



Introduction to HTML5: Part.1

Introduction to Internet and Web



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HTML INTRODUCTION

What is HTML?

❖ HTML is the standard markup language for creating Web pages.

- HTML stands for Hyper Text Markup Language
- HTML describes the structure of a Web page
- HTML consists of a series of elements
 - HTML elements tell the browser how to display the content
 - HTML elements are represented by tags
 - HTML tags label pieces of content such as "heading", "paragraph", "table", and so on
 - Browsers do not display the HTML tags, but use them to render the content of the page

HTML Tags

❖ HTML tags are element names surrounded by angle brackets:

```
<tagname>CONTENT HERE...</tagname>
```

❖ HTML tags normally come in pairs like `<p>` and `</p>`

- The first tag in a pair is the **start tag**, the second tag is the **end tag**
- The end tag is written like the start tag, but with a forward slash inserted before the tag name
- Some HTML elements have no content (like the `
` element). Empty elements do not have an end tag.

T

The start tag is also called the **opening tag**, and the end tag the **closing tag**.

A Simple HTML Document

- ❖ The `<!DOCTYPE html>` declaration defines this document to be HTML5
- ❖ The `<html>` element is the root element of an HTML page
- ❖ The `<head>` element contains meta information about the document
- ❖ The `<title>` element specifies a title for the document
- ❖ The `<body>` element contains the visible page content
- ❖ The `<h1>` element defines a large heading
- ❖ The `<p>` element defines a paragraph

```
1  <!DOCTYPE html>
2  <html>
3
4  <head>
5      <title>Page Title</title>
6  </head>
7
8  <body>
9
10     <h1>Hello world!</h1>
11     <p>Introduction to HTML5</p>
12
13 </body>
14
15 </html>
16
17
18
19
20
21
22
23
```

Web Browsers

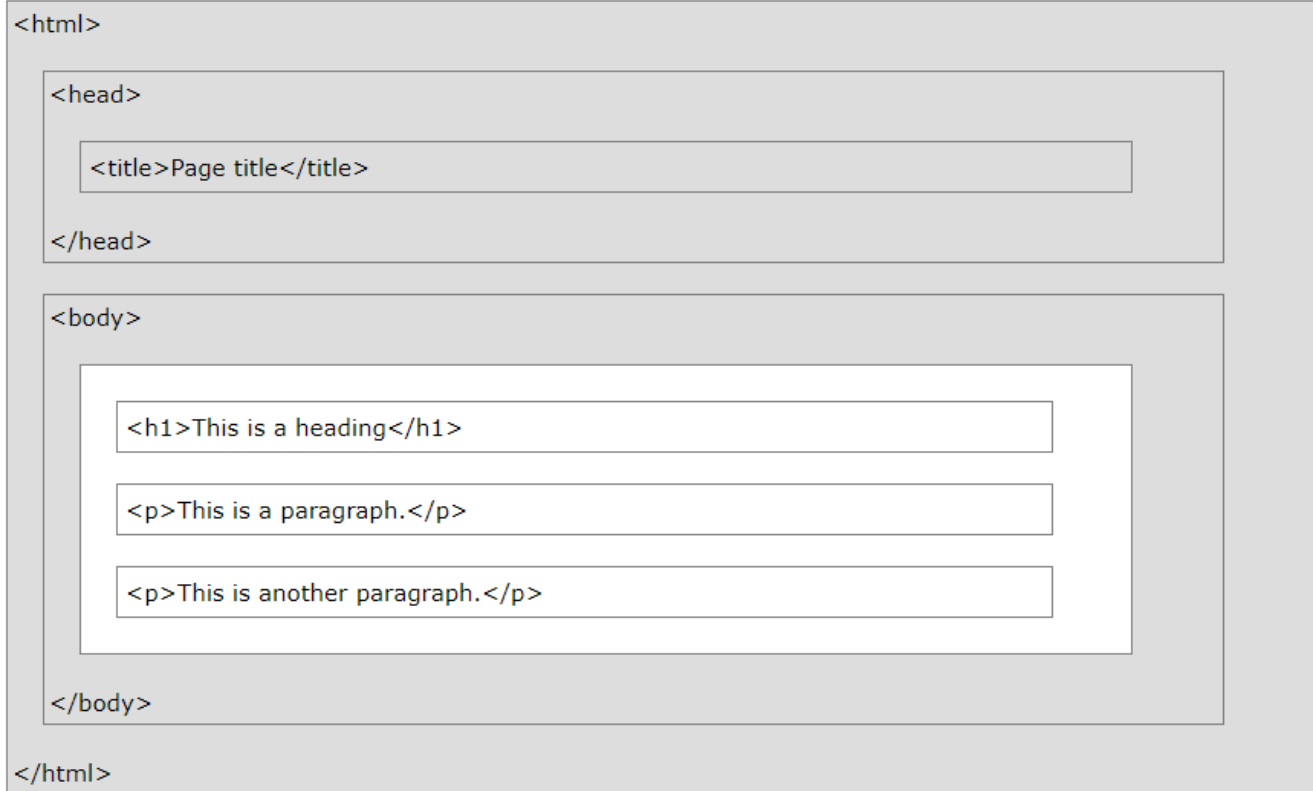
- ❖ The purpose of a web browser (Chrome, Edge, Firefox, Safari) is to **read HTML documents and display them.**
- ❖ The browser does not display the HTML tags, but uses them to determine how to display the document:



Hello world!

Introduction to HTML5

HTML Page Structure



T

Only the content inside the `<body>` section (the white area above) is displayed in a browser.

