postman. At the top left is the Postman logo, which consists of an orange circle containing a white pen nib icon. To the right of the logo is the word "POSTMAN". Along the top edge are four navigation links: "PRODUCT", "SOLUTIONS", "ENTERPRISE", and "PLANS & PRICING". Below these links is a large, bold, white text that reads "Postman Makes API Development Simple." To the left of this text is a smaller paragraph: "Developers use Postman to build modern software for the API-first world." Below this paragraph is an orange button with the text "Download the App". Further down the page, another orange button contains the text "Want to improve your Postman skills? Take the next step!". In the bottom right corner of the main content area, there is a small, semi-transparent orange rectangle with the text "TRY IT FREE". The background of the page features a stylized illustration of two astronauts in a rocket ship against a dark space-like background with several small white stars.

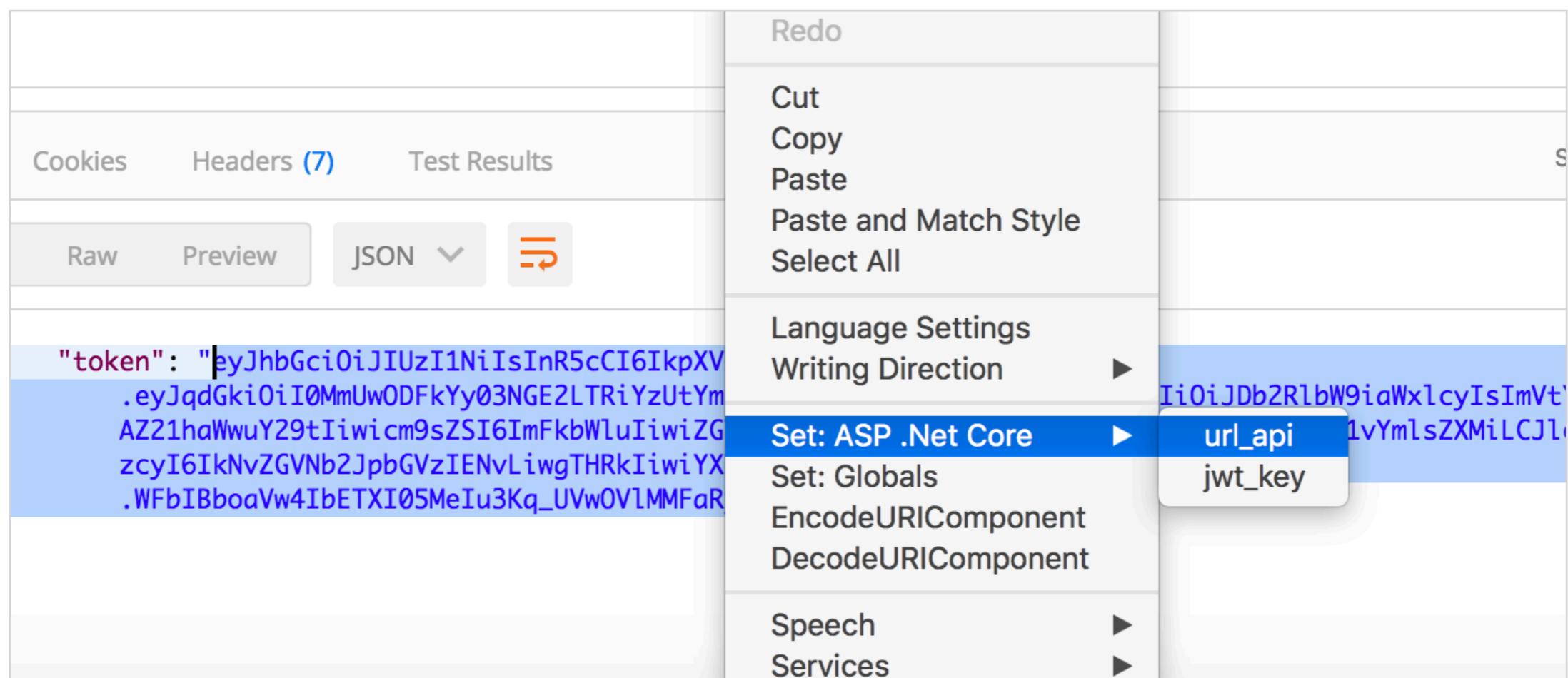
<https://www.getpostman.com/>

Postman (cont.)

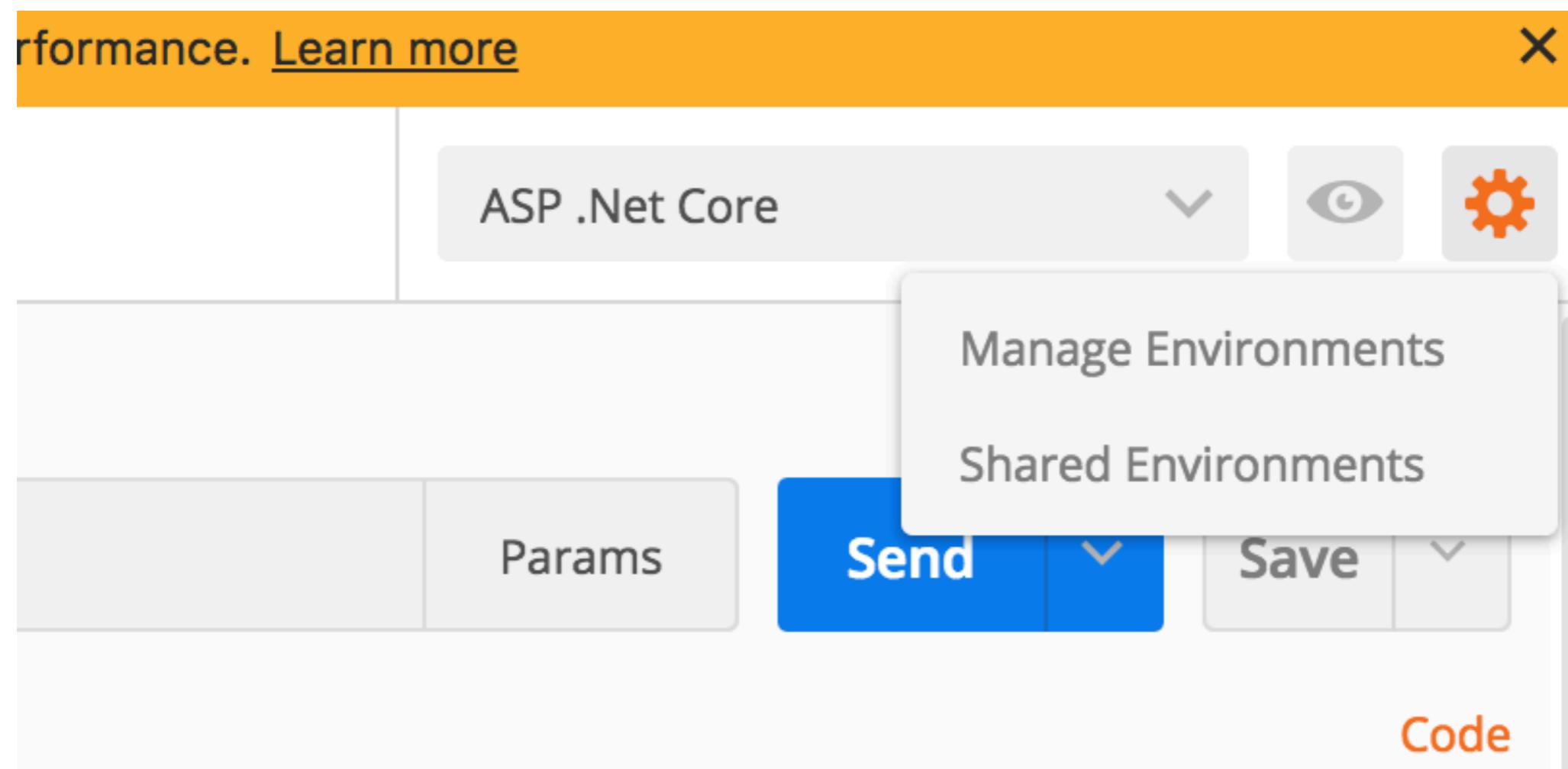


How to using postman by codemobiles
<https://www.youtube.com/watch?v=wzNigwFmpdQ>

Postman (cont.)



Postman (cont.)



Postman (cont.)

collections.

[Learn more about environments](#)

ASP .Net Core

Share   

EbizCard(DEV)

Share   

[Globals](#) [Import](#) [Add](#)

Postman (cont.)

Edit Environment

ASP .Net Core

Key	Value	Bulk Edit
<input checked="" type="checkbox"/> url_api	http://localhost:1444/api/	
<input checked="" type="checkbox"/> jwt_key	eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJqdGkiOiI... <small>Copy</small>	
New key	Value	

Test

```
// PUT api/Products/1
[HttpPut("{id}")]
0 references
public IActionResult Update(long id, [FromBody] Product item)
{
    if (item == null)
        return
```

PUT ▾ http://192.168.1.10:1150/api/Products/8

Authorization Headers (1) Body ● Pre-request Script Tests

form-data x-www-form-urlencoded raw binary **JSON (application/json)** ▾

```
1 {  
2     "ProductID": "cm-999",  
3     "Name": "some",  
4     "Detail": "some",  
5     "Price": "99",  
6     "UnitsInStock": "9",  
7     "Image": "www.image.com",  
8     "CategoryID": "2"  
9 }
```

Mark: warning access cors

```
1 using System.Collections.Generic;
2
3 namespace MYAPI.Models
4 {
5     public class Product
6     {
7         public string ProductID { get; set; }
8         public string Name { get; set; }
9         public string Detail { get; set; }
10        public decimal Price { get; set; }
11        public int UnitsInStock { get; set; }
12        public int CategoryID { get; set; }
13        public string Image { get; set; }
14    }
15 }
16 
```

Clear JSON

Options:

Camel case
 Generate comments
 Minify

<http://csharp2json.io/>

Test upload images

POST ▾ http://192.168.0.49:1150/api/uploadfiles Params

Authorization Headers Body ● Pre-request Script Tests

form-data x-www-form-urlencoded raw binary

Key	Value	Description
<input checked="" type="checkbox"/> username	admin	
<input checked="" type="checkbox"/> password	1234	
<input checked="" type="checkbox"/> files	<input type="button" value="Choose Files"/> angular_5_install.jpg	
<input checked="" type="checkbox"/> files	<input type="button" value="Choose Files"/> cmdev_thumbnail_ios_plek.png	
<input checked="" type="checkbox"/> files	<input type="button" value="Choose Files"/> fastlane_android.jpg	
New key	Value	Description

Cross-Origin Resource Sharing (CORS)

Browser security prevents a web page from making AJAX requests to another domain. This restriction is called the *same-origin policy*, and prevents a malicious site from reading sensitive data from another site. However, sometimes you might want to let other sites make cross-origin requests to your web API.

