

(Modern) HTML

A fast-paced introduction to HTML5

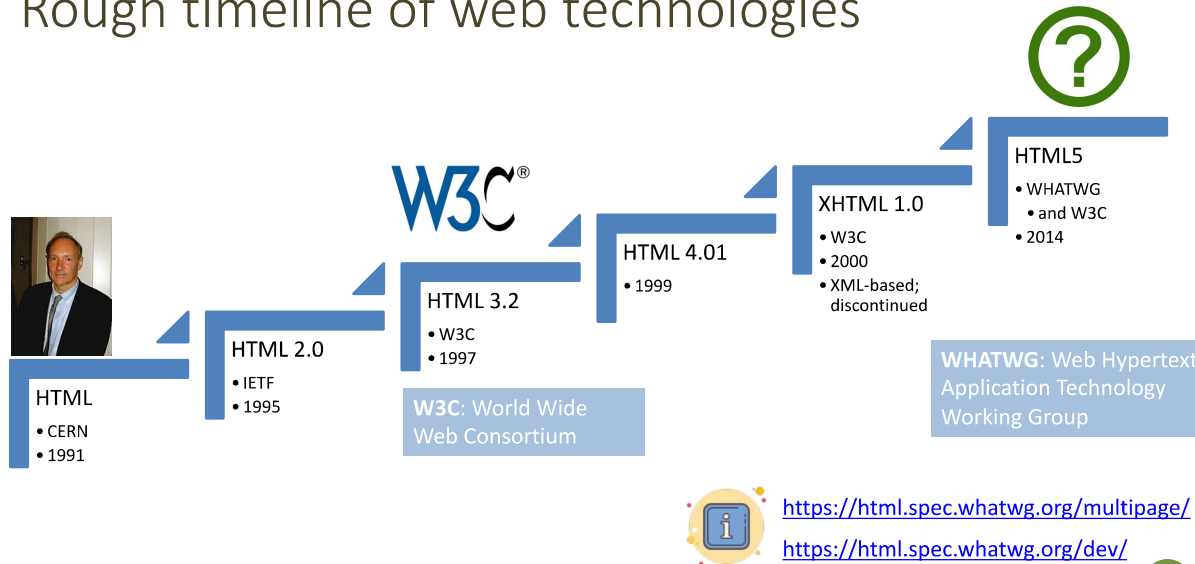
Fulvio Corno
Luigi De Russis
Enrico Masala



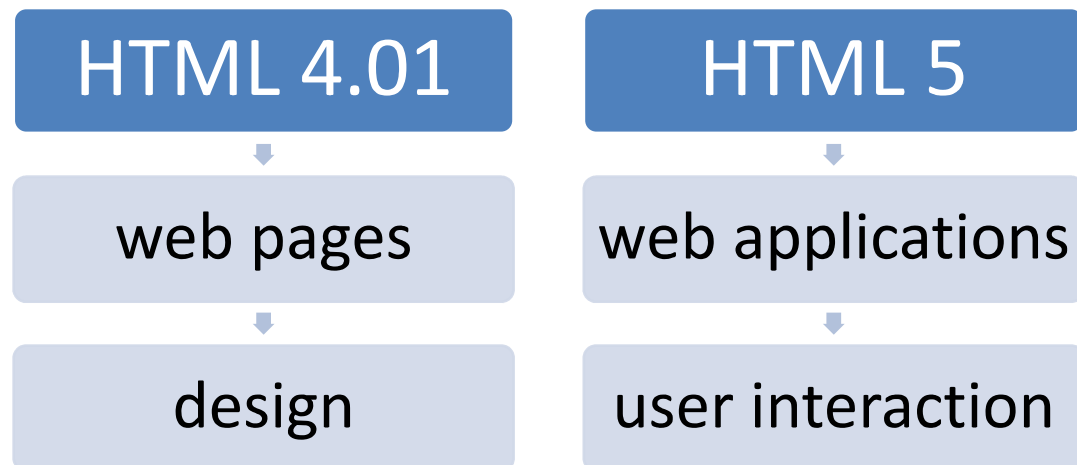
Goal

- Quick introduction to the essential features of HTML
 - Document structure and syntax
 - Essential elements
 - Semantic elements
 - Page structuring
- Aligned to what HTML 5 looks like in year 2020

