How to debug IIS hosted asp.net web application in visual studio ?

Overview

If you are a developer you have probably heard about debugger. The debugger in .net is the inbuilt program of visual studio which helps in detecting and correcting the presence of the errors in the code. In the local system, built-in IIS acts as a default debug server for asp.net and .net core project. But what to do if we are hosting a web application in IIS? We can easily debug any web application that is hosted on IIS by attaching the **worker process**(w3wp.exe) of the intended web application to Visual Studio.

What is IIS?

IIS stands for **Internet Information Services**, formerly known as Internet Information Server is a Windows Service which allows you to **host(or store), manage, and test websites or web application** on Windows Systems. You can host any sites like PHP websites, static websites, asp.net websites, java websites in IIS. So, IIS does all the processing and managing your websites. You can host multiple applications in IIS.

In Linux, you have heard about Apache Server, the same function that Apache Server does in Linux is done by IIS in windows System.

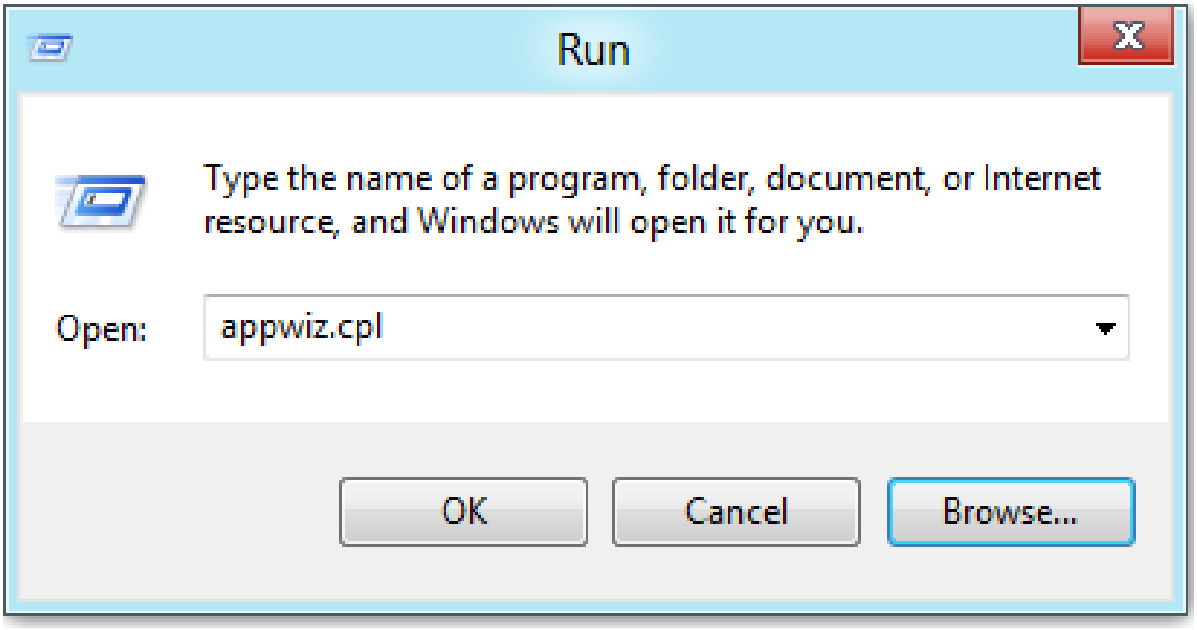
What is the w3wp.exe worker process?

All asp.net application runs under the worker process. When a client sent a request to the server, the worker process will be responsible for generating the request and response. So, we can claim that the worker process is one of the main functional parts of ASP.Net Web application running on IIS.

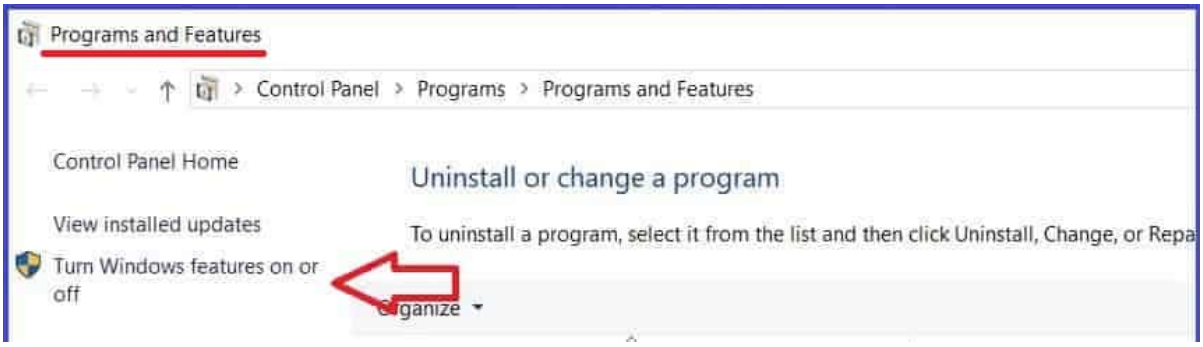
For debugging web application hosted on IIS, you much enable IIS at first.

Enabling IIS Step By Step (You can skip this if you have done already)

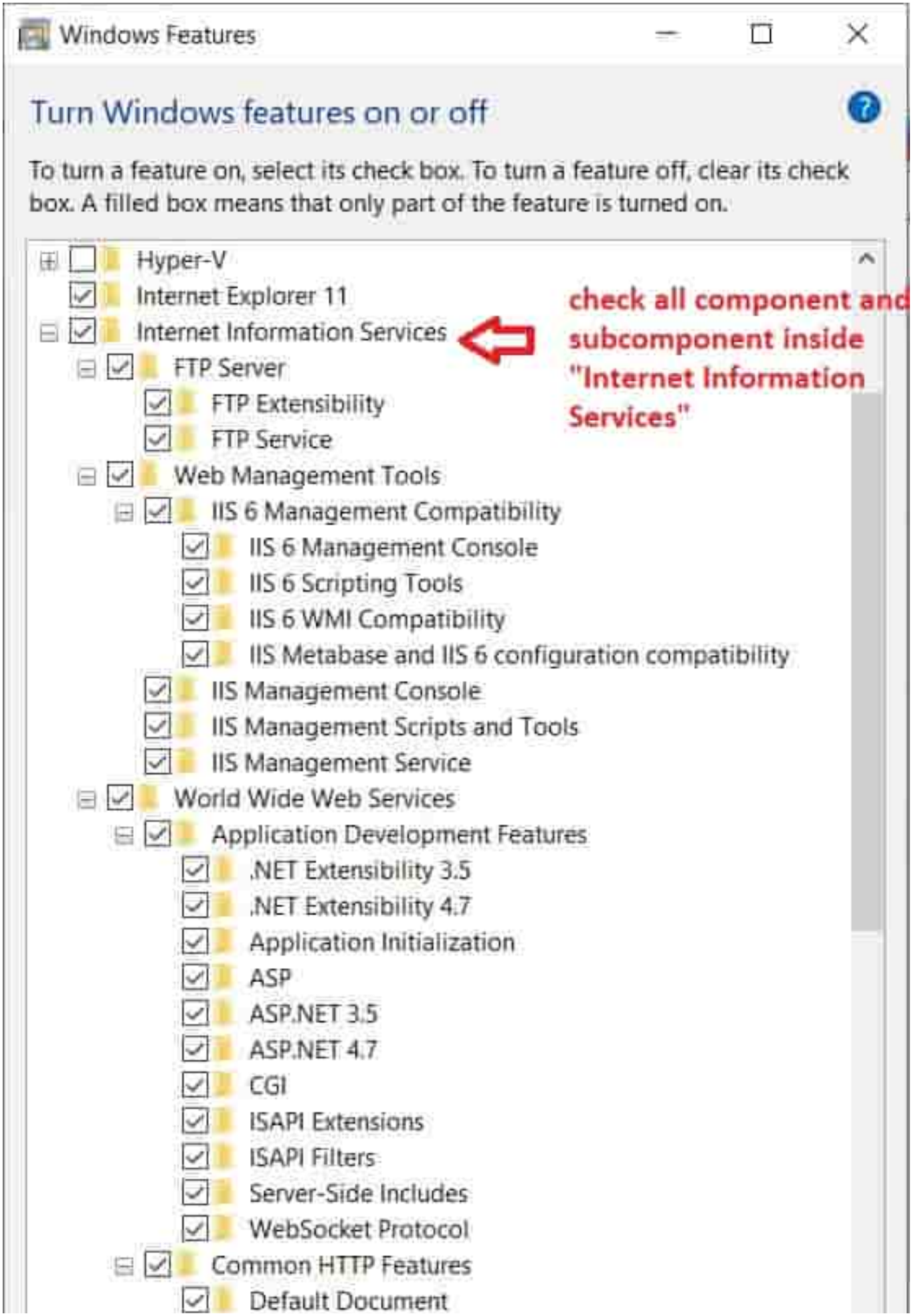
1. Press **Win + R** keyboard keys combination to open Run Window, then type **appwiz.cpl** and press Enter.