Different origins

- domain e.g. [net](#), [co.th](#)
- subdomain e.g. <http://www.ex.com/>
- scheme e.g. [http](#), [https](#)
- port e.g. [:5000](#), [:1150](#)

```
-----  
✖ Failed to load http://192.168.0.49:1150/api?id=4: No 'Access-Control-Allow-Origin' header is present  
not allowed access. The response had HTTP status code 400.  
② DELETE http://192.168.0.49:1150/api?id=4 400 (Bad Request)  
✖ Failed to load http://192.168.0.49:1150/api?id=4: No 'Access-Control-Allow-Origin' header is present  
not allowed access. The response had HTTP status code 400.  
> |
```

AJAX requests

- Add the CORS services in Startup.cs:

```
0 references
public void ConfigureServices(IServiceCollection services)
{
    //Setup CORS
    //https://stackoverflow.com/questions/40043097/cors-in-net-core
    services.AddCors(options =>
    {
        options.AddPolicy("AllowAll", builder =>
        {
            builder.AllowAnyOrigin().AllowAnyHeader().AllowAnyMethod().AllowCredentials();
        });

        options.AddPolicy("AllowSpecific", builder =>
        {
            builder.WithOrigins("http://localhost:4848", "http://www.codemobiles.com")
                .AllowAnyHeader().AllowAnyMethod().AllowCredentials();
        });

        options.AddPolicy("AllowSpecificMethods", builder =>
        {
            builder.WithOrigins("http://localhost:4848", "http://www.codemobiles.com")
                .WithMethods("GET", "POST", "HEAD", "PUT")
                .AllowAnyHeader().AllowCredentials();
        });
    });
}
```

- Enabling CORS with middleware

```
0 references
public void Configure(IApplicationBuilder app, IHostingEnvironment env)
{
    //USE CORS - might not be required.
    app.UseCors("AllowAll");

    if (env.IsDevelopment())
    {
```

- Enabling CORS in MVC

```
// [EnableCors("AllowAll")]
[Route("api")]
2 references
public class ProductController : Controller
{
```

action or controller

- Enable CORS globally for all controller

```
// You can enable CORS globally for all controller
services.Configure<MvcOptions>(options =>
{
    options.Filters.Add(new CorsAuthorizationFilterFactory("AllowSpecific"));
});
```

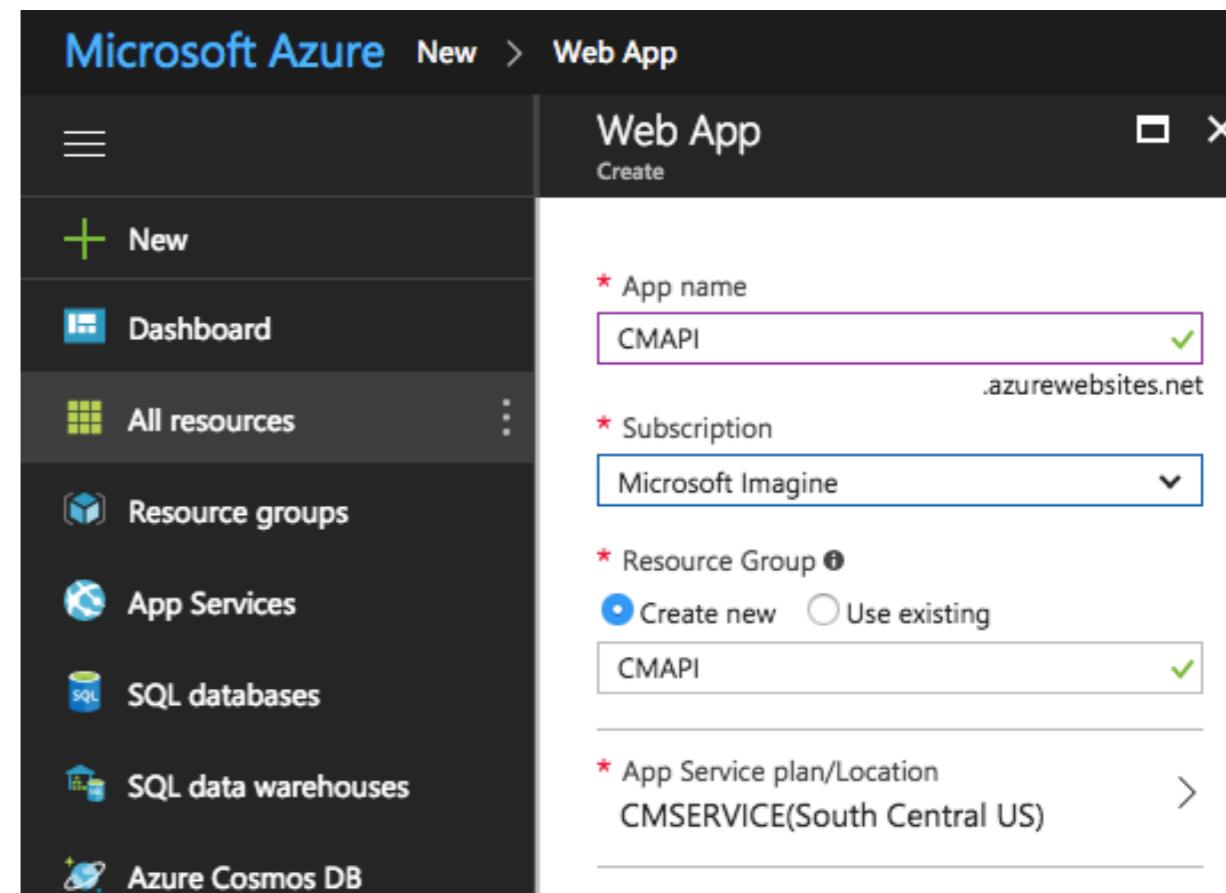
- Disable CORS

```
[DisableCors]
[Route("api")]
2 references
public class ProductController : Controller
{
    6 references
```

action or controller

Deployment

1. Install git
2. Login <https://portal.azure.com/>
3. TAP NEW at the top left of the Portal
4. TAP Web + Mobile > Web App
5. Enter Infomation

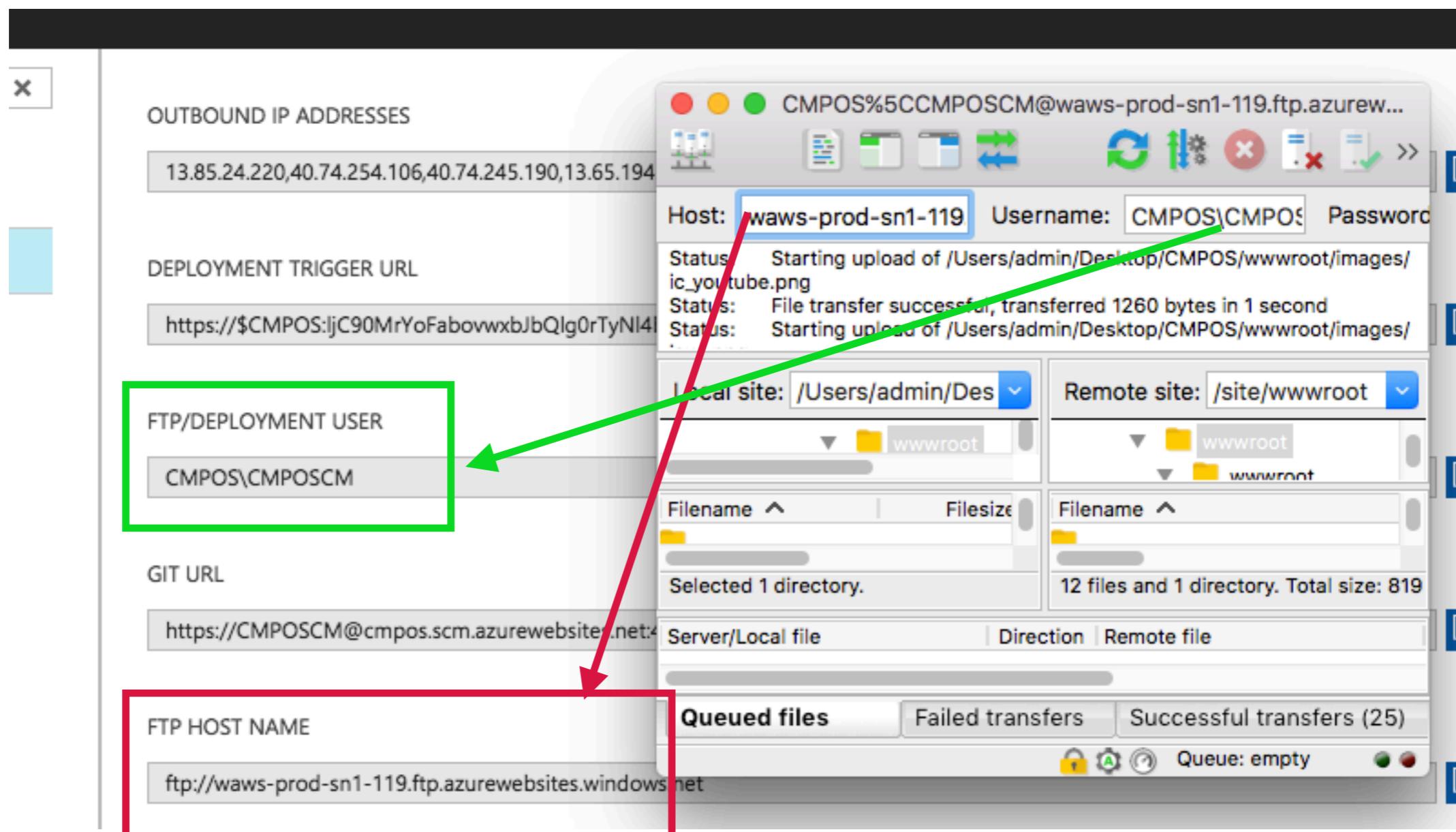


6. Search Deployment options > GIT > OK
7. Search Deployment credentials and Enter information
8. Search Properties and Copy GIT URL

*Make sure not use UseUrls in Program.cs

```
1 reference
public static IWebHost BuildWebHost(string[] args) =>
    WebHost.CreateDefaultBuilder(args)
        .UseStartup<Startup>()
        .Build();
```

9. Add Source Control
10. Open Terminal
11. git remote add APP_NAME GITURL
example: git remote add Azure-SampleApp https://
me@sampleapp.scm.azurewebsites.net:443/SampleApp.git
12. git push -u APP_NAME master and Enter Password



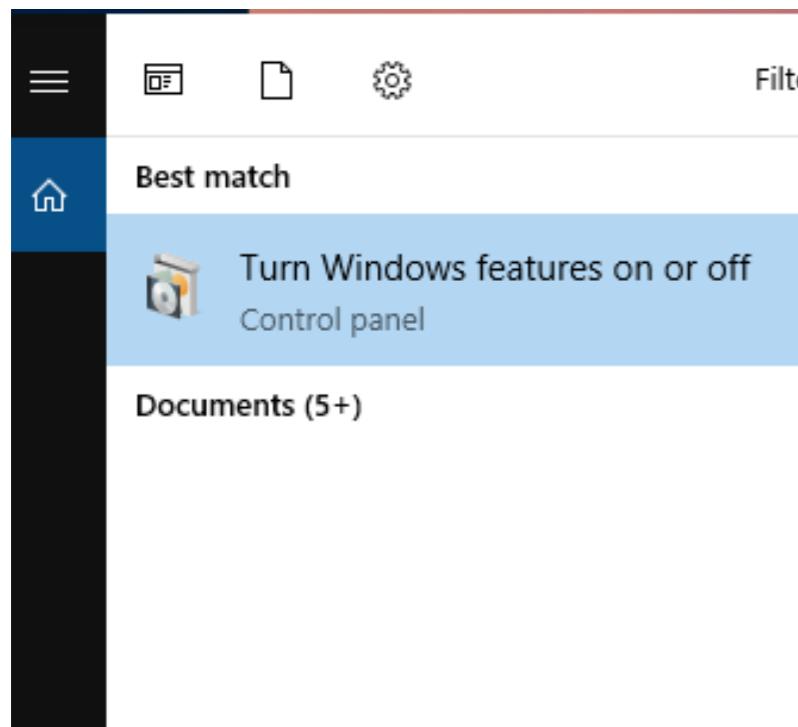
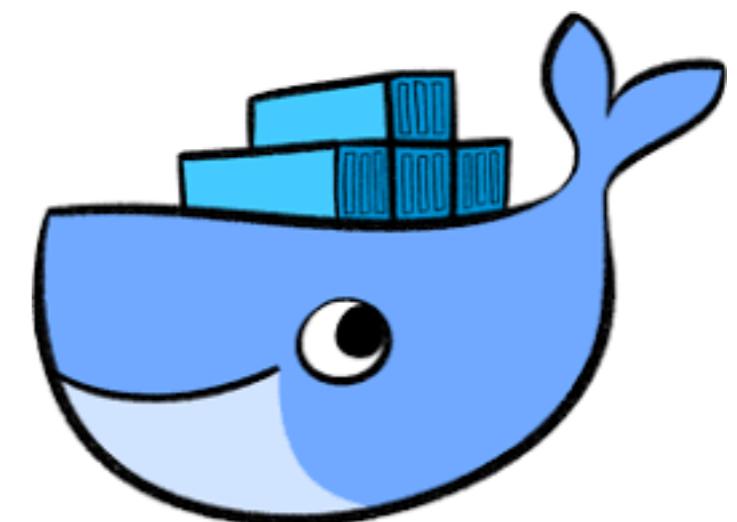
Download and Install

Docker Community Edition

<https://www.docker.com/community-edition#/download>

*if 32bit download Docker Toolbox

<https://www.youtube.com/watch?v=E2qzYArejf0>



Windows OS: Search Hyper-v

Mark: check Virtualization technology in BIOS (Enable)

```
1 reference
public static IWebHost BuildWebHost(string[] args) =>
    WebHost.CreateDefaultBuilder(args)
        .UseStartup<Startup>()
        .Build();
}
```