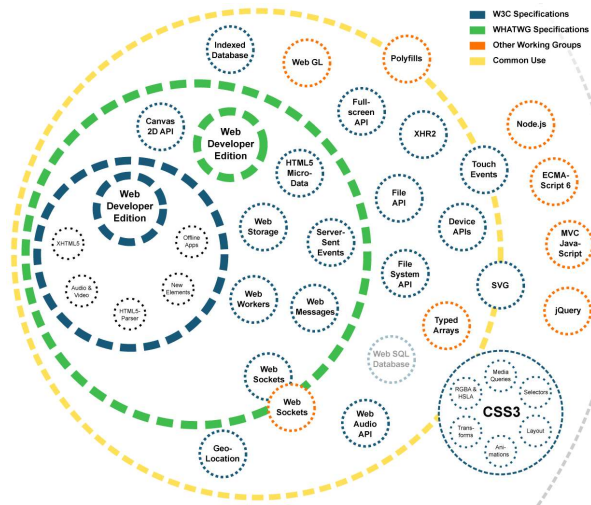
Rough timeline of web technologies



A different approach

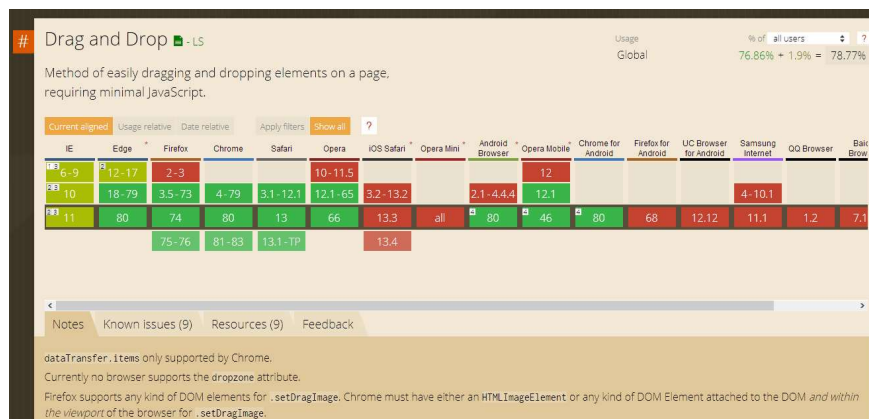


HTML 5 is a family of standards



Live standard: Browser Compatibility?

- <https://caniuse.com/>



A basic HTML document

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <title>Sample page</title>
  </head>
  <body>
    <h1>Sample page</h1>
    <p>This is a <a href="demo.html">simple</a> sample.</p>
    <!-- this is a comment -->
  </body>
</html>
```

- *Unicode* Text File
- DOCTYPE declaration
- Nested tree of Elements
 - Strict nesting
- **Element:**
 - Start tag: <a>
 - **Attribute:** href="demo.html"
 - Name=value pairs
 - End tag:
 - Inner text: simple

Mandatory structure

- First line: <!DOCTYPE html>
- <html> root element, contains the whole file
 - <head> (title, other metadata, load style sheets, load JavaScript code)
 - <body> (actual page content)

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <title>Sample page</title>
  </head>
  <body>
    <h1>Sample page</h1>
    <p>This is a <a href="demo.html">simple</a> sample.</p>
    <!-- this is a comment -->
  </body>
</html>
```

HTML parsing into a DOM tree

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <title>Sample page</title>
  </head>
  <body>
    <h1>Sample page</h1>
    <p>This is a <a href="demo.html">simple</a> sample.</p>
    <!-- this is a comment -->
  </body>
</html>
```

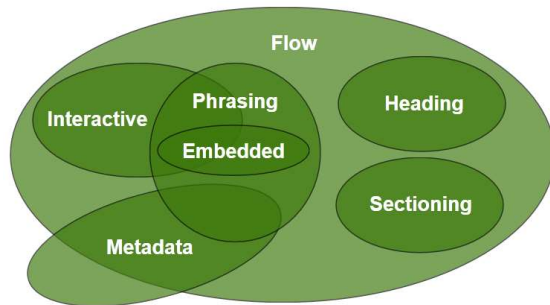
Parsing

