(T1)在 IIS 執行 MVC
CourseGUID: 8503b39c-5887-4634-8291-facfb3117924
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(T1)在 IIS 執行 MVC
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0. Summary

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Tutorial 1: MVC 基礎，IIS 介紹
  * 介紹 IIS 的基本觀念，使用 Admin 來跑 Visual Studio，Model View Controller 的基礎觀念介紹。
In this tutorial, we will discuss
* Create ASP.NET MVC Project
* Run in the IIS
* Run VS2017 AS Admin
* Controller, URL mapping
* The axd file request
* Views
* ViewData, ViewBag
==========
由於 MVC 課程 的範例都是由 Entity Framework 所寫成，
所以必須要先有一點點的 Entity Framework 的基礎才可以繼續學 MVC 下去。
由於 Entity Framework 課程 的使用者介面的範例都是搭配 MVC 所寫成，
所以必須要先有一點點的 MVC 的基礎才可以繼續學 Entity Framework 下去。
原則上我的學程必須要先學 MVC 才能學 Entity Framework
但是我擔心，有人沒學過我的 MVC 課程就跑去先學 Entity Framework 課程，
這樣肯定學 Entity Framework 的時候會 GG。
因此
在設計課程的時候，我逼不得已，只好讓
MVC 課程裡面的 Tutorial 1 和 Tutorial 2 和
Entity Framework 課程裡面的 Tutorial 1 和 Tutorial 2 是完全一樣的。
這樣的課程設計，
一方面是讓已經學過 MVC 課程的學生在學 Entity Framework 課程的時候，
重新快速複習 MVC 觀念。
另一方面是讓沒學過 MVC 課程的學生在學 Entity Framework 課程的時候，
可以有稍微一點點 MVC 基礎觀念。
如果你事先讀過 MVC 的 Tutorial 1 和 Tutorial 2，
那麼在學 Entity Framework 課程的時候，
覺得完全不需要複習 MVC 的基礎觀念的話，
就麻你跳過
Thanks
==========
更正 1
在 Tutorial 1
"default"這個 route 名稱,其實是可以改的, 用其他名稱,也會動哦
我說一定要用"Default"這個字
阿~~ 我用"一定"這個字 阿
我的錯 (攤手)
是這樣的 被公司洗腦
因為公司都固定用"default"
很多字都是用固定的

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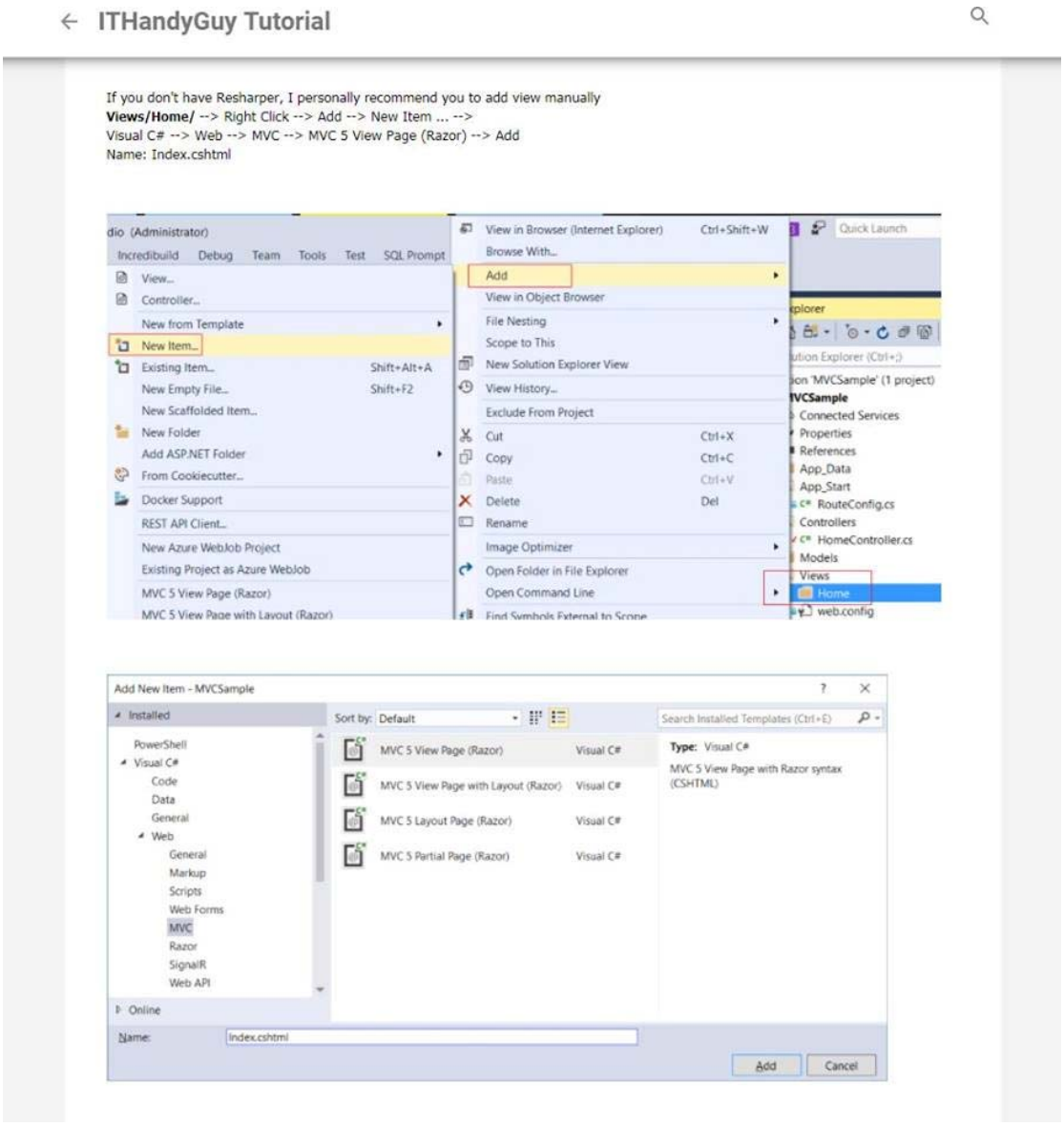
更正 2
在 Tuutorial1-2 Video 裡您示範 Add View page 時不小心按成 Layout page，但講義裡是正確的，因為跟著影片實作發現這個小差異



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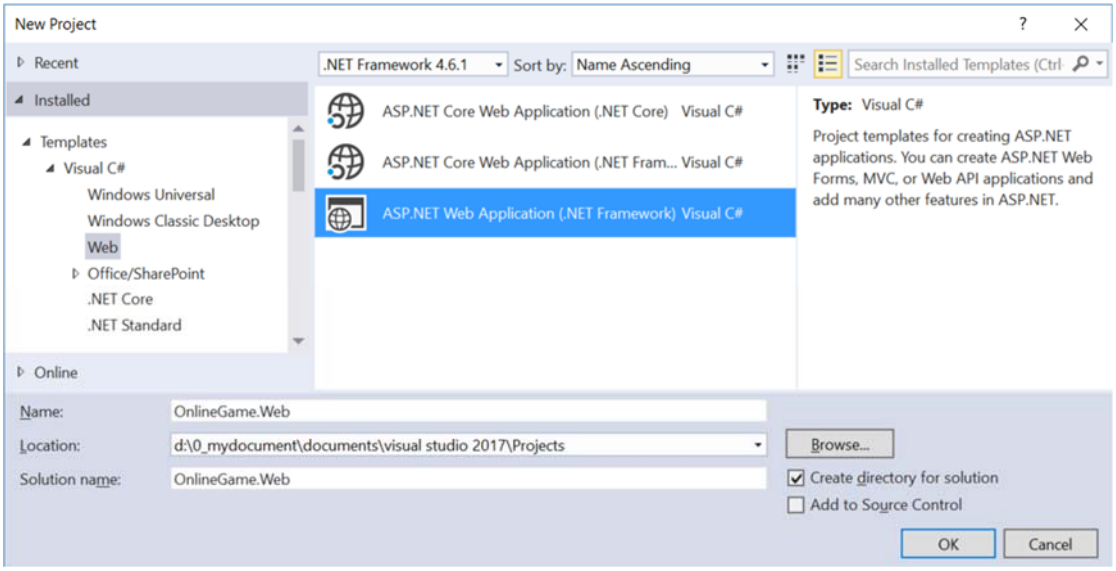
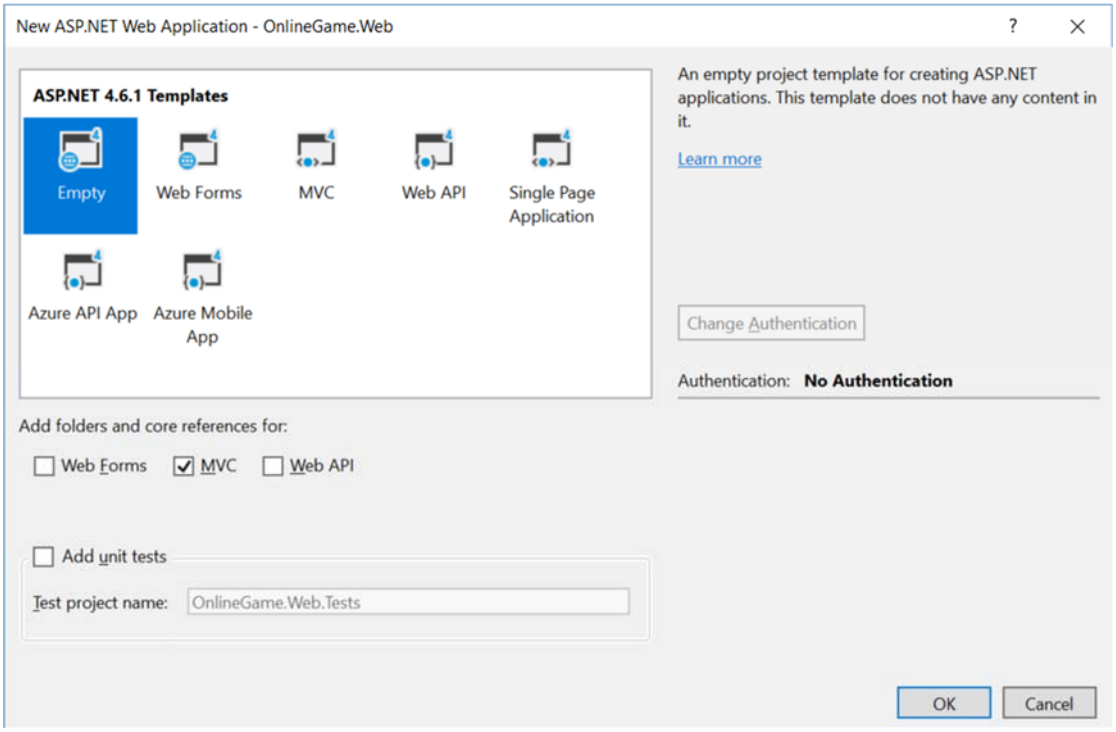
1. New Project - OnlineGame.Web

File --> New --> Project... -->
Visual C# --> Web --> ASP.NET Web Application (.Net Framework)
-->
Name: **OnlineGame.Web**
Empty --> Select "MVC" --> OK