The <!DOCTYPE> Declaration

- ❖ The <!DOCTYPE> declaration represents the document type, and helps browsers to display web pages correctly.
- ❖ It must **only appear once, at the top of the page** (before any HTML tags).
- ❖ The <!DOCTYPE> declaration is **not case sensitive**.
- ❖ The <!DOCTYPE> declaration for HTML5 is:

```
<!DOCTYPE html>
```

HTML Versions

❖ Since the early days of the web, there have been many versions of HTML:

| Version | Year |
|------------------|------|
| HTML | 1991 |
| HTML 2.0 | 1995 |
| HTML 3.2 | 1997 |
| HTML 4.01 | 1999 |
| XHTML | 2000 |
| HTML5 | 2014 |
| HTML5.1, HTML5.2 | 2017 |

HTML <head> Element

❖ The HTML <head> element is a container for metadata.

- HTML metadata is data about the HTML document.
- Metadata is not displayed.
- e.g., <title>, <style>, <meta>, <link>, <script>, and <base>

❖ The <head> element is placed between the <html> tag and the <body> tag:

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>My First HTML</title>
5      <meta charset="UTF-8">
6  </head>
7  <body>
8
9  <p>The HTML head element contains
10 meta data.</p>
11 <p>Meta data is data about the
12 HTML document.</p>
13
14 </body>
15 </html>
16
17
18
19
20
21
22
23
```

HTML Title

❖ The **<title>** tag is required in all HTML documents and it defines the title of the document.

❖ The **<title>** element:

- defines a title in the browser toolbar
- provides a title for the page when it is added to favorites
- displays a title for the page in search-engine results
 - search engine optimization (SEO)

Nested HTML Elements

- ❖ HTML elements can be **nested** (this means that elements can contain other elements).
- ❖ All HTML documents consist of nested HTML elements.
- ❖ The following example contains four HTML elements (<html>, <body>, <h1> and <p>):

```
1  <!DOCTYPE html>
2  <html>
3
4  <head>
5      <title>Page Title</title>
6  </head>
7
8  <body>
9
10     <h1>Hello world!</h1>
11     <p>Introduction to HTML5</p>
12
13 </body>
14
15 </html>
16
17
18
19
20
21
22
23
```

HTML Comments

- ❖ **Comment tags** are used to insert comments in the HTML source code.
- ❖ Notice that there is an exclamation point (!) in the opening tag, but not in the closing tag.