*Make sure not use UseUrls in Program.cs

Publish project

Open terminal and cd the root of your project

Run the following commands

```
dotnet publish -o ./publish
```

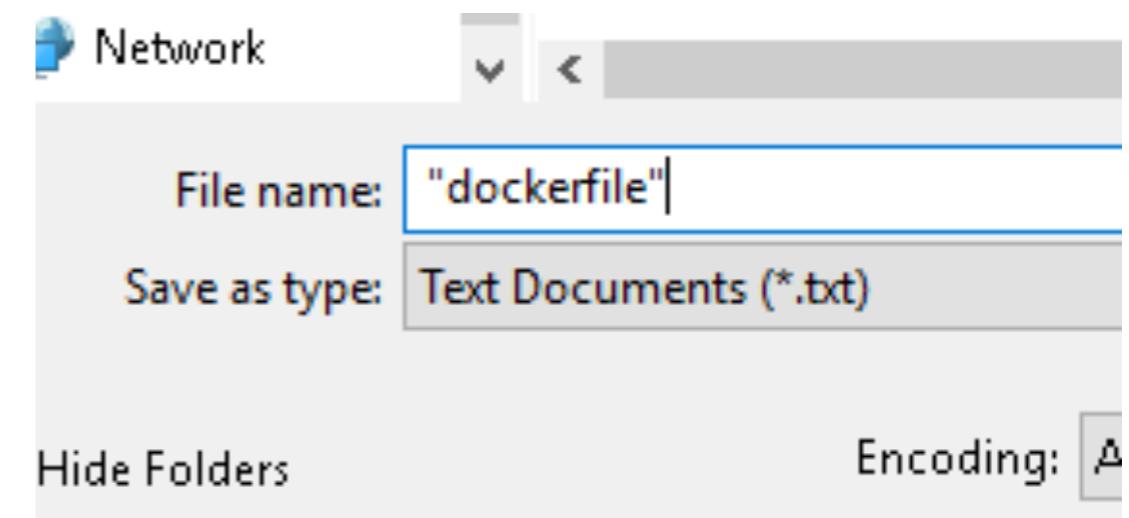


Create docker file

- touch dockerfile or using vim (Terminal in MacOS)
- notepad save “dockerfile” (Windows)
- use Extensions for vs code (Docker)

A screenshot of the Visual Studio Code interface. The top menu bar includes Go, Debug, Tasks, Window, and Help. The title bar shows "MySQLController.cs — CM". In the main editor area, there is some C# code. A context menu is open at the bottom of the screen, with the first item highlighted. The menu items are:

- >docker
- Docker: Add Docker files to Workspace
- Docker: Attach Shell
- Docker: Azure CLI
- Docker: Browse in the Azure Portal
- Docker: Build Image
- Docker: Compose Down
- Docker: Compose Up
- Docker: Dockerfile Layout



Edit dockerfile

```
FROM microsoft/aspnetcore:2.0
WORKDIR /app
COPY ./publish .
ENTRYPOINT ["dotnet", "app-name.dll"]
```

Mark: app-name case-sensitive, beware symbol "

Docker command

docker images

docker build -t myapidemo .

docker run -d -p 1150:80 image-name

docker ps -a

docker rm CONTAINER ID

docker rmi IMAGE ID



Stop and Delete All CONTAINER

```
docker stop $(docker ps -a -q)
```

```
docker rm $(docker ps -a -q)
```

Command Prompt

```
C:\Users\admin>docker stop $(docker ps -a -q)
Unknown shorthand flag: 'a' in -a
See 'docker stop --help'.
C:\Users\admin>
```

Windows PowerShell

```
PS C:\windows\system32> docker stop $(docker ps -a -q)
5f40d152fe8b
d402dd055ec5
9a831902735d
46e7c729822f
PS C:\windows\system32> ▶
```

Export / Import images

```
docker save -o /path/name.tar image-name
```

```
docker load -i /path/name.tar
```

Issue

error during connect: Get http:///%2F%2F.%2Fpipe%2Fdocker_engine/v1.38/images/json: open //./pipe/docker_engine: Access is denied. In the default daemon configuration on Windows, the docker client must be run elevated to connect. This error may also indicate that the docker daemon is not running.

Solve

Run as admin is the issue here. If you start docker as admin, you'll need to be in an admin terminal to be able to use it.

Create Account and Create Repository

<https://hub.docker.com>

Run the following commands

docker images

docker tag image-name userid/repo:version *:version (optional)

Ex. docker tag mypos_hub iblurblur/cmpos:1.0

docker push iblurblur/cmpos:1.0

* If repo is private must login before push

docker login

```
[codemobiless-Sh:abc codemobiles$ docker images
REPOSITORY          TAG      IMAGE ID
cmpos               latest   fbeea03ea32b
microsoft/aspnetcore-build  2.0    59e900412650
microsoft/aspnetcore        2.0    50cc6908cd04
microsoft/dotnet          latest   55b3789787b4
[codemobiless-Sh:abc codemobiles$ docker tag capos ibluriblur/cmpos:1.0
Error response from daemon: No such image: capos:latest
[codemobiless-Sh:abc codemobiles$ docker tag cmpos ibluriblur/cmpos:1.0
[codemobiless-Sh:abc codemobiles$ docker push ibluriblur/cmpos:1.0
The push refers to a repository [docker.io/ibluriblur/cmpos]
fd4364e50a61: Preparing
658bc2442b9e: Preparing
cf17b6f921be: Preparing
c93ae914d31e: Preparing
2eea44510cee: Preparing
670f809bd6d5: Waiting
```



DigitalOcean website

- Create Droplets and Choose an image Ubuntu

[Droplets](#) [Volumes](#)

Name	IP Address	Created ▲	Tags
 ubuntu-512mb-sgp1-01 512 MB / 20 GB Disk / SGP1 - Ubuntu 16.04.3 x64	128.199.166.153	Go change the world!	More ▾

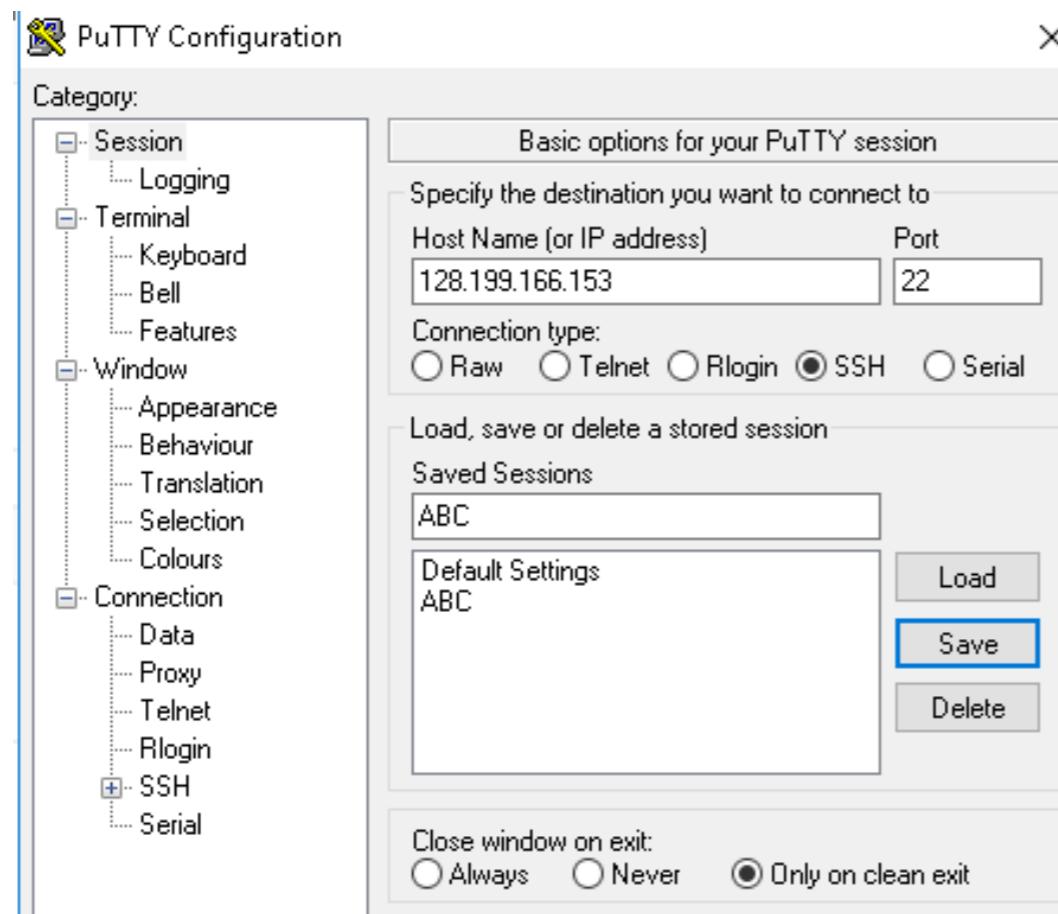
Remote by Putty

- Connect server

(Get username and password from inbox mail)

- change current password

Mark: long press ctrl + right click will show paste



Run the following commands

- curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo apt-key add -
- sudo add-apt-repository "deb [arch=amd64] https://download.docker.com/linux/ubuntu \$(lsb_release -cs) stable"
- sudo apt-get update
- sudo apt-get install -y docker-ce

Ref. <https://www.digitalocean.com/community/tutorials/how-to-install-and-use-docker-on-ubuntu-16-04>

Go to docker hub website and copy pull command.

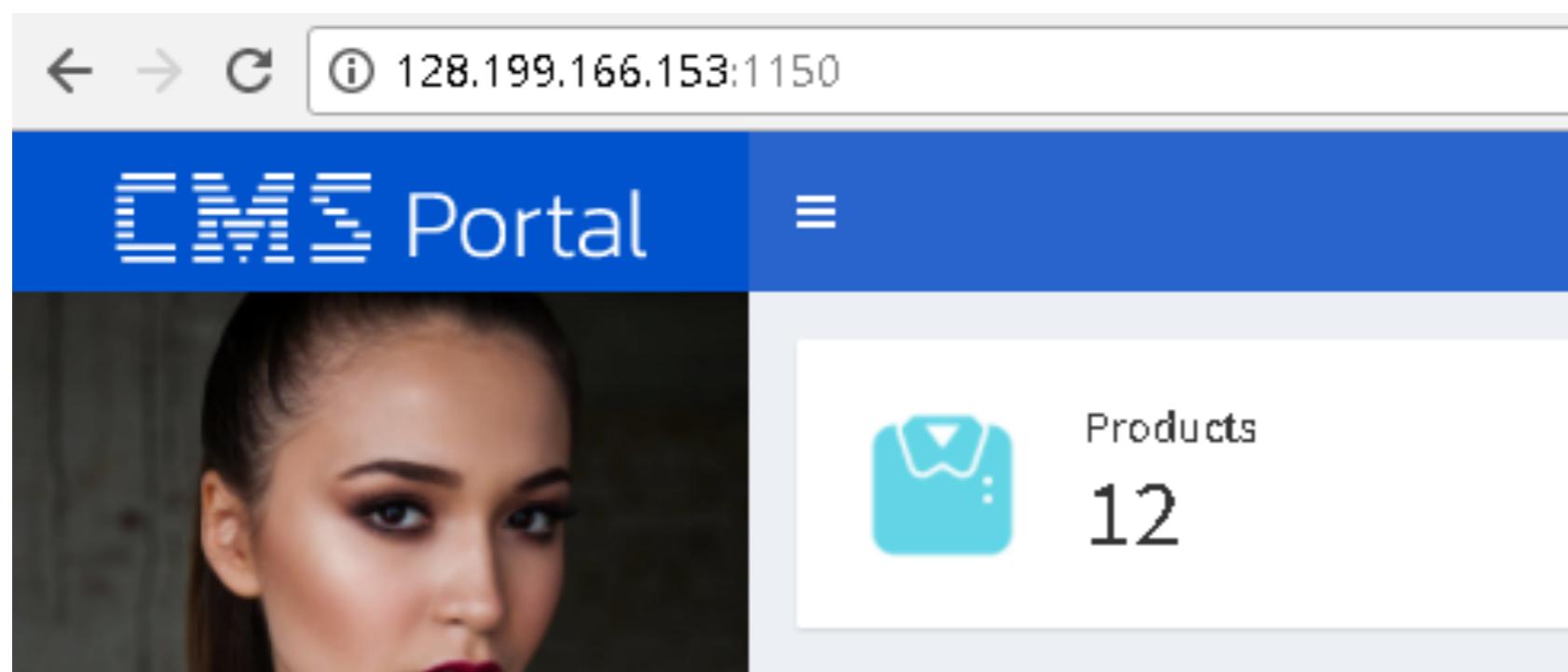
ex. docker pull iblurblur/mypos

hint: If repo is private must login before pull

docker login

docker images

docker run -d -p 1150:80 docker_image_name



Logging and Debugging

Log level

Trace: Sensitive application data username password

Debug: Check Condition

Information: For tracking the general flow of the application.