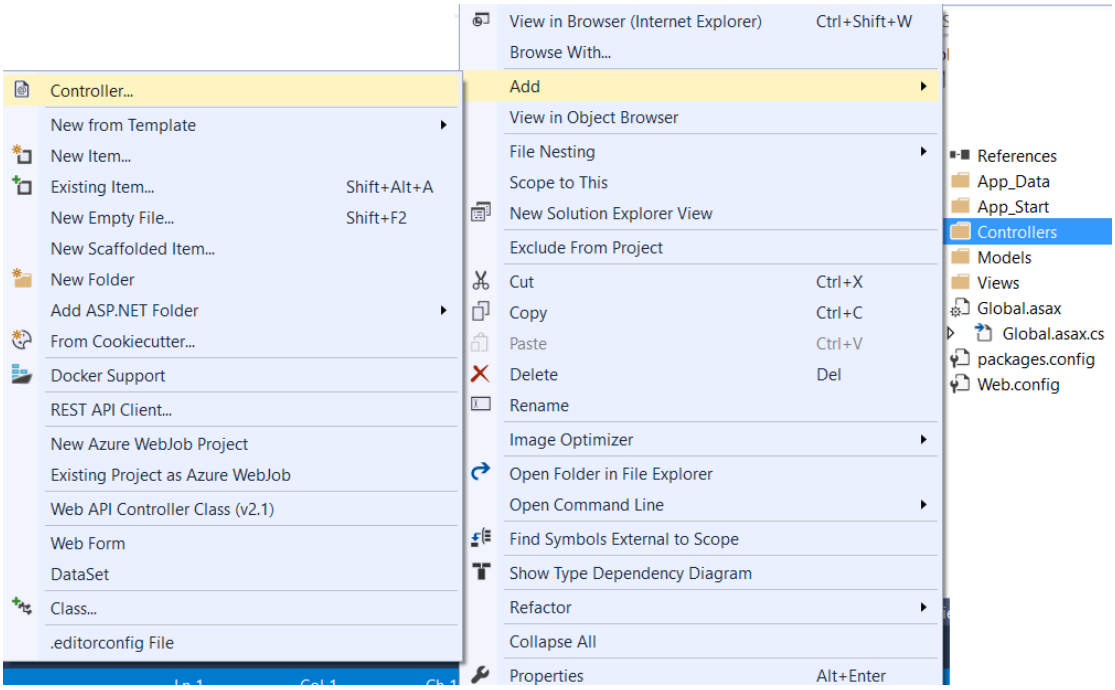


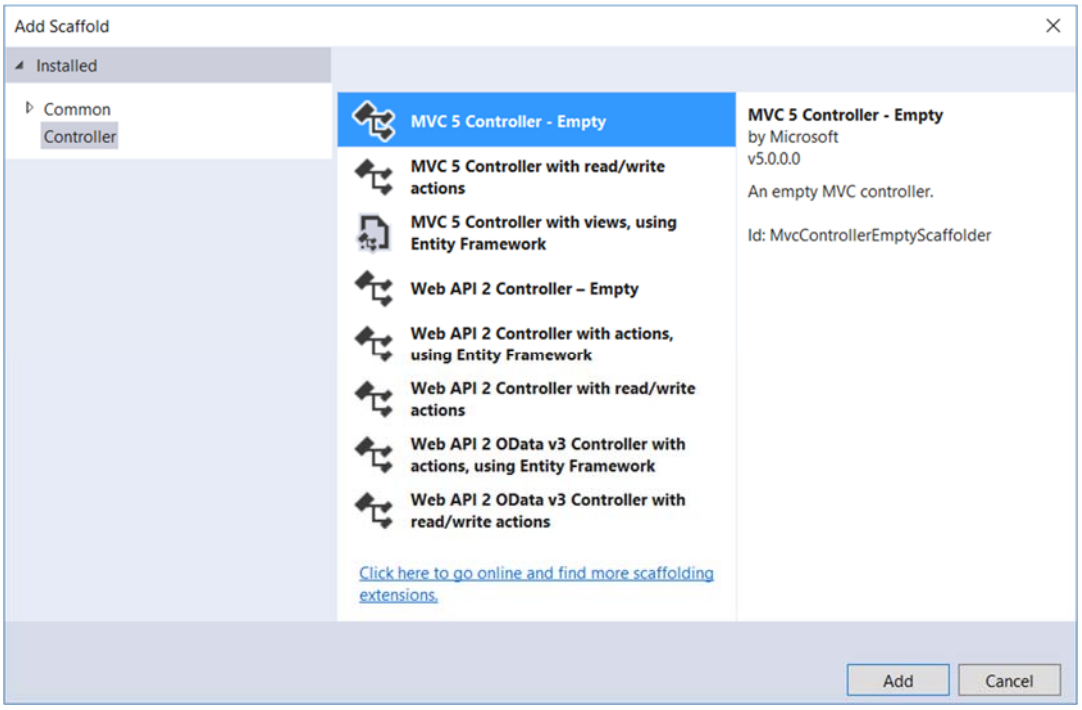


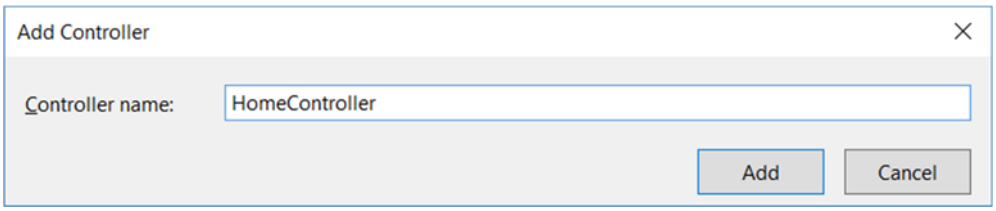
2. Controllers/HomeController.cs

2.1. Add Controller in VS2017

Controllers --> Add --> Controller --> MVC 5 Controller - Empty -->
Controller Name : **HomeController**





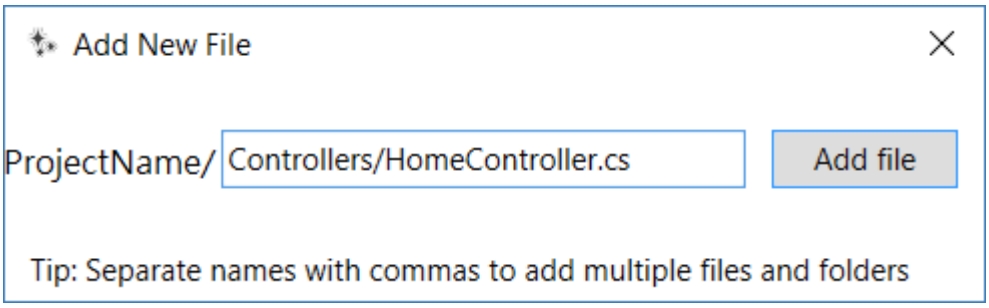


2.2. Add New File extension

Add New File
Mads Kristensen
3.5.129
Visual Studio 2013, 2015, 2017

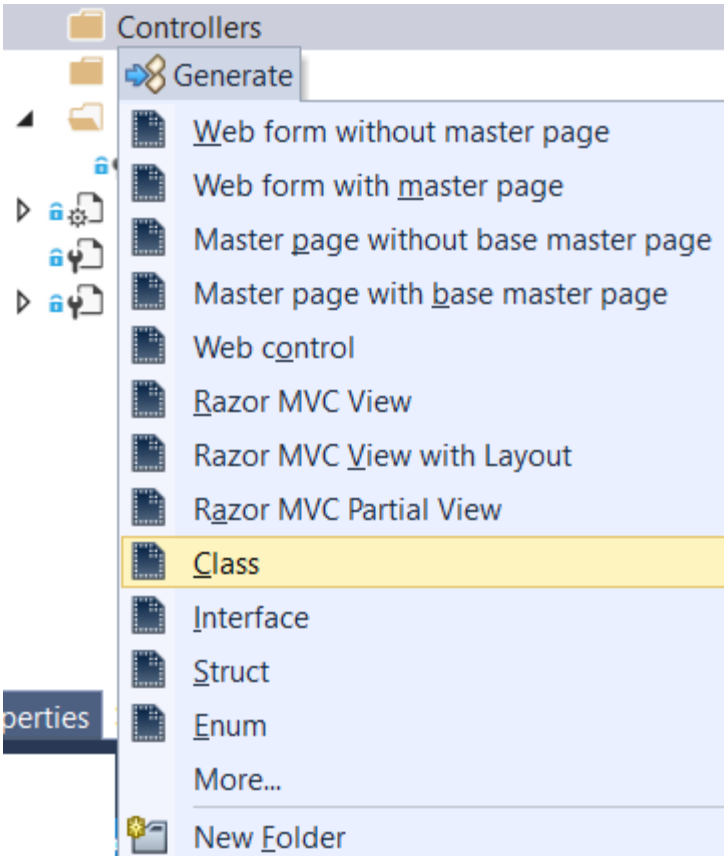
The fastest and easiest way to add new files to any project - including files that start with a dot
https://marketplace.visualstudio.com/items?itemName=MadsKristensen.AddNewFile

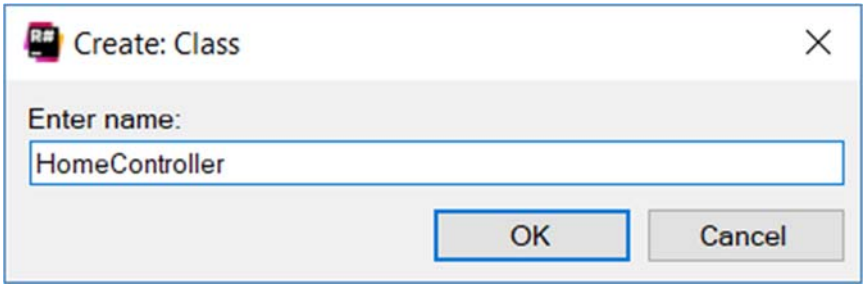
Because **Add New File** **(extension and update)**
press **Shift+F2**
Controllers/HomeController.cs



2.3. Add Controller

press **Alt + Insert**
--> Class
HomeController





2.4. Controllers/HomeController.cs

Controllers/HomeController.cs

```
using System.Web.Mvc;
namespace OnlineGame.Web.Controllers
{
    public class HomeController : Controller
    {
        // GET: Home
        public ActionResult Index()
        {
            return View();
        }
    }
}
```

--> Change to

```
using System.Web.Mvc;
namespace OnlineGame.Web.Controllers
{
    public class HomeController : Controller
    {
        // GET: Home
        public string Index()
        {
            return "Hello";
        }
    }
}
```

3. IIS

3.1. Install IIS

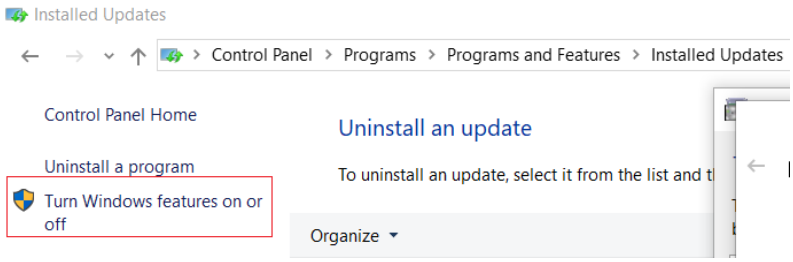
Reference:
https://superuser.com/questions/1245472/does-windows-10-home-edition-have-iis

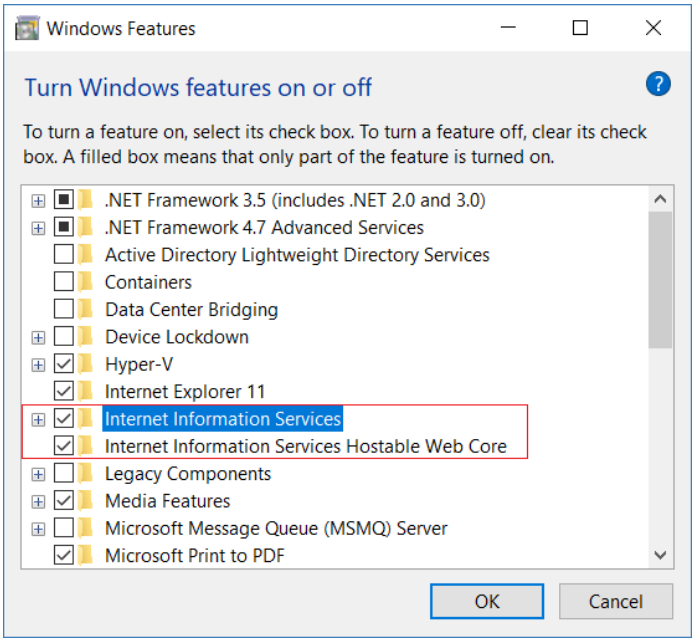
You may use IIS Express to Run you MVC project.
IIS and IIS express is no much different during developing process,
but it is still better to have IIS.

Control Panel --> Programs --> Programs and Features --> Turn Windows features on or off --> Select:

