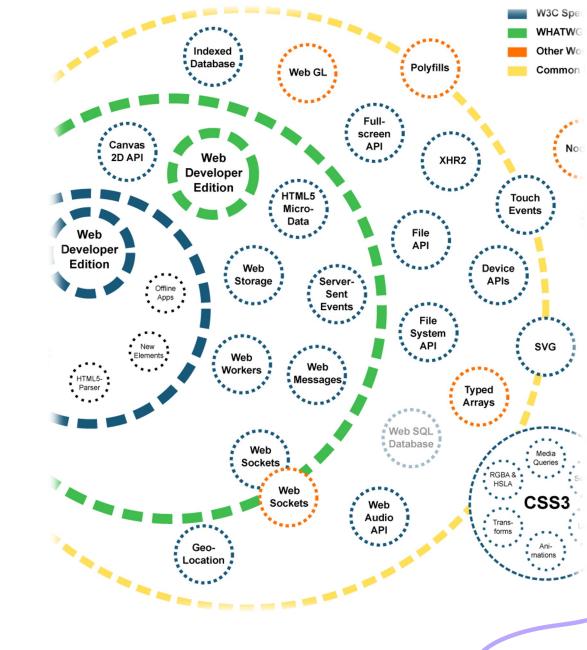


# HTML

#### (Modern) HTML5

Luigi De Russis



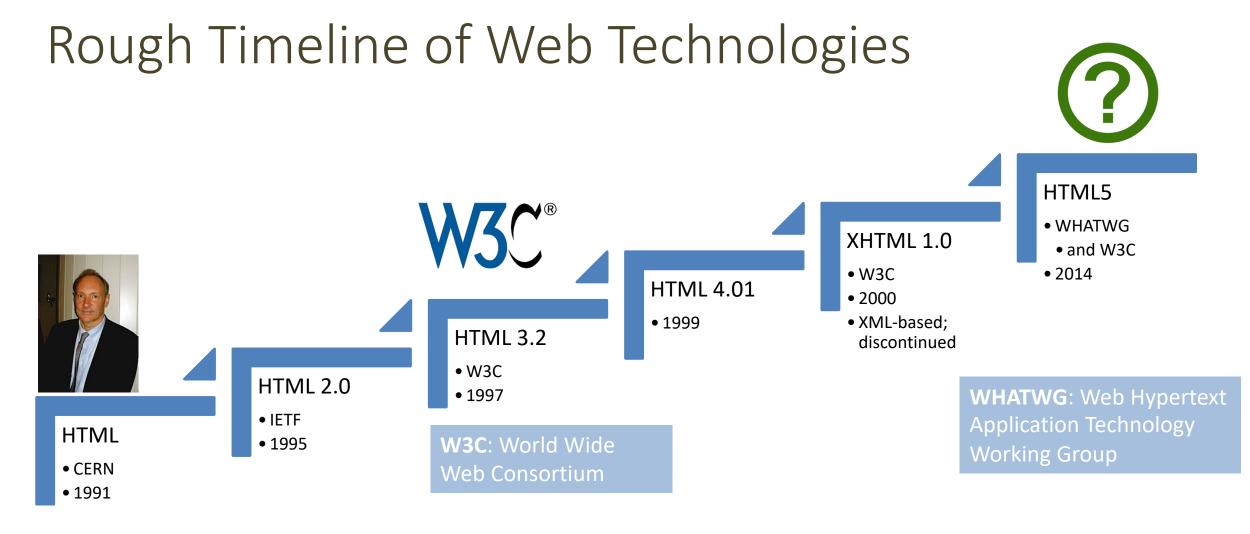




### Goal

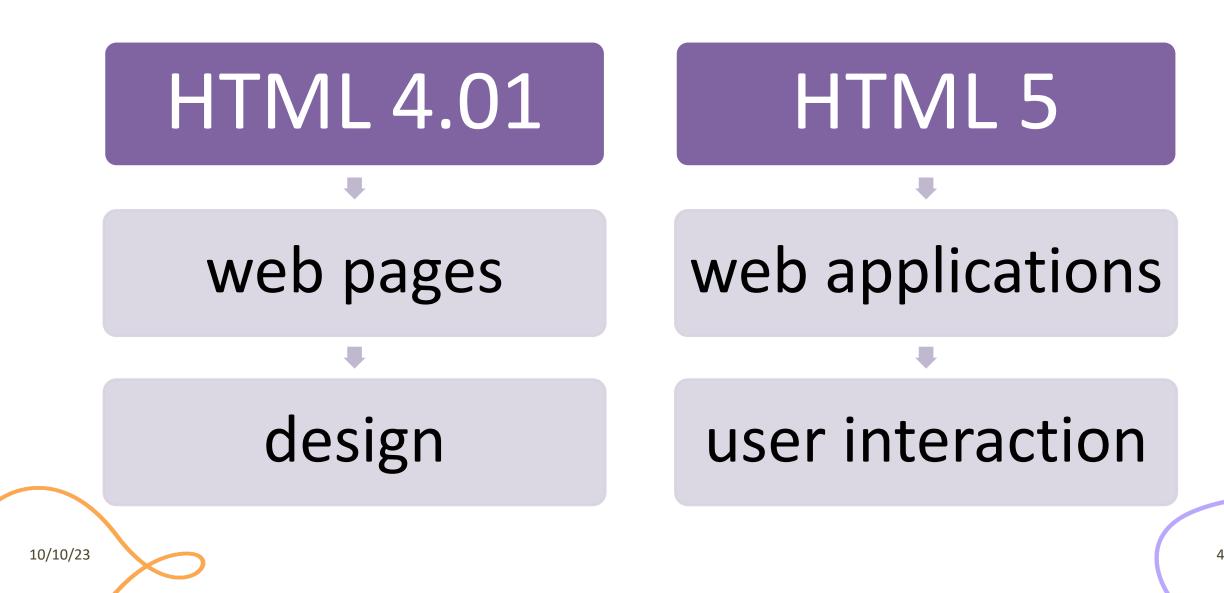
- Discovering the essential features of HTML
  - Document structure and syntax
  - Essential elements
  - Semantic elements
  - Page structuring
- Aligned to what HTML 5 looks like in year 2023



