HTML Notes for students By Geekster

Geekster

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Web Development Notes

Internet

The Internet is a global network of billions of computers and other electronic devices. With the Internet, it's possible to access almost any information, communicate with anyone else in the world, and do much more.

You can do all of this by connecting a computer to the Internet, which is also called going online. When someone says a computer is online, it's just another way of saying it's connected to the Internet.

Web

The World Wide Web—usually called the Web for short—is a collection of different websites you can access through the Internet. A website is made up of related text, images, and other resources. Websites can resemble other forms of media—like newspaper articles or television programs—or they can be interactive in a way that's unique to computers.

The purpose of a website can be almost anything: a news platform, an advertisement, an online library, a forum for sharing images, or an educational site like us!

Once you are connected to the Internet, you can access and view websites using a type of application called a web browser. Just keep in mind that the web browser itself is not the Internet; it only displays websites that are stored on the Internet.

How does the Internet work?

At this point you may be wondering, how does the Internet work? The exact answer is pretty complicated and would take a while to explain. Instead, let's look at some of the most important things you should know.

It's important to realize that the Internet is a global network of physical cables, which can include copper telephone wires, TV cables, and fiber optic cables. Even wireless connections like Wi-Fi and 3G/4G rely on these physical cables to access the Internet.

When you visit a website, your computer sends a request over these wires to a server. A server is where websites are stored, and it works a lot like your computer's hard drive. Once the request arrives, the server retrieves the website and sends the correct data back to your computer. What's amazing is that this all happens in just a few seconds!

What happens when you enter Google.com on the web browser?

1. The browser extracts the domain name from the URL.

2. The browser queries DNS for the IP address of the URL. Generally, the browser will have cached domains previously visited, and the operating system will have cached queries from any number of applications. If neither the browser nor the OS have a cached copy of the IP address, then a request is sent off to the system's configured DNS server. The client machine knows the IP address for the DNS server, so no lookup is necessary.

3. The request sent to the DNS server is almost always smaller than the maximum packet size, and is thus sent off as a single packet. In addition to the content of the request, the packet includes the IP address it is destined for in its header. Except in the simplest of cases (network hubs), as the packet reaches each piece of network equipment between the client and server, that equipment uses a routing table to figure out what node it is connected to that is most likely to be part of the fastest route to the destination. The process of determining which path is the best choice differs between equipment and can be very complicated.
4. The is either lost (in which case the request fails or is reiterated), or makes it to its destination, the DNS server.
5. If that DNS server has the address for that domain, it will return it. Otherwise, it will forward the query along to the DNS server it is configured to defer to. This happens recursively until the request is fulfilled or it reaches an authoritative name server and can go no further.
6. Assuming the DNS request is successful, the client machine now has an IP address that uniquely identifies a machine on the Internet. The web browser then assembles an HTTP request, which consists of a header and optional content. The header includes things like the specific path being requested from the web server, the HTTP version, any relevant browser cookies, etc.
7. This HTTP request is sent off to the web server host as some number of packets, each of which is routed in the same was as the earlier DNS query. (The packets have sequence numbers that allow them to be reassembled in order even if they take different paths.) Once the request arrives at the webserver, it generates a response (this may be a static page, served as-is, or a more dynamic response, generated in any number of ways.) The web server software sends the generated page back to the client.

web page

A document which can be displayed in a web browser such as Firefox, Google Chrome, Opera, Microsoft Internet Explorer or Edge, or Apple's Safari. These are also often called just "pages."

website

A collection of web pages which are grouped together and usually connected together in various ways. Often called a "web site" or a "site."

web server

A computer that hosts a website on the Internet.

Process of Web Development

1. Programming languages is our way of communicating with software.
2. The things we tell software using a programming language could be to make a webpage look a certain way, or to make an object on the page move if the human user takes a certain action.
3. HTML, CSS and JAVASCRIPT are used for web development.
4. HTML and CSS are actually not technically programming languages; they’re just page structure and style information.
5. JavaScript is used to control the behavior of different elements. Add interactivity.

Front End Development

The part of a website that the user interacts with directly is termed the front end. It is also referred to as the ‘client side’ of the application. It includes everything that users experience directly: text colors and styles, images, graphs and tables, buttons, colors, and navigation menu. HTML, CSS, and JavaScript are the languages used for Front End development. The structure, design, behavior, and content of everything seen on browser screens when websites, web applications, or mobile apps are opened up, is implemented by front End developers. Responsiveness and performance are two main objectives of the Front End. The developer must ensure that the site is responsive i.e. it appears correctly on devices of all sizes no part of the website should behave abnormally irrespective of the size of the screen.

Backend Development

Backend is the server-side of the website. It stores and arranges data, and also makes sure everything on the client-side of the website works fine. It is the part of the website that you cannot see and interact with. It is the portion of software that does not come in direct contact with the users. The parts and characteristics developed by backend designers are indirectly accessed by users through a front-end application. Activities, like writing APIs, creating libraries, and working with system components without user interfaces or even systems of scientific programming, are also included in the backend.