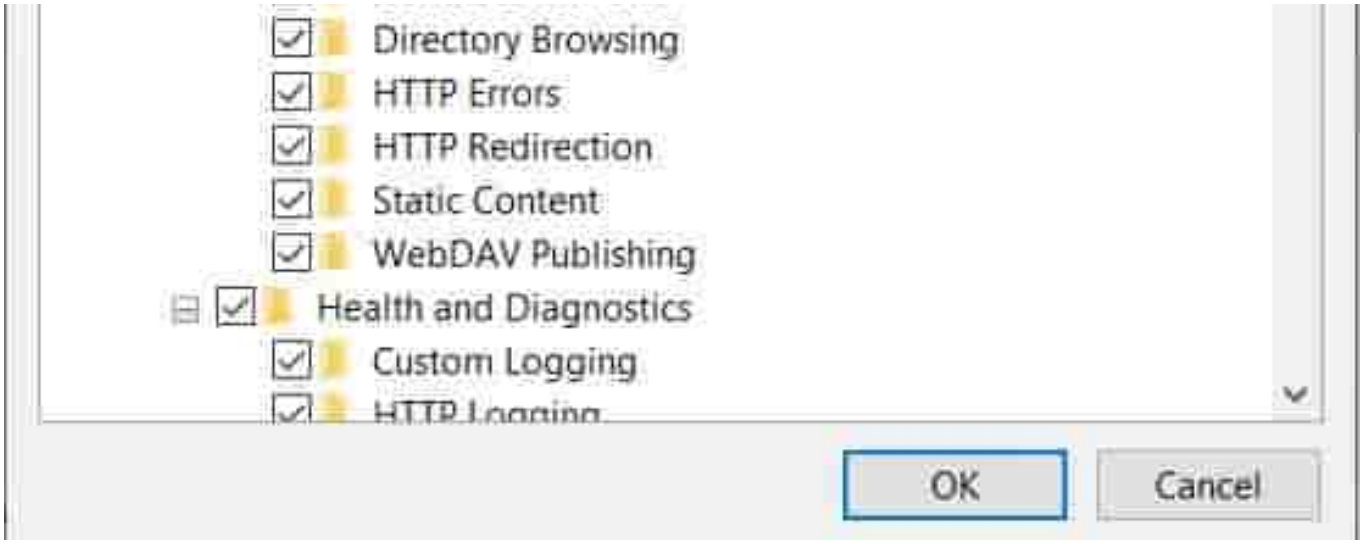


2. Program and Features windows will open, on the left pane you will find "**Turn Windows features on or off**" link. Click on it.



3. Then Windows Features windows will open, there for simplicity, check all the subcomponent inside **Internet Information Services**.and press Ok button. Then you may have to wait sometimes for applying Windows Features Changes.


Windows Features
Turn Windows features on or off
To turn a feature on, select its check box. To turn a feature off, clear its check box. A filled box means that only part of the feature is turned on.
Hyper-V
Internet Explorer 11
Internet Information Services
FTP Server
FTP Extensibility
FTP Service
Web Management Tools
IIS 6 Management Compatibility
IIS 6 Management Console
IIS 6 Scripting Tools
IIS 6 WMI Compatibility
IIS Metabase and IIS 6 configuration compatibility
IIS Management Console
IIS Management Scripts and Tools
IIS Management Service
World Wide Web Services
Application Development Features
.NET Extensibility 3.5
.NET Extensibility 4.7
Application Initialization
ASP
ASP.NET 3.5
ASP.NET 4.7
CGI
ISAPI Extensions
ISAPI Filters
Server-Side Includes
WebSocket Protocol
Common HTTP Features
Default Document
check all component and subcomponent inside "Internet Information Services"



4.) Next, go to browser and type: **http://localhost** and you must get this type of screen. This is the default page for IIS, indicating that IIS is successfully activated.

Used In This Tutorial:

- Visual Studio 2019
- IIS
- Visual Installer

Here, we will learn to debug the IIS hosted web application in both Asp.Net and Asp.Net Core projects.

Debug IIS Hosted Web Application in Asp.Net Core Project

1) Open/Create Sample Asp.net Core Project.

Here, I am creating one sample asp.net core project and named it as "DebugIISHostedWebApplication" as shown below.