```
DOCTYPE: html
html lang="en"
  head
    #text: 
    title
      #text: Sample page
    #text: 
  body
    #text: 
    h1
      #text: Sample page
    #text: 
    p
      #text: This is a
      a href="demo.html"
        #text: simple
      #text: sample.
    #text: 
    #comment: this is a comment
    #text: 
```

HTML elements

- Elements are used to define the *meaning* of a portion of a document
 - Semantic markup
- The meaning will be rendered graphically, according to the style sheets
 - No HTML code should deal with presentation issues
- Each element has a default *display* value
 - **display: block**
 - Full-width
 - Starts on a new line
 - Top-to-bottom layout
 - **display: inline**
 - Does not start a new line
 - Occupies just the necessary space
 - Left-to-right layout
 - Wraps around at the end of line

Categories of HTML elements



- *Sectioning* content defines headings and footers
- *Heading content* defines the header of a section
- *Phrasing* content is the *text* of the document, as well as elements that mark up that text *at the intra-paragraph level*.
 - Runs of phrasing content form paragraphs.
- *Flow* content includes most types of elements

<https://html.spec.whatwg.org/dev/dom.html#kinds-of-content>

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Sections and Headings (block)

Sectioning content

- article
- aside
- nav
- section

- header
- footer

Heading content

- h1
- h2
- h3
- h4
- h5
- h6
- hgroup

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Usage guide

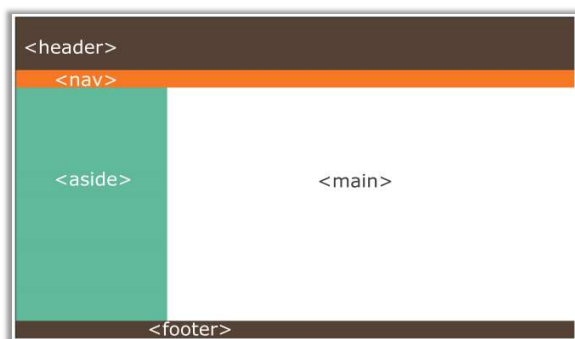
Element	Usage
<code><article></code>	complete, or self-contained, composition in a document, page, application, or site and that is, in principle, independently distributable or reusable
<code><section></code>	A generic section of a document or application. A thematic grouping of content, typically with a heading
<code><nav></code>	A section of a page that links to other pages or to parts within the page: a section with navigation links
<code><aside></code>	A section of a page that consists of content that is tangentially related to the content around the aside element, and which could be considered separate from that content (such as sidebars)
<code><h1>-<h6></code>	A section heading
<code><hgroup></code>	The heading of a section, that groups multiple h1-h6 elements, e.g., in case of subheadings
<code><header></code>	A group of introductory or navigational aids
<code><footer></code>	typically contains information about its section such as who wrote it, links to related documents, copyright data, and the like

<https://html.spec.whatwg.org/dev/sections.html#usage-summary-2>

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Typical layout