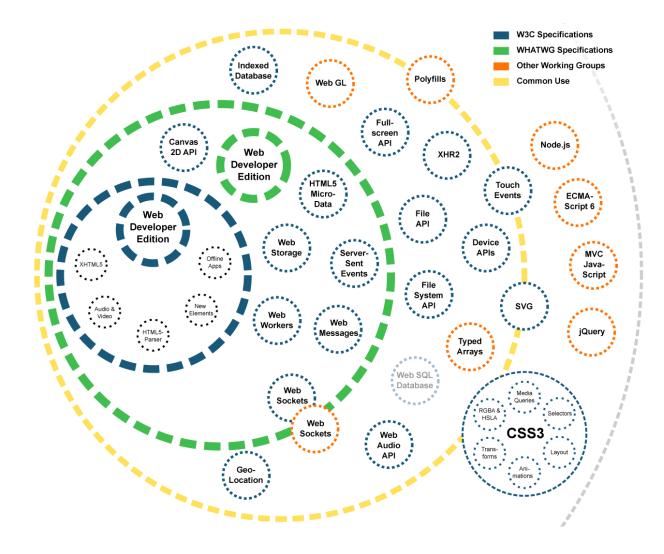


https://html.spec.whatwg.org/multipage/ https://html.spec.whatwg.org/dev/

### A Different Approach



#### HTML 5: a Family of Standards



## Live Standard: Browser Compatibility?

#### https://caniuse.com/

#	Drag and Drop  - Ls Method of easily dragging and dropping elements on a page, requiring minimal JavaScript.								Usage Global			% of all users				
	Current aligr	ned Usage re	elative Date	relative	Apply filters	Show all	?									
	IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser	* Opera Mobile	Chrome for Android	Firefox for Android	UC Browser for Android	Samsung Internet	QQ Browser	Baic Brow
	<sup>13</sup> 6-9	<sup>2</sup> 12-17	2-3			10-11.5				12						
	<sup>23</sup> 10	18-79	3.5-73	4-79	3.1-12.1	12.1-65	3.2-13.2		2.1 - 4.4.4	12.1				4-10.1		
	<sup>213</sup> 11	80	74	80	13	66	13.3	all	<sup>4</sup> 80	<sup>4</sup> 46	<sup>4</sup> 80	68	12.12	11.1	1.2	7.1
			75-76	81-83	13.1-TP		13.4									
	<															>
	Notes	Known is	ssues (9)	Resourc	:es (9) F	eedback										_
	dataTransf	°er.items <mark>O</mark>	nly support	ed by Chro	me.											
	dataTransfer.items only supported by Chrome. Currently no browser supports the dropzone attribute.															
						gImage. Chr	ome must	have either	an HTMLIm	ageElement o	or any kind	of DOM Ele	ement attach	hed to the	DOM and w	ithin
	the viewpo	<i>rt</i> of the bro	owser for .	setDragIma	ge.											

### HTML5 test

- How well does your browser support HTML5?
- http://html5test.com

HTML TEST how well d	oes your browser suppor	t html5?								
your browser other browser	s compare	new	rs device lab about the tes	st						
YOUR BROWSER	YOUR BROWSER SCORES $468$ out of 555 points									
You are using Safari 16.0 on macO	S Catalina 10.15		Correct? 🗸 💙	k						
Save results	Compare to	Share	P Donate							
Save results  Semantics		(1) multimedia	P Donate							
Save results	# Compare to 5		P Donate	3						
Save results  Semantics  Parsing rules html triggers standard	5 Is mode Yes ✓	C1 multimedia Video video element	P Donate	3						
Save results  Semantics  Semantics  Arright State of the semantic	5 Is mode Yes ✓ Yes ✓	CC multimedia Video video element Subtitles	P Donate	3						
Save results  Semantics  Parsing rules html triggers standard	5 Is mode Yes ✓	C1 multimedia Video video element	P Donate	3						

## A Basic HTML Document

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

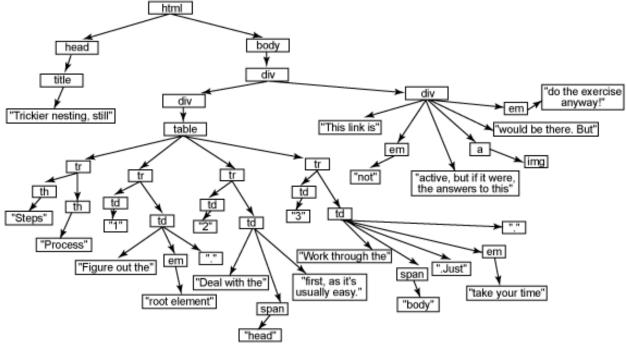
### Mandatory Structure

- 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>
  This is a <a href="demo.html">simple</a> sample.
  <!-- this is a comment -->
  </body>
</html>
```

# Document Object Model (DOM)

- Browser's internal representation of a web page
- Obtained through parsing HTML
  - Example of parsed HTML tree structure



https://flaviocopes.com/dom/

### HTML Parsing Into a DOM Tree