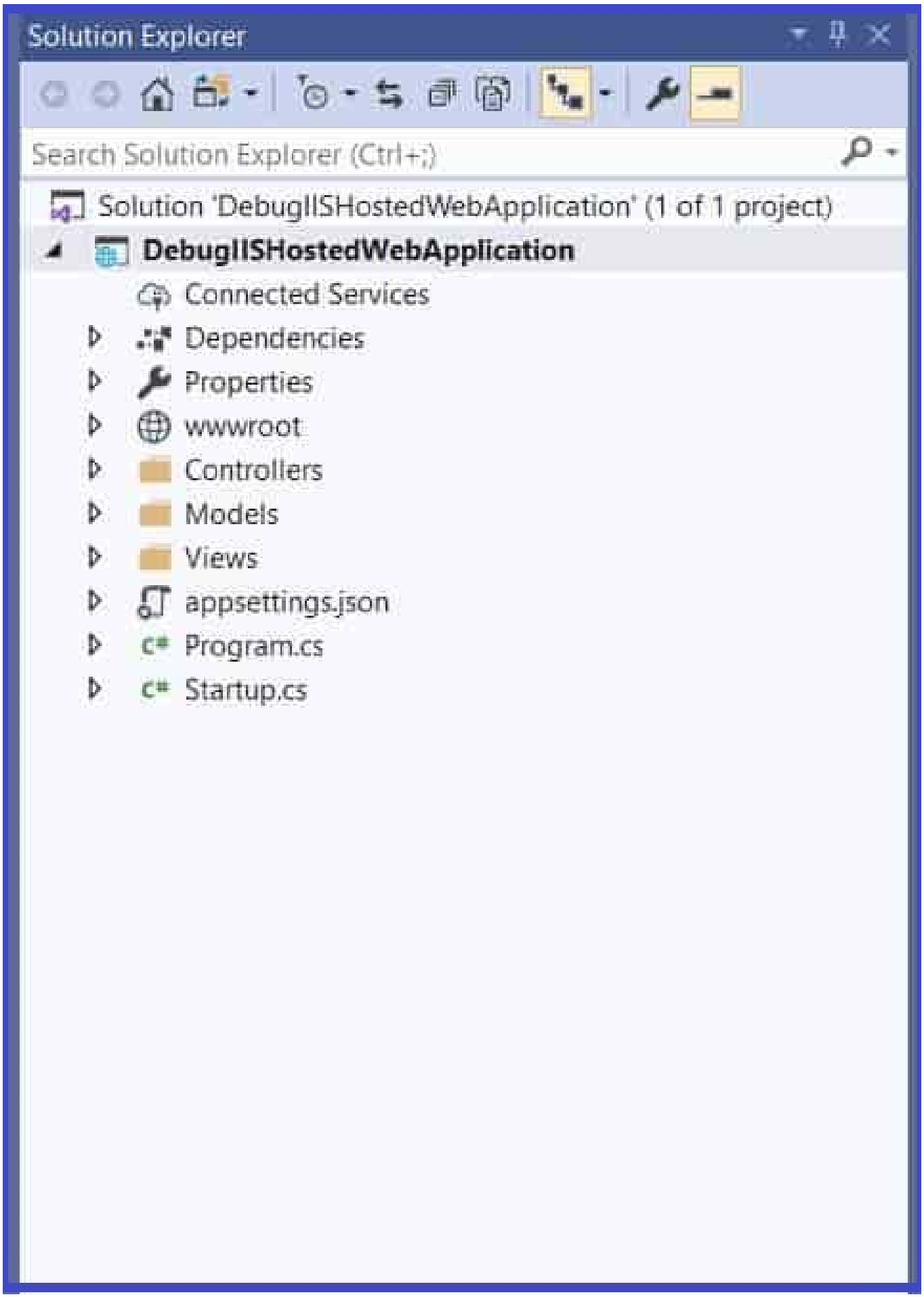

Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'DebugIISHostedWebApplication' (1 of 1 project)
DebugIISHostedWebApplication
Connected Services
Dependencies
Properties
wwwroot
Controllers
Models
Views
appsettings.json
Program.cs
Startup.cs

Fig: Sample asp.net core project

2) Add web application in IIS

If you have successfully enabled IIS service then you can move forward, otherwise, go here.

2 a) Open IIS

Click on the start button and type "**IIS**" in the search box and you will see **Internet Information Services(IIS) Manager** at at the top of the list. Then click on it.

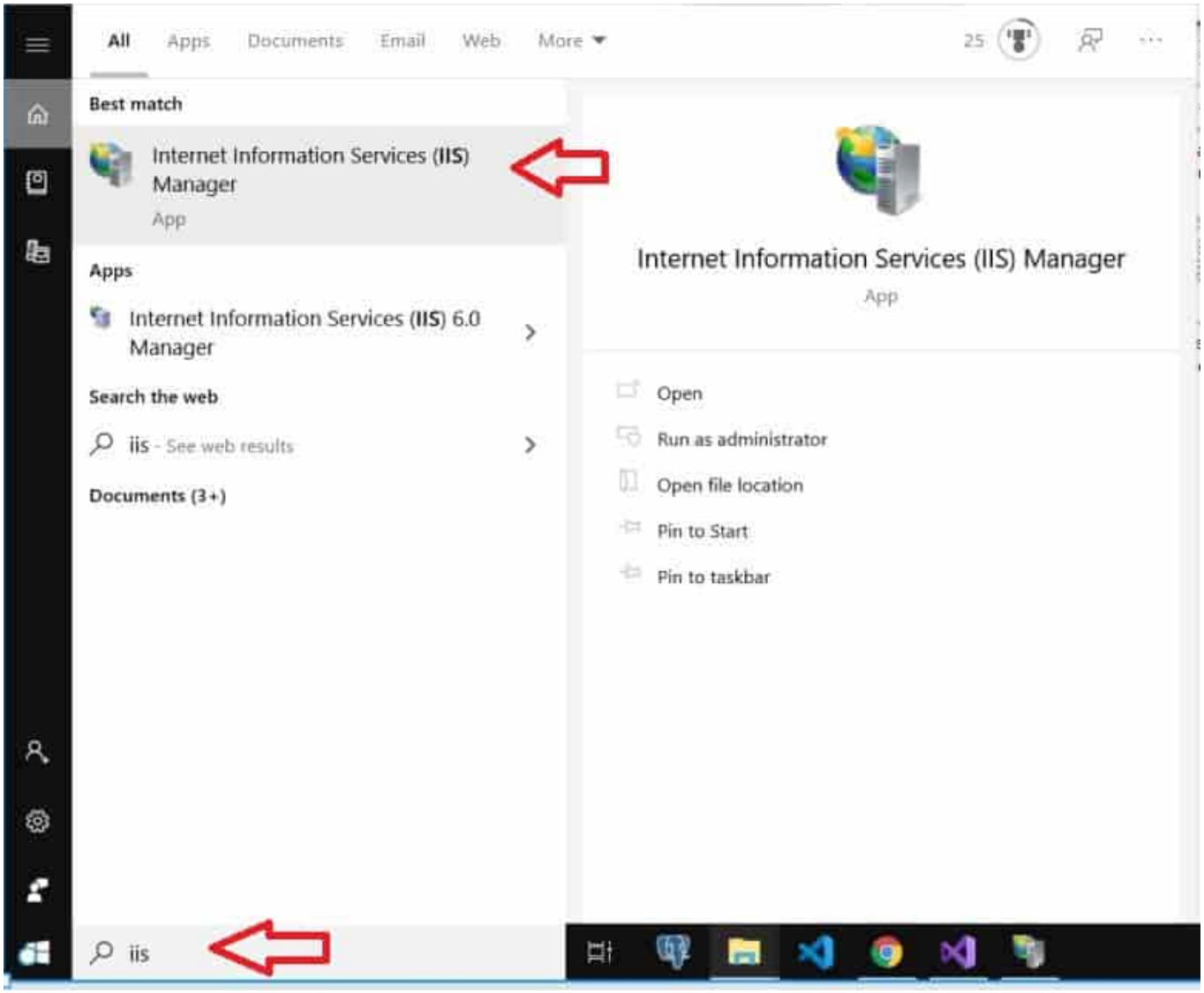


fig. Open IIS

2 b) Add Sites

Now, You will get Internet Information Services Windows. On the left side, you will find the "**Sites**" bar.Right-click on it and select "**Add Website**" as shown in the figure.

