



Politecnico
di Torino

Introduzione alle Applicazioni Web

HTML

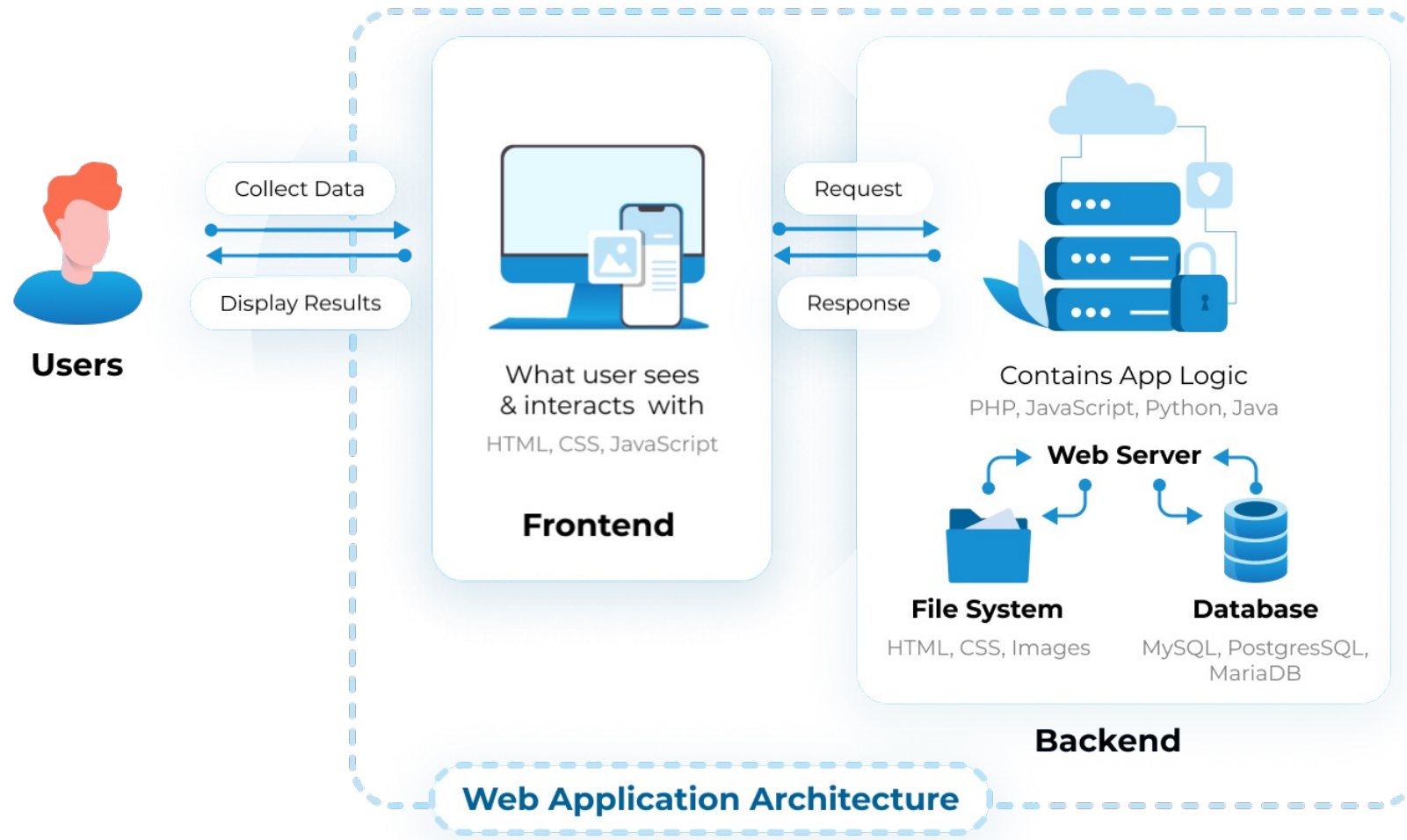
Juan Pablo Sáenz



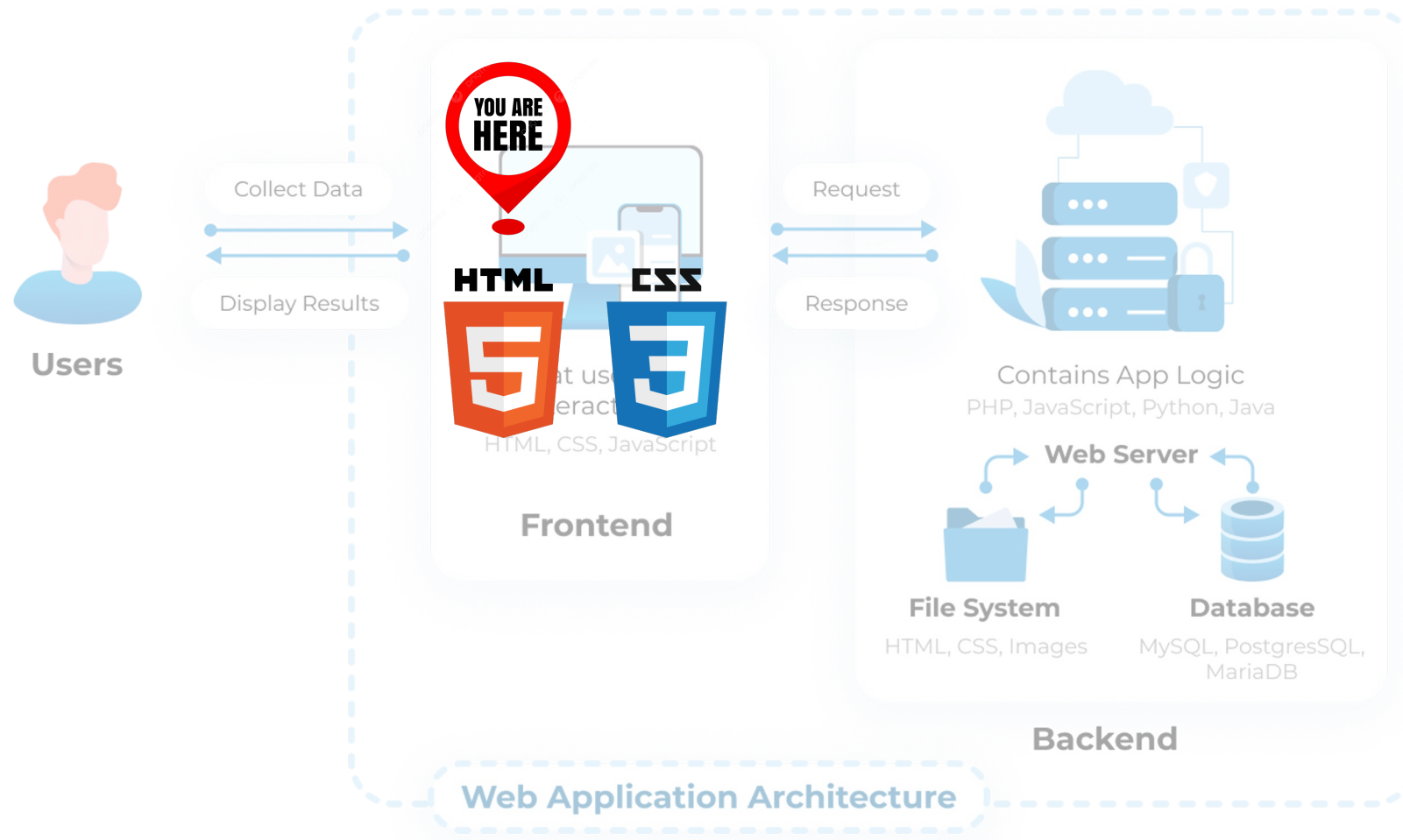
Goals

- Understand **HTML document structure** and **syntax**.
- Learn essential and **semantic elements**.
- Explore **page structuring principles**.
- All of the above, aligned with **HTML5** standards in 2023.

📌 HTML: where are we?



📍 HTML: where are we?