```
1  <!DOCTYPE html>
2  <html>
3  <body>
4
5  <!-- This is a comment -->
6  <p>This is a paragraph.</p>
7  <!-- Comments are not displayed
8  in the browser -->
9
10 </body>
11 </html>
12
13
14
15
16
17
18
19
20
21
22
23
```

HTML Attributes

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

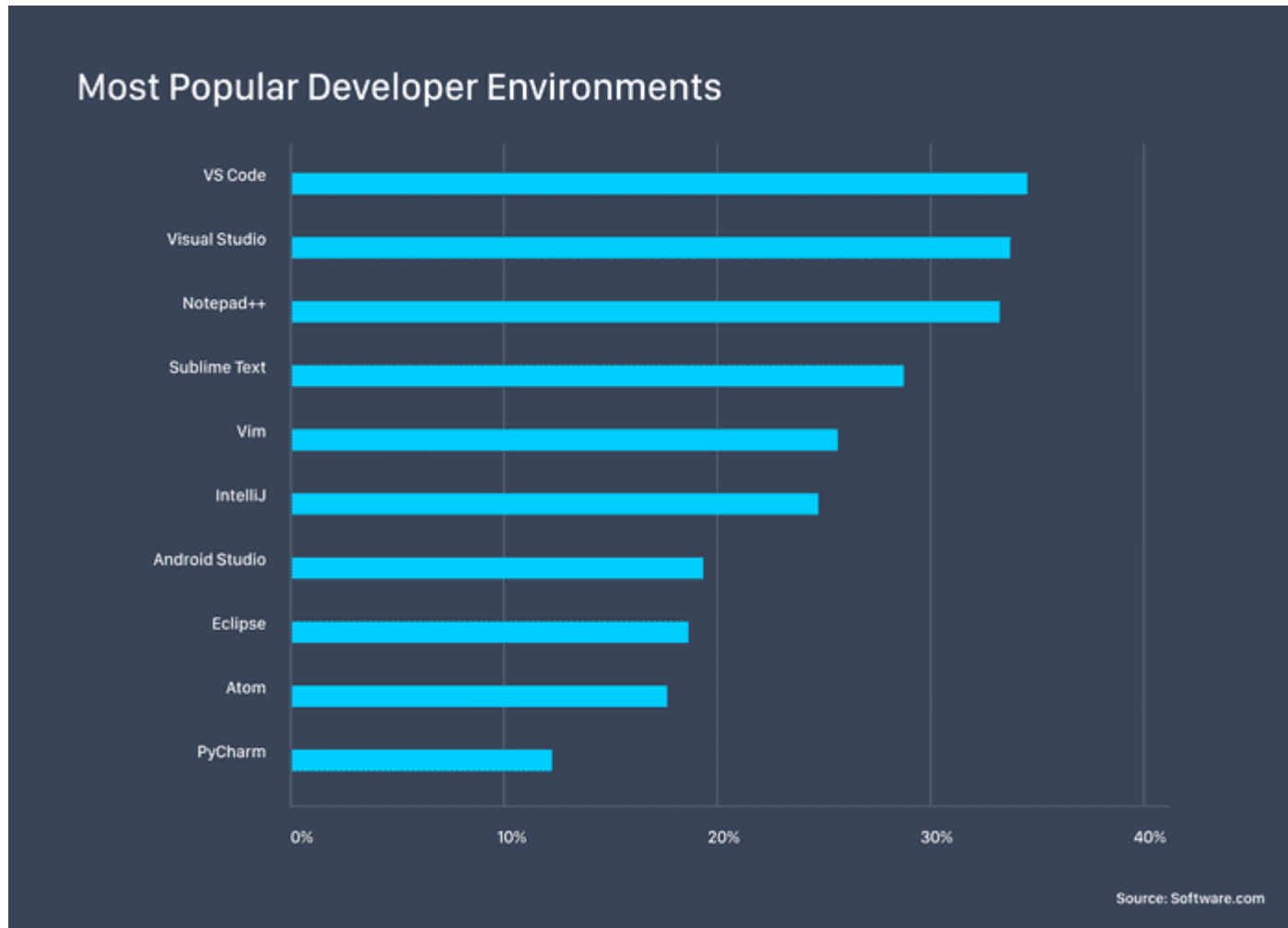
```
1  <!DOCTYPE html>
2  <html>
3  <body>
4
5  <h2>The href Attribute</h2>
6  <p>HTML links are defined with
7  the a tag. The link address is
8  specified in the href
9  attribute:</p>
10
11 <a