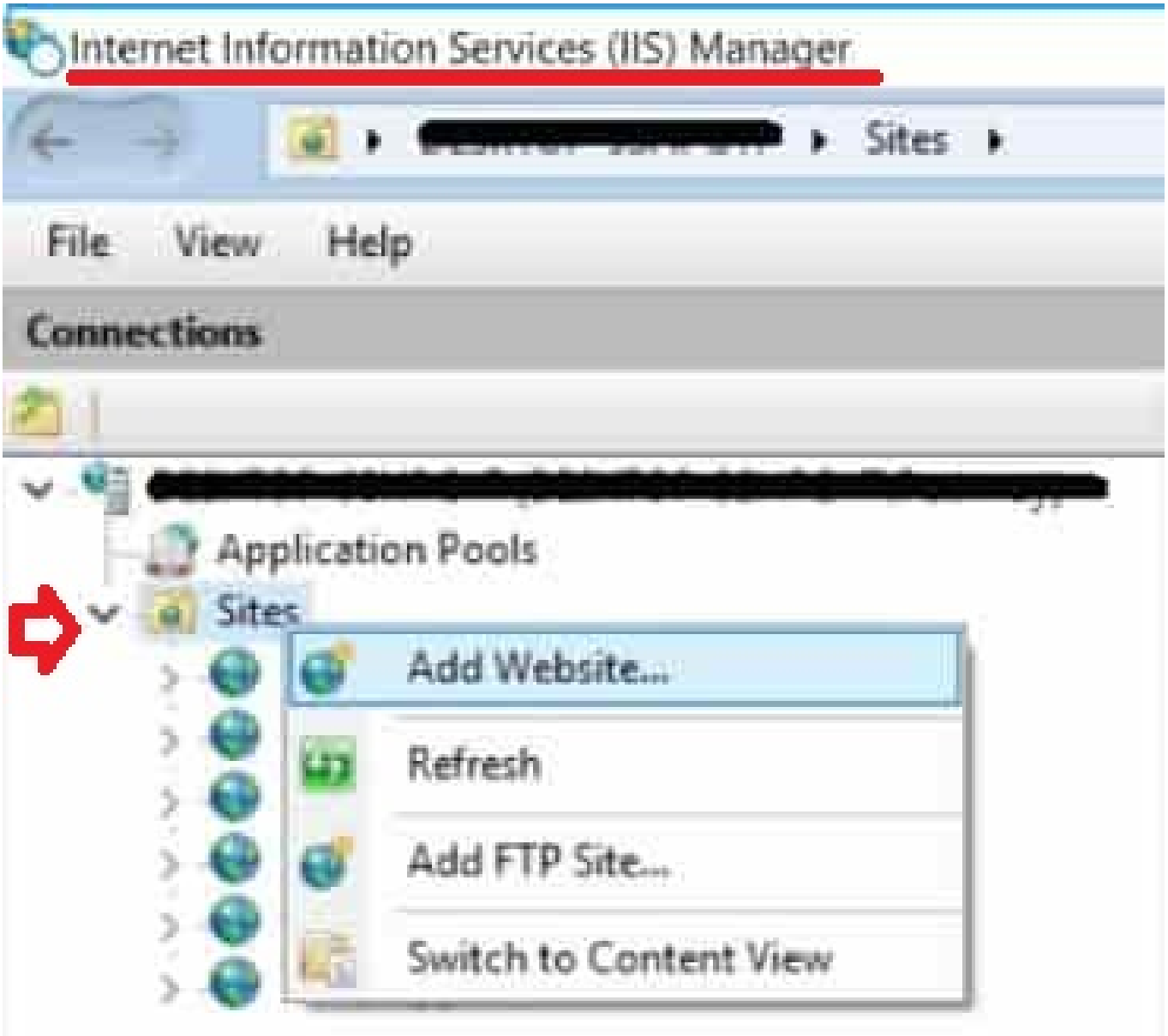
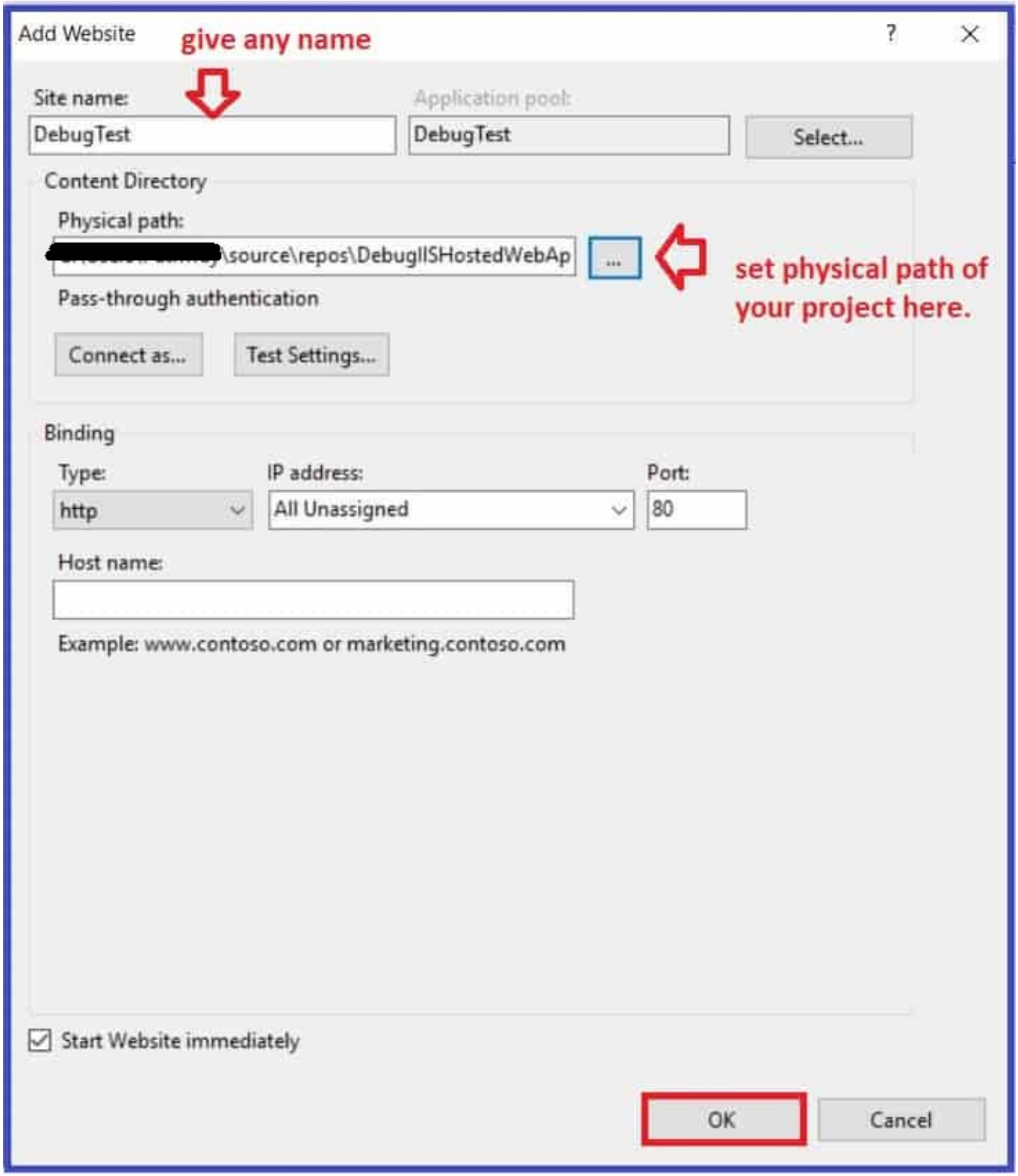

Internet Information Services (IIS) Manager
Sites
File
View
Help
Connections
Application Pools
Sites
Add Website...
Refresh
Add FTP Site...
Switch to Content View

fig: Add Website

2 c) Give the name and set path of your project

Then Add Website window appears. Here, you need to give all the details for your web application.