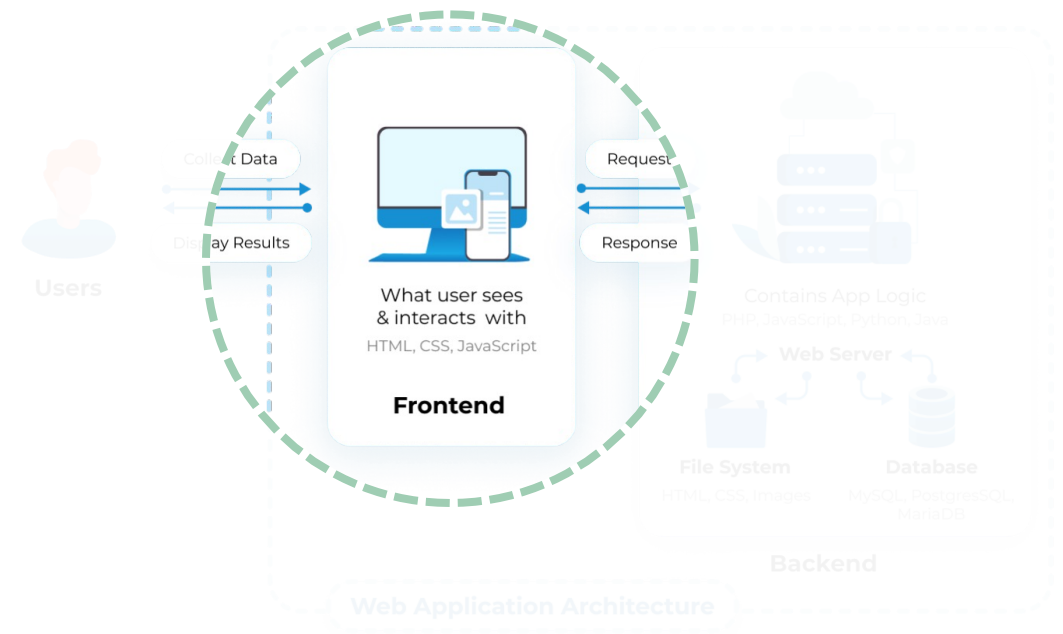


Web architecture components: Frontend

Frontend: what the user sees and interacts with

Languages:

- **HTML:** a markup language used to **structure content on the web**. It defines elements like headings, paragraphs, images, and links.
- **CSS:** a style sheet language used to **control the presentation of HTML elements**, such as colors, fonts, and layouts.
- **JavaScript:** a programming language used to **add interactivity and dynamic behavior** to web pages.



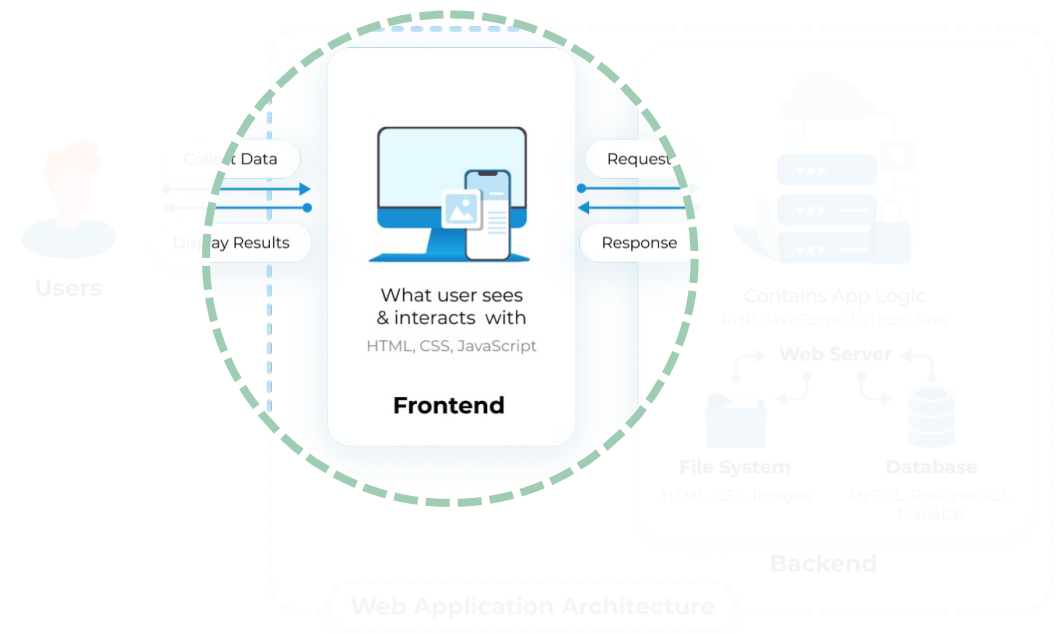


Web architecture components: Frontend

Frontend: what the user sees and interacts with

Applications:

- **Browser:** an application that **retrieves, interprets, and displays web content**, including HTML, CSS, and JavaScript.



A basic HTML document

- 🌳 Nested tree of elements
- `<!DOCTYPE html>`: tells the web browser that the document follows the **HTML5** standard.
 - It should always be the first line in an HTML document before the `<html>` tag.
- `<html>`: defines the **root** element of an HTML document.
 - `lang="en"`: an **attribute** to specify the **language** of the content.