12 href="https://www.w3schools.com">
13 This is a link</a>
14
15 </body>
16 </html>
17
18
19
20
21
22
23
```

HTML is Not Case Sensitive

- ❖ HTML tags are **not case sensitive**: <P> means the same as <p>.
- ❖ The HTML5 standard does not require lowercase tags, but W3C recommends lowercase in HTML, and demands lowercase for stricter document types like XHTML.

HTML EDITORS

Ranking the Top 5 Code Editors in 2019



Write HTML Using VS Code

Code editing.
Redefined.

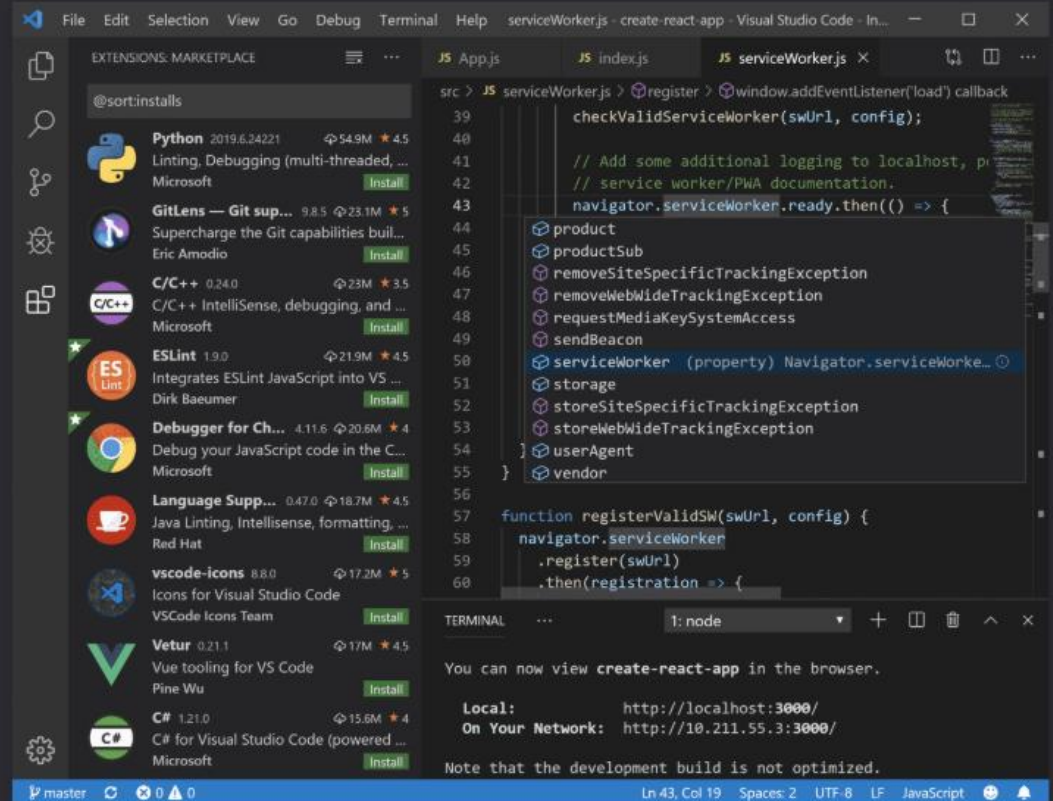
Free. Built on open source. Runs everywhere.