Internet Information Service

Internet Information Service Hostable Web Core



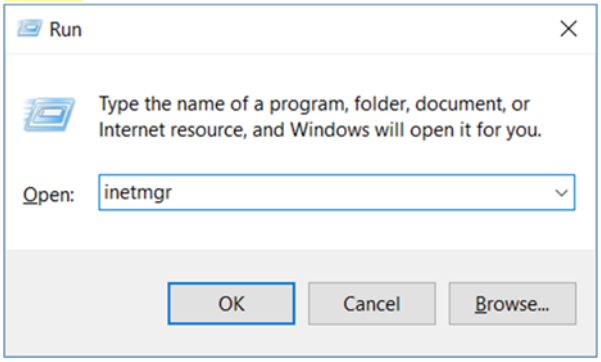


3.2. Start IIS

3.2.1. Run IIS: Win + R

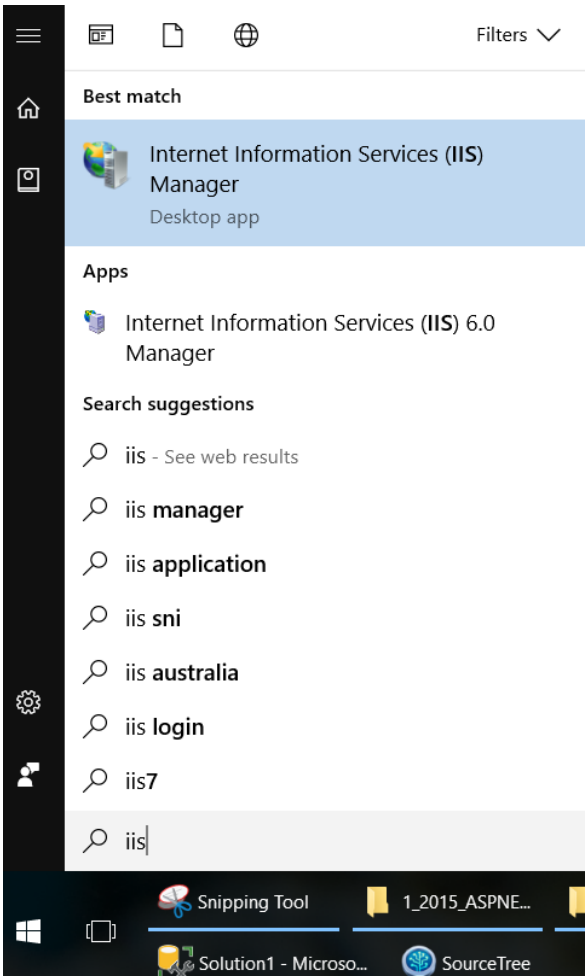
Win + R

inetmgr



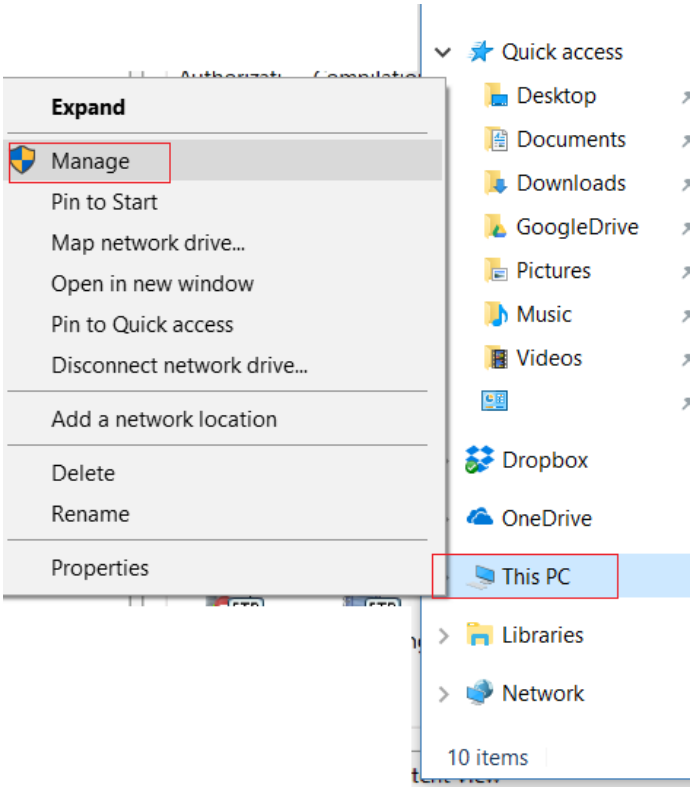
3.2.2. Run IIS: Win + Search IIS

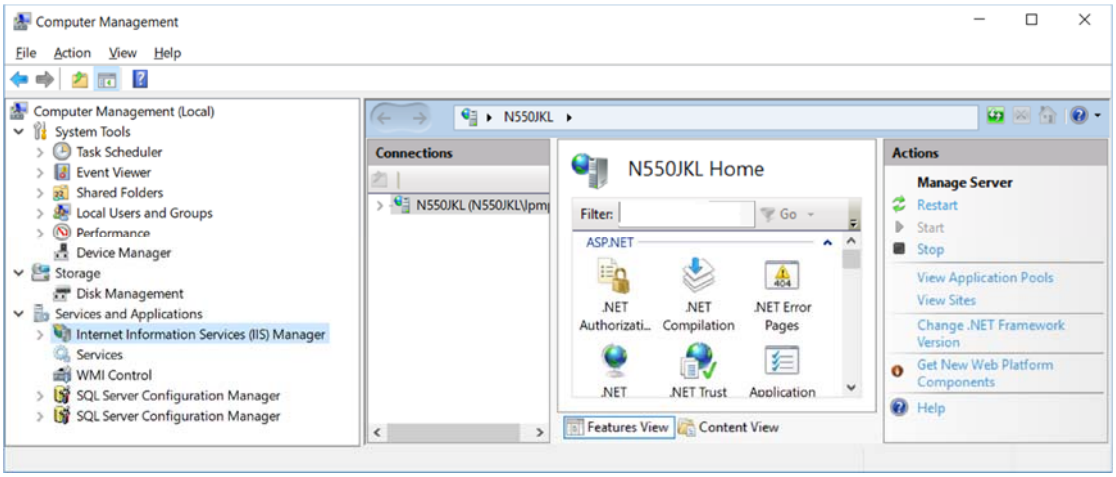
Win + Search IIS



3.2.3. Run IIS: This PC --> Manage

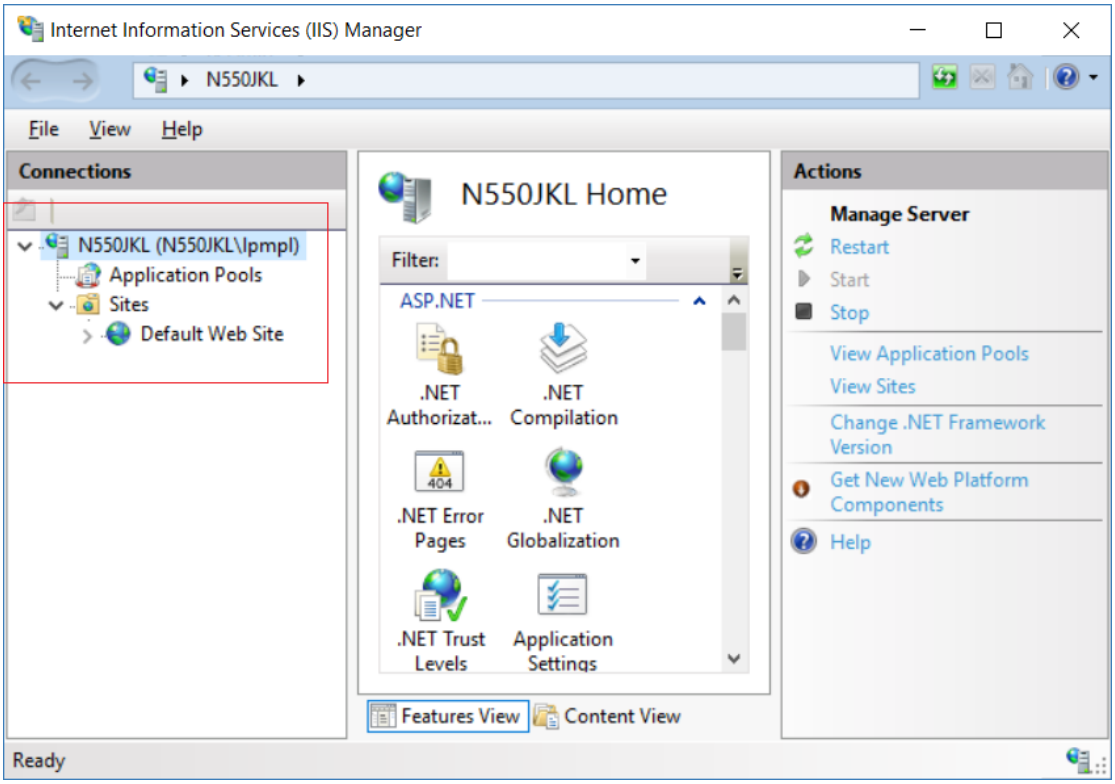
Win + E to open Explore
In the Left hand side --> This PC --> Right Click --> Manage
--> Services and Applications --> Internet Information Service



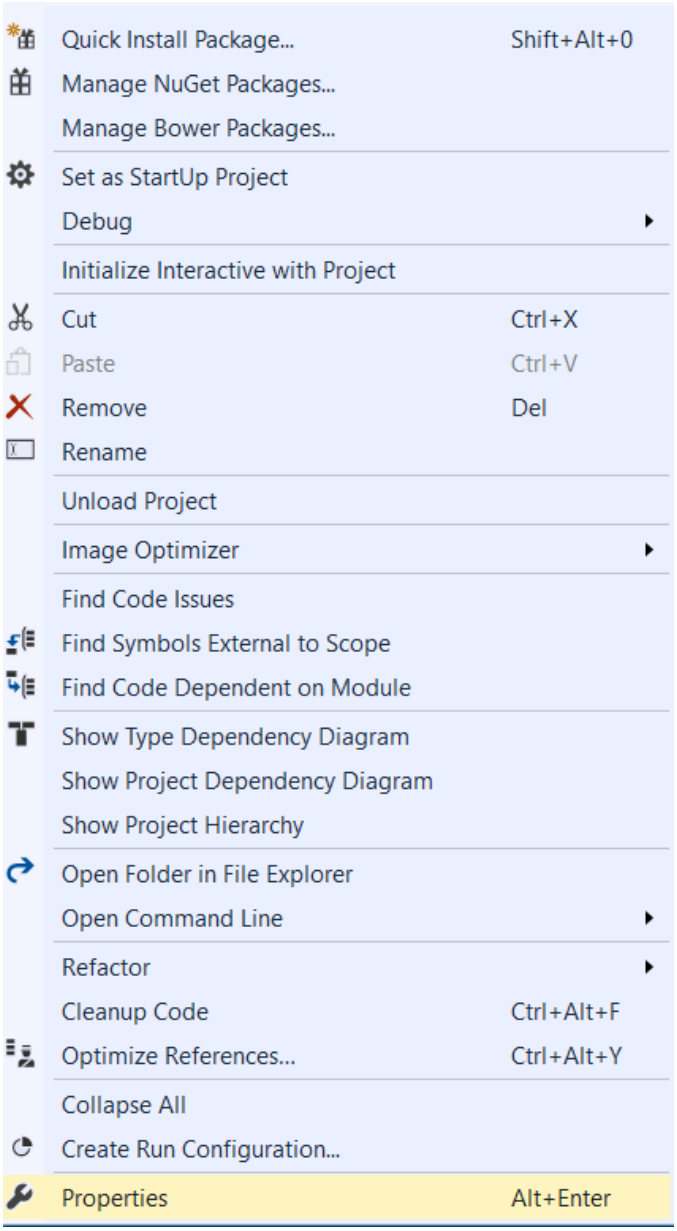


3.3. Run IIS but Get Error Message

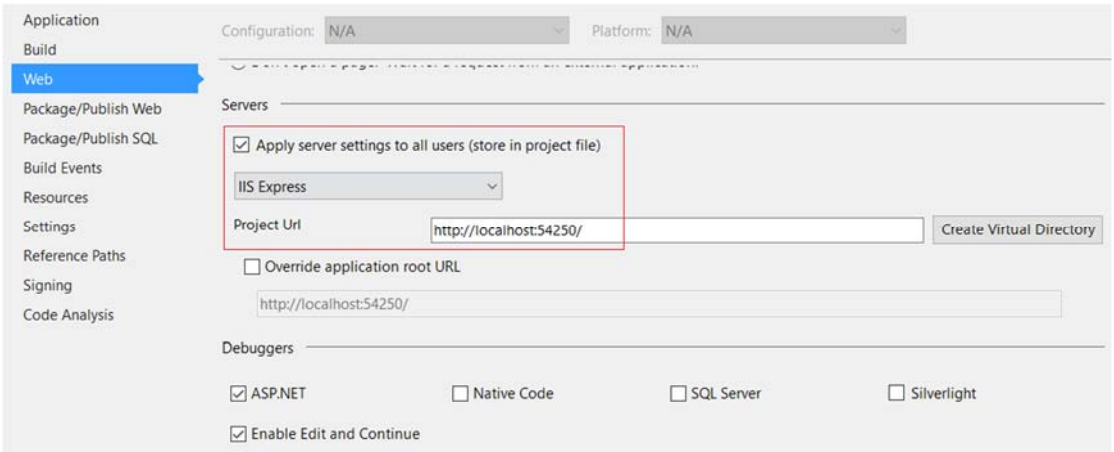
At the moment, we have no YourWebSiteName in the IIS.
Now, we want to add YourWebSiteName to IIS

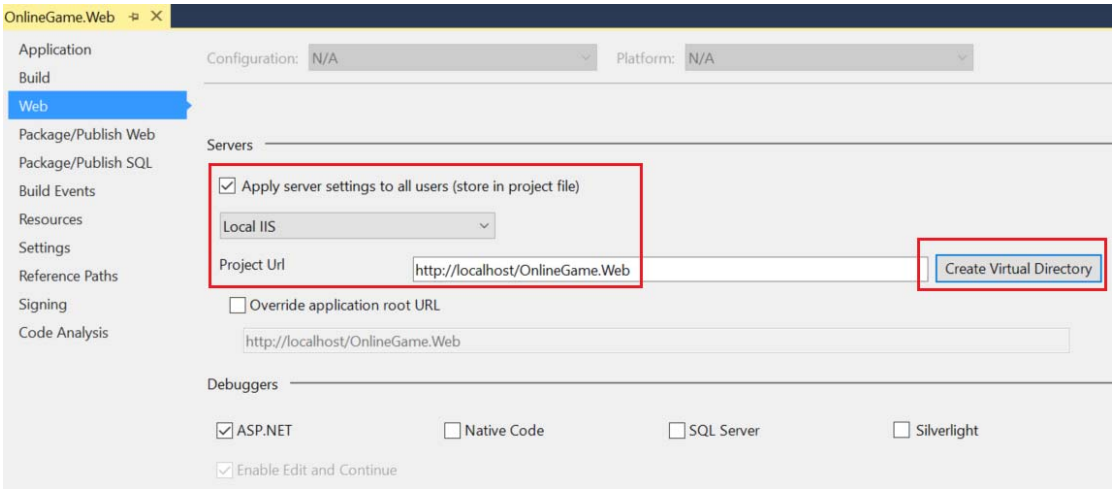


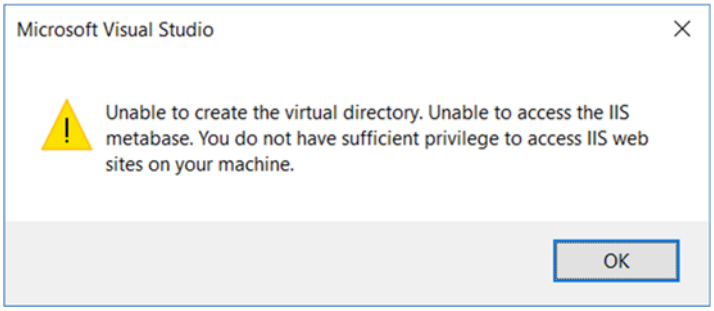
Go back to Visual Studio
ProjectName --> Right Click --> Properties