Warning: FileNotFoundException for file quotes.txt.

Error: HTTP request Cannot insert record due to duplicate key violation

Critical: Data loss scenarios, out of disk space.

None:

Create logs

```
20 references
ILogger<HomeController> _logger;

0 references
public HomeController(ILogger<HomeController> logger)
{
    _logger = logger;
}
```

Simple

```
_logger.LogDebug("todo");
```

Parameter

```
_logger.LogDebug("todo {id}", id);
```

Event ID

```
public const int ModelStateIsValid = 9999;  
_logger.LogInformation(ModelStateIsValid, "todo {id}", id);
```

```
info: xxx.Controllers.XXXController[9999]
```

Exceptions

```
String a = "5";
Boolean b;
try
{
    b = Convert.ToBoolean(a);
}
catch (Exception ex)
{
    _logger.LogWarning(GetItemNotFound, ex, "using funtion testA4", id);
}
```

Filtering



The screenshot shows a code editor with two tabs: "LoginController.cs" and "appsettings.Development.json". The "appsettings.Development.json" tab is active, displaying the following JSON configuration:

```
1  {
2    "Logging": {
3      "IncludeScopes": false,
4      "LogLevel": {
5        "Default": "None",
6        "System": "None",
7        "Microsoft": "None"
8      }
9    }
10 }
```

Files log

NuGet packages : Serilog.Extensions.Logging.File

<https://github.com/serilog/serilog-extensions-logging-file>

Package Manager **.NET CLI** Paket CLI

```
> dotnet add package Serilog.Extensions.Logging.File --version 2.0.0-dev-00023
```

GIN.csproj C# Program.cs {} appsettings.json

```
"Logging": {  
    "PathFormat": "Logs/log-{Date}.txt",  
    "IncludeScopes": false,  
    "LogLevel": {  
        "Default": "Warning"  
    }  
}
```

```
public static IWebHost BuildWebHost(string[] args) =>  
    WebHost.CreateDefaultBuilder(args)  
        .ConfigureLogging((hostingContext, builder) =>  
        {  
            var configuration = hostingContext.Configuration.GetSection("Logging");  
            builder.AddFile(configuration);  
        })  
        .UseStartup<Startup>()  
        .Build();  
}
```

Bootstrap

Bootstrap 3 Admin Dashboard Templates

AdminLTE 2



<https://colorlib.com/wp/free-bootstrap-admin-dashboard-templates/>



- JavaScript Framework
- Developed by Twitter
- Responsive Design
- Current version 4



Why Bootstrap ?

- Save hour for develop
- Easy to use web elements
- Quick responsive prototype / webapp
- Great documentation

Bootstrap Package

- CSS
- JS
- icon, font

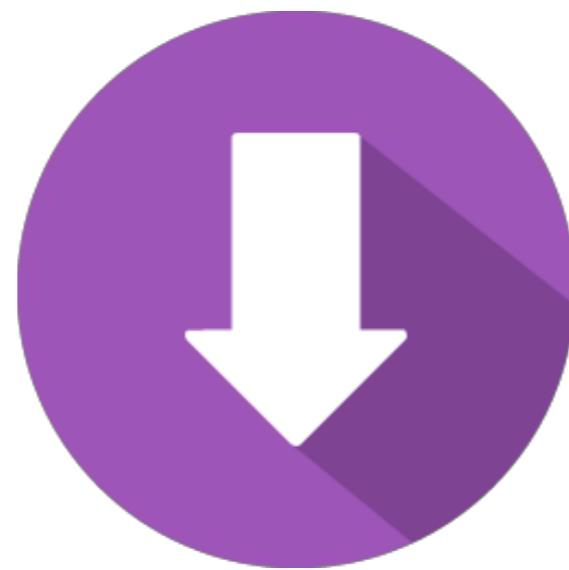
BOOTSTRAP 3		BOOTSTRAP 4	
DEVICE	CLASS	DEVICE	CLASS
Extra Small less than 768px	col-xs-	Extra Small (less than 34em) Small (34em and up)	col-xs- col-sm-
Small 768px and up	col-sm-	Medium 48em and up	col-md-
Medium 992px and up	col-md-	Large 62em and up	col-lg-
Large 1200px and up	col-lg-	Extra Large 75em and up	col-xl-

Bootstrap 3

- Support Internet Explorer 8
- Great Community

Bootstrap 4

- Support Internet Explorer 9
- Grid Flexbox
- New Code



Download v3.3.7: <https://getbootstrap.com/docs/3.3/>

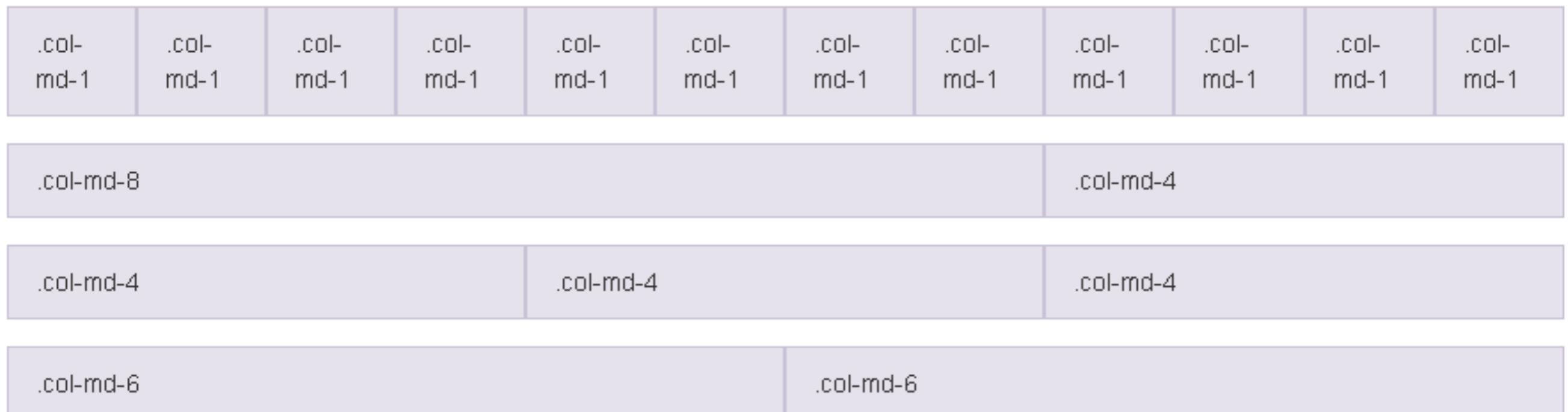
Getting started using Bootstrap

- Container, fluid
- Grid System

	Extra small devices Phones (<768px)	Small devices Tablets (≥768px)	Medium devices Desktops (≥992px)	Large devices Desktops (≥1200px)
Grid behavior	Horizontal at all times	Collapsed to start, horizontal above breakpoints		
Container width	None (auto)	750px	970px	1170px
Class prefix	.col-xs-	.col-sm-	.col-md-	.col-lg-
# of columns	12			
Column width	Auto	~62px	~81px	~97px
Gutter width	30px (15px on each side of a column)			
Nestable	Yes			
Offsets	Yes			
Column ordering	Yes			

<https://getbootstrap.com/docs/3.3/css/#grid>

Grid System



1 row = 12 column

Documents

[Bootstrap](#)[Getting started](#)[CSS](#)[Components](#)[JavaScript](#)[Customize](#)[Themes](#)[Expo](#)[Blog](#)

CSS

Global CSS settings, fundamental HTML elements styled and enhanced with extensible classes, and an advanced grid system.



Adobe Creative Cloud for Teams starting at \$29.99 per month.
ads via Carbon

Overview

Get the lowdown on the key pieces of Bootstrap's infrastructure, including our approach to better, faster, stronger web development.

[HTML 5 docs](#)

[Overview](#)

[Grid system](#)

[Typography](#)

[Code](#)

[Tables](#)

[Forms](#)

<https://getbootstrap.com/docs/3.3/css/>

Components

Over a dozen reusable components built to provide iconography, dropdowns, input groups, navigation, alerts, and much more.



Adobe Creative Cloud for Teams starting at \$29.99 per month.
ads via Carbon

Glyphicons

Available glyphs

Includes over 250 glyphs in font format from the Glyphicon Halflings set. [Glyphicons](#) Halflings are normally not available for free, but their creator has made them available for Bootstrap free of cost. As a thank you, we only ask that you include a link back to [Glyphicons](#) whenever possible.

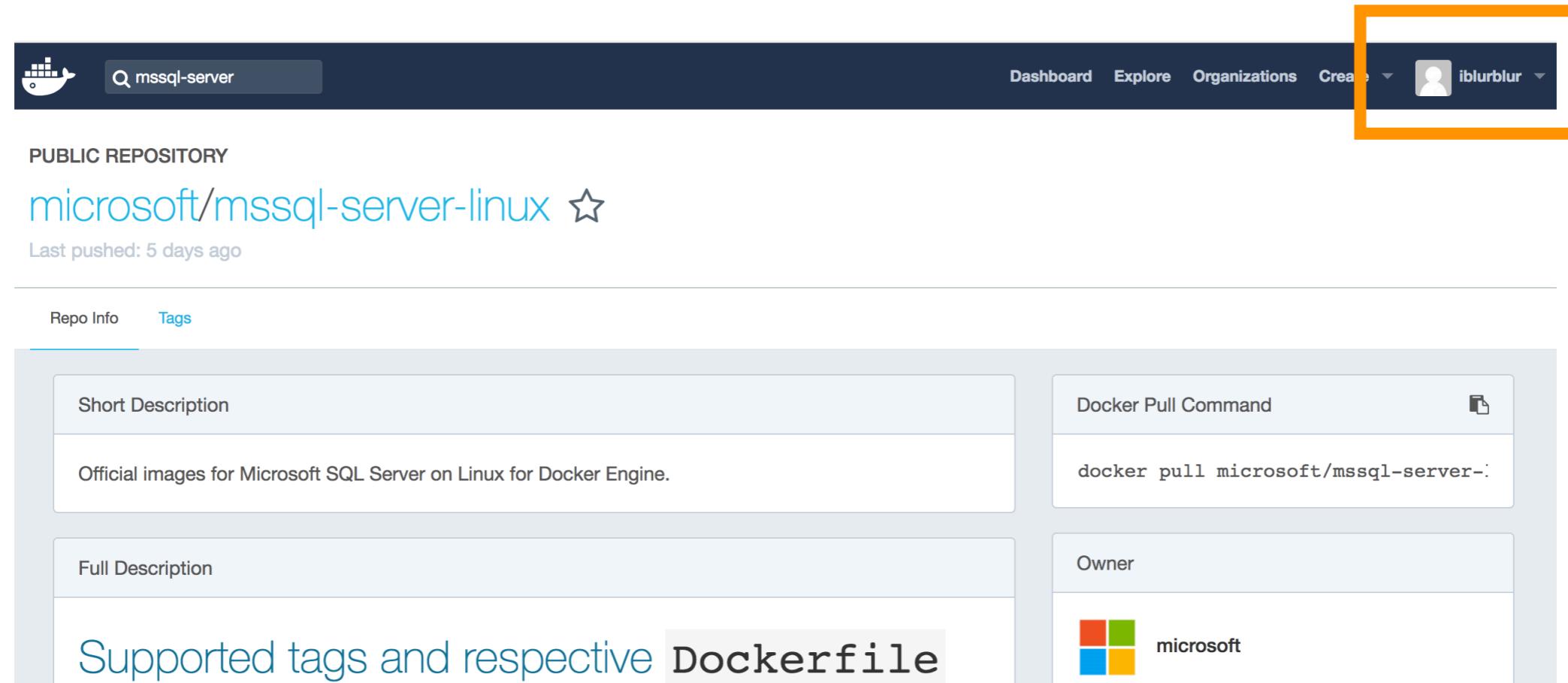
[Glyphicons](#)
[Dropdowns](#)
[Button groups](#)
[Button dropdowns](#)
[Input groups](#)
[Navs](#)
[Navbar](#)

<https://getbootstrap.com/docs/3.3/components/>



Microsoft
SQL Server 2017
with Docker

Pull Image



The screenshot shows the Docker Hub interface for the `microsoft/mssql-server-linux` repository. At the top, there's a search bar with the query `mssql-server`. The navigation bar includes links for Dashboard, Explore, Organizations, Create, and a user dropdown for `iblurblur`, which is highlighted with an orange rectangle. Below the header, it says "PUBLIC REPOSITORY". The repository name `microsoft/mssql-server-linux` is displayed with a star icon indicating it's public. A note says "Last pushed: 5 days ago". There are two tabs: "Repo Info" and "Tags", with "Tags" currently selected. Under "Repo Info", there are sections for "Short Description" (containing "Official images for Microsoft SQL Server on Linux for Docker Engine."), "Full Description" (containing "Supported tags and respective Dockerfile"), "Docker Pull Command" (with the command `docker pull microsoft/mssql-server-...`), and "Owner" (showing the Microsoft logo and the word "microsoft").