```
html lang="en"
                                                                                        head
                                                                                         -#text: ຝ____
                                                                                          -title
<!DOCTYPE html>
                                                                                           #text: Sample page
<html lang="en">
                                                                                         └#text: ຝ.
 <head>
                                                                                        #text: 🕘 🚊
  <title>Sample page</title>
                                                                                         body
                                                                  Parsing
 </head>
                                                                                         -#text: ຝ____
 <body>
                                                                                          -h1
                                                                                           L#text: Sample page
  <h1>Sample page</h1>
  This is a <a href="demo.html">simple</a> sample.
                                                                                          -#text: ຝ___
  <!-- this is a comment -->
                                                                                           #text: This is a
 </body>
                                                                                            ahref="demo.html"
</html>
                                                                                            <sup>L</sup>#text: simple
                                                                                           #text: sample.
                                                                                          -#text: ↩....
                                                                                          #comment: this is a comment
```

10/10/23

-DOCTYPE: html

#text: 🕘 🖉

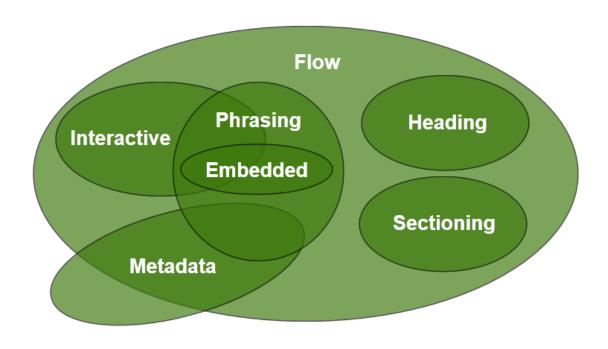
11

## 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
  - <u>No HTML code should deal with</u> 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

# Sections and Headings (Block)

#### **Sectioning content**

- article
- aside
- nav
- section
- header
- footer

10/10/23

#### **Heading content**

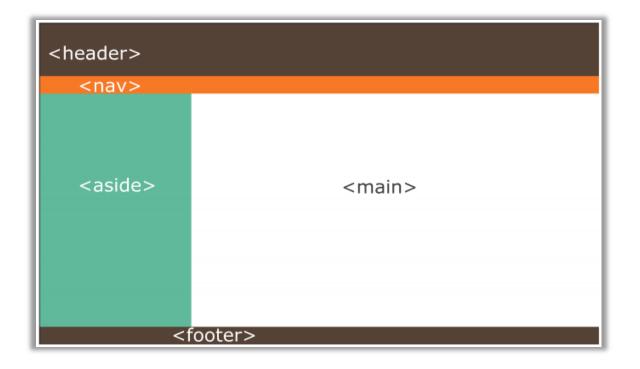
- h1
- h2
- h3
- h4
- h5
- h6
- hgroup

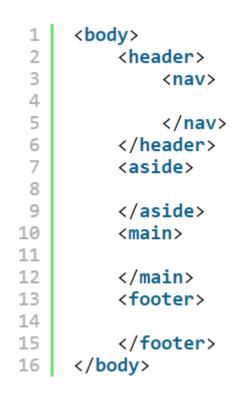
### Usage Guide

Element	Usage					
<article></article>	complete, or self-contained, composition in a document, page, application, or site and that is, in principle, independently distributable or reusable					