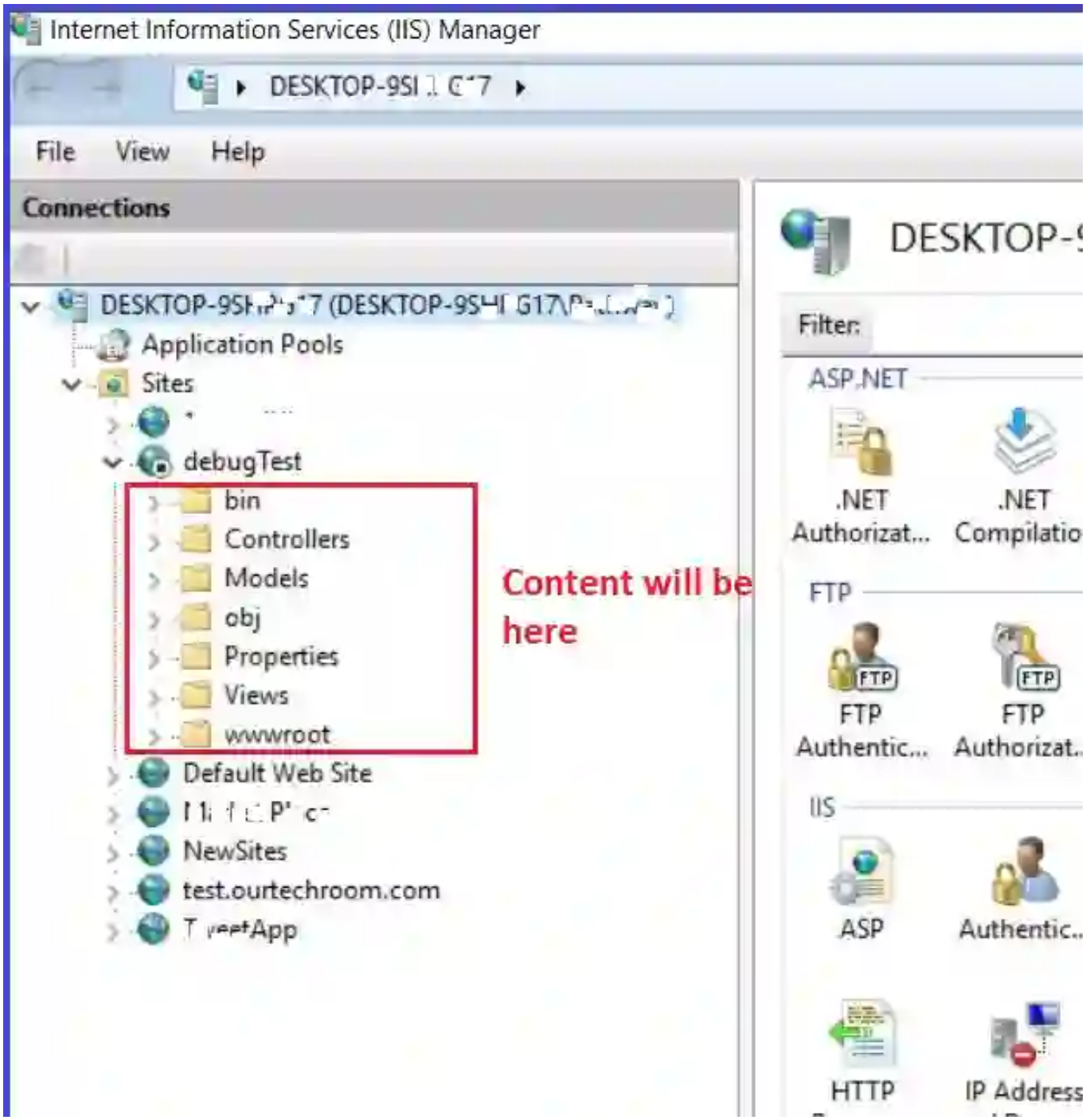
1. Enter the **site name**: You can give any name. Here, I have given debugTest. Remember that this is the name of the website in IIS.
2. Set **Physical Path**: Physical Path of the file where the site is located in the System.
3. Click on the **Ok** button.



2 c) Verify Your Site or Application in IIS

After successfully completing the above steps, just go to your IIS, look at sites section at the left pane, and then check there a website/application that you have

added currently is present or not?

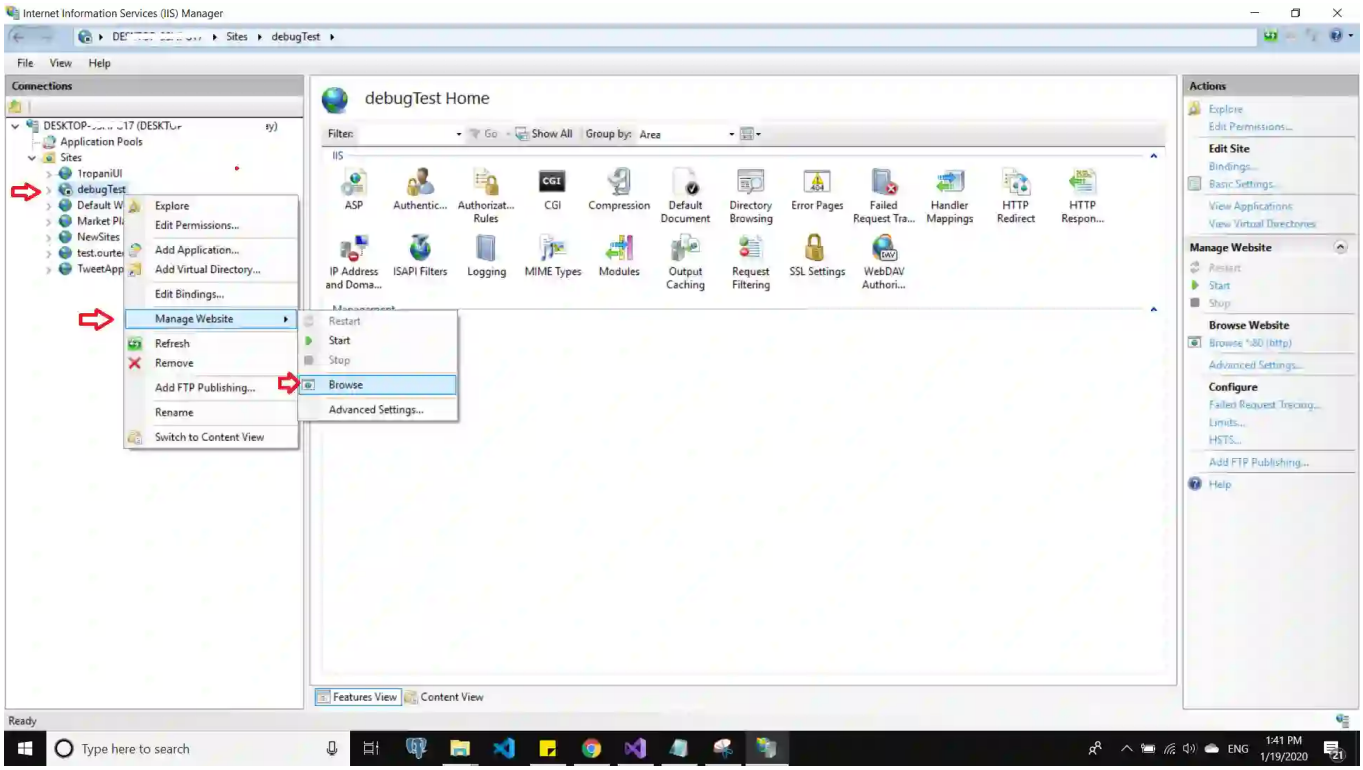


You can see that the name "**debug test**" is located there. Next just expand that sites and see whether there is **content** like shown above is present or not. If you don't have the content then you are doing something wrong. If so check it out.

2 d) Browse your site or application from IIS

Right-click on your project. Then click on "Manage Website". Then next click on "Browse".