--> Web Tab --> Servers Section
--> Dropdown box --> At the moment, we are using **IIS Express**
--> Change to **Local IIS**
Press "**Create Virtual Directory**" button
--> If you see the error message, please **Run Visual Studio as Admin**







3.4. Visual Studio as Admin

3.4.1. Set Visual Studio as Admin

Set Run Visual Studio as Admin

C:\Program Files (x86)\Microsoft Visual Studio\2017\Community\Common7\IDE\devenv.exe

We need to set up to **devenv.exe** run as admin

--> Right Click

--> Troubleshoot compatibility

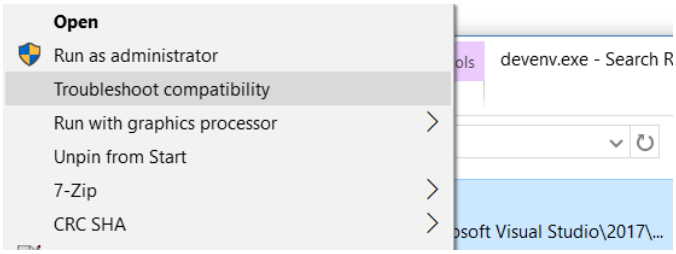
--> Troubleshoot Program

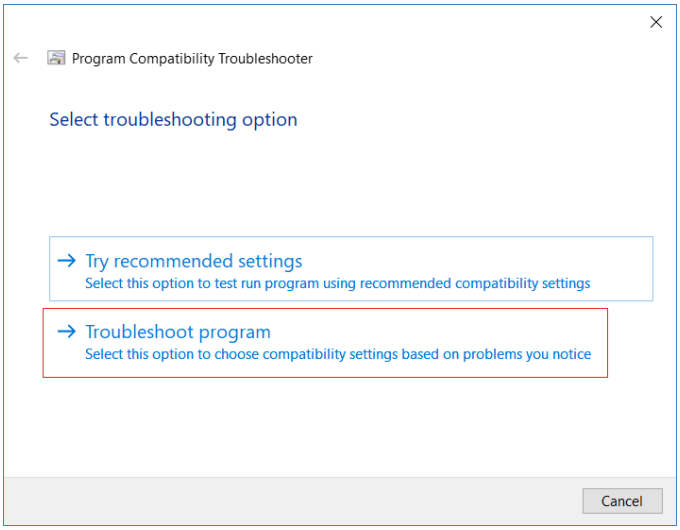
--> The program requires additional permissions

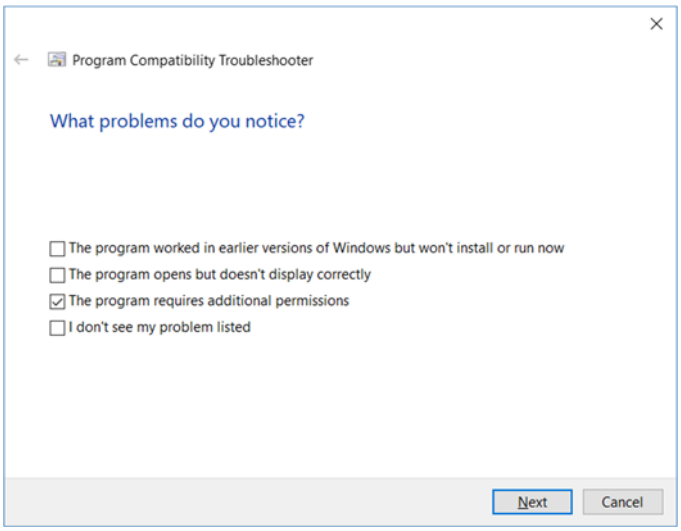
--> Test the program --> Next

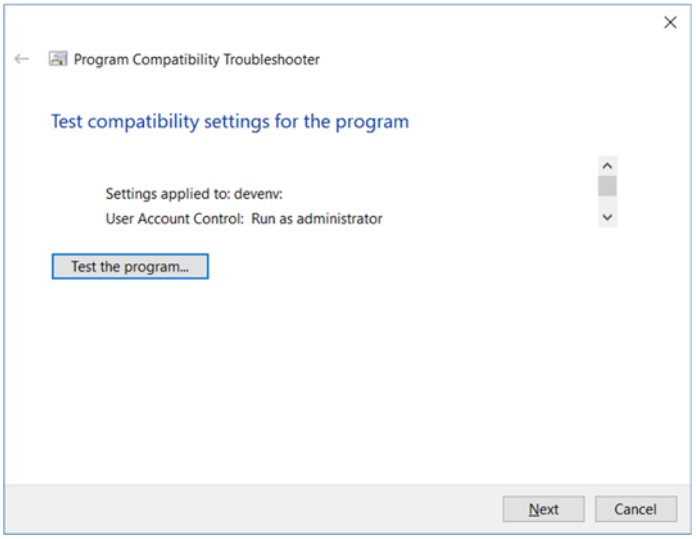
--> Yes, Save these settings for this program

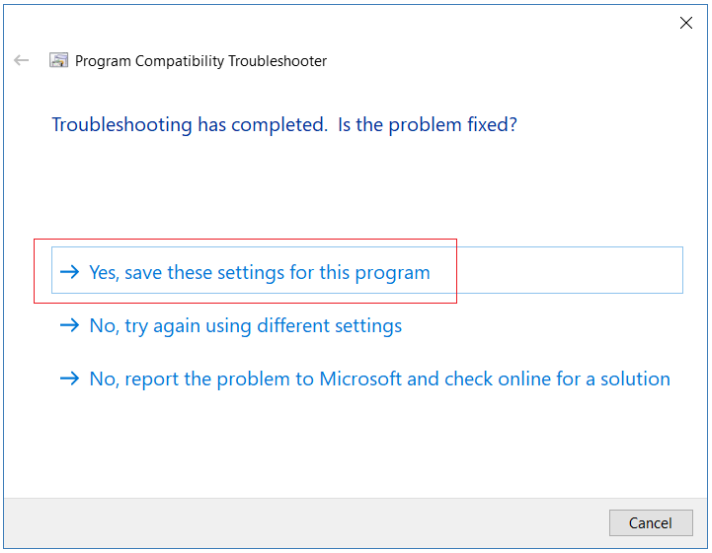
--> Close the troubleshooter

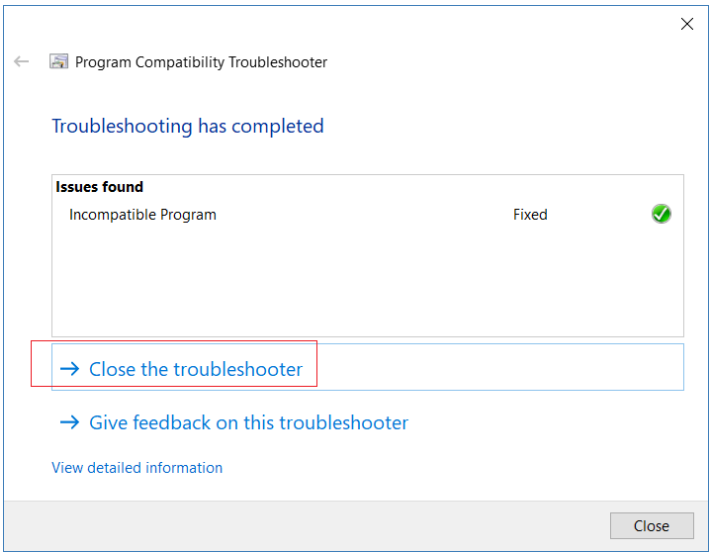



Program Compatibility Troubleshooter
Select troubleshooting option
Try recommended settings
Select this option to test run program using recommended compatibility settings
Troubleshoot program
Select this option to choose compatibility settings based on problems you notice
Cancel


Program Compatibility Troubleshooter
What problems do you notice?
The program worked in earlier versions of Windows but won't install or run now
The program opens but doesn't display correctly
The program requires additional permissions
I don't see my problem listed
Next
Cancel


Program Compatibility Troubleshooter
Test compatibility settings for the program
Settings applied to: devenv:
User Account Control: Run as administrator
Test the program...
Next
Cancel



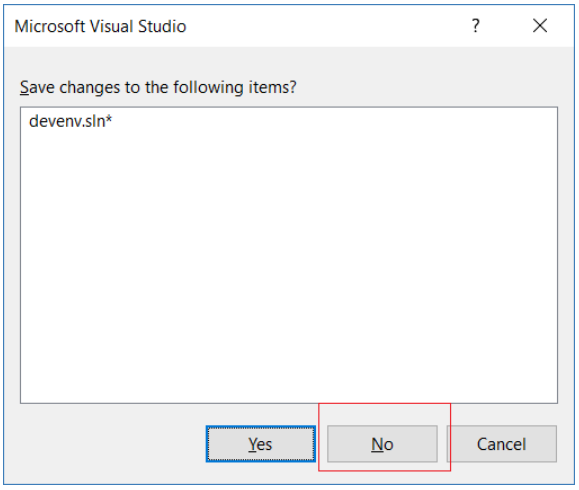


3.4.2. Run Visual Studio as Admin

After you Set Visual Studio as Admin.
You may Run YourWebsiteName.sln

Go to
...YourPath...\Documents\Visual Studio 2017\Projects**YourWebsiteName**
Double click "**YourWebsiteName**.sln"

Do you want to allow this app to make changes to your device --> Yes
Then Visual Studio will be opened
Save changes to the following items? devenv.sln --> No



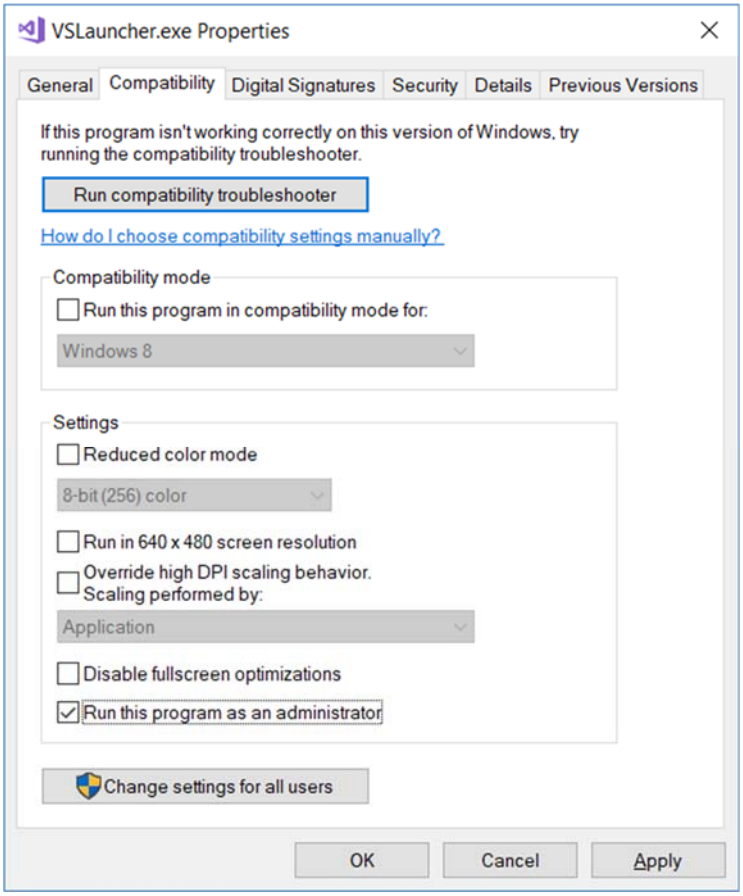
3.4.3. Run Visual Studio as Admin without dialog

Save changes to the following items? devenv.sln --> No
If you don't want to see this dialog anymore, there is a way to avoid.
Reference:
http://rickvandenbosch.net/blog/running-visual-studio-as-an-administrator-causes-save-changes-to-devenv-sln-when-double-clicking-solutions/

C:\Program Files (x86)\Common Files\Microsoft Shared\MSEnv\VSLauncher.exe

Set Run **VSLauncher.exe** Run as Admin
C:\Program Files (x86)\Common Files\Microsoft Shared\MSEnv\VSLauncher.exe
We need to set up to **VSLauncher.exe** run as admin
--> Right Click --> Compatibility Tab --> Select Run this program as an administrator