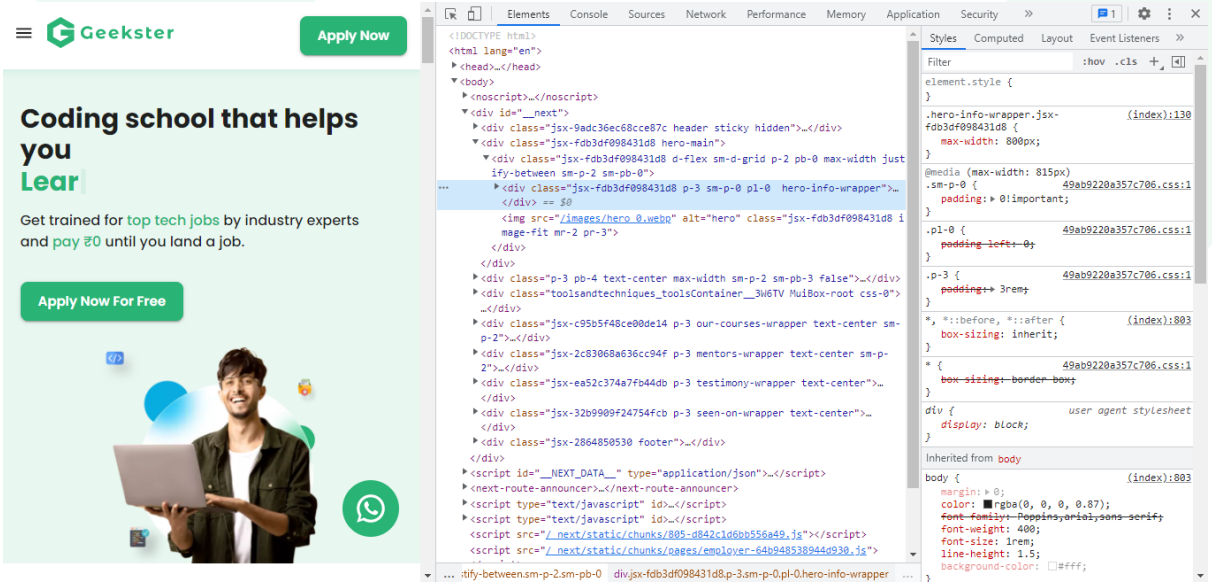
Understanding the browser/Inspect tool

Inspect element is a feature of modern web browsers that enables anyone to view and edit a website's source code, including its HTML, CSS, JavaScript, and media files. When the source code is modified with the inspect tool, the changes are shown live inside the browser window.

Inspect is a web professional's secret weapon. Developers, designers, and marketers frequently use it to peek inside any website (including their own) in order to preview content and style changes, fix bugs, or to learn how a particular website is built.

How To Inspect Elements in Chrome

- Right-click any part of the page and choose Inspect. Right-clicking a specific page element will open that element in the inspector view.



- In the top menu bar, select View > Developer > Developer Tools.

- Open Customize and control Google Chrome by clicking the three-dot icon in the top right corner of the browser window. From there, choose More Tools > Developer Tools.
- Use the shortcut control-shift-C on Windows or command-option-C on macOS.

HTML

➔ HTML stands for HyperText markup Language.
➔ HTML is used to create web pages and web applications.
➔ HTML is a widely used language on the web.
➔ We can create a static website by HTML only.
➔ Technically, HTML is a MArkup language rather than a programming language.

WHY HTML?

HTML code ensures the proper formatting of text and images for your Internet browser. Without HTML, a browser would not know how to display text as elements or load images or other elements. HTML also provides a basic structure of the page, upon which Cascading Style Sheets are overlaid to change its appearance. One could think of HTML as the bones (structure) of a web page, and CSS as its skin (appearance).

What are Tags?

Tags are codes in an HTML document which the browser reads and then interprets for subsequent display to a reader. Tags are not visible when an HTML document is viewed in a browser, but their effects are. Tags begin with the opening symbol "<" and end with the closing symbol ">"; and usually come in pairs, one that begins an action and one that ends it.

Below is an example of an HTML tag and its respective browser display:

HTML Code	Browser Display
I want to <B> emphasize </B> this!	I want to **emphasize** this!