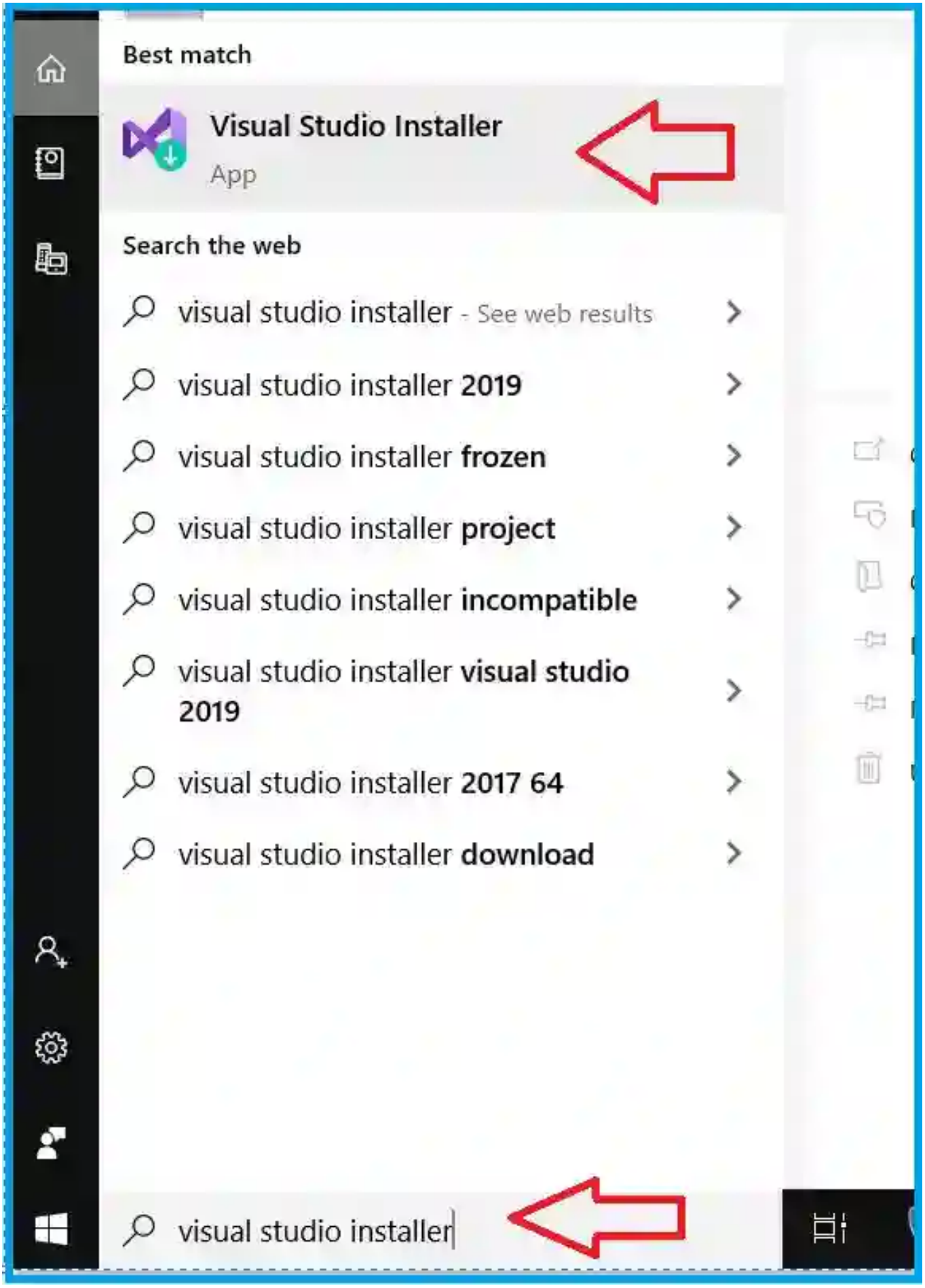
Now your sites should be opened in a web browser.



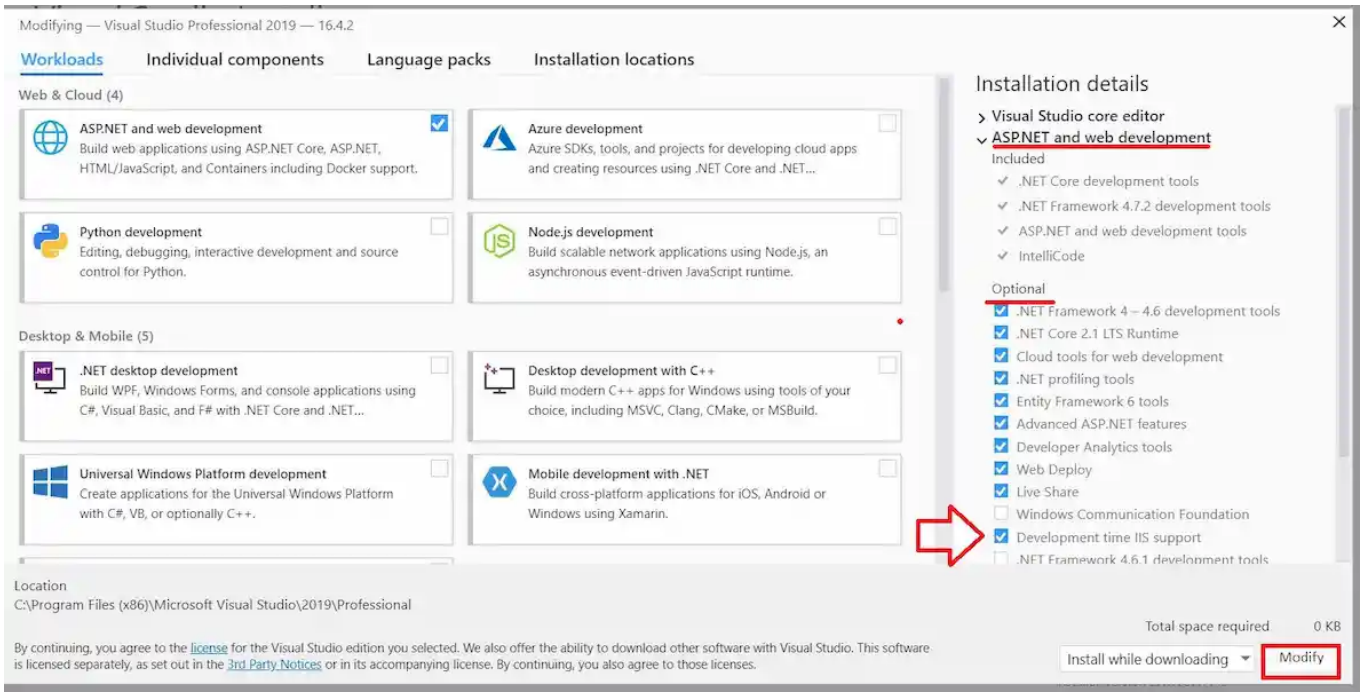
3) Enable Development-Time IIS support

For enabling Development-Time IIS Support we must need Visual Studio Installer.

3 a) Goto's bottom-left corner and type "visual studio installer" as shown below. Then click on "Visual Studio installer.".This will launch Visual Studio Installer.


Best match
Visual Studio Installer
App
Search the web
visual studio installer - See web results
visual studio installer 2019
visual studio installer frozen
visual studio installer project
visual studio installer incompatible
visual studio installer visual studio 2019
visual studio installer 2017 64
visual studio installer download
visual studio installer

3 b) Visual Studio Installer gets open as shown before.



Select the **Development time IIS support** component and this is present in the Optional section under the **ASP.NET and web development** workload. The component installs the ASP.NET Core Module, which is needed in order to run .net core apps on IIS.