1. docker login (username in highlight)
2. docker pull `microsoft/mssql-server-linux`

more info: <https://hub.docker.com/r/microsoft/mssql-server-linux/>

```
[codemobiless-Sh:~ codemobiles$ docker images
REPOSITORY          TAG      IMAGE ID   CREATED    SIZE
microsoft/mssql-server-linux  latest   306ce7d34f9b  7 days ago  1.43GB
microsoft/aspnetcore        2.0     f79840764591  4 months ago 302MB
[codemobiless-Sh:~ codemobiles$ docker run -e "ACCEPT_EULA=Y" -e 'SA_PASSWORD=Tel025673912!' -p 1433:1433 --name sql1 -d 306ce7d34f9b
0ddac55de17b6be6739019cbf4bd9295eaf9fed9f012b78ad89bd5e7ff282f23
codemobiless-Sh:~ codemobiles$ ]
```

Linux/macOS:

```
sudo docker run -e 'ACCEPT_EULA=Y' -e 'SA_PASSWORD=<YourStrong!PasswOrd>'
-p 1433:1433 --name sql1 -d microsoft/mssql-server-linux:2017-latest
```

Windows:

```
docker run -e "ACCEPT_EULA=Y" -e "SA_PASSWORD=Tel123456789!"
-p 1150:1433 --name sql2 -d 306ce7d34f9b
```

Mark: The password must be at least 8 characters long and contain characters Uppercase, Lowercase letters, Base 10 digits, and Symbols.

Mark: MS SQL on Linux (Docker) you can't use windows Authentication

macOS

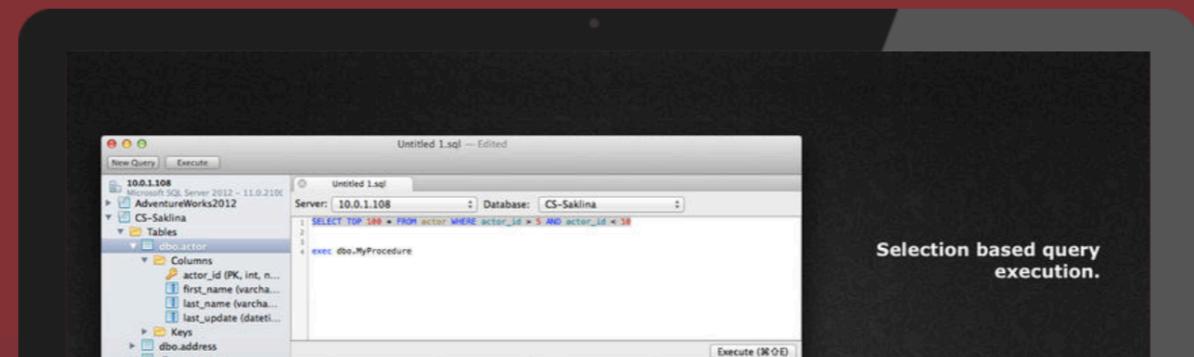
 SQLPro for MSSQL

DOWNLOAD BUY

A simple, powerful SQL Server manager for macOS

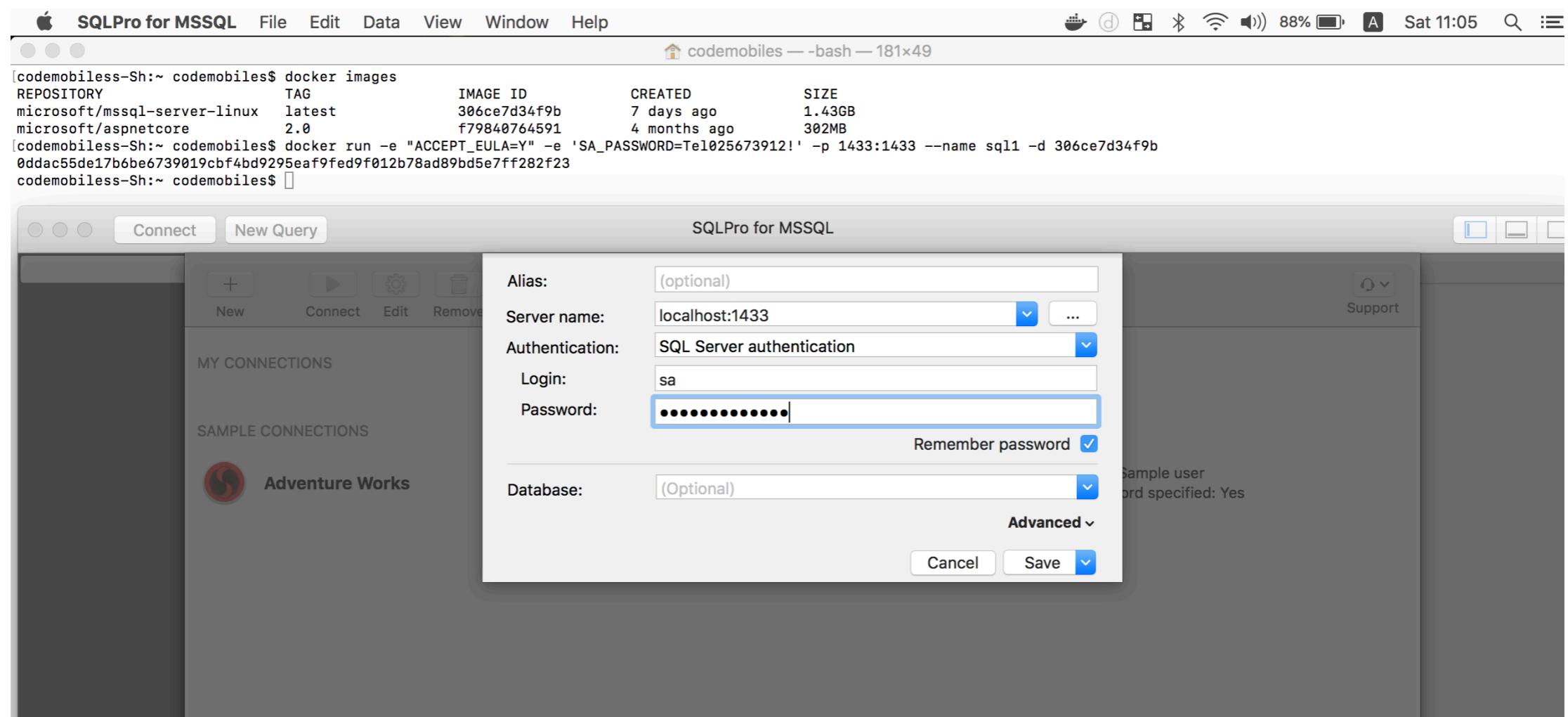
 DOWNLOAD

(also available on the Mac App Store)



Selection based query execution.

<https://www.macsqclient.com/>



microsoft/aspnetcore Microsoft SQL Server - Localhost (MSSQL) 28

Connect New Query SQLPro for MSSQL — Untitled 12.sql

LOCALHOST:1433 (SA)
Microsoft SQL Server 2017 (RTM-CU8) (KB4338363) - 14

test

Tables

- ▶ __EFMigrationsHistory
- ▶ AspNetRoleClaims
- ▶ AspNetRoles
- ▶ AspNetUserClaims
- ▶ AspNetUserLogins
- ▶ AspNetUserRoles
- ▶ AspNetUsers
- ▶ AspNetUserTokens

