16/11/2022

HTML

* HTML stands for Hyper Text Markup Language

"Hypertext" refers to the **hyperlinks that an HTML page may contain**. "Markup language" refers to the way tags are used to define the page layout and elements within the page.

The difference between markup language and programming language is that a markup language defines a set of rules for encoding documents in a format that is both human-readable and machine-readable while a programming language provides a set of commands and syntax that can be used to write computer programs which are understood by the computer.

* HTML is the standard markup language for creating Web pages
* 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 label pieces of content such as "this is a heading", "this is a paragraph", "this is a link", etc.
* The first version of HTML was written by **Tim Berners-Lee** in 1993.
* Since then, there have been many different versions of HTML. The most widely used version throughout the 2000's was HTML 4.01, which became an official standard in December 1999

Tags

Special word or letter surrounded by angle brackets (<>).

Types are paired and unpaired.

Paired

Tag consists of an opening tag and closing tag. An HTML Paired tag starts with an opening tag: the tag name enclosed inside the angle brackets; for example, a paragraph opening tag is written as ‘<p>’.

Unpaired

An HTML tag is called an unpaired tag when the tag only has an opening tag and does not have a closing tag or a companion tag. The Unpaired HTML tag does not require a closing tag; an opening tag is sufficient in this type. Unpaired tags are sometimes also named as Standalone Tags or Singular Tags since they do not require a companion tag.

HTML Editors

Web pages can be created and modified by using professional HTML editors.

However, for learning HTML we recommend a simple text editor like Notepad (PC) or TextEdit (Mac).

Structure

<!DOCTYPE html>  
<html>  
<head>  
<title>Page Title</title>  
</head>  
<body>  
  
<h1>My First Heading</h1>  
<p>My first paragraph.</p>  
  
</body>  
</html>

* The <!DOCTYPE html> declaration defines that this document is an HTML5 document
* The <html> element is the root element of an HTML page
* The <head> element contains meta information about the HTML page
* The <title> element specifies a title for the HTML page (which is shown in the browser's title bar or in the page's tab)
* The <body> element defines the document's body, and is a container for all the visible contents, such as headings, paragraphs, images, hyperlinks, tables, lists, etc.
* The <h1> element defines a large heading
* The <p> element defines a paragraph

HTML Elements

The HTML **element** is everything from the start tag to the end tag:

<tagname>Content goes here...</tagname>

## 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>)

# HTML Headings

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

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

<h1> defines the most important heading. <h6> defines the least important heading.

# HTML Paragraphs

A paragraph always starts on a new line, and is usually a block of text.

# HTML Attributes

* 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"**

# HTML Images

Images can improve the design and the appearance of a web page.

The HTML <img> tag is used to embed an image in a web page.

Images are not technically inserted into a web page; images are linked to web pages. The <img> tag creates a holding space for the referenced image.

The <img> tag is empty, it contains attributes only, and does not have a closing tag.

The <img> tag has two required attributes:

* src - Specifies the path to the image
* alt - Specifies an alternate text for the image

### Syntax

<img src="*url*" alt="alternatetext">

# HTML Links

Links are found in nearly all web pages. Links allow users to click their way from page to page.

HTML links are hyperlinks.

You can click on a link and jump to another document.

When you move the mouse over a link, the mouse arrow will turn into a little hand.

## HTML Links - Syntax

The HTML <a> tag defines a hyperlink. It has the following syntax:

<a href="*url*">*link text*</a>

The most important attribute of the <a> element is the href attribute, which indicates the link's destination.

The link text is the part that will be visible to the reader.

Clicking on the link text, will send the reader to the specified URL address.

By default, links will appear as follows in all browsers:

* An unvisited link is underlined and blue
* A visited link is underlined and purple
* An active link is underlined and red

HTML Text Formatting

HTML contains several elements for defining text with a special meaning.

* <b> - Bold text
* <strong> - Important text
* <i> - Italic text
* <em> - Emphasized text
* <mark> - Marked text
* <small> - Smaller text
* <del> - Deleted text
* <ins> - Inserted text
* <sub> - Subscript text
* <sup> - Superscript text

HTML Styles

The HTML style attribute is used to add styles to an element, such as color, font, size, and more.

Setting the style of an HTML element, can be done with the style attribute.

The HTML style attribute has the following syntax:

<*tagname* style="*property* :*value;*">

The ***property*** is a CSS property. The ***value*** is a CSS value.

CSS

CSS stands for Cascading Style Sheets.