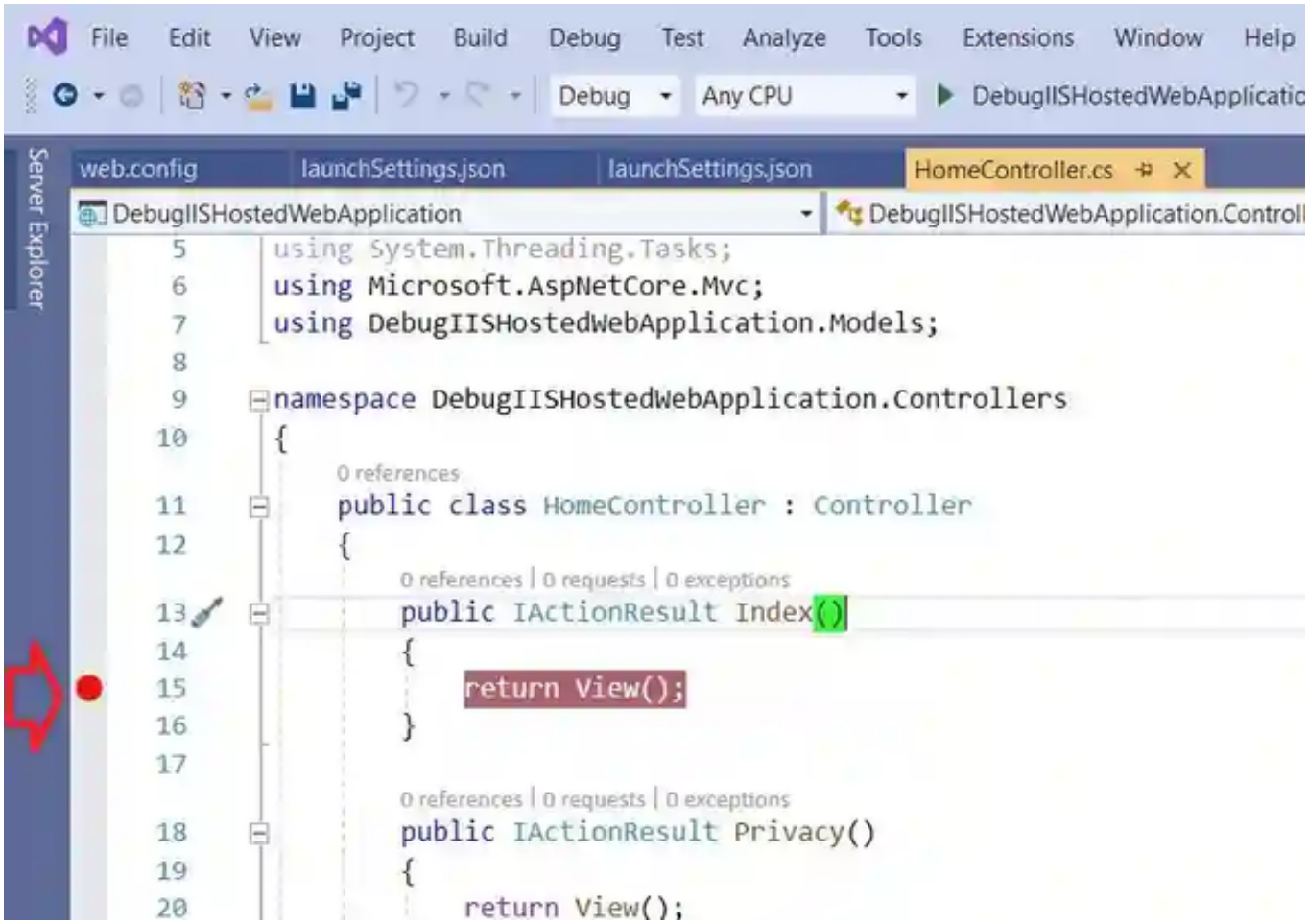
Now, we can finally debug the application in Visual Studio.

4)Attach w3process in Visual Studio

4a) Open your Project in Visual Studio and attach debug point

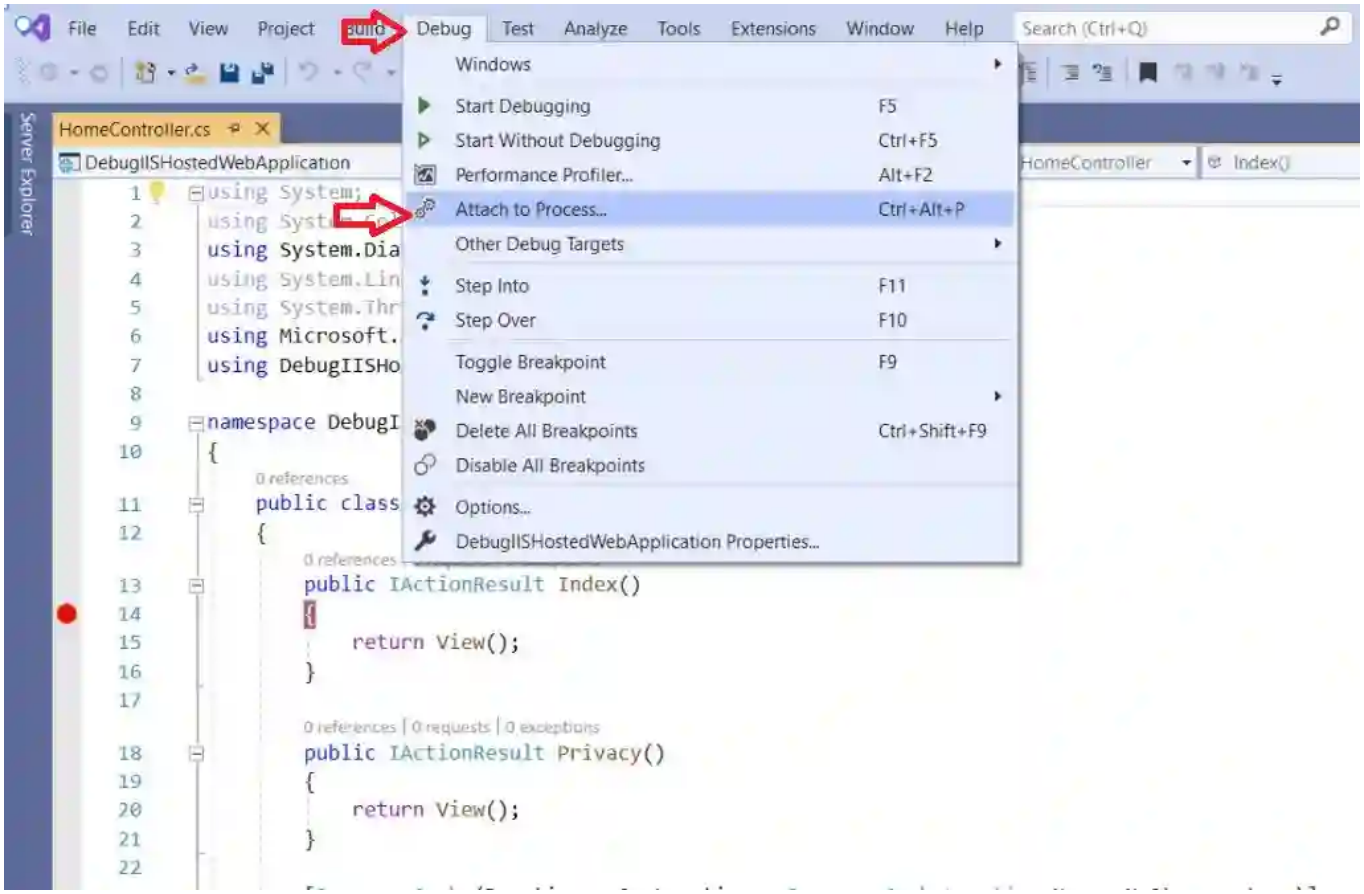
Open visual studio and attach debug points somewhere in the project as shown below.

Then build the project (shortcut: **Ctrl + Shift + B**).