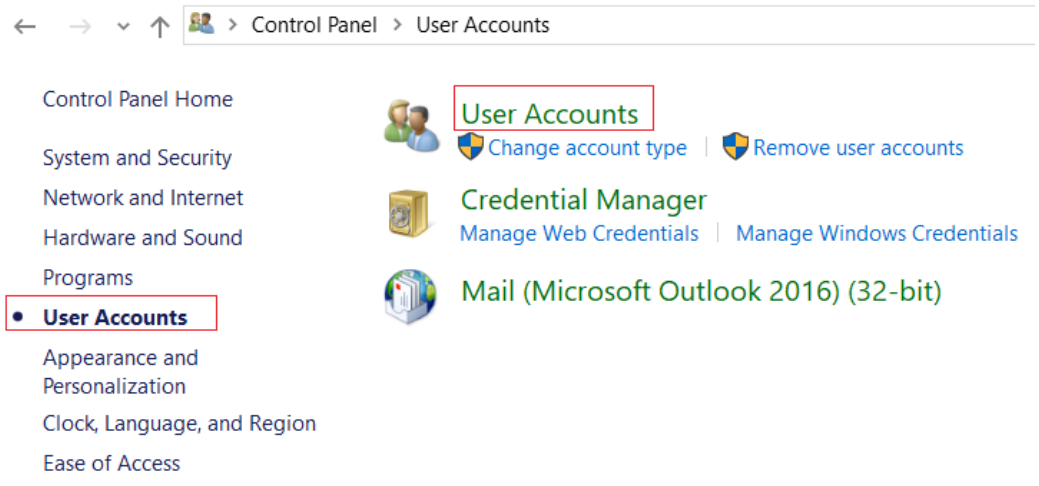
You need to set both **devenv.exe** and **VSLauncher.exe** to Run as Admin to avoid the dialog.
C:\Program Files (x86)\Microsoft Visual Studio\2017\Community\Common7\IDE\devenv.exe
C:\Program Files (x86)\Common Files\Microsoft Shared\MSEnv\VSLauncher.exe

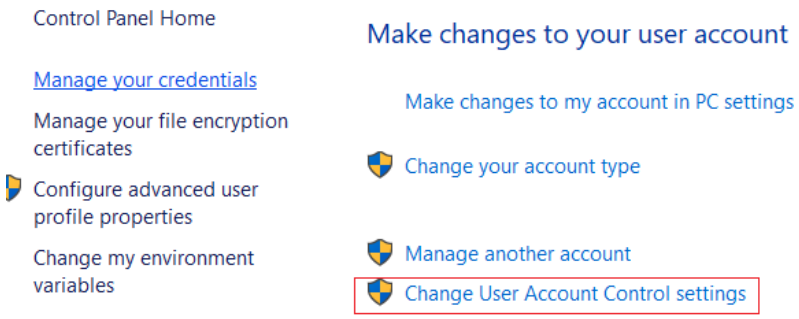


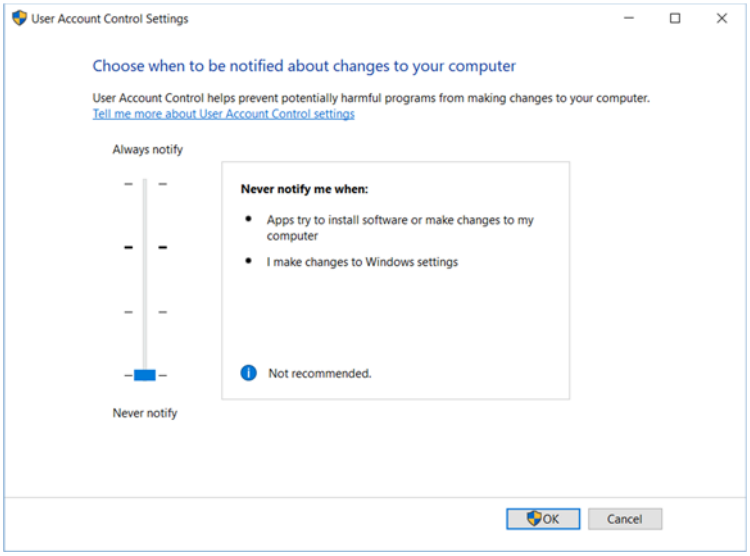
Do you want to allow this app to make changes to your device --> Yes
If you don't want to see this dialog anymore, there is a way to avoid.
Reference:
https://answers.microsoft.com/en-us/windows/forum/windows_7-security/how-can-i-disable-the-do-you-want-to-allow-the/35a722f4-f53d-49d1-b345-c4463cdf81e1?auth=1

Control Panel --> User Accounts --> User Accounts -->
Change User Account Controller Settings --> Never notify.

Note:
UAC helps prevent potentially harmful applications from making changes to your Computer.
Turning off UAC would turn off the feature for all programs and not for only a specific particular application.
I personally suggest just leave as the default setting.

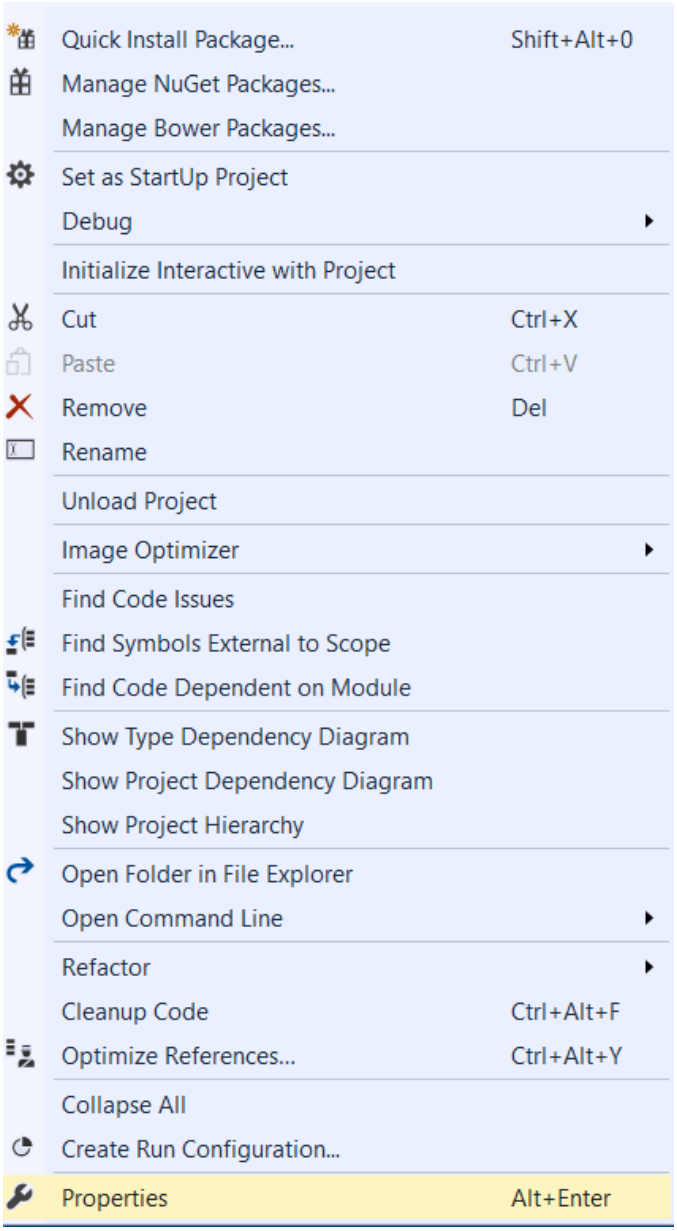






3.5. Run IIS

Go back to Visual Studio
ProjectName --> Right Click --> Properties



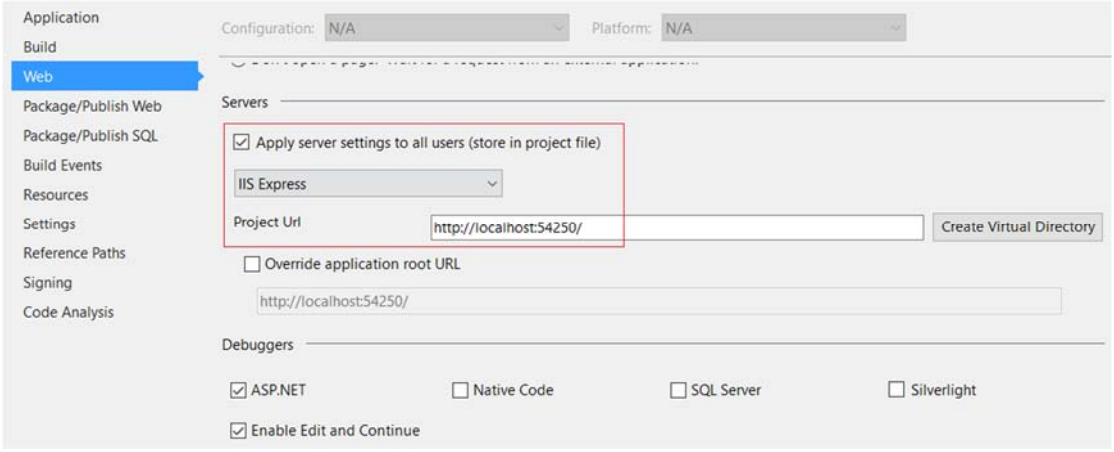
--> Web Tab --> Servers Section

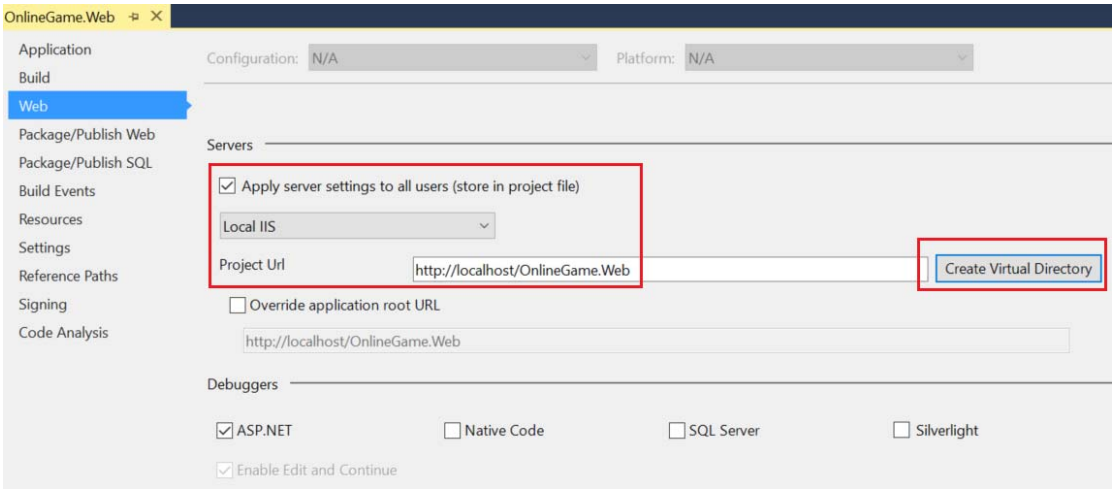
--> Dropdown box --> At the moment, we are using **IIS Express**

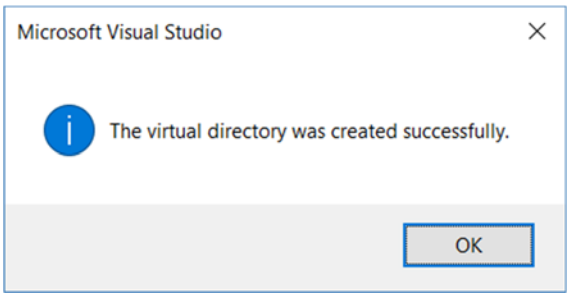
--> Change to **Local IIS**

Press "**Create Virtual Directory**" button

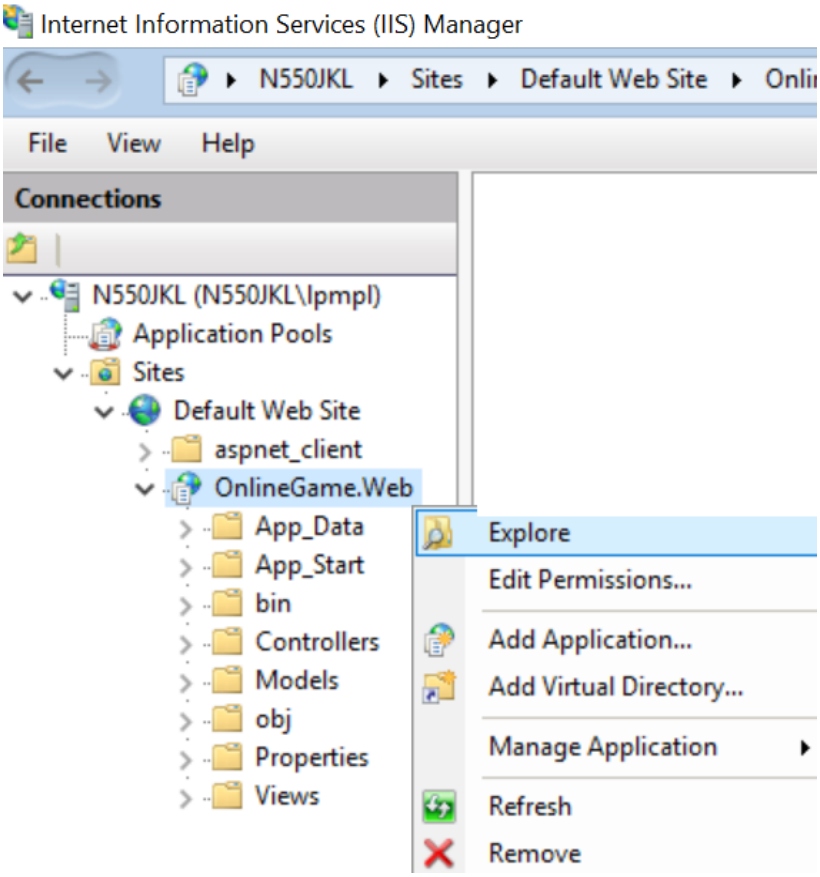
--> If you see the error message, please **Run Visual Studio as Admin**







Now, In IIS
We can see "**YourWebSiteName**" is under Default Website



1.
Default Web Site --> YourWebSiteName --> Right Click --> Explore
The IIS will host your web application under **YourProjectName** directory.