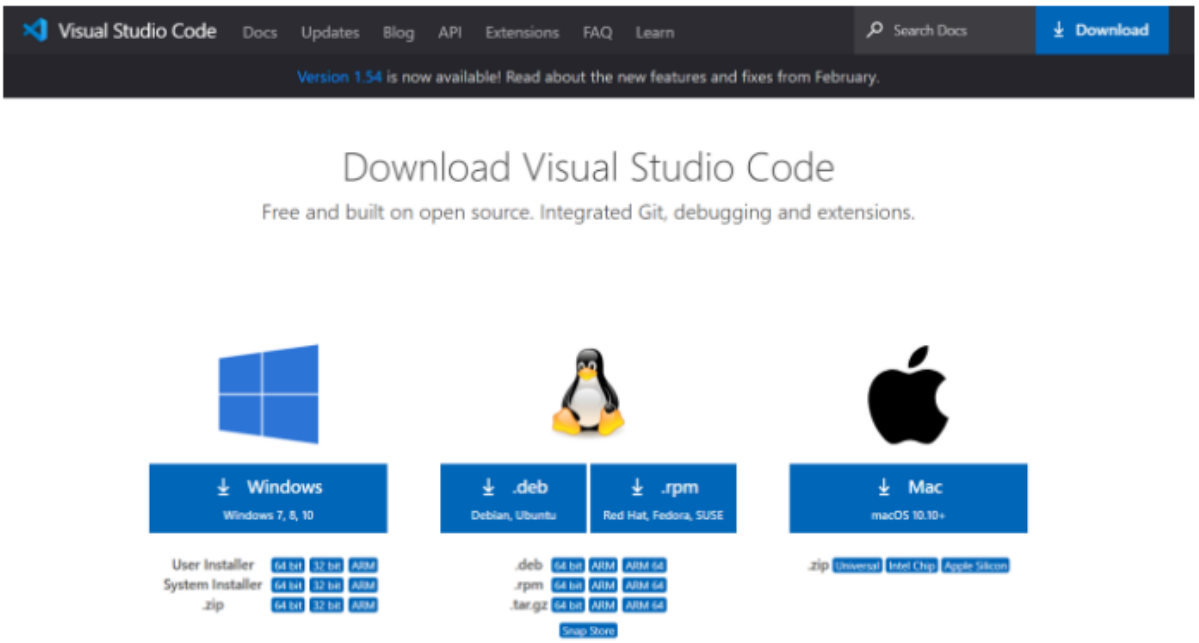
HTML Attributes

HTML attributes provide additional information about HTML elements.

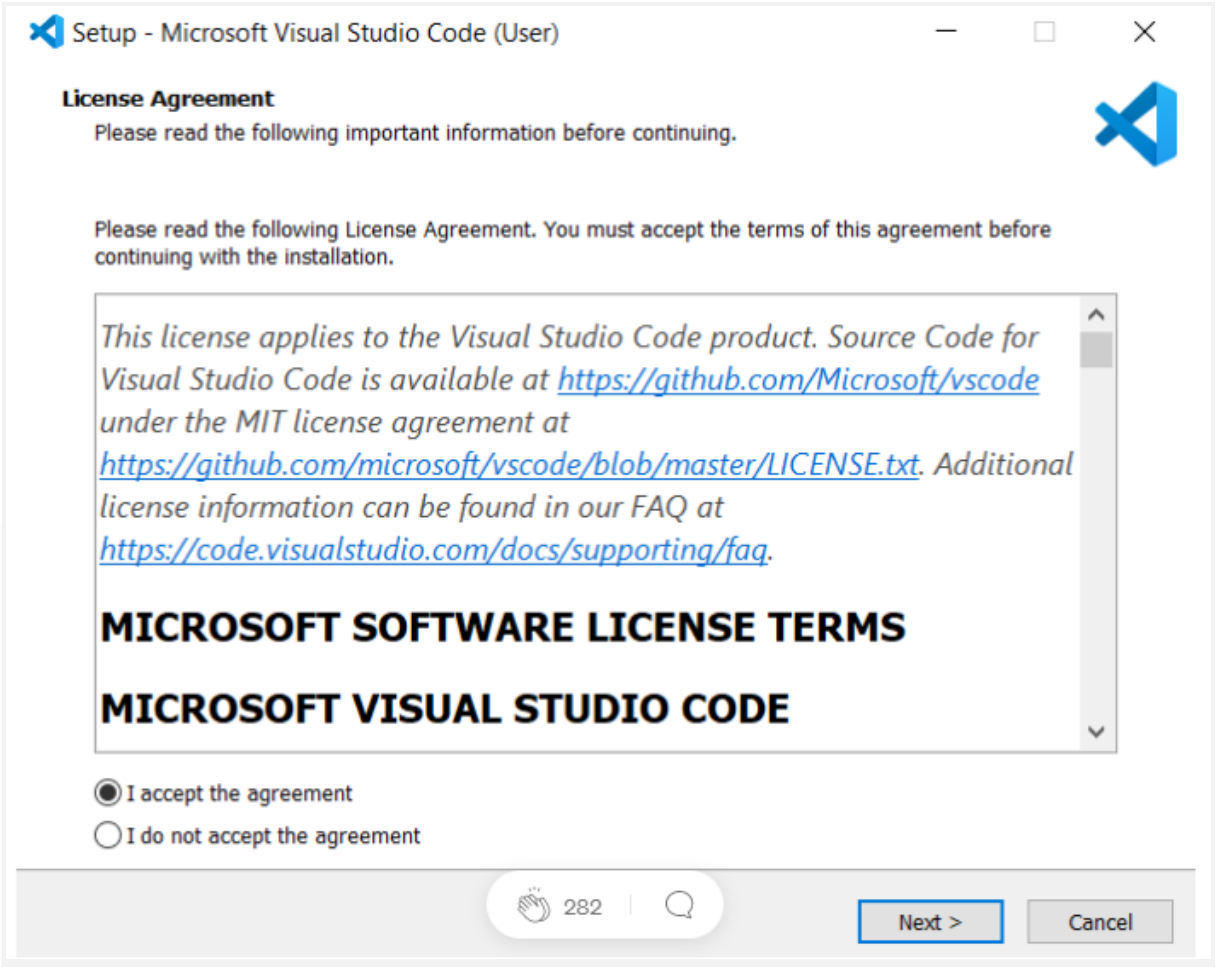
- All HTML elements can have attributes
- Attributes provide additional information about elements
- Attributes are always specified in the start tag
- Attributes usually come in name/value pairs like: name="value"