Download for Windows

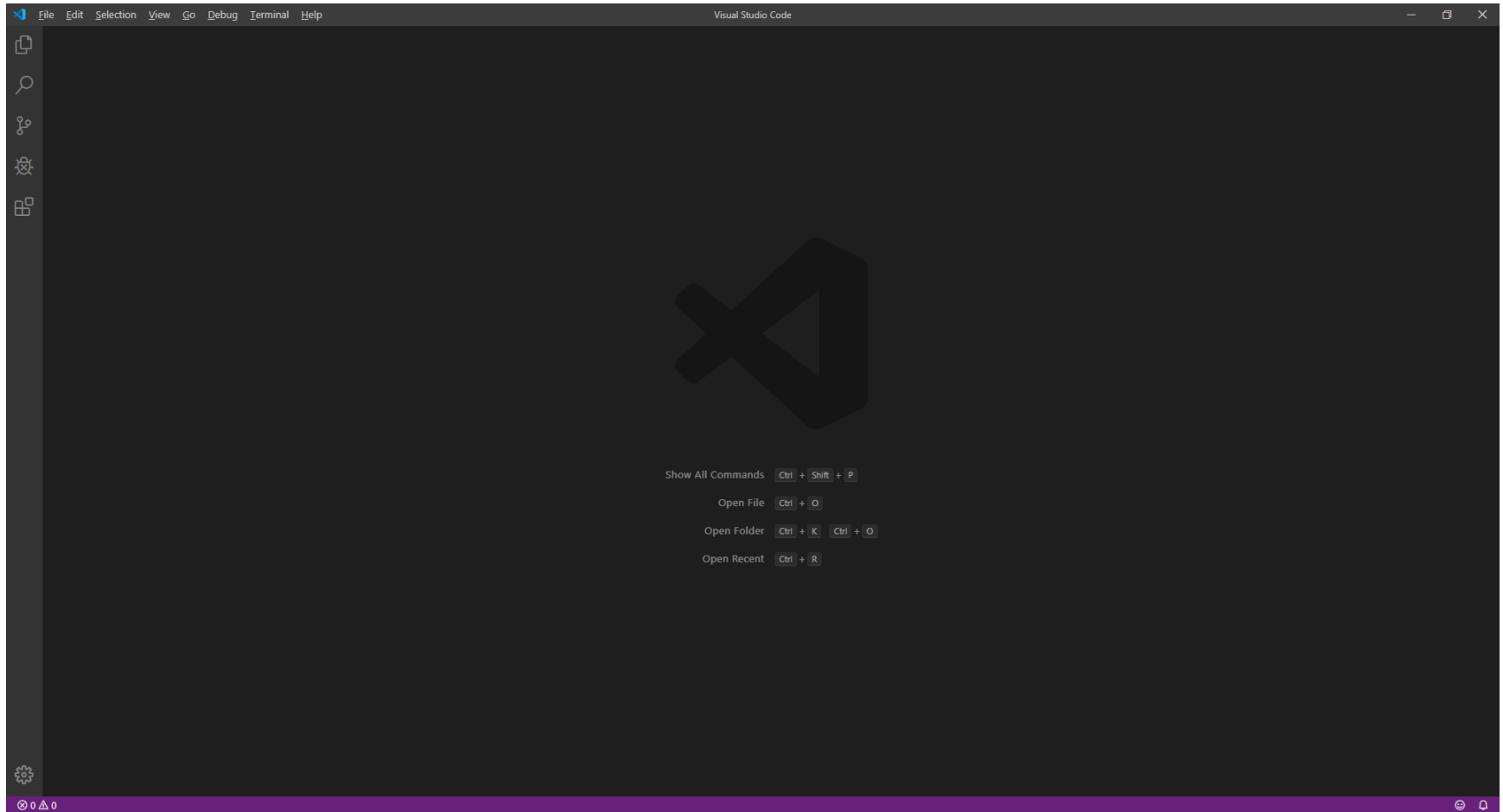
Stable Build

Other platforms and Insiders Edition

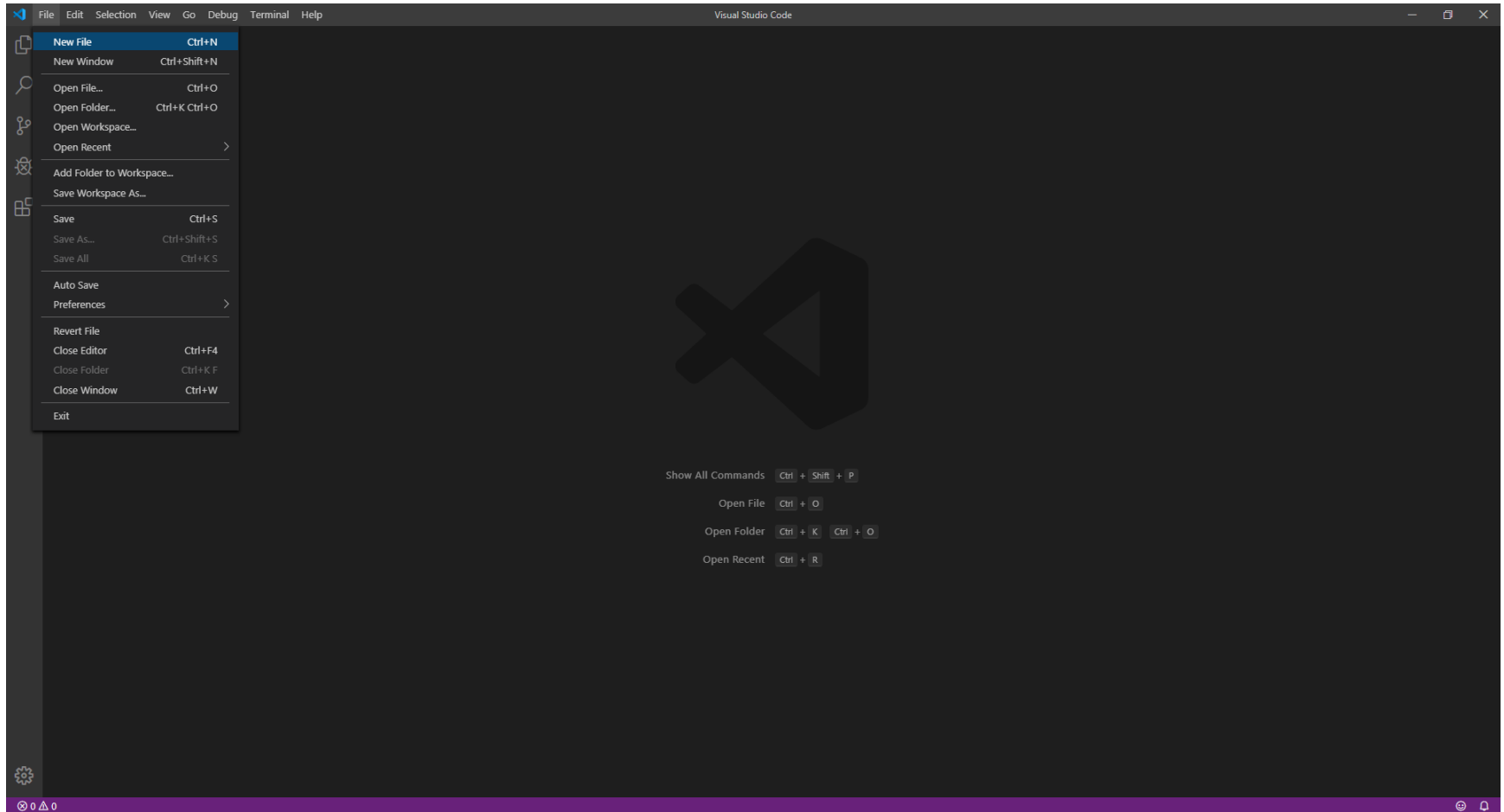
By using VS Code, you agree to its
[license](#) and [privacy statement](#).



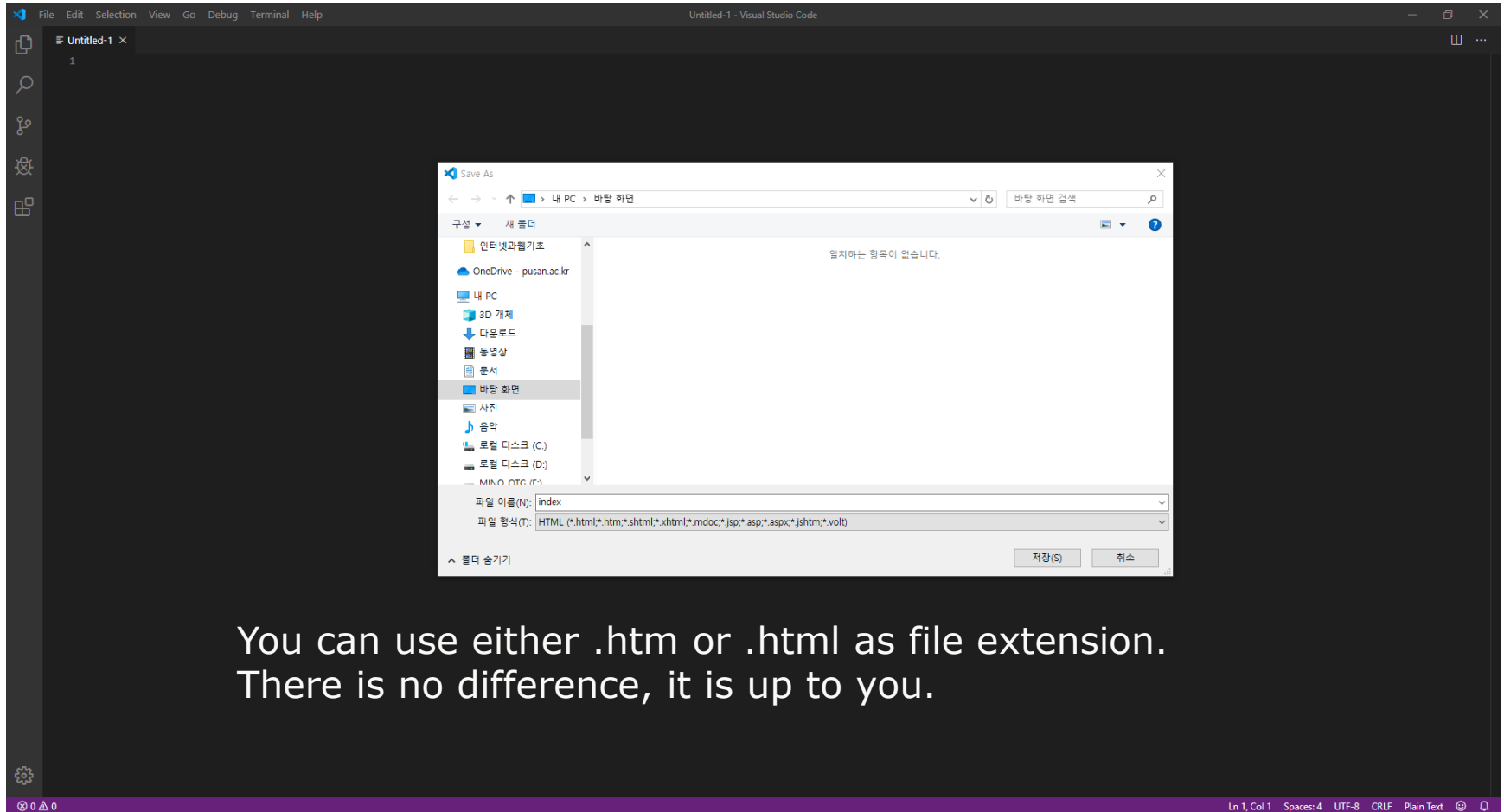
Write HTML Using VS Code



Write HTML Using VS Code

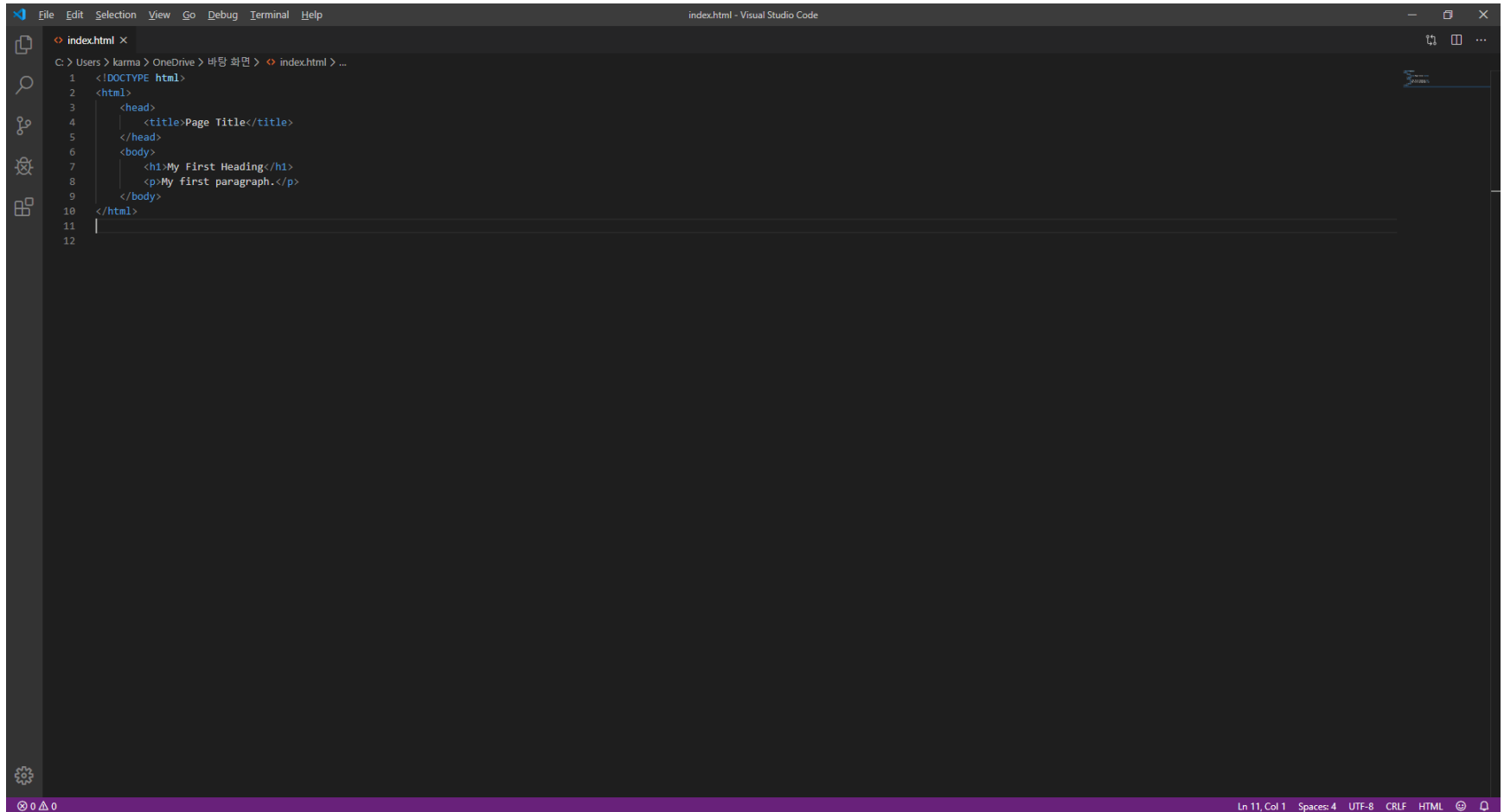


Write HTML Using VS Code



You can use either .htm or .html as file extension.
There is no difference, it is up to you.

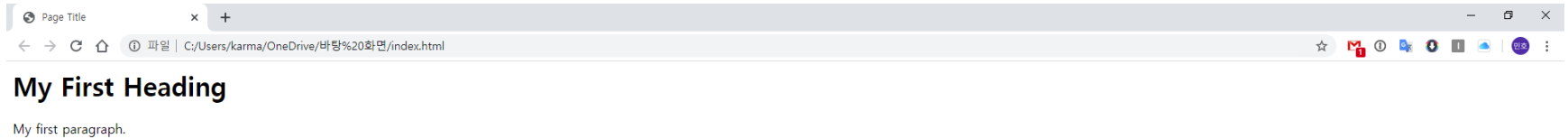
Write HTML Using VS Code