Views

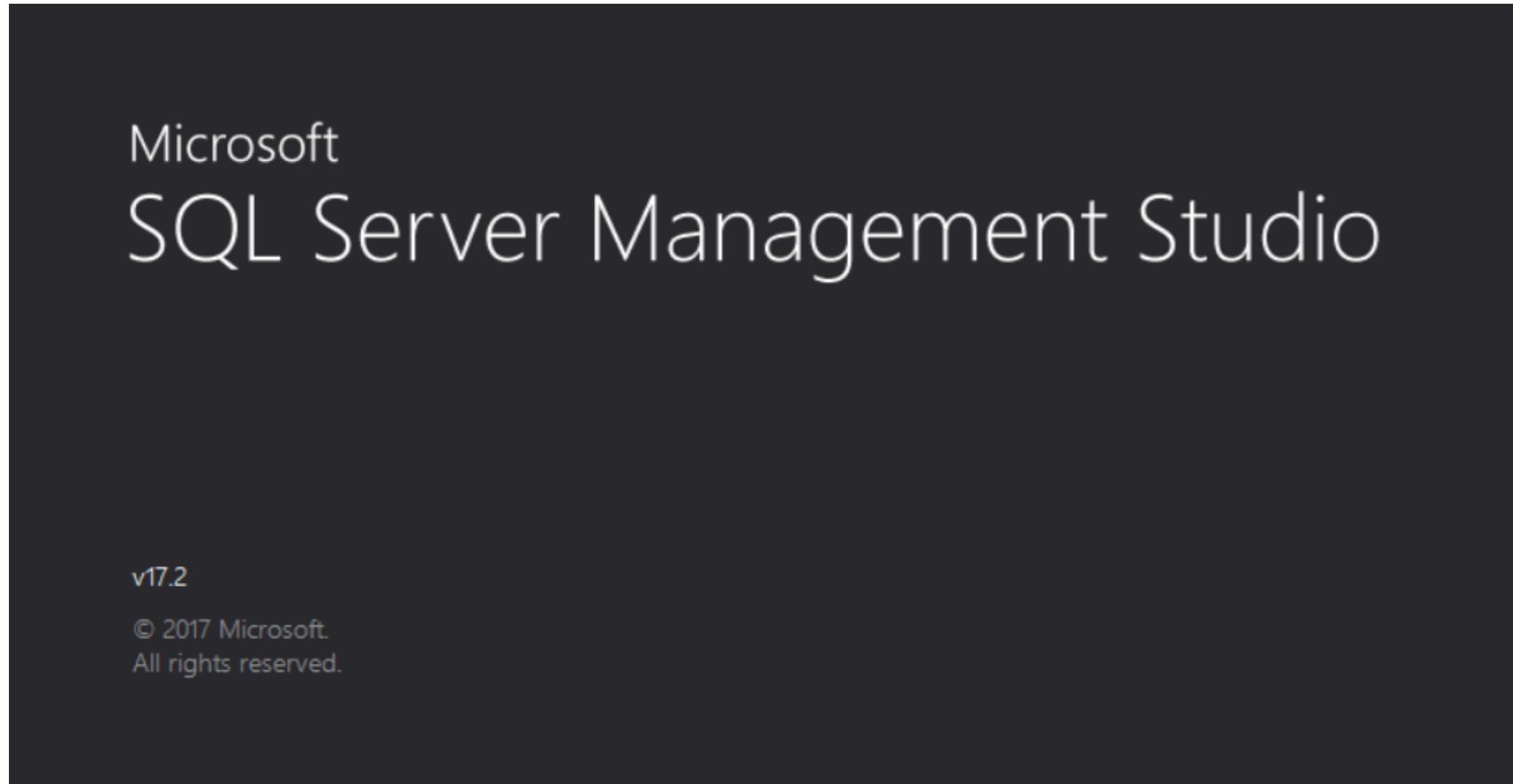
Programmability

localhost:1433 - test ▾

```
1 SELECT TOP 100 * FROM dbo.AspNetUserLogins;
```

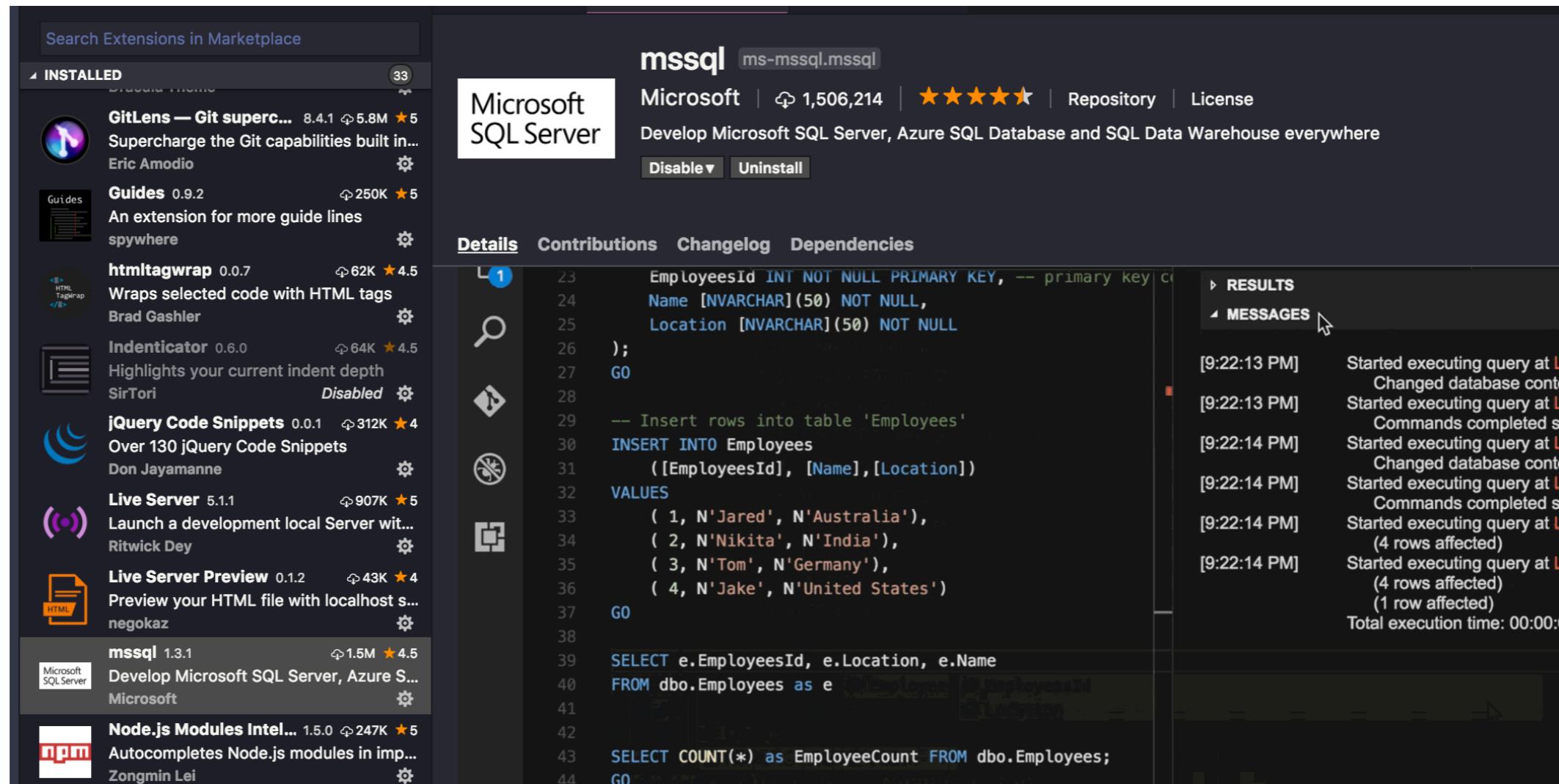
LoginProvider	ProviderKey	ProviderDisplayName	UserId

Windows



<https://docs.microsoft.com/en-us/sql/ssms/download-sql-server-management-studio-ssms?view=sql-server-2017>

Visual studio code



mssql extensions

Manage Connection Profiles

- ms sql: manage connection profiles
- create
- localhost
- sql Login

```
"liveServer.settings.donotShowInfoMsg": true,  
"mssql.connections": [  
  {  
    "server": "localhost",  
    "database": "test",  
    "authenticationType": "SqlLogin",  
    "user": "sa",  
    "password": "",  
    "emptyPasswordInput": false,  
    "savePassword": true  
  }  
]
```

Connect

- ms sql: connect
- chooses connection profile

issue : mssql: A SQL editor must have focus before executing this command

fix : new file and chooses sql

Execute

Results: Untitled-1 — MYPOS

Untitled-1

1 SELECT * FROM Products;

RESULTS

ID	CategoryID	CodeName	Detail	Image_1	Image_2	Ir
1	3	cm-0001	Model's height...	pa1.jpg	pa2.jpg	p
2	5	cm-0002	H: 40cm/16 W...	pb1.jpg	pb2.jpg	p
3	7	cm-0003	Remove Light ...	pc1.jpg	pc2.jpg	p

EF CLI

Check EF CLI Available

dotnet ef

Setup Database

- Create Models, Data (DbContext, DatabaseInitialize)
- Create ConnectionString (appsettings.json)
- Declare Service Database (status.cs)

Migrations

- Create
 - dotnet ef migrations add **name_define**
e.g. dotnet ef migrations add **init**

```
migrations Commands to manage migrations.

Use "dotnet ef [command] --help" for more information about a command.
admins-Mac:CMPOS admin$ dotnet ef migrations add init
Done. To undo this action, use 'ef migrations remove'
admins-Mac:CMPOS admin$
```

create success

Migrations (cont.)

- Update
 - dotnet ef database update (Apply after add migrations)

```
      at Microsoft.EntityFrameworkCore.Design.OperationExecutor.UpdateOrCreateTableAsync()
      at Microsoft.EntityFrameworkCore.Design.OperationExecutor.OperationBase.<Execute>d__1.MoveNext()
SQLITE Error 1: 'table "Categories" already exists'.
r> c:\users\stadmin\desktop\compos> Add-Migration initialCreate -Ign
```

Issue: Have call EnsureCreated in project (status.cs)

- First Way
 - Delete Migrations folder in project and drop database
 - Comment Code DBinitialize.INIT(serviceProvider) in status.cs
 - Run CLI migrations create again

- Second Way

- Delete all code inside function up (folder migrations)
- Try dotnet ef database update

```
0 references
public partial class initv : Migration
{
    0 references
    protected override void Up(MigrationBuilder migrationBuilder)
    {
    }
}
```

Migrations (cont.)

- Reverting model before database update
 - dotnet ef migrations remove
 - e.g. dotnet ef migrations add `update_product`
 - dotnet ef migrations remove

```
admins-Mac:CMPOS admin$ dotnet ef migrations add update_product
Done. To undo this action, use 'ef migrations remove'
admins-Mac:CMPOS admin$ dotnet ef migrations remove
Removing migration '20171109125932_update_product'.
Reverting model snapshot.
Done.
admins-Mac:CMPOS admin$
```

Migrations (cont.)

- ➊ Reverting migration
 - ➋ dotnet ef database update migrations_target
e.g. dotnet ef database update init

```
admins-Mac:CMPOS admin$ dotnet ef database update init
Reverting migration '20171109130112_update_product_test'.
System.NotSupportedException: SQLite does not support this migration operation ('DropColumnOperation'). For more information, see http://go.microsoft.com/fwlink/?LinkId=723262.
   at Microsoft.EntityFrameworkCore.Migrations.SqliteMigrationsSqlGenerator.Generate(DropColumnOperation operation, IMigrationBuilder builder)
   at Microsoft.EntityFrameworkCore.Migrations.MigrationsSqlGenerator.<>c.<.<ctor>b__63_11(MigrationsSqlGenerator g, MigrationCommandListBuilder b)
   at Microsoft.EntityFrameworkCore.Migrations.MigrationsSqlGenerator.Generate(MigrationOperation operation, IMigrationBuilder builder)
   at Microsoft.EntityFrameworkCore.Migrations.MigrationsSqlGenerator.Generate(IReadOnlyList`1 operations, IMigrationBuilder builder)
   at Microsoft.EntityFrameworkCore.Migrations.SqliteMigrationsSqlGenerator.Generate(IReadOnlyList`1 operations, IMigrationBuilder builder)
   at Microsoft.EntityFrameworkCore.Migrations.Internal.Migrator.GenerateDownSql(Migration migration, Migration previousMigration)
   at Microsoft.EntityFrameworkCore.Migrations.Internal.Migrator.<>c__DisplayClass13_0.<GetMigrationCommandLists>b__1()
   at Microsoft.EntityFrameworkCore.Migrations.Internal.Migrator.Migrate(String targetMigration)
   at Microsoft.EntityFrameworkCore.Design.Internal.MigrationsOperations.UpdateDatabase(String targetMigration, String contextType)
   at Microsoft.EntityFrameworkCore.Design.OperationExecutor.UpdateDatabase.<>c__DisplayClass0_1.<.<ctor>b__0()
   at Microsoft.EntityFrameworkCore.Design.OperationExecutor.OperationBase.Execute(Action action)
SQLite does not support this migration operation ('DropColumnOperation'). For more information, see http://go.microsoft.com/fwlink/?LinkId=723262.
admins-Mac:CMPOS admin$ >
```

Issue: Sqlite does not support

Generate Models

- dotnet ef dbcontext scaffold "Server=DESKTOPCDUD9DE\SQLEXPRESS; Database=CMPOS; Trusted_Connection=True;" Microsoft.EntityFrameworkCore.SqlServer -o Models -t products -t user -c DatabaseContext --context-dir Database

Note:

- macOs use ' (single quote)
- beware double backslash (used single backslash)
- --help

Setup connect database

- Create DatabaseContext
- Create ConnectionString (appsettings.json)
- Declare Service Database (status.cs)
- Migrations (optional)

```
PS C:\Users\admin\Desktop\CMPOS> dotnet ef migrations add init  
Build failed.  
PS C:\Users\admin\Desktop\CMPOS> dotnet ef migrations add init  
Build failed.  
PS C:\Users\admin\Desktop\CMPOS> █
```

Make sure

- stop run project
- migrations (Delete all)
- fix code error (use cli "dotnet build")

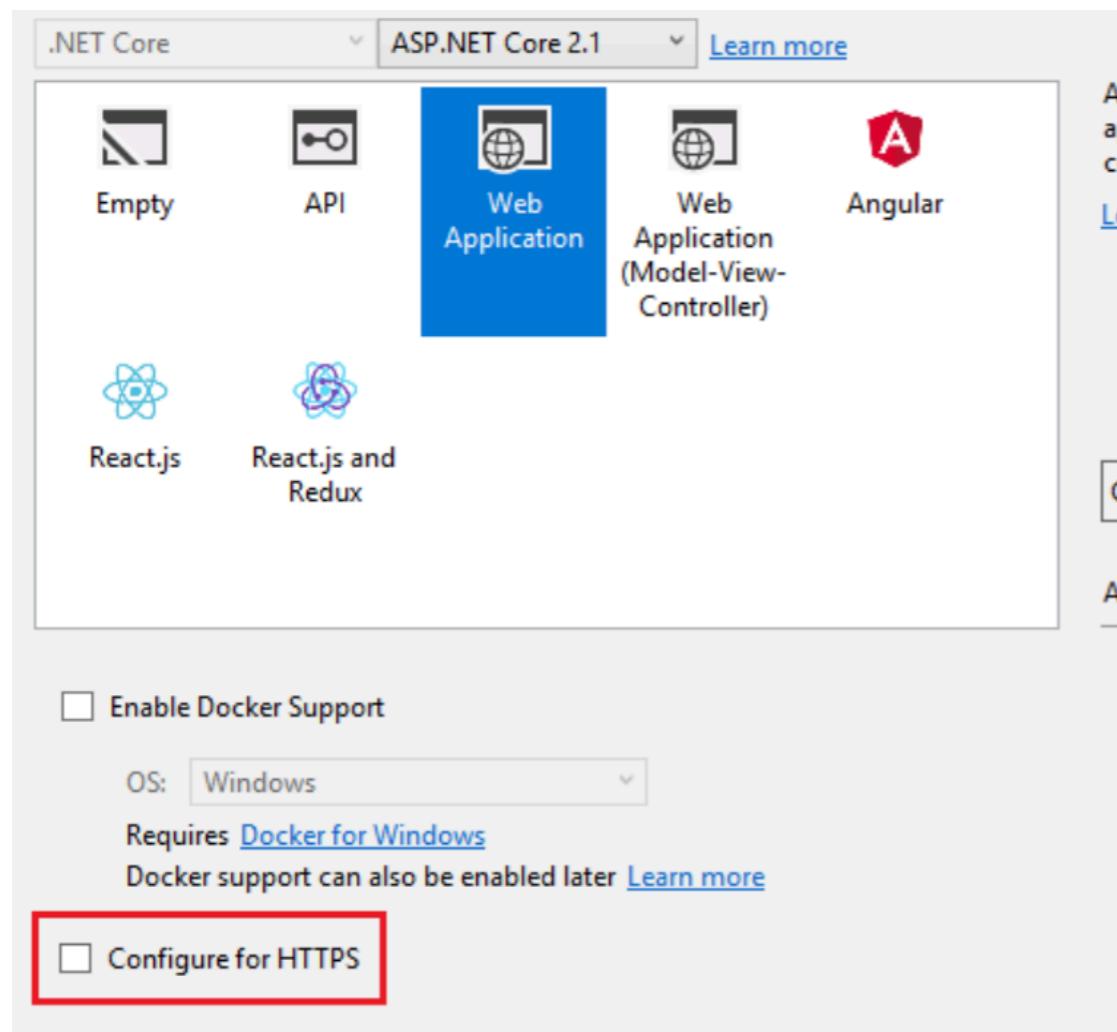
0 references

```
protected override void Up(MigrationBuilder migrationBuilder)
{
    migrationBuilder.AddColumn<int>(
        name: "Test",
        table: "Products",
        nullable: false,
        defaultValue: 0);
}
```