Installing VS Code

1. Download the executable file from the link below.
2. Click the option Download.

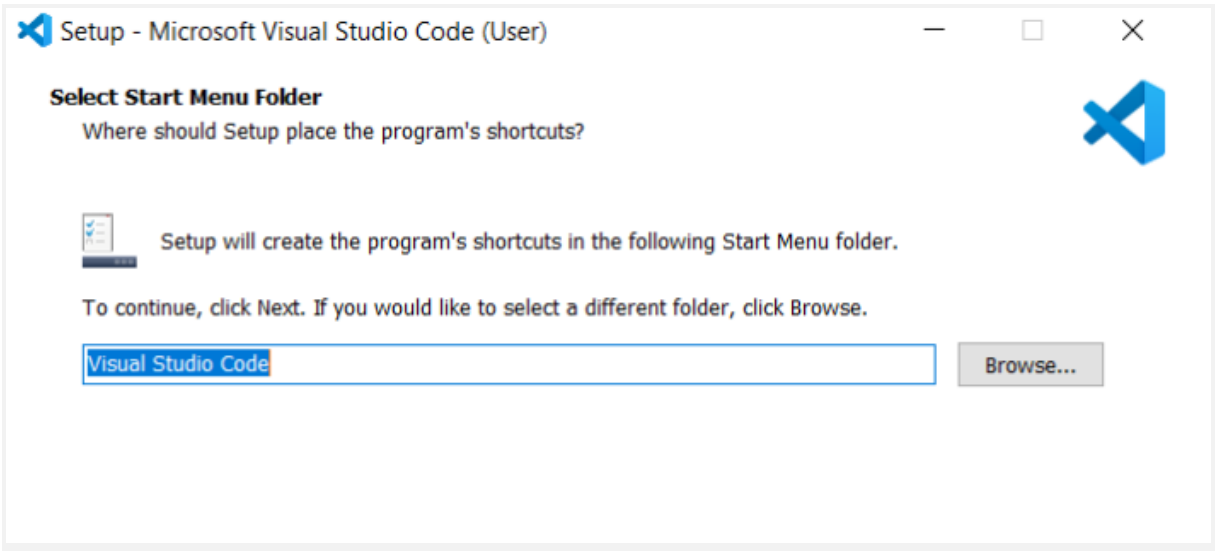


3. Double click the downloaded file.
4. Now a dialogue box appears.
5. Select I accept the agreement
6. Then select Next



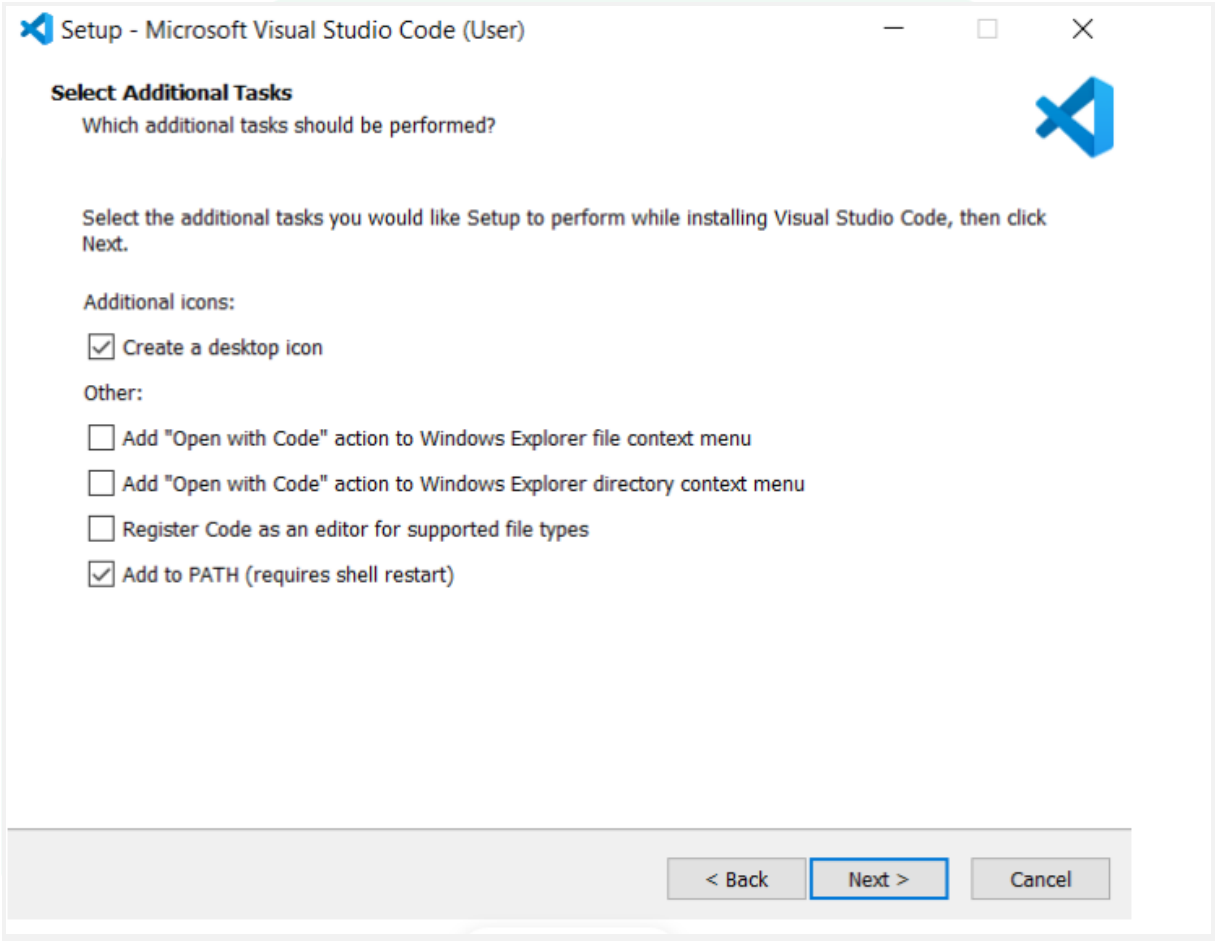
7. Select a folder by clicking Browse or just follow the default path.