CSS was first proposed by **Hakon Wium Lie** on October 10, 1994. At the time, Lie was working with Tim Berners-Lee (father of Html) at CERN. The European Organization for Nuclear Research is known as CERN. Hakon wium lie is know as father of css.

CSS was proposed in 1994 as a web styling language, to solve some of the problems of Html 4. There were other styling languages proposed at this time, such as Style Sheets for Html and JSSS but CSS won.

CSS saves a lot of work. It can control the layout of multiple web pages all at once.

Cascading Style Sheets (CSS) is used to format the layout of a webpage.

With CSS, you can control the color, font, the size of text, the spacing between elements, how elements are positioned and laid out, what background images or background colors are to be used, different displays for different devices and screen sizes, and much more!

## Using CSS

CSS can be added to HTML documents in 3 ways:

* **Inline** - by using the style attribute inside HTML elements
* **Internal** - by using a <style> element in the <head> section
* **External** - by using a <link> element to link to an external CSS file

## Inline CSS

An inline CSS is used to apply a unique style to a single HTML element.

An inline CSS uses the style attribute of an HTML element.

## Internal CSS

An internal CSS is used to define a style for a single HTML page.

An internal CSS is defined in the <head> section of an HTML page, within a <style> element.

## External CSS

An external style sheet is used to define the style for many HTML pages.

To use an external style sheet, add a link to it in the <head> section of each HTML page

The external style sheet can be written in any text editor. The file must not contain any HTML code, and must be saved with a .css extension.

A CSS rule consists of a selector and a declaration block.

## CSS Syntax



The selector points to the HTML element you want to style.

The declaration block contains one or more declarations separated by semicolons.

Each declaration includes a CSS property name and a value, separated by a colon.

Multiple CSS declarations are separated with semicolons, and declaration blocks are surrounded by curly braces.

## Border Color

With the border-color property, you can set the color of the border.

CSS Borders

The CSS border properties allow you to specify the style, width, and color of an element's border.

## CSS Border Style

The border-style property specifies what kind of border to display.

The following values are allowed:

* dotted - Defines a dotted border
* dashed - Defines a dashed border
* solid - Defines a solid border
* double - Defines a double border
* groove - Defines a 3D grooved border. The effect depends on the border-color value
* ridge - Defines a 3D ridged border. The effect depends on the border-color value
* inset - Defines a 3D inset border. The effect depends on the border-color value
* outset - Defines a 3D outset border. The effect depends on the border-color value
* none - Defines no border
* hidden - Defines a hidden border

The border-style property can have from one to four values (for the top border, right border, bottom border, and the left border).

CSS Border Width

The border-width property specifies the width of the four borders.

The border-width property can have from one to four values (for the top border, right border, bottom border, and the left border)

CSS Border Color

The border-color property is used to set the color of the four borders.

The color can be set by:

* name - specify a color name, like "red"
* HEX - specify a HEX value, like "#ff0000"
* RGB - specify a RGB value, like "rgb(255,0,0)"
* HSL - specify a HSL value, like "hsl(0, 100%, 50%)"
* transparent

## CSS Border - Individual Sides

In CSS, there are also properties for specifying each of the borders (top, right, bottom, and left):

If the border-style property has four values:

* **border-style: dotted solid double dashed;**
  + top border is dotted
  + right border is solid
  + bottom border is double
  + left border is dashed

If the border-style property has three values:

* **border-style: dotted solid double;**
  + top border is dotted
  + right and left borders are solid
  + bottom border is double

If the border-style property has two values:

* **border-style: dotted solid;**
  + top and bottom borders are dotted
  + right and left borders are solid

If the border-style property has one value:

* **border-style: dotted;**
  + all four borders are dotted

## CSS Border - Shorthand Property

To shorten the code, it is also possible to specify all the individual border properties in one property.

The border property is a shorthand property for the following individual border properties:

* border-width
* border-style (required)
* border-color

# CSS Rounded Borders

The border-radius property is used to add rounded borders to an element:

HTML Tables

HTML tables allow web developers to arrange data into rows and columns

A table in HTML consists of table cells inside rows and columns

Each table cell is defined by a <td> and a </td> tag.

## How To Add a Border

When you add a border to a table, you also add borders around each table cell.

To add a border, use the CSS border property on table, th, and td elements

## Collapsed Table Borders

To avoid having double borders like in the example above, set the CSS border-collapse property to collapse.

## Round Table Borders

With the border-radius property, the borders get rounded corners

## Dotted Table Borders

With the border-style property, you can set the appereance of the border.