```
1 <body>
2   <header>
3     <nav>
4
5     </nav>
6   </header>
7   <aside>
8
9   </aside>
10  <main>
11
12  </main>
13  <footer>
14
15  </footer>
16 </body>
```

Grouping content (block)

Element	Usage
<code><p></code>	a paragraph of text
<code><hr></code>	horizontal rule (represents a paragraph-level thematic break)
<code><pre></code>	block of preformatted text
<code><blockquote></code>	a section that is quoted from another source
<code></code>	a list of items, where the items have been intentionally ordered. The items of the list are <code></code> elements
<code></code>	a list of items, where the order of the items is not important. The items of the list are <code></code> elements
<code><menu></code>	an unordered list <code></code> , whose elements are commands that may be executed
<code><dl></code>	a list of definitions. Each definition has a name (<code><dt></code> , definition term) and a value (<code><dd></code> , definition description)
<code><figure></code>	a sectioning element that can be used to annotate illustrations, diagrams, photos, code listings, etc. May include <code></code> or other content. May include <code><figcaption></code>
<code><main></code>	represents the dominant contents of the document
<code><div></code>	the <code><div></code> element has no special meaning at all. It can be used with the <code>class</code> , and <code>title</code> attributes to mark up semantics common to a group of consecutive elements. Use as a last resort.

<https://html.spec.whatwg.org/dev/grouping-content.html>

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Phrasing content (inline)

- `a`
- `abbr`
- `audio`
- `b`
- `br`
- `button`
- `canvas`
- `cite`
- `code`
- `data`
- `datalist`
- `del`
- `dfn`
- `em`
- `embed`
- `i`
- `img`
- `input`
- `ins`
- `kbd`
- `label`
- `mark`
- `output`
- `picture`
- `progress`
- `q`
- `s`
- `samp`
- `select`
- `slot`
- `small`
- `span`
- `strong`
- `sub`
- `sup`
- `template`
- `textarea`
- `time`
- `var`
- `video`
- `wbr`
- Insert content or format content inside a single paragraph
- Normally formatted left-to-right, and wrap at the end of line

<https://html.spec.whatwg.org/dev/text-level-semantic.html>

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Interactive content (inline)

- `a`
- `audio`
- `button`
- `details`
- `embed`
- `iframe`
- `input`
- `label`
- `select`
- `textarea`
- `video`
- Elements specifically intended for user interaction
- May be used to compose a form
- May include multimedia interactive content
- In the simplest form, they may just be a link
 - `anchor`

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Tabular data

- `<table>` container
- `<thead>` groups header rows, `<tbody>` groups data rows, `<tfoot>` groups summary rows
- `<tr>` table row, includes
 - `<td>` cell with table data
 - `<th>` cell with table heading
- May have a `<caption>`
- `<colgroup>` may apply common attributes to a set of `<col>` columns
- `rowspan` and `colspan` attributes for creating complex grids

Data about the planets of our solar system (Planetary facts taken from Nasa's Planetary Fact Sheet - Metric).

	Name	Mass (10 ²⁴ kg)	Diameter (km)	Density (kg/m ³)	Gravity (m/s ²)	Length of day (hours)	Distance from Sun (10 ⁶ km)	Mean temperature (°C)	Number of moons	Notes
Terrestrial planets	Mercury	0.330	4,879	5427	3.7	4222.6	57.9	167	0	Closest to the Sun
	Venus	4.87	12,104	5243	8.9	2802.0	108.2	464	0	
	Earth	5.97	12,756	5514	9.8	24.0	149.6	15	1	Our world
	Mars	0.642	6,792	3933	3.7	24.7	227.9	-65	2	The red planet