```
File Edit Selection View Go Debug Terminal Help
index.html x
C: > Users > karma > OneDrive > 바탕 화면 > index.html > ...
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <title>Page Title</title>
5   </head>
6   <body>
7     <h1>My First Heading</h1>
8     <p>My first paragraph.</p>
9   </body>
10 </html>
11
12
```

Ln 11, Col 1 Spaces: 4 UTF-8 CRLF HTML

Write HTML Using VS Code



Open the saved HTML file in your favorite browser
(double click on the file, or right-click - and choose "Open with").

HTML TEXT ELEMENTS

HTML Headings

❖ HTML headings are defined with the `<h1>` to `<h6>` tags.

❖ `<h1>` defines the most important heading. `<h6>` defines the least important heading:

This is heading 1

This is heading 2

This is heading 3

This is heading 4

This is heading 5

This is heading 6

| | |
|----|--|
| 1 | <code><h1></code> This is heading 1 <code></h1></code> |
| 2 | <code><h2></code> This is heading 2 <code></h2></code> |
| 3 | <code><h3></code> This is heading 3 <code></h3></code> |
| 4 | <code><h4></code> This is heading 3 <code></h4></code> |
| 5 | <code><h5></code> This is heading 3 <code></h5></code> |
| 6 | <code><h6></code> This is heading 3 <code></h6></code> |
| 7 | |
| 8 | |
| 9 | |
| 10 | |
| 11 | |
| 12 | |
| 13 | |
| 14 | |
| 15 | |
| 16 | |
| 17 | |
| 18 | |
| 19 | |
| 20 | |
| 21 | |
| 22 | |
| 23 | |

Headings Are Important

- ❖ Search engines use the headings to index the structure and content of your web pages.
- ❖ Users often skim a page by its headings. It is important to use headings to show the document structure.
- ❖ <h1> headings should be used for main headings, followed by <h2> headings, then the less important <h3>, and so on.

T

Use HTML headings for headings only.
Don't use headings to make text BIG or bold.

HTML Paragraphs

- ❖ The HTML `<p>` element defines a paragraph.
 - A paragraph always starts on a new line, and browsers automatically add some white space (a margin) before and after a paragraph.
- ❖ With HTML, you cannot change the output by adding extra spaces or extra lines in your HTML code.
- ❖ The browser will remove any extra spaces and extra lines when the page is displayed:

This paragraph contains a lot of lines in the source code, but the browser ignores it.

This paragraph contains a lot of spaces in the source code, but the browser ignores it.