<section></section>	A generic section of a document or application. A thematic grouping of content, typically with a heading					
<nav></nav>	A section of a page that links to other pages or to parts within the page: a section with navigation links					
<aside></aside>	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)					
<h1>-<h6></h6></h1>	A section heading					
<hgroup></hgroup>	The heading of a section, that groups multiple h1-h6 elements, e.g., in case of subheadings					
<header></header>	A group of introductory or navigational aids					
<footer></footer>	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

# Typical Layout





# Grouping Content (Block)

Element	Usage					
	a paragraph of text					
<hr/>	horizontal rule (represents a paragraph-level thematic break)					
<pre></pre>	block of preformatted text					
<blockquote></blockquote>	a section that is quoted from another source					
<01>	a list of items, where the items have been intentionally ordered. The items of the list are <li> elements</li>					
<ul></ul>	a list of items, where the order of the items is not important. The items of the list are <li> elements</li>					
<menu></menu>	an unordered list <ul>, whose elements are commands that may be executed</ul>					
<dl></dl>	a list of definitions. Each definition has a name ( <dt>, definition term) and a value (<dd>, definition description)</dd></dt>					
<figure></figure>	a sectioning element that can be used to annotate illustrations, diagrams, photos, code listings, etc. May include <img/> or other content. May include <figcaption></figcaption>					
<main></main>	represents the dominant contents of the document					
<div></div>	the <div> element has no special meaning at all. It can be used with the class, and title attributes to mark up semantics common to a group of consecutive elements. Use as a last resort.</div>					
0/23	https://html.spec.whatwg.org/dev/grouping-content.html					

# 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-semantics.html

# 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
  - <a href="URL">anchor</a>

## Tabular Data

- container
- <thead> groups header rows,
   groups data rows, <tfoot> groups summary rows
- table row, includes
  - cell with table data
  - 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

		Name	Mass (10 <sup>24</sup> kg)	Diameter (km)	Density (kg/m <sup>3</sup> )	Gravity (m/s²)	Length of day (hours)	Distance from Sun (10 <sup>6</sup> km)	Mean temperature (°C)	Number of moons	Notes
		Mercury	0.330	4,879	5427	3.7	4222.6	57.9	167	0	Closest to the Sun
Terrestia	I	Venus	4.87	12,104	5243	8.9	2802.0	108.2	464	0	
planets		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
	Gas giants	Jupiter	1898	142,984	1326	23.1	9.9	778.6	-110	67	The largest planet