Jovian planets	Gas giants Jupiter	1898	142,984	1326	23.1	9.9	778.6	-110	67	The largest planet
	Saturn	568	120,536	687	9.0	10.7	1433.5	-140	62	
	Uranus	86.8	51,118	1271	8.7	17.2	2872.5	-195	27	
	Ice giants Neptune	102	49,528	1638	11.0	16.1	4495.1	-200	14	
Dwarf planets	Pluto	0.0146	2,370	2095	0.7	153.3	5900.4	-225	5	Declassified as a planet in 2006, but this remains controversial.

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Key attributes (applicable to all elements)

class="aa bb cc"

- Space-separated list of class identifiers
- Represents all the classes that this element belongs to
- Heavily used in CSS and JS for matching portions of contents

id="unique"

- Represents an element's unique identifier
- Must be unique within this specific HTML document
- Heavily used in CSS and JS for finding/matching this specific element

Key attributes (applicable to all elements)

style="css fragment"

- Apply a set of CSS declarations to this specific HTML element
- Use sparingly, prefer CSS rules that map to element `id` and `class`

“Wildcard” elements

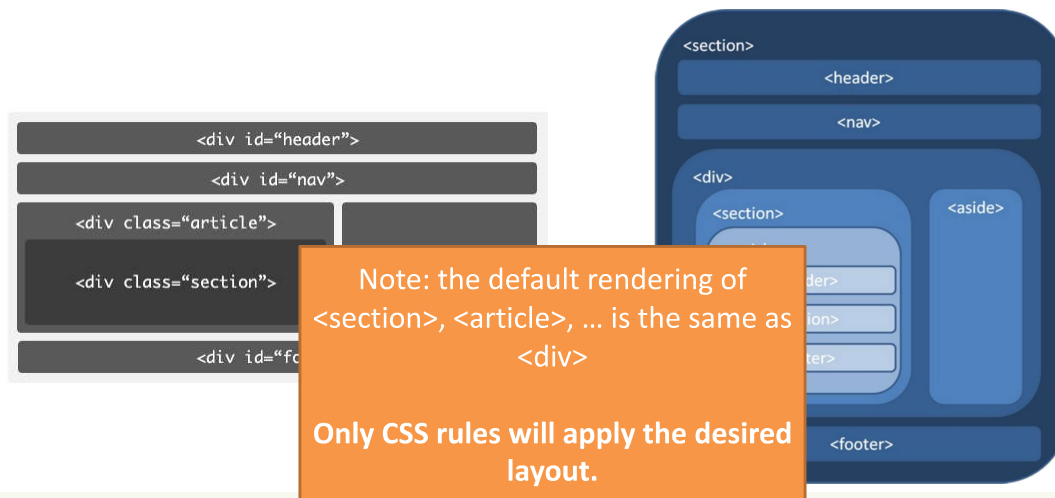
`<div>...</div>`

- Block-level container element
- No predefined semantics
- Invisible layout
- Used to mark-up blocks or groups of blocks, with specific classes

`...`

- Inline-level container element
- No predefined semantics
- Invisible layout
- Used to mark-up parts of a paragraph, with specific classes

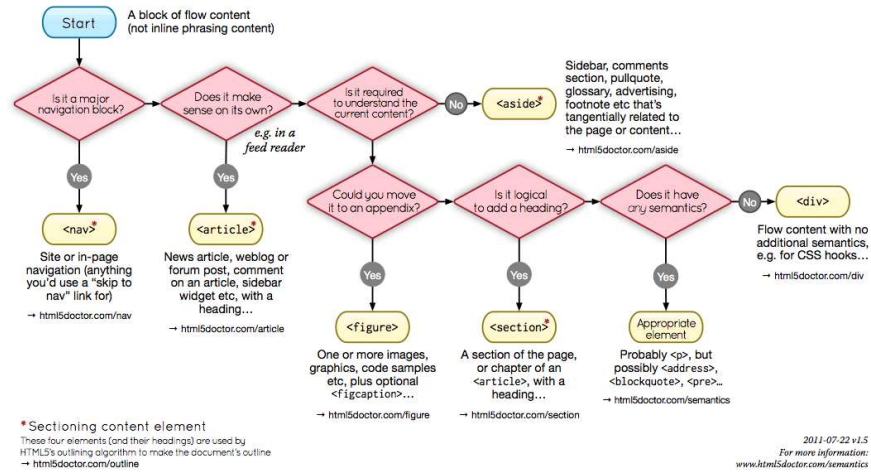
Opaque vs. Semantic elements



html5 Doctor HTML5 Element Flowchart

Sectioning content elements and friends

By @riddle & @boblet
www.html5doctor.com



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DOCTYPE

HTML5 has the best DOCTYPE ever

TITLE
The title is the single most important piece of page meta-information. It's the only place where you can use a space character, and it's the only place where you can use a space character.

CSS
The best way to include CSS is to use a <link> element in the <head> of your document. It's the only way to include CSS in a way that's not a stylesheet.

BODY
The body is the main content area of your document. It's the only place where you can use a space character.

DESCRIPTIVE BLOCKS
These are the blocks that are used to describe the content of your document. They are used to describe the content of your document.

HEIRARCHY
The hierarchy of your document is the way that the content is organized. It's the way that the content is organized.

IMAGE ATTRIBUTES
The image attributes are the attributes that are used to describe the image. They are used to describe the image.

APPROPRIATE TAGS
The appropriate tags are the tags that are used to describe the content of your document. They are used to describe the content of your document.

SEMANTIC CLASSES
The semantic classes are the classes that are used to describe the content of your document. They are used to describe the content of your document.

CLASSES
The classes are the classes that are used to describe the content of your document. They are used to describe the content of your document.

IDS
The ids are the ids that are used to describe the content of your document. They are used to describe the content of your document.

JAVASCRIPT
The javascript is the javascript that is used to describe the content of your document. They are used to describe the content of your document.

WHAT Beautiful HTML LOOKS LIKE

HTML5 and CSS3 are the best way to make your website look like a professional website.