Add defaultValue before migration database update

TIPS & TRICK

Opt-out of HTTPS on project creation



Visual Studio

Visual Studio .NET Core CLI

Use the `--no-https` option. For example

console

```
dotnet new webapp --no-https
```

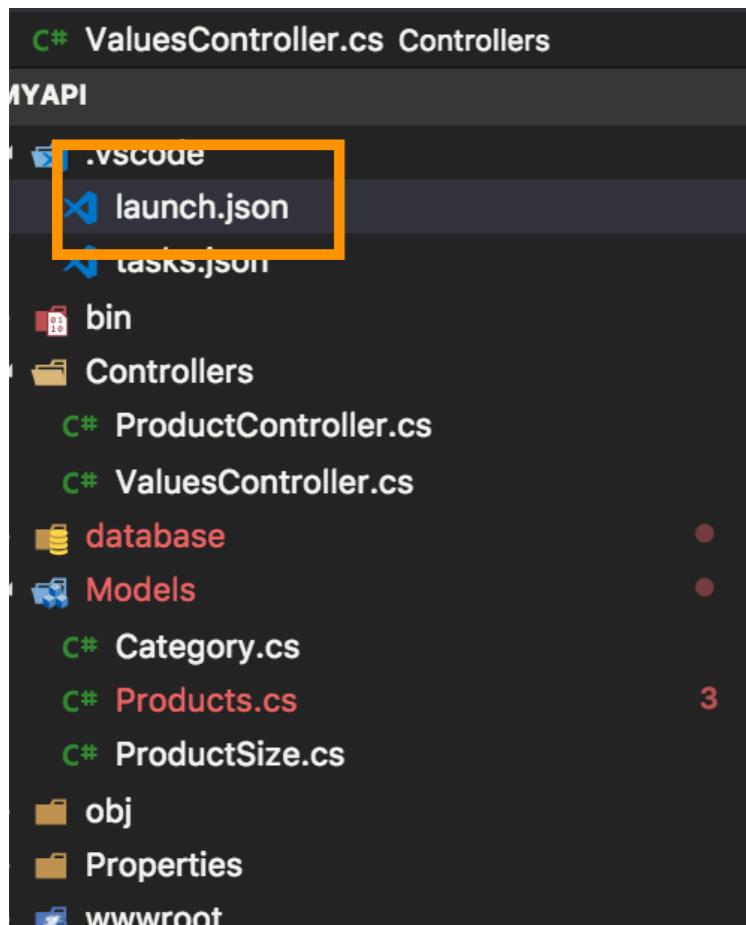
Visual Studio Code

Development certificate

```
Specify --help for a list of available options and commands.  
[iblurblur:~ codemobiles$ dotnet dev-certs https --trust  
Trusting the HTTPS development certificate was requested. If the certificate is not already present,  
['sudo security add-trusted-cert -d -r trustRoot -k /Library/Keychains/System.keychain <<  
This command might prompt you for your password to install the certificate on the system.  
Password:  
A valid HTTPS certificate is already present.
```

dotnet dev-certs https --trust

Set debugger port of vscode



The image shows a screenshot of the Visual Studio Code interface. On the left is a tree view of a project structure. Inside the 'Controllers' folder, there are files: 'ProductController.cs', 'ValuesController.cs', and 'ProductSize.cs'. Below the 'Controllers' folder are 'bin', 'obj', 'Properties', and 'wwwroot'. In the root directory, there is a '.vscode' folder containing 'launch.json' and 'tasks.json'. The 'launch.json' file is highlighted with an orange box. On the right is the content of the 'launch.json' file, which is also highlighted with an orange box around the environment variables section.

```
22      "command": "cmd.exe",
23      "args": "/C start ${auto-detect-url}"
24    },
25    "osx": {
26      "command": "open"
27    },
28    "linux": {
29      "command": "xdg-open"
30    }
31  },
32  "env": {
33    "ASPNETCORE_ENVIRONMENT": "Development",
34    "ASPNETCORE_URLS": "https://localhost:1150"
35  },
36  "sourceFileMap": {
37    "/Views": "${workspaceFolder}/Views"
```

The screenshot shows the Visual Studio Dev Essentials landing page. At the top, there's a blue header bar with the title "Visual Studio Dev Essentials". Below the header, there's a banner featuring icons for various development tools like Git, Azure, and mobile development. The main content area is divided into two sections: "Featured (6)" and "Tools (12)".

Featured (6)

- Visual Studio Community**
Full-featured, extensible IDE
Free for individuals, open source or small teams. Create apps for Windows, iOS, Android, and more.
- Visual Studio for Mac**
Community IDE on macOS
Build apps for mobile, cloud, web, and games using the IDE you love, on macOS.
- Visual Studio Team Service**
Basic level
Free Git repos, Agile planning tools and hosted builds, for any language – it's the perfect...
- Azure**
\$300 credit for 1 year
Your own personal sandbox for dev/test! VMs, cloud services, and more. Credit cannot be...
- Visual Studio Code**
Modern lightweight editor
A powerful, streamlined code editor for your favorite platform - Linux, macOS, and Windows.
- Xamarin University Training**
Free on-demand access
Build native iOS and Android apps in C# with expert getting-started videos (subset of class...

Tools (12)

- Syncfusion Big Data Edition**
Free for 1 year
Process billions of data points with Syncfusion Big Data and Dashboard Platforms.
- PowerApps**
Community Plan
Build business apps and workflows with a free environment for individual users.
- Microsoft R Server**
Developer Edition
Build Advanced Analytics solutions in R on Windows, Hadoop, Teradata and Linux.
- Microsoft SQL Server**
Developer Edition
Build mission-critical data solutions with unparalleled security, mobile BI, and...
- Azure App Service**
Free plan
Everything you need to quickly and easily build web and mobile apps for any platform ...
- Application Insights**
Free plan
Gain deep insight into the health and performance of your web app no matter where...

Visual Studio Dev Essentials

<https://www.visualstudio.com/dev-essentials/>

Command	Keybinding	Source	When
Add Cursor Above	↖ ⌘ ↑	Default	editorTextFocus
Add Cursor Below	↖ ⌘ ↓	Default	editorTextFocus
Add Cursors to Line Ends	↑ ↖	Default	editorTextFocus
Add Line Comment	⌘ K ⌘ C	Default	editorTextFocus
Add Selection To Next Find Match	⌘ D	Default	editorFocus
Bookmarks (Selection): Expand Selection to Next	↑ ↖ L	Default	editorTextFocus
Bookmarks (Selection): Expand Selection to Previous	↑ ↖ J	Default	editorTextFocus
Bookmarks (Selection): Shrink Selection	↑ ↖ K	Default	editorTextFocus
Bookmarks: Jump to Next	↖ ⌘ L	Default	editorTextFocus
Bookmark: Jump to Previous	↖ ⌘ J	Default	editorTextFocus
Bookmarks: Toggle	↖ ⌘ K	Default	editorTextFocus
Cancel Request	↖ ⌘ K	Default	editorTextFocus
Cancel Request	↖ ⌘ K	Default	editorTextFocus
Change All Occurrences	⌘ F2	Default	editorTextFocus
Change Language Mode	⌘ K M	Default	—

Keyboard Shortcuts

https://code.visualstudio.com/docs/getstarted/keybindings#_keyboard-shortcuts-reference

Order	Var/Prop Name	Data Type	Examples	
1	ID	Custom List ▾	1-10 ▾	<input checked="" type="radio"/> Exactly 1 Enter values separated by 1
2	Name	Names ▾	John (Male Name) ▾	MaleName
3		Select Data Type ▾		
4		Select Data Type ▾		
Order	Var/Prop Name	Data Type	Examples	
<input type="button" value="Add 1"/> <input type="button" value="Row(s)"/>				

EXPORT TYPES ?

Language:

Dummy Data C#

<https://www.generatedata.com/>

The screenshot shows a code editor with a split editor feature. The left pane displays the C# code for the `HomeController`, and the right pane displays the corresponding `Contact.cshtml` view.

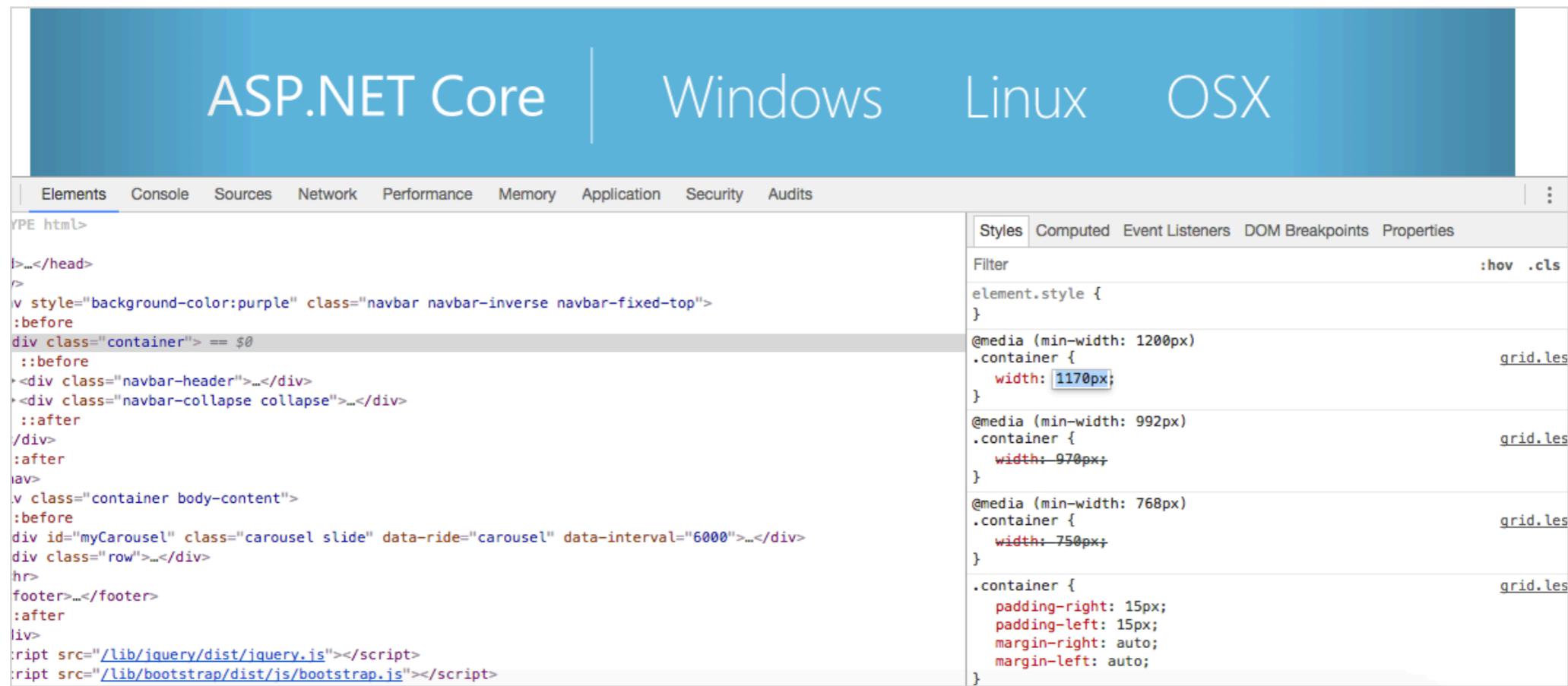
HomeController.cs:

```
1 using System;
2 using System.Collections.Generic;
3 using System.Linq;
4 using System.Threading.Tasks;
5 using Microsoft.AspNetCore.Mvc;
6
7 namespace CMBOOTSTRAP.Controllers
8 {
9     public class HomeController : Controller
10    {
11        public IActionResult Index()
12        {
13            return View();
14        }
15
16        public IActionResult About()
17        {
18            ViewData["Message"] = "Your application description pa
19
20            return View();
21        }
22
23        public IActionResult Contact()
24        {
25            ViewData["Message"] = "Your contact page.";
26
27            return View();
28        }
29
30        public IActionResult Error()
```