8. Then select Next.

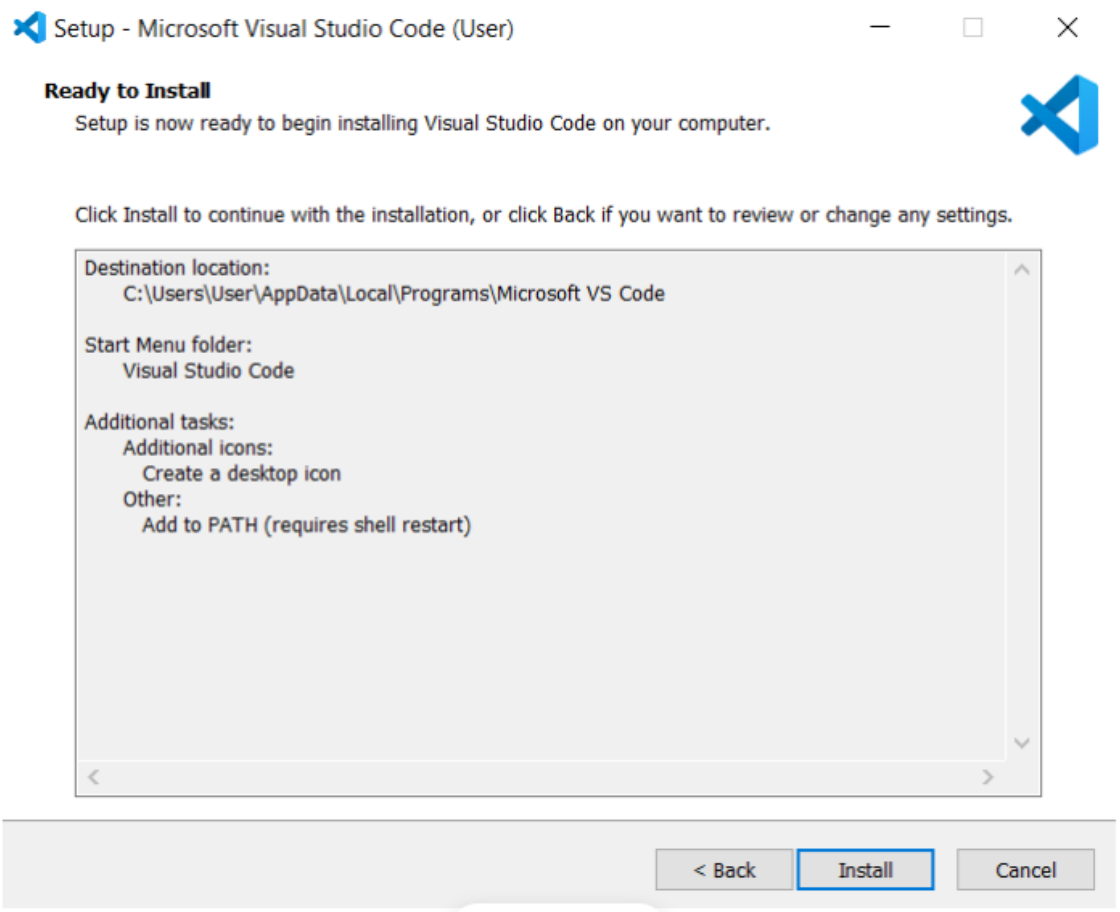


9. Select the required options as per your need by clicking in the checkbox.