The following values are allowed:

* dotted
* dashed
* solid
* double
* groove
* ridge
* inset
* outset
* none
* hidden

HTML Table Sizes

## HTML Table Width

To set the width of a table, add the style attribute to the <table> element

## HTML Table Column Width

To set the size of a specific column, add the style attribute on a <th> or <td> element

# HTML Table Padding & Spacing

## HTML Table - Cell Padding

Cell padding is the space between the cell edges and the cell content.

By default the padding is set to 0.

To add padding on table cells, use the CSS padding property

## HTML Table - Cell Spacing

Cell spacing is the space between each cell.

By default the space is set to 2 pixels.

To change the space between table cells, use the CSS border-spacing property on the table element

## HTML Table - Colspan

To make a cell span over multiple columns, use the colspan attribute

## HTML Table - Rowspan

To make a cell span over multiple rows, use the rowspan attribute

HTML <span> Tag

The <span> tag is an inline container used to mark up a part of a text, or a part of a document.

The <span> tag is easily styled by CSS or manipulated with JavaScript using the class or id attribute.

The <span> tag is much like the [<div>](https://www.w3schools.com/tags/tag_div.asp) element, but <div> is a block-level element and <span> is an inline element.

HTML Lists

## Unordered HTML List

An unordered list starts with the <ul> tag. Each list item starts with the <li> tag.

## Ordered HTML List

An ordered list starts with the <ol> tag. Each list item starts with the <li> tag.

## 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

CSS Selectors

## The CSS id Selector

The id selector uses the id attribute of an HTML element to select a specific element.

The id of an element is unique within a page, so the id selector is used to select one unique element!

To select an element with a specific id, write a hash (#) character, followed by the id of the element.

## The CSS class Selector

The class selector selects HTML elements with a specific class attribute.

To select elements with a specific class, write a period (.) character, followed by the class name.

## CSS Margins

The CSS margin properties are used to create space around elements, outside of any defined borders.

With CSS, you have full control over the margins. There are properties for setting the margin for each side of an element (top, right, bottom, and left).

## Margin - Individual Sides

CSS has properties for specifying the margin for each side of an element:

* margin-top
* margin-right
* margin-bottom
* margin-left

Emojis in HTML

To display an HTML page correctly, a web browser must know the character set used in the page.

This is specified in the <meta> tag:

Eg

<html>  
<head>  
<meta charset="UTF-8">  
</head>  
<body>  
  
<h1>My First Emoji</h1>  
  
<p>&#128512;</p>  
  
</body>  
</html>

Position

The position property specifies the type of positioning method used for an element (static, relative, fixed, absolute or sticky).

## The position Property

The position property specifies the type of positioning method used for an element.

There are five different position values:

* static
* relative
* fixed
* absolute
* sticky

Elements are then positioned using the top, bottom, left, and right properties. However, these properties will not work unless the position property is set first. They also work differently depending on the position value.

HTML Forms

## The <form> Element

The HTML <form> element is used to create an HTML form for user input:

## The <input> Element

The HTML <input> element is the most used form element.

An <input> element can be displayed in many ways, depending on the type attribute.

## The <label> Element

The <label> tag defines a label for many form elements.

The  for attribute of the <label> tag should be equal to the id attribute of the <input> element to bind them together.

HTML Form Attributes

## Action, Target , Method, Autocomplete,

**Notes on GET:**

* Appends the form data to the URL, in name/value pairs
* NEVER use GET to send sensitive data! (the submitted form data is visible in the URL!)
* The length of a URL is limited (2048 characters)
* Useful for form submissions where a user wants to bookmark the result
* GET is good for non-secure data, like query strings in Google

**Notes on POST:**

* Appends the form data inside the body of the HTTP request (the submitted form data is not shown in the URL)
* POST has no size limitations, and can be used to send large amounts of data.
* Form submissions with POST cannot be bookmarked

HTML Form Elements

* <input>
* <label>
* <select>
* <textarea>
* <button>
* <fieldset>
* <legend>
* <datalist>
* <output>
* <option>
* <optgroup>

HTML Input Types

* <input type="button">
* <input type="checkbox">
* <input type="color">
* <input type="date">
* <input type="datetime-local">
* <input type="email">
* <input type="file">
* <input type="hidden">
* <input type="image">
* <input type="month">
* <input type="number">
* <input type="password">
* <input type="radio">
* <input type="range">
* <input type="reset">
* <input type="search">
* <input type="submit">
* <input type="tel">
* <input type="text">
* <input type="time">
* <input type="url">
* <input type="week">

HTML Input Attributes

## value , readonly, pattern, placeholder

## , required