Contact.cshtml:

```
1
2
3 </div>
4
5 <div class="container">
6 |   <p style="background-color: #blue"> container </p>
7 </div>
8
9
10 <div class="container-fluid">
11 |   <p style="background-color: #red"> container-fluid </p>
12 </div>
13
14 <div class="row">
15 |   <div style="background-color: #orange" class="col-md-6">
16 |       col-md-6
17 |   </div>
18 |   <div style="background-color: #orange" class="col-md-6">
19 |       col-md-6
20 |   </div>
21 </div>
22
23 <div class="row">
24 |   <div style="background-color: #red" class="col-sm-6">
25 |       col-md-6
26 |   </div>
27 |   <div style="background-color: #red" class="col-sm-6">
28 |       col-md-6
29 |   </div>
30 </div>
31
32
33 <span class="glyphicon glyphicon-search" aria-hidden="true"></sp
34
35 <button type="button" class="btn btn-default btn-lg">
```

Split Editor

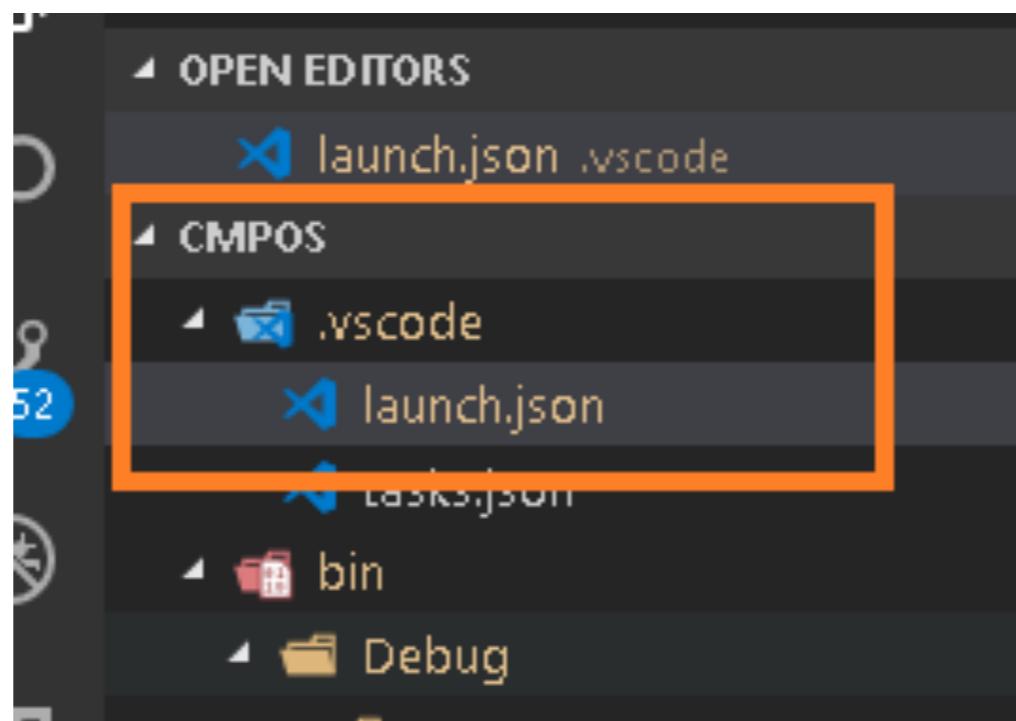


Inspect google chrome

html ,css, javascript, console, network

Setup Browser VSCode

1. expand .vscode and open launch.json



Setup Browser VSCode (Cont.)

2. edit key launchBrowser

```
    "args": "/C start ${auto-detect-url}"  
},  
"osx": {  
    "command": "/Applications/Google Chrome.app/Contents/MacOS/Google Chrome"  
},  
"linux": [  
    {"command": "xdg-open"}]
```

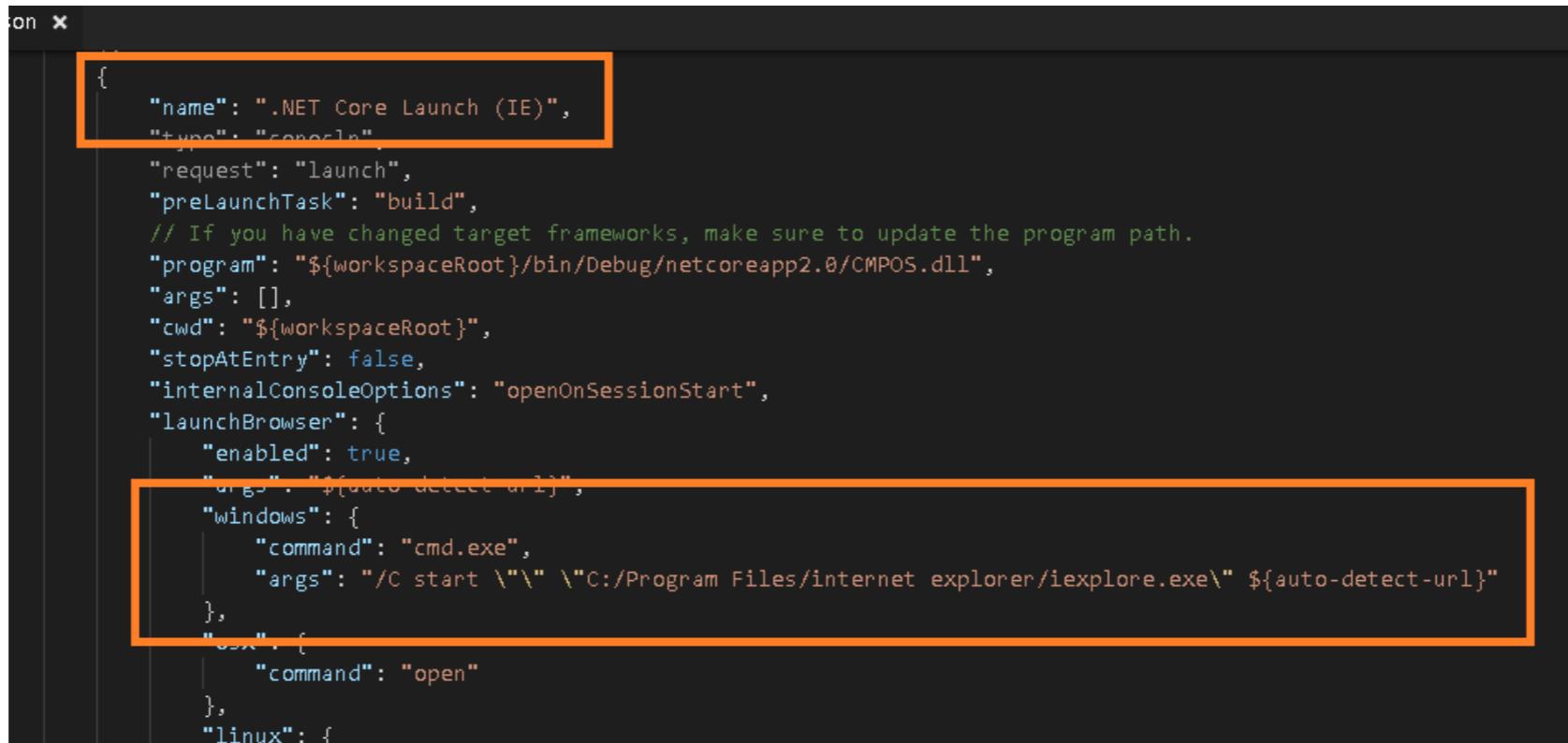
"command": "/Applications/Google Chrome.app/Contents/MacOS/Google Chrome"

```
"launchBrowser": {  
    "enabled": true,  
    "args": "${auto-detect-url}",  
    "windows": {  
        "command": "cmd.exe",  
        "args": "/C start \"\" \"C:/Program Files/internet explorer/iexplore.exe\" ${auto-detect-url}"  
    },  
    "osx": {}  
},
```

Change value "args": "/C start \"\" \"[path]/iexplore.exe\" \${auto-detect-url}"

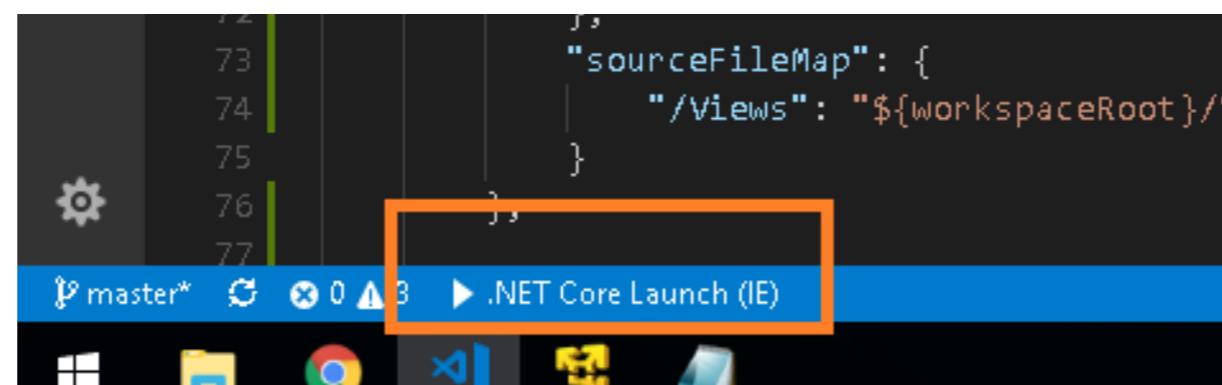
e.g. "args": "/C start \"\" \"C:/Program Files/internet explorer/iexplore.exe\" \${auto-detect-url}"

Setup Browser VSCode (Cont.)



```
{  
  "name": ".NET Core Launch (IE)",  
  "type": "coreclr",  
  "request": "launch",  
  "preLaunchTask": "build",  
  // If you have changed target frameworks, make sure to update the program path.  
  "program": "${workspaceRoot}/bin/Debug/netcoreapp2.0/CMPOS.dll",  
  "args": [],  
  "cwd": "${workspaceRoot}",  
  "stopAtEntry": false,  
  "internalConsoleOptions": "openOnSessionStart",  
  "launchBrowser": {  
    "enabled": true,  
    "args": "${auto-detect-url}",  
    "windows": {  
      "command": "cmd.exe",  
      "args": "/C start \"\" \"C:/Program Files/internet explorer/iexplore.exe\" ${auto-detect-url}"  
    },  
    "osx": {  
      "command": "open"  
    },  
    "linux": {  
      "command": "  
      "sourceFileMap": {  
        "/Views": "${workspaceRoot}/'  
      }  
    },  
    "url": "http://localhost:5000"  
  }  
}
```

create menu run (copy and rename)



select and start debug

THE END

Thanks Your Attention

Q&A

Difference between version 2.0 and 2.1

- **dotnet ef**

2.0: Must add a cli package<DotNetCliToolReference

```
Include="Microsoft.EntityFrameworkCore.Tools.DotNet" Version="2.0.0" />
```

2.1: The package Microsoft.AspNetCore.App. EF is available.

- **Sqlite**

2.0: The package Microsoft.AspNetCore.All. have a sqlite package.

2.1: Must add a sqlite package because of the package.

Microsoft.AspNetCore.App does not exist.

- **ModelState.IsValid (web api)**
 - 2.0:** Manual validate on action
 - 2.1:** Override Automatic Model Validation