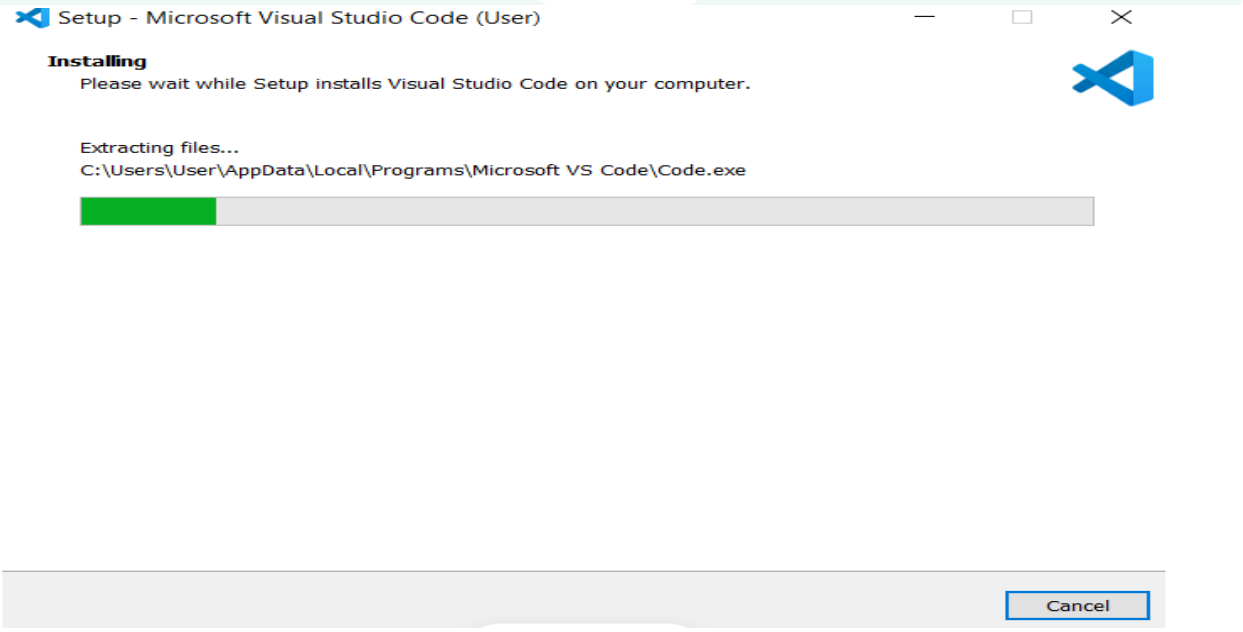
10. Then select Next.



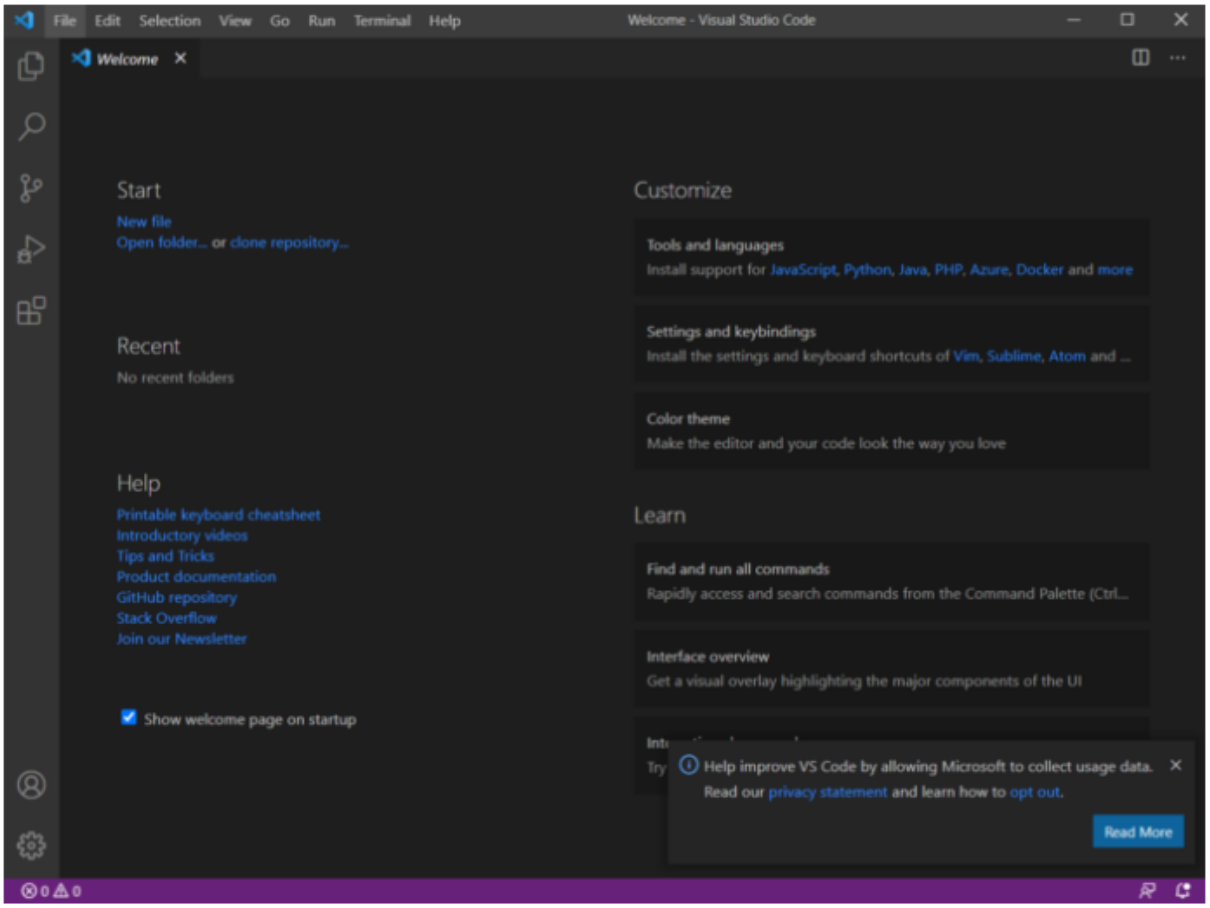
11. Select Install.