2.
Default Web Site Right Click --> Explore
The IIS host default website under **C:\inetpub\wwwroot** directory

This is the place where YourWebSiteName published and hosted by IIS
The URL is http://localhost/YourProjectName/

If we are using IIS Express
The URL is http://localhost:YourPortNumber/
We can see the IIS Express will need a port number.

4. URL

4.1. Global.asax.cs

```
using System.Web.Mvc;
using System.Web.Routing;
namespace OnlineGame.Web
{
    public class MvcApplication : System.Web.HttpApplication
    {
        //Application_Start() is the magic start point of this application
        protected void Application_Start()
        {
            AreaRegistration.RegisterAllAreas();
            //1.
            //Register Route Configure in RouteConfig.cs
            //If you want to see route configuration,
            //you may find it in RouteConfig.cs
            //2.
            //System.Web.Routing.RouteCollection Routes { get; }
            //Gets a collection of objects that derive from the System.Web.Routing.RouteBase class.
            RouteConfig.RegisterRoutes(RouteTable.Routes);
        }
    }
}
```

4.2. App_Start/RouteConfig.cs

```
using System.Web.Mvc;
using System.Web.Routing;
namespace OnlineGame.Web
{
    public class RouteConfig
```

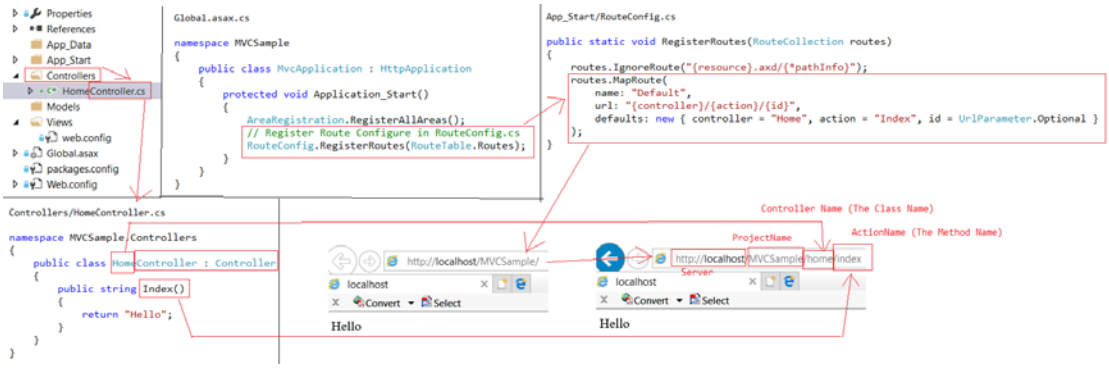
```
    {
        public static void RegisterRoutes(RouteCollection routes)
        {
            routes.IgnoreRoute("{resource}.axd/{*pathInfo}");
            routes.MapRoute(
                name: "Default",
                url: "{controller}/{action}/{id}",
                defaults: new { controller = "Home", action = "Index", id = UrlParameter.Optional }
            );
        }
    }
}

/*
1.
//routes.MapRoute(
//    name: "Default",
//    url: "{controller}/{action}/{id}",
//    defaults: new { controller = "Home", action = "Index", id = UrlParameter.Optional }
//);
1.1.
When a request comes in,
it's trying to do a pattern match based on
all the templates it sees in these mapped routes.
A route is some instructions for
how to take a URI coming into a request
and map it to some code,
normally a controller.
In this case,
look at defaults parameter,
when user request http://localhost:PortNumber/
IIS Express will run
HomeController Index action.
It will map to Controllers/HomeController.cs
and   map to Index Method
1.2.
By convention in MVC.
All controllers will have Controller suffix.
This suffix is not required in the URL.
So, if you want to invoke Home controller,
you specify /Home and not /HomeController.
*/
```

4.3. Controllers/HomeController.cs

```
using System.Web.Mvc;
namespace OnlineGame.Web.Controllers
{
    public class HomeController : Controller
    {
        // GET: Home
        public string Index()
        {
            return "Hello";
        }
    }
}
```

4.4. Explain mapping URL

Let's discuss the URL mapping In MVC



In Global.asax.cs, We register the Route configure in RouteConfig.cs

```
// Register Route Configure in RouteConfig.cs
RouteConfig.RegisterRoutes(RouteTable.Routes);
```

-->

In App_Start/RouteConfig.cs, we clear set up the mapping.

```
public static void RegisterRoutes(RouteCollection routes)
{
    routes.IgnoreRoute("{resource}.axd/{*pathInfo}");
    routes.MapRoute(
        name: "Default",
        url: "{controller}/{action}/{id}",
        defaults: new { controller = "Home", action = "Index", id = UrlParameter.Optional }
    );
}
```

-->

1.

When a request comes in, it's trying to do a pattern match based on all the templates it sees in these mapped routes.
A route is some instructions for how to take a URL coming into a request and map it to some code, normally a controller.

In this case, look at defaults parameter, when user request http://localhost:PortNumber/

IIS Express will run **HomeController Index** action.

It will map to **Controllers/HomeController.cs** and map to **Index** Method.

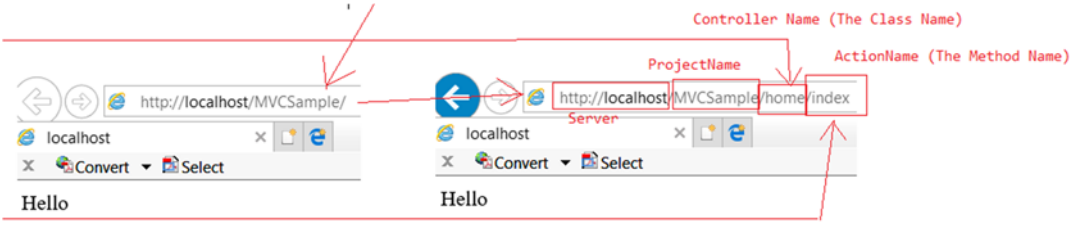
By convention in MVC.
All controllers will have Controller suffix.
This suffix is not required in the URL.
So, if you want to invoke Home controller,
you specify /Home and not /HomeController.

2.

Let's compare MVC URL and Web form application URL.

2.1.

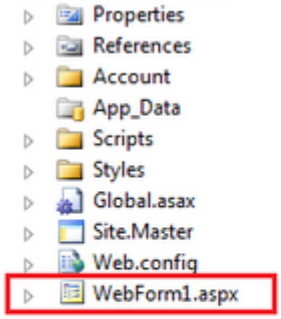
In MVC URL are mapped to controller Action Method.



2.2.

In Web Form Application URL are mapped to physical files

E.g.



http://localhost/WebFormSample/WebForm1.aspx

Server ProjectName FileName

5. HomeController.cs

```
using System.Web.Mvc;
namespace OnlineGame.Web.Controllers
{
    public class HomeController : Controller
    {
        //// GET: Home
        //public string Index()
        //{
        //    return "Hello";
        //}

       /http://localhost/OnlineGame.Web/home/index/aa?name=bbb
        //http://localhost/OnlineGame.Web/home/index/aa?name2=bbb
        //public string Index(string id)
        //{
        //    string queryString = Request.QueryString["name"];
        //    return $"Hey, Id={id} , name={queryString}";
        //}
        //http://localhost/OnlineGame.Web/home/index/aa?name=bbb
        //http://localhost/OnlineGame.Web/home/index/aa?name2=bbb
        public string Index(string id, string name)
        {
            // return string.Format("Hey, Id ={0} , name ={1}", id, name);
            return $"Hey, Id ={id} , name ={name}";
        }
        public string GetStringA()
        {
            return "AAAAAA";
```

```
        }
    }
}
```

http://localhost/OnlineGame.Web/home/getstringA

http://localhost/OnlineGame.Web
http://localhost/OnlineGame.Web/home/index/
http://localhost/OnlineGame.Web/home/index/aa?name=bbb
http://localhost/OnlineGame.Web/home/index/aa?name2=bbb

6. ASP.NET Tracing: trace.axd

If you do not understand, you may skip this part.

6.1. App_Start/RouteConfig.cs

```
using System.Web.Mvc;
using System.Web.Routing;
namespace OnlineGame.Web
{
    public class RouteConfig
    {
        public static void RegisterRoutes(RouteCollection routes)
        {
            //Handle the Route of the axd request file.
            //E.g. ASP.Net Tracing
            routes.IgnoreRoute("{resource}.axd/{*pathInfo}");
            //Handle the Route called "Default".
            //The mapping URL is "{controller}/{action}/{id}"
            //Set the default value of Controller, action, and id.
            routes.MapRoute(
                name: "Default",
                url: "{controller}/{action}/{id}",
                defaults: new { controller = "Home", action = "Index", id = UrlParameter.Optional }
            );
        }
    }
}


/*
2.
//routes.IgnoreRoute("{resource}.axd/{*pathInfo}");
2.1.
Reference:
https://stackoverflow.com/questions/9016650/what-is-routes-ignorerouteresource-axd-pathinfo
This line can handle the axd file request route, E.g. trace.axd
.axd files don't exist physically.
ASP.NET uses URLs with .axd extensions
(ScriptResource.axd and WebResource.axd) internally,
and they are handled by an HttpHandler.
```

```
Therefore, you should keep this rule,
to prevent ASP.NET MVC from trying to handle the request
instead of letting the dedicated HttpHandler do it.
2.2.
trace.axd
Reference:
https://msdn.microsoft.com/en-us/library/wwh16c6c.aspx
trace.axd trace details for a specific request.
If you want to enable trace.axd,
then you have to go to Web.config
Add <trace enabled="true" pageOutput="false"/> under <system.web>
Then run the project, type the following URL
http://localhost/YourProjectName/trace.axd
This will return ASP.NET trace, trace.axd.
If you do not have
// routes.IgnoreRoute("{resource}.axd/{*pathInfo}");
then you can not enable the trace.axd.
*/
```

6.2. Web.config

```
<trace enabled="true" pageOutput="false"/>
```

Web.config | RouteConfig.cs | HomeController.cs

```
1  <?xml version="1.0" encoding="utf-8"?>
2  <!--
3    For more information on how to configure your ASP.NET applicat
4    https://go.microsoft.com/fwlink/?LinkId=301880
5    -->
6  <configuration>
7    <appSettings>
8      <add key="webpages:Version" value="3.0.0.0"/>
9      <add key="webpages:Enabled" value="false"/>
10     <add key="ClientValidationEnabled" value="true"/>
11     <add key="UnobtrusiveJavaScriptEnabled" value="true"/>
12   </appSettings>
13   <system.web>
14     <trace enabled="true" pageOutput="false"/>
15     <compilation debug="true" targetFramework="4.6.1"/>
16     <httpRuntime targetFramework="4.6.1"/>
17   </system.web>
18   <runtime>
19     <assemblyBinding xmlns="urn:schemas-microsoft-com:asm.v1">
```

6.3. localhost/ProjectName/trace.axd

http://localhost/YourProjectName/trace.axd

If you delete this line in Home/HomeController.cs

```
routes.IgnoreRoute("{resource}.axd/{*pathInfo}");
```

Then you will get an error message.
If you don't understand this concept, that is fine.

But please always include this line in Home/HomeController.cs

```
routes.IgnoreRoute("{resource}.axd/{*pathInfo}");
```

7. View

7.1. Reason to use View

7.1.1. Controllers/HomeController.cs

In the **Controllers/HomeController.cs**

When we try to return a list of data,

E.g.

```
return new List<string>
      {
        "Name01",
        "Name02",
        "Name03"
      };
```

Then, it will only display the data type of the variable

E.g.