```
1  <!DOCTYPE html>
2  <html>
3  <body>
4
5  <p>
6  This paragraph
7  contains a lot of lines
8  in the source code,
9  but the browser
10 ignores it.
11 </p>
12
13 <p>
14 This paragraph
15 contains      a lot of spaces
16 in the source  code,
17 but the      browser
18 ignores it.
19 </p>
20
21 </body>
22 </html>
23
```

HTML <pre> Element

- ❖ The HTML <pre> element defines preformatted text.
- ❖ The text inside a <pre> element is displayed in a fixed-width font (usually Courier), and it preserves both spaces and line breaks:

The pre tag preserves both spaces and line breaks:

```
My Bonnie lies over the ocean.  
My Bonnie lies over the sea.  
My Bonnie lies over the ocean.  
Oh, bring back my Bonnie to me.
```

```
1  <!DOCTYPE html>  
2  <html>  
3  <body>  
4  
5  <p>The pre tag preserves both  
6  spaces and line breaks:</p>  
7  
8  <pre>  
9      My Bonnie lies over the ocean.  
10  
11     My Bonnie lies over the sea.  
12  
13     My Bonnie lies over the ocean.  
14  
15     Oh, bring back my Bonnie to me.  
16 </pre>  
17  
18 </body>  
19 </html>  
20  
21  
22  
23
```

HTML Horizontal Rules

- ❖ The `<hr>` tag defines a thematic break in an HTML page, and is most often displayed as a horizontal rule.
- ❖ The `<hr>` element is used to separate content (or define a change) in an HTML page:

This is heading 1

This is some text.

This is heading 2

This is some other text.

This is heading 2

This is some other text.

```
1  <!DOCTYPE html>
2  <html>
3  <body>
4
5  <h1>This is heading 1</h1>
6  <p>This is some text.</p>
7  <hr>
8
9  <h2>This is heading 2</h2>
10 <p>This is some other text.</p>
11 <hr>
12
13 <h2>This is heading 2</h2>
14 <p>This is some other text.</p>
15
16 </body>
17 </html>
18
19
20
21
22
23
```

HTML Line Breaks

❖ The HTML `
` element defines a line break.

❖ Use `
` if you want a line break (a new line) without starting a new paragraph:

This is
a paragraph
with line breaks

```
1  <!DOCTYPE html>
2  <html>
3  <body>
4
5  <p>This is<br>a paragraph<br>with
6  line breaks</p>
7
8  </body>
9  </html>
10
11
12
13
14
15
16
17
18
19
20
21
22
23
```

HTML Style Attribute

- ❖ **background-color** for background color
- ❖ **color** for text colors
- ❖ **font-family** for text fonts
- ❖ **font-size** for text sizes
- ❖ **text-align** for text alignment

This is a heading

This is a paragraph.

This is a heading

This is a paragraph.

Centered Heading

Centered paragraph.

```
1 <!DOCTYPE html>
2 <html>
3
4 <h1 style="font-family:verdana;">
5 This is a heading</h1>
6
7 <p style="font-family:courier;">
8 This is a paragraph.</p>
9
10 <h1 style="font-size:300%;">
11 This is a heading</h1>
12
13 <p style="font-size:160%;">
14 This is a paragraph.</p>
15
16 <h1 style="text-align:center;">
17 Centered Heading</h1>
18
19 <p style="text-align:center;">
20 Centered paragraph.</p>
21
22 </body>
23 </html>
```


HTML Formatting Elements

- ❖ **** - Bold text
- ❖ **** - Important text
- ❖ **<i>** - Italic text
- ❖ **<mark>** - Marked text
- ❖ **<small>** - Smaller text
- ❖ **** - Deleted text
- ❖ **<ins>** - Inserted text
- ❖ **<sub>** - Subscript text
- ❖ **<sup>** - Superscript text

```
1  <!DOCTYPE html>
2  <html>
3  <body>
4
5  <p>My favorite color is
6  <del>blue</del>
7  <ins>red</ins>.</p>
8
9  </body>
10 </html>
11
12
13
14
15
16
17
18
19
20
21
22
23
```

HTML ENTITIES

HTML Entities

❖ Some characters are reserved in HTML.

- If you use the less than (<) or greater than (>) signs in your text, the browser might mix them with tags.

❖ Character entities are used to display reserved characters in HTML.

❖ A character entity looks like this:

- To display a less than sign (<) we must write: `<` or `<`;
- Advantage of using an entity name:
 - An entity name is easy to remember.
- Disadvantage of using an entity name:
 - Browsers may not support all entity names, but the support for numbers is good.