```

<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8">
    <title>Beautiful HTML</title>
    <link href="css/main.css" rel="stylesheet">
  </head>
  <body>
    <div class="container">
      <div class="header">
        <h1>Beautiful HTML</h1>
      </div>
      <div class="main">
        <div class="row">
          <div class="col">
            <h2>Section 1</h2>
            <p>This is the first section of the document. It's the first section of the document.
          </div>
          <div class="col">
            <h2>Section 2</h2>
            <p>This is the second section of the document. It's the second section of the document.
          </div>
        </div>
      </div>
    </div>
  </body>
</html>

```

INDENTATION
The indentation is the way that the content is organized. It's the way that the content is organized.

FILE PATHS
The file paths are the paths that are used to describe the content of your document. They are used to describe the content of your document.

INCLUDES
The includes are the includes that are used to describe the content of your document. They are used to describe the content of your document.

CHARACTERS ENCODED
The characters encoded are the characters that are used to describe the content of your document. They are used to describe the content of your document.

DYNAMIC
The dynamic is the dynamic that is used to describe the content of your document. They are used to describe the content of your document.

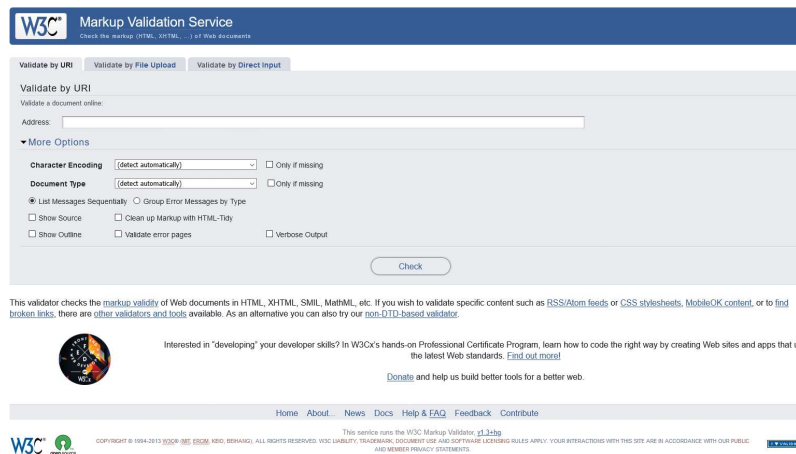
COMMENTS
The comments are the comments that are used to describe the content of your document. They are used to describe the content of your document.

FREE FROM STYLING
The free from styling is the free from styling that is used to describe the content of your document. They are used to describe the content of your document.

VALID
The valid is the valid that is used to describe the content of your document. They are used to describe the content of your document.

<https://css-tricks.com/what-beautiful-html-code-looks-like/>

HTML Validator



The screenshot shows the W3C Markup Validation Service interface. At the top, there's a blue header with the W3C logo and the text "Markup Validation Service". Below this, there are three tabs: "Validate by URI", "Validate by File Upload", and "Validate by Direct Input". The "Validate by URI" tab is selected. Under this tab, there's a section "Validate a document online:" with an "Address:" label and a text input field. Below the input field, there's a "More Options" section with several checkboxes and dropdown menus. The checkboxes include "Character Encoding" (set to "detect automatically"), "Document Type" (set to "detect automatically"), "List Messages Sequentially", "Show Source", "Show Outline", "Only if missing", "Clean up Markup with HTML-Tidy", "Validate error pages", and "Verbose Output". A "Check" button is located at the bottom of the "More Options" section. Below the "Check" button, there's a paragraph of text explaining the service and providing links to other validators and tools. At the bottom of the page, there's a footer with the W3C logo, a copyright notice, and a link to the "Validator" page.

<https://validator.w3.org/>

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References

- HTML: The Living Standard, Developer's Edition — Last Updated 20 March 2020 - <https://html.spec.whatwg.org/dev/>
- MDN: HTML: Hypertext Markup Language - <https://developer.mozilla.org/en-US/docs/Web/HTML>
- A Modern HTML Introductory Tutorial - <http://fastwebstart.com/modern-html-tutorial/> (and linked resources)
- <https://css-tricks.com/what-beautiful-html-code-looks-like/>

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