System.Collections.Generic.List`1[System.String]

This is not what we want,

thus, we need a view to display the data in the format we want.

```
using System.Collections.Generic;
using System.Web.Mvc;
namespace OnlineGame.Web.Controllers
{
    public class HomeController : Controller
    {
        //// GET: Home
        //public string Index()
        //{
        //    return "Hello";
        //}
       ////http://localhost/OnlineGame.Web/home/index/aa?name=bbb
        ////http://localhost/OnlineGame.Web/home/index/aa?name2=bbb
        //public string Index(string id)
        //{
        //    string queryString = Request.QueryString["name"];
        //    return $"Hey, Id={id} , name={queryString}";
        //}
        ////http://localhost/OnlineGame.Web/home/index/aa?name=bbb
        ////http://localhost/OnlineGame.Web/home/index/aa?name2=bbb
```

```
        //public string Index(string id, string name)
        //{
        //    // return string.Format("Hey, Id ={0} , name ={1}", id, name);
        //    return $"Hey, Id ={id} , name ={name}";
        //}
        public List<string> Index()
        {
            return new List<string>
            {
                "Name01",
                "Name02",
                "Name03"
            };
            // Return System.Collections.Generic.List`1[System.String]
            // This is Wrong.
        }
        public string GetStringA()
        {
            return "AAAAAA";
        }
    }
}



/*
1.
When we try to return a list of data,
E.g.
return new List<string>
{
    "Name01",
    "Name02",
    "Name03"
};
Then, it will only display the data type of the variable
E.g.
System.Collections.Generic.List`1[System.String]
This is not what we want,
thus, we need a view to display the data in the format we want.
2.
//public ActionResult Index()
//{
//    return View();
//}
ViewResult extend ViewResultBase
ViewResultBase extend ActionResult.
Thus, you can return View()
*/
```

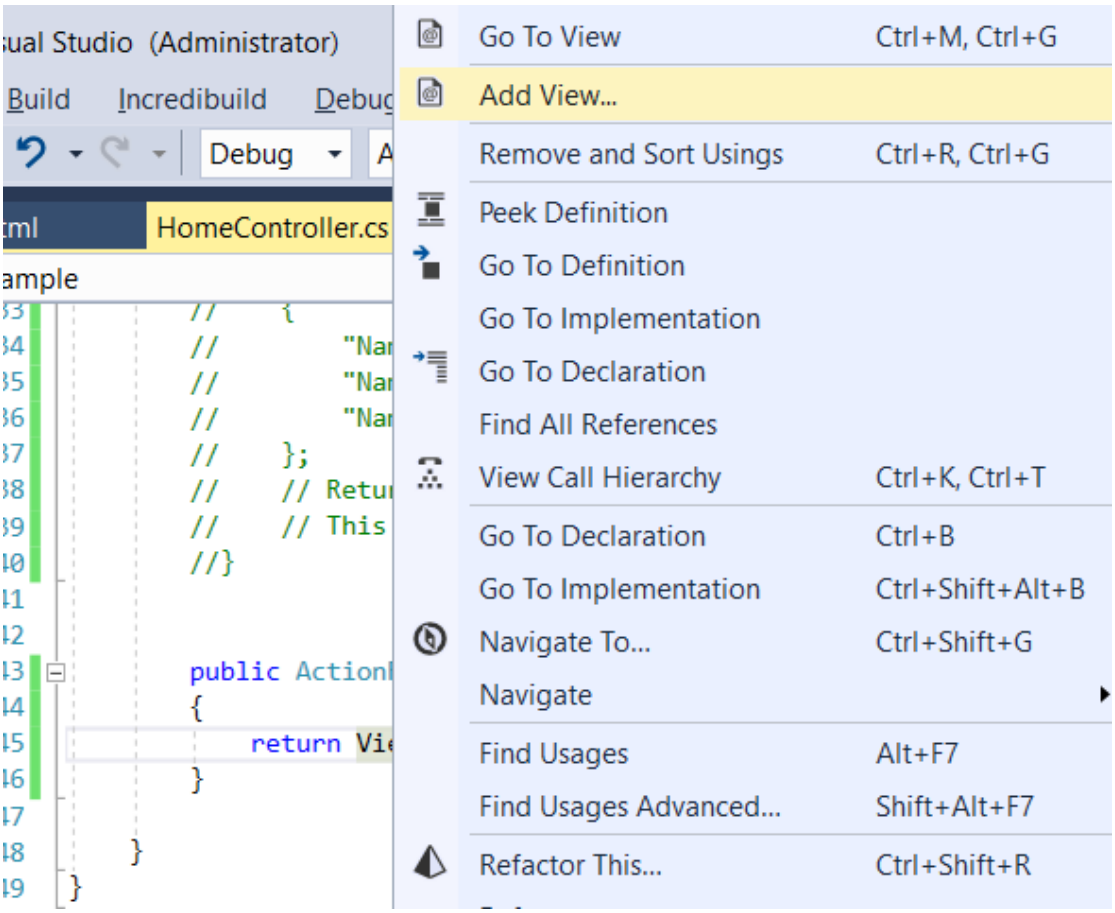
7.2. Views/Home/Index.cshtml

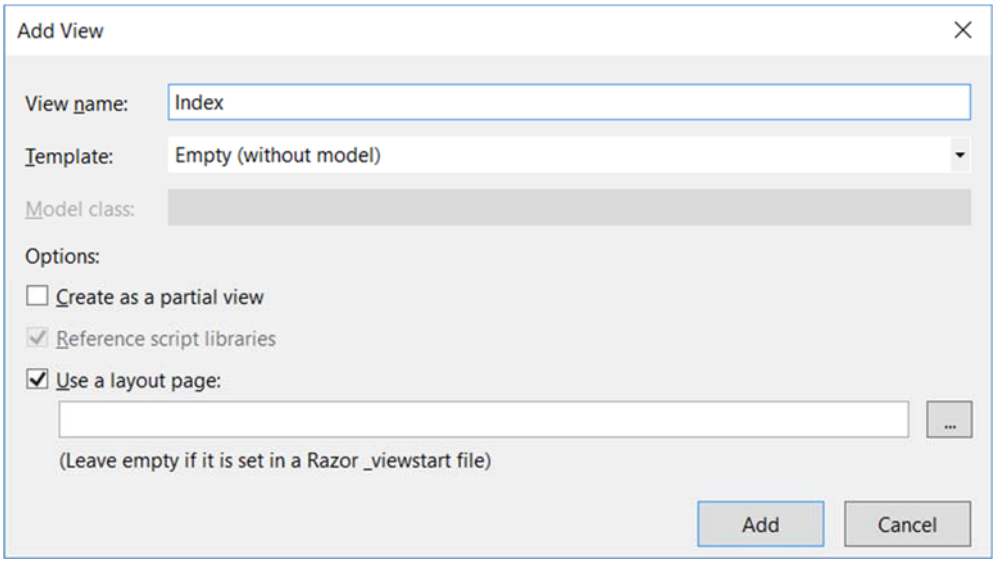
In the **Controllers/HomeController.cs**

```
public ActionResult Index()
{
```

```
    return View();
}
```

Mouse point to View, and Right Click --> Add View
--> Add

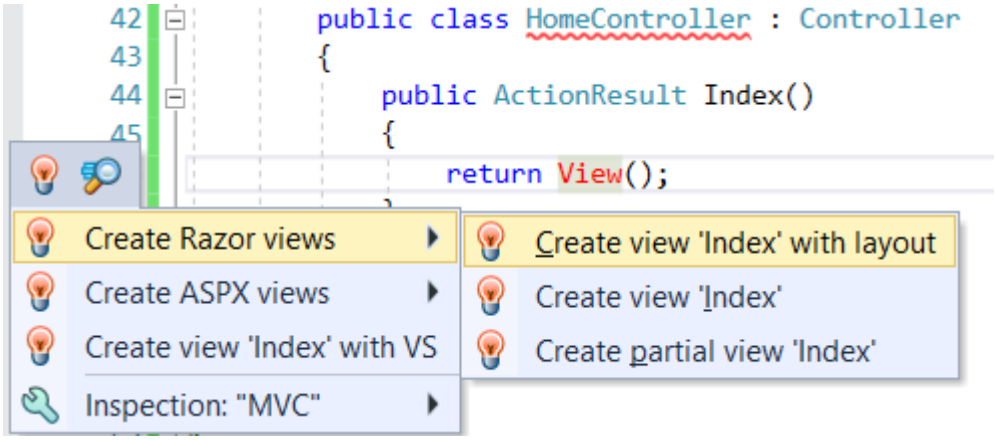




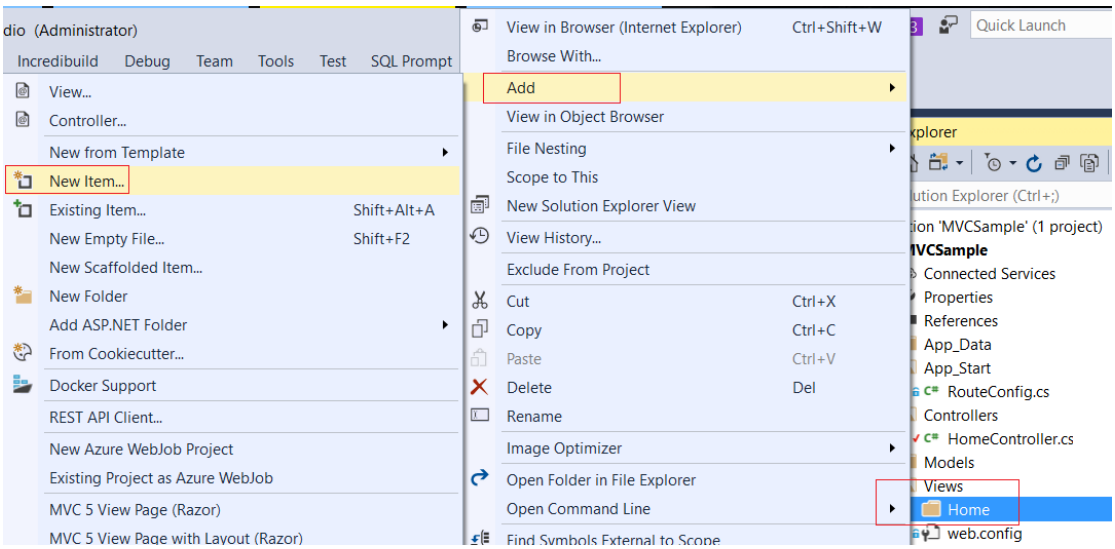
This will create **Views/Home/Index.cshtml**

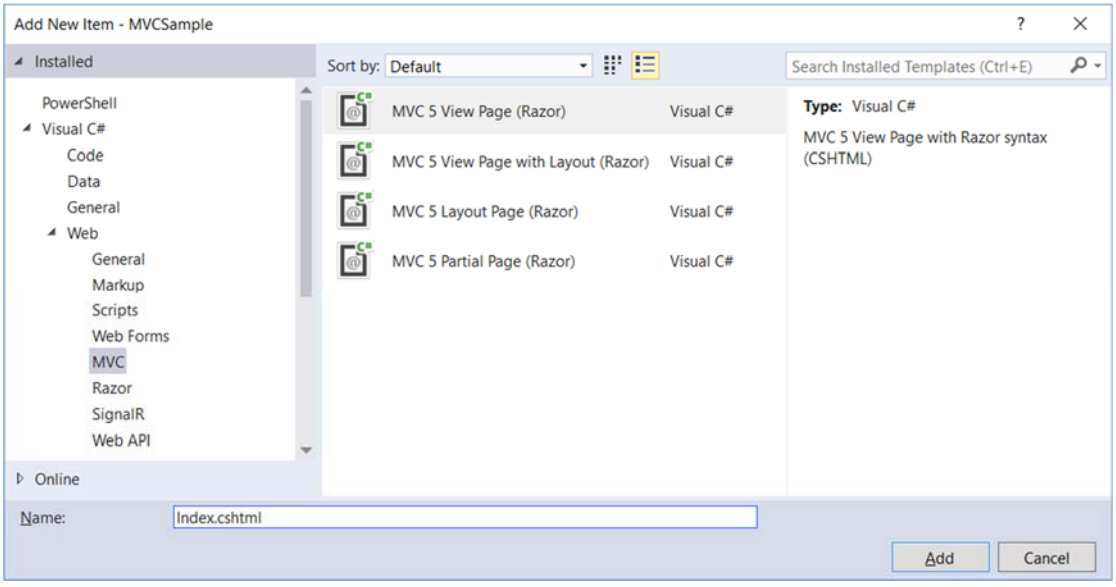
However, I personally do not like to use this way to create a view.
Sometimes, this way will have some un-necessary changes
which you can only use source control to find out and discard changes.

Mouse points to **View --> Alt + Enter --> Create Razor views --> Create view 'index' with layout**



Views/Home/ --> Right Click --> Add --> New Item ... -->
Visual C# --> Web --> MVC --> MVC 5 View Page (Razor) --> Add
Name: Index.cshtml






```
@{
```

```
    ViewBag.Title = "title";
}
<h2>title</h2>
```

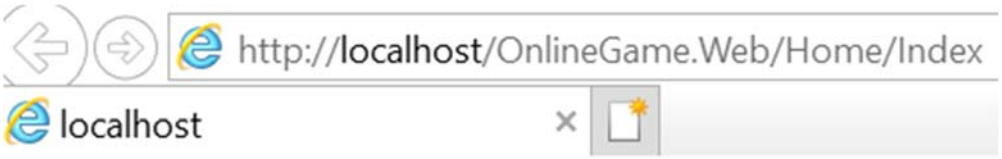
7.3. Controllers/HomeController.cs

```
using System.Collections.Generic;
using System.Web.Mvc;
namespace OnlineGame.Web.Controllers
{
    public class HomeController : Controller
    {
        //// GET: Home
        //public string Index()
        //{
        //    return "Hello";
        //}
        //public string Index(string id)
        //{
        //    string queryString = Request.QueryString["name"];
        //    return $"Hey, Id={id} , name={queryString}";
        //}
        ////http://localhost/OnlineGame.Web/home/index/aa?name=555
        //public string Index(string id, string name)
        //{
        //    // return string.Format("Hey, Id ={0} , name ={1}", id, name);
        //    return $"Hey, Id ={id} , name ={name}";
        //}
        //public List<string> Index()
        //{
        //    return new List<string>
        //    {
        //        "Name01",
        //        "Name02",
        //        "Name03"
        //    };
        //    // Return System.Collections.Generic.List`1[System.String]
        //    // This is Wrong.
        //}
        public ActionResult Index()
        {
            ViewBag.Names = new List<string>
                {
                    "Name01",
                    "Name02",
                    "Name03"
                };
            return View();
        }
        public string GetStringA()
        {
```

```
            return "AAAAAA";
        }
    }
}
/*
1.
When we try to return a list of data,
E.g.
return new List<string>
{
    "Name01",
    "Name02",
    "Name03"
};
Then, it will only display the data type of the variable
E.g.
System.Collections.Generic.List`1[System.String]
This is not what we want,
thus, we need a view to display the data in the format we want.
2.
//public ActionResult Index()
//{
//    return View();
//}
ViewResult extend ViewResultBase
ViewResultBase extend ActionResult.
Thus, you can return View()
*/
```