12. Wait a bit while it gets installed (The green color fills the bar).



Click Finish to exit Setup. Check in the check box to launch VS Code right now.



- Install live server extension by clicking Extensions tab and you are good to go! Happy Coding !

Explanation of Document Structure

Each HTML document has a minimum number of tags. Here is the very least HTML code that can be called a "page":

```
<HTML>

<HEAD>
<TITLE>This is my page Title!</TITLE>
</HEAD>

<BODY>

This is my message to the world!

</BODY>

</HTML>
```

NOTE: HTML is not case sensitive. <title> is equivalent to <TITLE> or <TiTlE>.

Explanation of Document Structure Tags

<HTML>...</HTML>	Encloses the entire HTML document.These tags let the browser know to start reading and displaying the information presented within.
<HEAD>...</HEAD>	The <HEAD> element contains all information about the document in general. It contains HTML elements that describe the document's usage and relationship with other documents.
<TITLE>...</TITLE>	The <TITLE> is contained in the <HEAD> of the document. It is displayed at the top of the browser window and on the bookmark list, so it is important to choose something descriptive, unique, and relatively short.

<BODY>...</BODY>	The <BODY> element contains all the information which is part of the document. There are a number of different attributes for the <BODY> tag (attributes are the elements included within brackets that change the behavior or appearance of a tag). They are: "BACKGROUND=" Specifies the image tile that is to appear in the document's background. EXAMPLE: <BODY BACKGROUND= "picturename.gif"> </BODY> "BGCOLOR=" Sets the background color of the page. In order to do this a six digit hexadecimal number denoting a red-green-blue color value is included. Thus "000000" is black and "FFFFFF" is white and every other color in between is described using these 6 characters in different combinations. In addition to the hexadecimal system, there are sixteen color names (other than black) that can be included in the tags. They are: Aqua, Red, Green, Blue, Violet,

Fuchsia, Gray, Lime, Maroon, Navy, Olive, Purple, Silver, Teal, White, and Yellow.

EXAMPLE:

```
<BODY BGCOLOR="#FFFFFF">

This page has a white
background.

</BODY>
```

OR

EXAMPLE:

```
<BODY BGCOLOR="WHITE">

This page has a white
background.

</BODY>
```

"LINK=" Sets the hexadecimal color code for links that have not yet been visited.

EXAMPLE:

```
<BODY LINK="#0C6249">

This page has blue links

</BODY>
```

VLINK= Sets the hexadecimal color code for links the user has already visited.

EXAMPLE:

```
<BODY VLINK="#800080">

This page has purple links after
being visited

</BODY>
```

"ALINK=" Sets color of links that are active (ie., the color they turn when the link is clicked on).

EXAMPLE:

<BODY ALINK="#FFB50C">

This page has yellow active links

</BODY>

"TEXT=" Sets the hexadecimal color code for the default text color.

EXAMPLE:

<BODY TEXT="#00006A">

This page has blue text

</BODY>

The <BODY> tags for this document are as follows:

<BODY BACKGROUND="spiral_ruled.gif"
BGCOLOR="#FFFFFF" TEXT="#00006A"
LINK="#005A5A" VLINK="800080"
ALINK="#FFB50C">

Character Formatting:

The Bold <B></B> element specifies that the enclosed text should be displayed in boldface.

The Underlined <U></U> element specifies that the enclosed text should be displayed underlined.

The Italic <I></I> element specifies that the enclosed text should be italicized.

Below are these HTML tags beside samples of their respective browser displays:

HTML Code	Browser Display
This text is <B>bold!</B>	This text is **bold!**

This text is <I>italicized.</I>	This text is *italicized.*
This text is <U>underlined</U>.	This text is <u>underlined</u>.

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HTML Headings

HTML headings are titles or subtitles that you want to display on a webpage.

HTML Code	Browser Display

`<h1>Heading 1</h1>`
`<h2>Heading 2</h2>`
`<h3>Heading 3</h3>`
`<h4>Heading 4</h4>`
`<h5>Heading 5</h5>`
	Heading 1
	Heading 2
	Heading 3
	Heading 4
	Heading 5
	Heading 6

```
<h6>Heading 6</h6>
```

Paragraphs

In HTML you indicate paragraphs with the <P> and </P> elements. Without these elements the document becomes one long paragraph. Likewise, browsers ignore any indentations or blank lines in the HTML code.

Thus the examples below, although coded differently, are all displayed the same way:

HTML Code	Browser Display
<P> This is a very short paragraph to illustrate my point.</P> <P>And this is the second paragraph.</P>	This is a very short paragraph to illustrate my point. And this is the second paragraph.

<P> Although this

is written differently

with lots of carriage returns

it still only displays

the paragraphs when

you put in the Paragraph

Although this is written differently with lots of carriage returns it still only displays the paragraphs when you put in the Paragraph Tag.