Jovian		Saturn	568	120,536	687	9.0	10.7	1433.5	-140	62	
planets	lce giants	Uranus	86.8	51,118	1271	8.7	17.2	2872.5	-195	27	
		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	5906.4	-225	5	Declassified as a planet in 2006, but this remains controversial.

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

# Key Attributes (Applicable To All Elements)

#### class="aa bb cc"

- Space-separated list of class identifiers
- Represents all the classes that this elements 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
- Avoid when possible, prefer CSS rules that map to element id and class

# "Wildcard" Elements

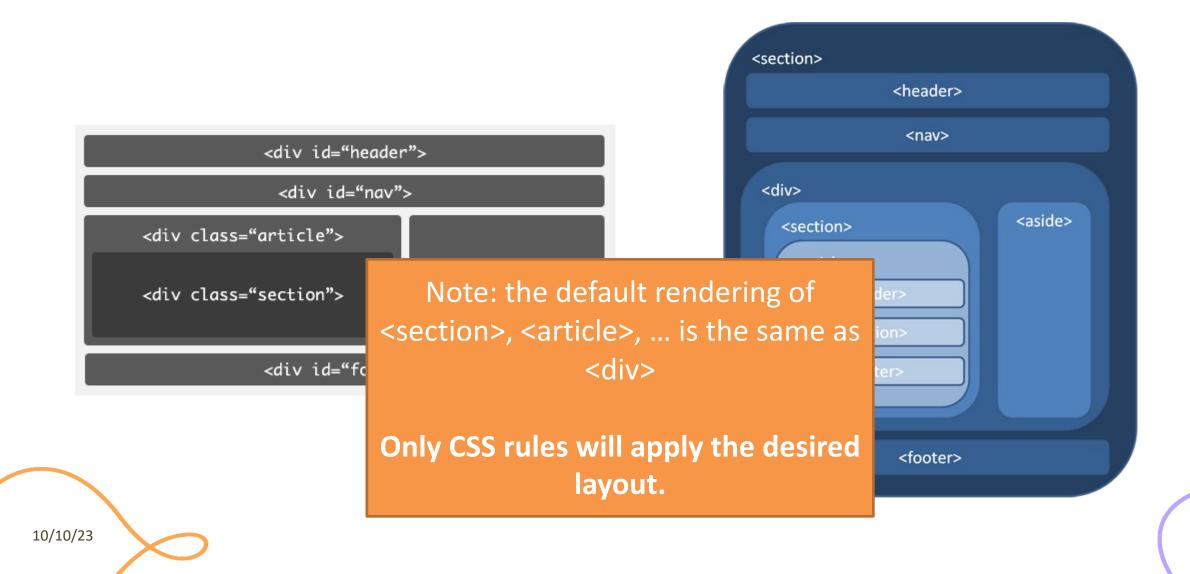
#### <div>...</div>

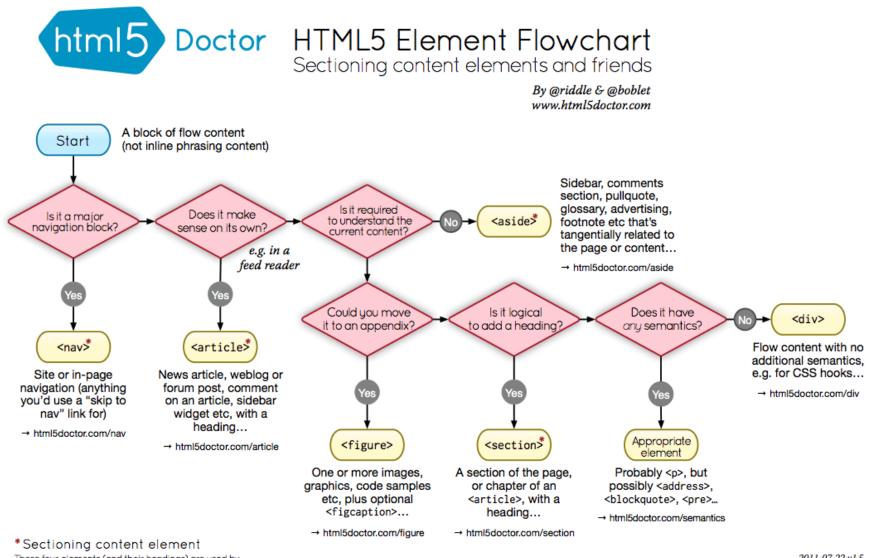
- Block-level container element
- No predefined semantics
- Invisible layout
- Used to mark-up blocks or groups of blocks, with specific classes

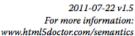
#### <span>...</span>

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

#### Opaque vs. Semantic elements







These four elements (and their headings) are used by HTML5's outlining algorithm to make the document's outline

→ html5doctor.com/outline

### HTML Validator

	kup Validation Service									
Validate by URI Va	idate by File Upload Validate by Direc	- Innué								
validate by ORI Va	valuate by File opload valuate by bired	input								
Validate by URI										
Validate a document online:	Validate a document online:									
Address:										
✓ More Options	✓More Options									
Character Encoding	(detect automatically) ~	Only if missing								
Document Type	(detect automatically) ~									
List Messages Sequ	List Messages Sequentially O Group Error Messages by Type									
Show Source	Clean up Markup with HTML-Tidy									
Show Outline	□ Validate error pages	Verbose Output								
		Check								

This validator checks the <u>markup validity</u> of Web documents in HTML, XHTML, SMIL, MathML, etc. If you wish to validate specific content such as <u>RSS/Atom feeds</u> or <u>CSS stylesheets</u>, <u>MobileOK content</u>, or to <u>find</u> <u>broken links</u>, there are <u>other validators and tools</u> available. As an alternative you can also try our <u>non-DTD-based validator</u>.



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### References

- HTML: The Living Standard, Developer's Edition Last Updated 4 October 2022 - <u>https://html.spec.whatwg.org/dev/</u>
- MDN: HTML: Hypertext Markup Language https://developer.mozilla.org/en-US/docs/Web/HTML
- A Modern HTML Introductory Tutorial -<u>http://fastwebstart.com/modern-html-tutorial/</u> (and linked resources)
- https://css-tricks.com/what-beautiful-html-code-looks-like/

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