7.4. Views/Home/Index.cshtml

```
@model dynamic
@{
    ViewBag.Title = "title";
}
<h2>Name List</h2>
<ul>
    @foreach (string strNames in ViewBag.Names)
    {
        <li>@strNames</li>
    }
</ul>
```



Name List

- Name01
- Name02
- Name03

8. ViewData, ViewBag

8.1. Controllers/HomeController.cs

```
using System.Collections.Generic;
using System.Web.Mvc;
namespace OnlineGame.Web.Controllers
{
    public class HomeController : Controller
    {
        public string GetStringA()
        {
            return "AAAAAA";
        }
        //public string Index()
        //{
        //    return "Hello";
        //}
        //public string Index(string id)
        //{
        //    string queryString = Request.QueryString["name"];
        //    return $"Hey, Id={id} , name={queryString}";
        //}
        ////http://localhost/onlinegame.web/home/index/aa?name=555
        //public string Index(string id, string name)
        //{
        //    // return string.Format("Hey, Id ={0} , name ={1}", id, name);
        //    return $"Hey, Id ={id} , name ={name}";
        //}
        //public List<string> Index()
        //{
        //    return new List<string>
        //    {
        //        "Name01",
        //        "Name02",
        //        "Name03"
        //    };
        //    // Return System.Collections.Generic.List`1[System.String]
        //    // This is Wrong.
        //}
        public ActionResult Index()
        {
            ////1.
            //ViewBag.Names = new List<string>
            //{
            //    "ViewBag.Names01",
            //    "ViewBag.Names02",
            //    "ViewBag.Names03"
            //};
            ////2.
            //ViewData["Names"] = new List<string>
```

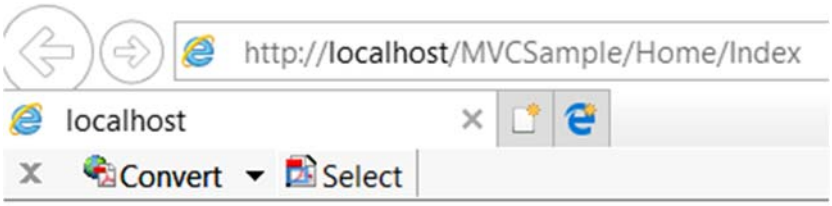
```
            //{
            //    "ViewData[\"Names\"]01",
            //    "ViewData[\"Names\"]02",
            //    "ViewData[\"Names\"]03"
            //};
            ////3.
            //ViewBag.Names = new List<string>
            //{
            //    "ViewBag.Names01",
            //    "ViewBag.Names02",
            //    "ViewBag.Names03"
            //};
            //ViewData["Names"] = new List<string>
            //{
            //    "ViewData[\"Names\"]01",
            //    "ViewData[\"Names\"]02",
            //    "ViewData[\"Names\"]03"
            //};
            //4.
            ViewBag.Names = new List<string>
            {
                "ViewBag.Names01",
                "ViewBag.Names02",
                "ViewBag.Names03"
            };
            ViewData["Names2"] = new List<string>
            {
                "ViewData[\"Names\"]01",
                "ViewData[\"Names\"]02",
                "ViewData[\"Names\"]03"
            };
            return View();
        }
    }
}
/*
1.
When we try to return a list of data,
E.g.
return new List<string>
{
    "Name01",
    "Name02",
    "Name03"
};
Then, it will only display the data type of the variable
E.g.
System.Collections.Generic.List`1[System.String]
This is not what we want,
thus, we need a view to display the data in the format we want.
2.
//public ActionResult Index()
//{
//    return View();
//}
ViewResult extend ViewResultBase
ViewResultBase extend ActionResult.
Thus, you can return View()
3.
In Home/HomeController.cs
```

```
//ViewBag.Names = new List<string>
//{
//    "ViewBag.Names01",
//    "ViewBag.Names02",
//    "ViewBag.Names03"
//};
//ViewData["Names2"] = new List<string>
//{
//    "ViewData[\"Names\"]01",
//    "ViewData[\"Names\"]02",
//    "ViewData[\"Names\"]03"
//};
In Views/HomeIndex.cshtml
//@foreach (string strNames1 in ViewBag.Names)
//{
//    <li>@strNames1</li>
//}
//<br/>
//<br/>
//@foreach (string strNames2 in (List<string>) ViewData["Names2"])
//{
//    <li>@strNames2</li>
//}
Both ViewData and ViewBag can pass values from Controller to View.
Both ViewData and ViewBag allow an object to have properties dynamically added to it.
Because of dynamic feature,
both ViewData and ViewBag does not provide compile time error checking.
Thus, it is very easy to get Null Reference Error
if misspells the property name or key name.
*/
```

8.2. Views/Home/Index.cshtml

```
@model dynamic
@{
    ViewBag.Title = "title";
}
<h2>Name List</h2>
<ul>
    @*
        1.
        @foreach (string strNames1 in ViewBag.Names)
        {
            <li>@strNames1</li>
        }
    *@

    @*
        2.
        @foreach (string strNames2 in (List<string>)ViewData["Names"])
        {
            <li>@strNames2</li>
        }
    *@
    @*
        3.
        @foreach (string strNames1 in ViewBag.Names)
        {
            <li>@strNames1</li>
        }
        <br />
```

```
        <br />
        @foreach (string strNames2 in (List<string>)ViewData["Names"])
        {
            <li>@strNames2</li>
        }
    *@

    4.
    @foreach (string strNames1 in ViewBag.Names)
    {
        <li>@strNames1</li>
    }
    <br/>
    <br/>
    @foreach (string strNames2 in (List<string>) ViewData["Names2"])
    {
        <li>@strNames2</li>
    }
</ul>
```



Name List

4.

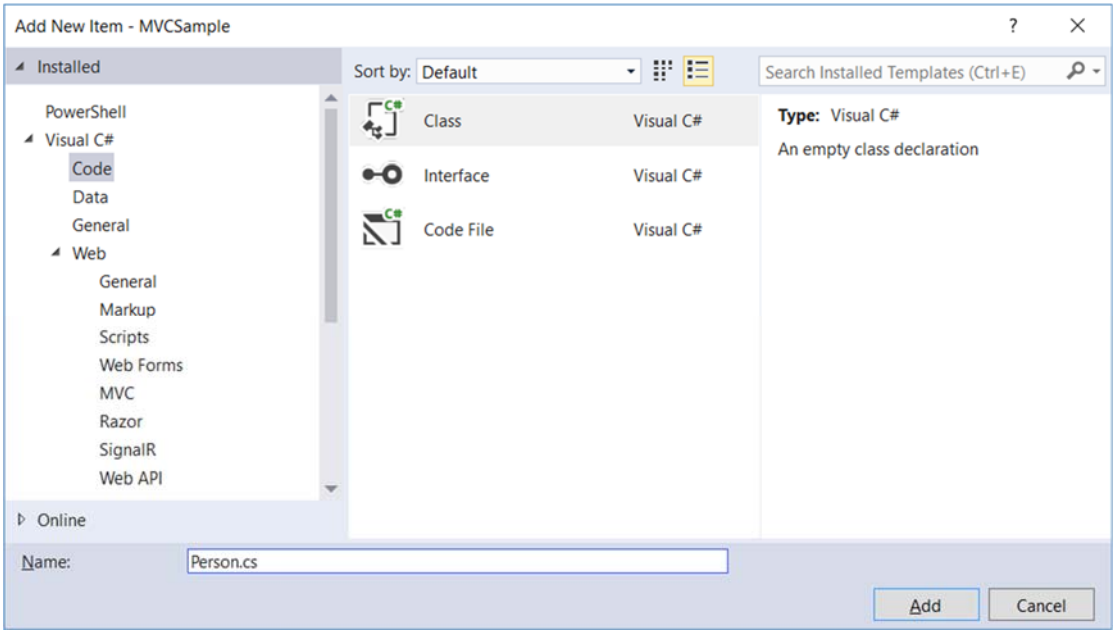
- ViewBag.Names01
- ViewBag.Names02
- ViewBag.Names03

- ViewData["Names"]01
- ViewData["Names"]02
- ViewData["Names"]03

9. Model

9.1. Model : Model/Gamer.cs

Model folder --> Right Click --> Add --> New Item -->
Visual C# --> Code --> Class
Name : Gamer.cs




```
namespace OnlineGame.Web.Models
{
    public class Gamer
    {
        public int Id { get; set; }
        public string Name { get; set; }
        public string Gender { get; set; }
        public string City { get; set; }
    }
}
```

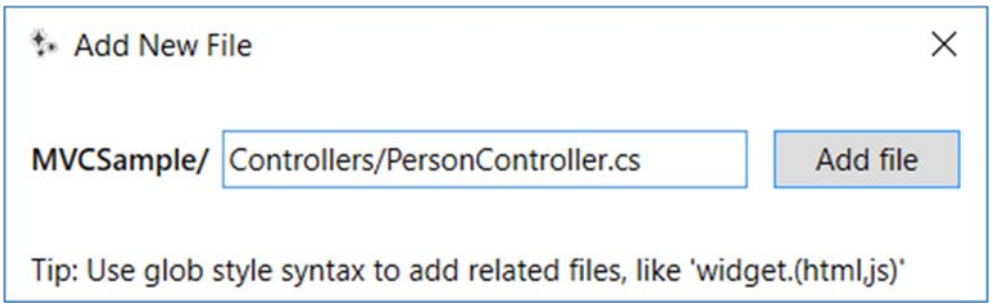
9.2. Controller : Controllers/GamerController.cs

Add New File
Mads Kristensen
3.5.129
Visual Studio 2013, 2015, 2017
The fastest and easiest way to add new files to any project - including files that start with a dot
https://marketplace.visualstudio.com/items?itemName=MadsKristensen.AddNewFile

Because **Add New File** **(extension and update)**

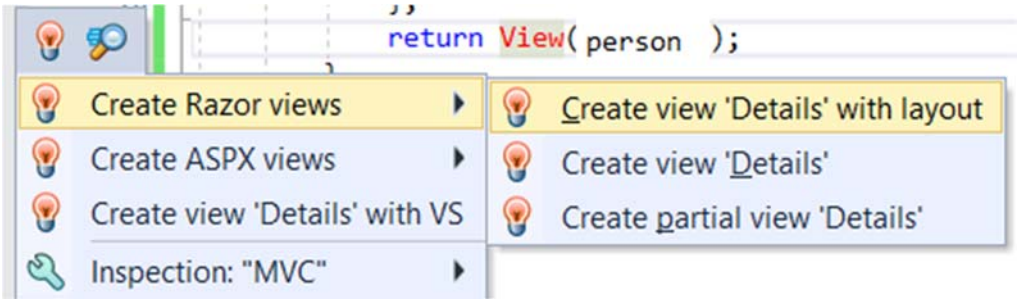
press **Shift+F2**

Controllers/GamerController.cs



```
using System.Web.Mvc;
using OnlineGame.Web.Models;
namespace OnlineGame.Web.Controllers
{
    public class GamerController : Controller
    {
        public ActionResult Details()
        {
            var gamer = new Gamer()
            {
                Id = 1,
                Name = "Name1",
                Gender = "Male",
                City = "City1"
            };
            return View(gamer);
        }
    }
}
```

Mouse point to View --> Alt + Enter --> Create Razor Views --> Create View 'Details' with layout

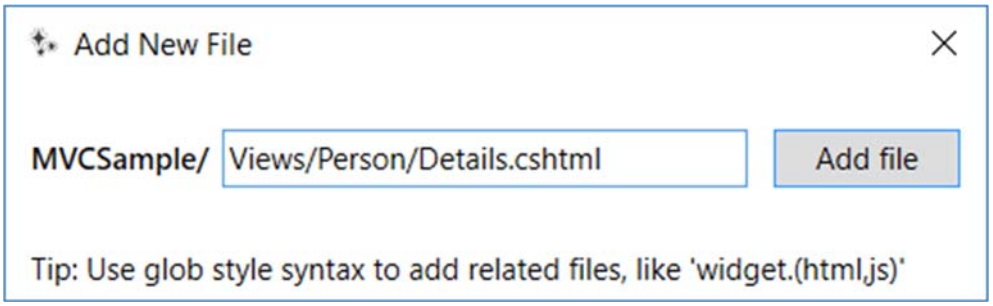


Otherwise

Because **Add New File** **(extension and update)**

press **Shift+F2**

Views/Gamer/Details.cshtml



9.3. View: Views/Gamer/Details.cshtml

```
@model OnlineGame.Web.Models.Gamer
@{
```

```
    ViewBag.Title = "Gamer Details";
}
<h2>Gamer Details</h2>
<table>
    <tr>
        <td>
            Gamer ID:
        </td>
        <td>
            @Model.Id
        </td>
    </tr>
    <tr>
        <td>
            Name:
        </td>
        <td>
            @Model.Name
        </td>
    </tr>
    <tr>
        <td>
            Gender:
        </td>
        <td>
            @Model.Gender
        </td>
    </tr>
    <tr>
        <td>
            City:
        </td>
        <td>
            @Model.City
        </td>
    </tr>
</table>
```

http://localhost/OnlineGame.Web/Gamer/Details

Gamer Details

Gamer ID: 1
Name: Name1
Gender: Male
City: City1