```
&entity_name;
```

```
OR
```

```
&#entity_number;
```

HTML Symbol

- ❖ Many mathematical, technical, and currency symbols, are not present on a normal keyboard.
- ❖ To add such symbols to an HTML page, you can use the entity name or the entity number (a decimal or a hexadecimal reference) for the symbol.

I will display €

I will display €

I will display €

```
1 <!DOCTYPE html>
2 <html>
3 <body>
4
5 <p>I will display &euro;</p>
6 <p>I will display &#8364;</p>
7 <p>I will display &#x20AC;</p>
8
9 </body>
10 </html>
11
12
13
14
15
16
17
18
19
20
21
22
23
```

Non-breaking Space

- ❖ A common character entity used in HTML is the non-breaking space:
** **
- ❖ A non-breaking space is a space that will not break into a new line.
 - Two words separated by a non-breaking space will stick together (not break into a new line). This is handy when breaking the words might be disruptive.
- ❖ Another common use of the non-breaking space is to prevent browsers from truncating spaces in HTML pages.
 - If you write 10 spaces in your text, the browser will remove 9 of them. To add real spaces to your text, you can use the character entity.

[참조] Some Other Useful HTML Character Entities

| Result | Description | Entity Name | Entity Number |
|--------|------------------------------------|-------------|---------------|
| | non-breaking space | | |
| < | less than | < | < |
| > | greater than | > | > |
| & | ampersand | & | & |
| " | double quotation mark | " | " |
| ' | single quotation mark (apostrophe) | ' | ' |
| ¢ | cent | ¢ | ¢ |
| £ | pound | £ | £ |
| ¥ | yen | ¥ | ¥ |
| € | euro | € | € |
| © | copyright | © | © |
| ® | registered trademark | ® | ® |

HTML LISTS

HTML Lists

- ❖ HTML lists are defined with the `` (unordered/bullet list) or the `` (ordered/numbered list) tag, followed by `` tags (list items):

An Unordered HTML List

- Coffee
- Tea
- Milk

An Ordered HTML List

1. Coffee
2. Tea
3. Milk

```
1  <!DOCTYPE html>
2  <html>
3  <body>
4
5  <h2>An Unordered HTML List</h2>
6
7  <ul>
8      <li>Coffee</li>
9      <li>Tea</li>
10     <li>Milk</li>
11 </ul>
12
13 <h2>An Ordered HTML List</h2>
14
15 <ol>
16     <li>Coffee</li>
17     <li>Tea</li>
18     <li>Milk</li>
19 </ol>
20
21 </body>
22 </html>
23
```


Unordered HTML List - Choose List Item Marker

- ❖ The CSS **list-style-type** property is used to define the style of the list item marker:

| Value | Description |
|--------|---|
| disc | Sets the list item marker to a bullet (default) |
| circle | Sets the list item marker to a circle |
| square | Sets the list item marker to a square |
| none | The list items will not be marked |

Unordered List with Square Bullets

- Coffee
- Tea
- Milk

```
1 <!DOCTYPE html>
2 <html>
3 <body>
4
5 <h2>Unordered List with Square
6 Bullets</h2>
7
8 <ul style="list-style-
9 type:square;">
10   <li>Coffee</li>
11   <li>Tea</li>
12   <li>Milk</li>
13 </ul>
14
15 </body>
16 </html>
17
18
19
20
21
22
23
```

Ordered HTML List - The Type Attribute

- ❖ The **type** attribute of the `` tag, defines the type of the list item marker:

| Type | Description |
|----------|--|
| type="1" | The list items will be numbered with numbers (default) |
| type="A" | The list items will be numbered with uppercase letters |
| type="a" | The list items will be numbered with lowercase letters |
| type="I" | The list items will be numbered with uppercase roman numbers |
| type="i" | The list items will be numbered with lowercase roman numbers |

Ordered List with Lowercase Letters

- a. Coffee
- b. Tea
- c. Milk

```
1 <!DOCTYPE html>
2 <html>
3 <body>
4
5 <h2>Ordered List with
6 Numbers</h2>
7
8 <ol type="a">
9     <li>Coffee</li>
10    <li>Tea</li>
11    <li>Milk</li>
12 </ol>
13
14 </body>
15 </html>
16
17
18
19
20
21
22
23
```

HTML Description Lists

❖ HTML also supports description lists.

❖ A description list is a list of terms, with a description of each term.

❖ The `<dl>` tag defines the description list, the `<dt>` tag defines the term (name), and the `<dd>` tag describes each term:

A Description List

Coffee

- black hot drink

Milk

- white cold drink

```
1  <!DOCTYPE html>
2  <html>
3  <body>
4
5  <h2>A Description List</h2>
6
7  <dl>
8      <dt>Coffee</dt>
9      <dd>- black hot drink</dd>
10     <dt>Milk</dt>
11     <dd>- white cold drink</dd>
12 </dl>
13
14 </body>
15 </html>
16
17
18
19
20
21
22
23
```

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