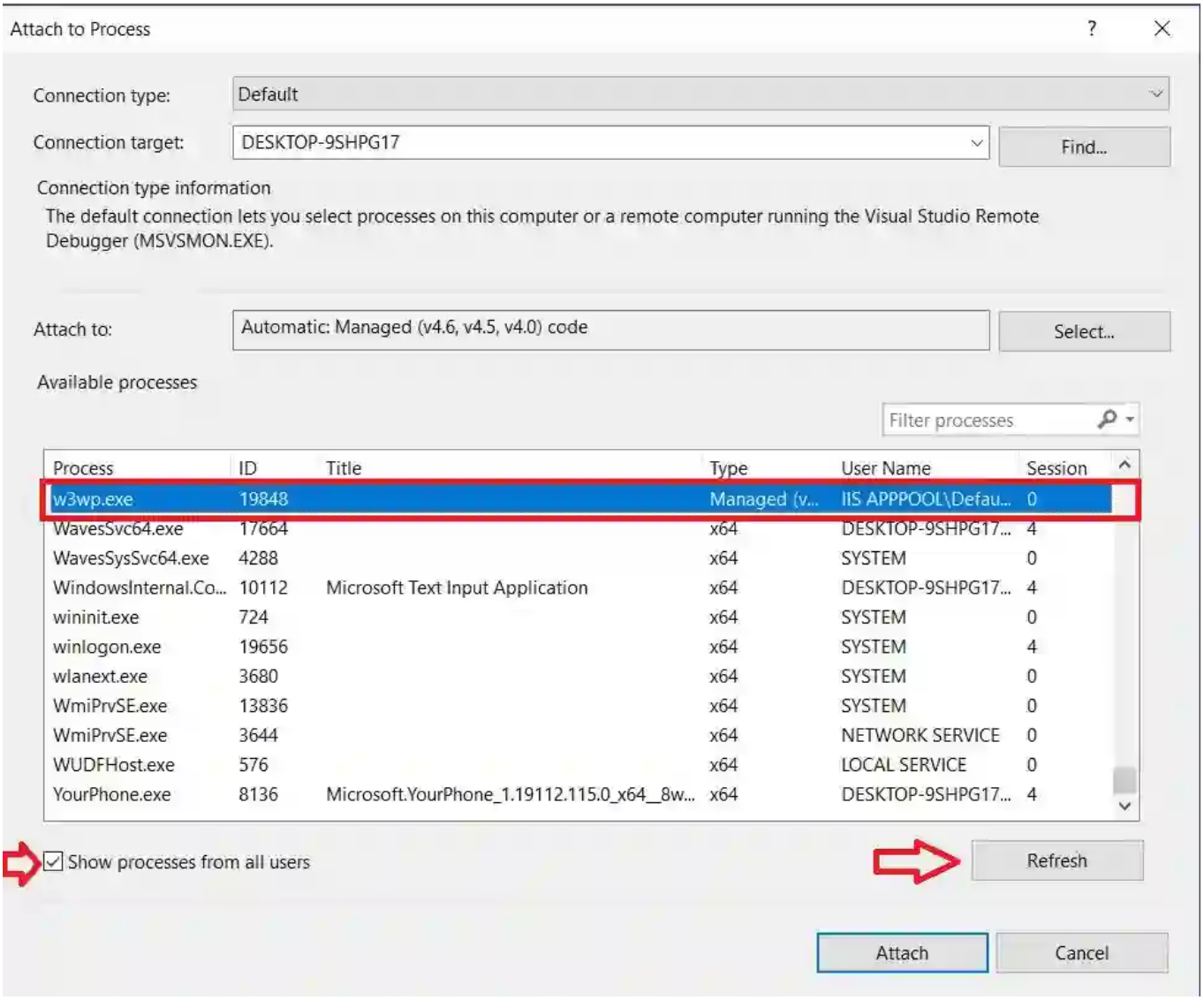
4b) Next, attach a process

In Visual Studio, go to ***Debug*** → ***Attach*** *to Processor simply press* ***Ctrl + Alt + P*** *Key combination*

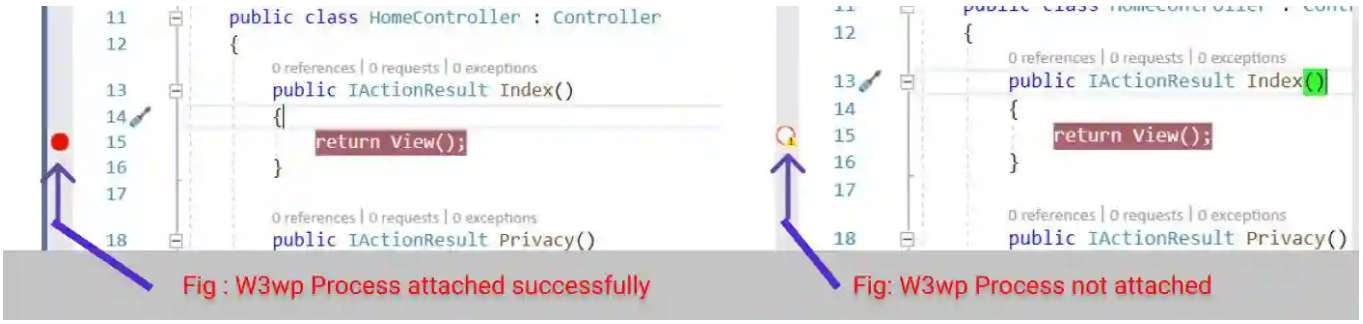


After clicking Attach to Process, this screen will come up.

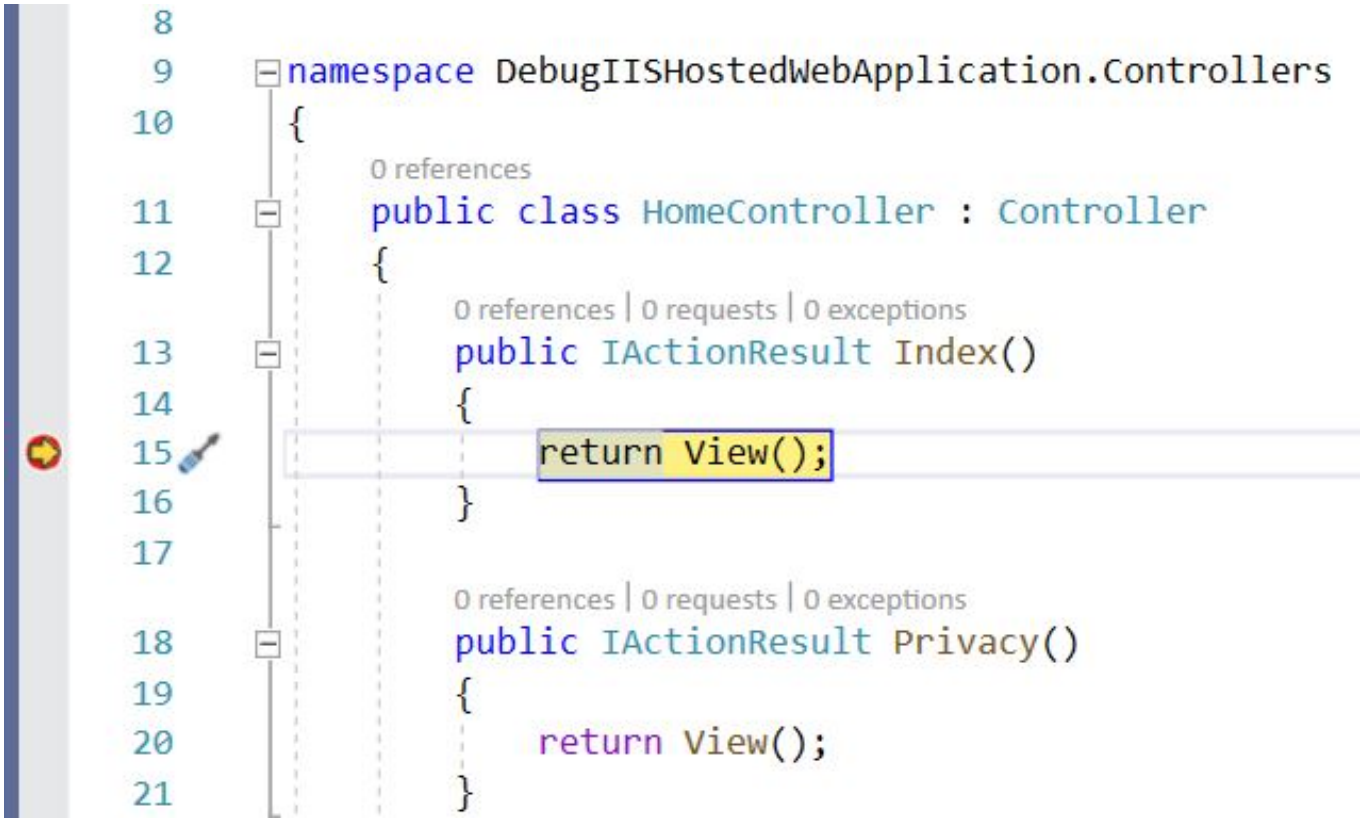
There check on "**Show process from all users**". Click on "**Refresh**" Button then go and find the **w3wp.exe process** and shown below. And next click on "**Attach**" Button



Then look at the debug point and you must have debugged point looks as shown on the left which indicates that the ***Process attached successfully.***



Now, hit your debug point from the browser. Then your debug point should look as shown below:



So we have successfully debugged IIS Hosted web application.