Like so.

```
Tag.</P>
<P> Like
so.</P>
```

NOTE: The </P> closing tag may be omitted. This is because browsers understand that when they encounter a <P> tag, it means that the previous paragraph has ended.

To preserve readability when composing HTML files, separate paragraphs with blank lines. As mentioned above, browsers will ignore blank spaces inserted into source code.

Paragraph Alignment

Paragraph alignment can be manipulated by including either the RIGHT, LEFT, or CENTER (note the Americanized spelling) attributes within the <P> tag as shown below:

HTML Code	Browser Display
<P ALIGN=left> This paragraph is left aligned. </P>	This paragraph is left aligned.
<P ALIGN=CENTER>	This is a centered paragraph.

```
This is a centered paragraph.
</P>

<P ALIGN=RIGHT> This paragraph is right aligned.
</P>
```

This paragraph is right aligned.

Horizontal Rules

The horizontal rule <HR> tag produces a horizontal line the width of the browser window. Horizontal rules are useful for separating major sections of a document. The length of a rule can be varied by using the "WIDTH=" and "SIZE=" attributes.

HTML Code	Browser Display
Horizontal Rules rule!<HR SIZE=3 WIDTH=80 %>	Horizontal Rules rule!

Lists

HTML provides the means for producing two types of lists: unordered (ie., unnumbered) and ordered (ie., numbered) lists.

Unordered Lists:

An unordered list typically is a bulleted list of items. This is probably the most common type of list on the Web. The <UL> tag opens an unordered list while </UL> closes it. Between these tags are placed list items with an <LI> tag as follows:

HTML Code	Browser Display
<UL> <LI> red <LI> yellow <LI> blue	• red • yellow • blue

</UL>	

Ordered Lists:

An ordered list is formatted exactly the same as an unordered list, except that <OL> tags are used instead of <UL>. In an ordered list, sequential numbers are generated automatically, as shown below:

HTML Code	Browser Display
<OL> <LI> purple <LI> orange <LI> green	1. purple 2. orange 3. green

```
</OL>
```

Note: You can "nest" lists too (ie., subdivide lists), but use this feature sparingly as too many nested items can get difficult to follow.

Images - An Introduction

The <IMG> tag is used to incorporate graphics (typically icons or pictures) into an HTML document. Any image can be added to a web page, provided it is in GIF or JPEG file format. Also bear in mind that the larger an image's file size is, the longer it will take to download in a viewer's browser. "Image Source" and "Image Size" are the minimum attributes required for displaying an image.

Image Source:

The image source tag <SRC=> tells the browser where the image is physically stored so that it can retrieve and display it. It is important to remember that file names are case sensitive and must be typed correctly.

Another important point to remember is that if an image is not stored in the same directory as the HTML documents, then the directory name must be included with the file name. Programmers commonly store images in a separate directory - often aptly titled "images". Thus an image source might appear written in HTML code as SRC="images/picture.gif". If an image is incorrectly named, missing

or is listed in the wrong directory, a "broken graphic" icon will be displayed.

Image Size:

Although not absolutely required, it is good practice to include HEIGHT and WIDTH information within the <IMG> tag. This speeds up the downloading process by allowing faster-loading text to load around areas where images will eventually appear. HEIGHT and WIDTH values are measured in pixels. Do not try to make the image smaller or larger by adjusting these attributes as you risk distorting the image by doing so.

HTML Code	Browser Display
<IMG SRC="woman.gif" WIDTH=32 HEIGHT=32>	

Image Attributes

Image Alignment:

Use the LEFT, RIGHT or CENTER attributes within the <IMG> tag to align images relative to the browser window. See below for examples of how these attributes are used:

HTML Code	Browser Display
<IMG SRC="woman .gif" WIDTH=32 HEIGHT=32 ALIGN=LEFT >	

```
<CENTER><I
MG
SRC="woman
.gif"
WIDTH=32
HEIGHT=32>
</CENTER>
```

```
<IMG
SRC="woman
.gif"
WIDTH=32
HEIGHT=32
ALIGN=RIGH
T>
```

Image Alignment with Text:

By default the bottom of an image is aligned with any text that follows, as shown below:

HTML Code	Browser Display
<IMG SRC="hand.gif" WIDTH=108 HEIGHT=79 >This hand is very big!	 This hand is very big!

Vertical placement of text beside images can be altered from the bottom default setting by using the attributes ALIGN=TOP or ALIGN=CENTER, as shown below:

HTML Code	Browser Display
<IMG SRC="hand.gif " WIDTH=108 HEIGHT=79 ALIGN=TOP> This hand is big!	 This hand is big!
<IMG SRC="hand.gif " WIDTH=108 HEIGHT=79 ALIGN=CENT	 This hand is big!

ER>This hand
is big!

Yet another option is to force text to appear under an image rather than beside it. For this effect, use the <BR CLEAR=ALL> tag to place a line break after an image, which will cause the text that follows to begin on the next line.

HTML Code	Browser Display
<IMG SRC="hand.gif" WIDTH=108 HEIGHT=79 ALIGN=TOP ><BR CLEAR=AL	

L>This hand

is big!