For browsers, search engines, and other tools (text-to-speech, spell-checking, and correct rendering).

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


A basic HTML document

- `<head>`: contains **meta-information** about the document, such as the title and **links to external resources**.
- `<title>`: sets the webpage's **title**, shown in the browser tab.
- `<body>`: contains the content of the webpage **visible to users**.
- `<h1>`: a **top-level heading**, typically used for main titles.
- `<p>`: a **paragraph** of text.

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


A basic HTML document

- `<!-- This is a comment -->`
- ``: creates a **hyperlink** where `href` specifies the target URL (in this case, `"demo.html"`)
 - End tag: ``
 - Inner text: `simple`
- Attributes: **name-value** pairs.

```
<!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>
```

Let's see it in practice

Always Format Code! 🙏

- **Mac:** Shift + Option + F
- **Windows:** Shift + Alt + F

```
<ul id="bigBarNavigation">  
<li><a href="/">Home</a>  
</li><li><a href="/contact">Contact US</a></li><li>  
  <a href="/about">About US</a></li></ul>
```

Looks messy and hard to read

```
<ul id="bigBarNavigation">  
  <li><a href="/">Home</a></li>  
  <li><a href="/contact">Contact US</a></li>  
  <li>  
    <a href="/about">About US</a>  
    <div class="subMenu">  
  
      </div>  
  </li>  
</ul>
```

Looks nice, clean and easy to read

<https://ilovecoding.org/blog/what-are-some-goals-a-beginner-self-taught-developer-should-have>

Install Live Preview

The screenshot shows the VS Code Marketplace interface for the 'Live Preview' extension. The extension is by Microsoft, has 8,089,611 downloads, and a 5-star rating from 72 reviews. It is currently disabled globally. The main content area displays the extension's name, a warning that it is under development, and a description: 'An extension that hosts a local server for you to preview your web projects on!'. A 'Table of Contents' section lists links for Features, Running the Extension, FAQ, Inspirations, Issue Tracking, and Changelog. The 'Installazione' (Installation) section shows the extension ID 'ms-vscode.live-server', version '0.4.15', and a size of '853.71 KB'. The 'Marketplace' section shows the publication date '2021-06-21' and the last release date '2024-09-16'. The 'Categorie' (Categories) section shows 'Other'. The left sidebar lists other extensions like 'Live Server' and 'Live HTML Preview'.

ESTENSIONI: MARKETPLACE

live preview

Live Preview
Hosts a local server in your ...
Microsoft

Live Preview
157K ★ 5
https://github.com/profimed...
Cumpanasu Florin
Installa

Live Server
Launch a development local ...
3ms
Ritwick Dey

Live Server Pr...
Preview your HTML file with ...
1.3M ★ 3.5
negokaz
Installa

Live Server (F...
A better Live Server with ins...
1.7M ★ 4.5
Yannick
Installa

Live HTML Previ...
Edit and preview HTML doc...
1M ★ 2
Harshdeep Gu...
Installa

[Deprecated]...
This extension is deprecate...
729K ★ 3
Kenneth Auch...
Installa

Svg Preview
Preview for Svg files
1.1M ★ 5
Simon Siefke
Installa

DBML Live Prev...
An extension for Visual Studi...
14K ★ 5
Nicolas Liger
Installa

Estensione: Live Preview — materiale

Live Preview **Anteprima**
Microsoft microsoft.com | 8.089.611 | ★★★★★ (72)
Hosts a local server in your workspace for you to preview your webpages on.
Abilita Disinstalla Passare alla versione non definitiva Aggiornamento automatico
Questa estensione è stata disabilitata dall'utente a livello globale.

DETTAGLI FUNZIONALITÀ LOG DELLE MODIFICHE

Live Preview - VS Code Extension

⚠ WARNING: This extension is still under development! ⚠

An extension that hosts a local server for you to preview your web projects on!

This extension is most useful for projects where a server is not already created (e.g. not for apps using React, Angular, etc.). To work with these, feel free to run the **Simple Browser: Show** command that is already built-in with VS Code.

Table of Contents

- Features
- Running the Extension
- FAQ
- Inspirations
- Issue Tracking
- Changelog

Features

Installazione

Identific... ms-vscode.live-server

Versione 0.4.15

Ultimo 2024-09-13, 09:47:54

Dimensi... 853.71 KB

Marketplace

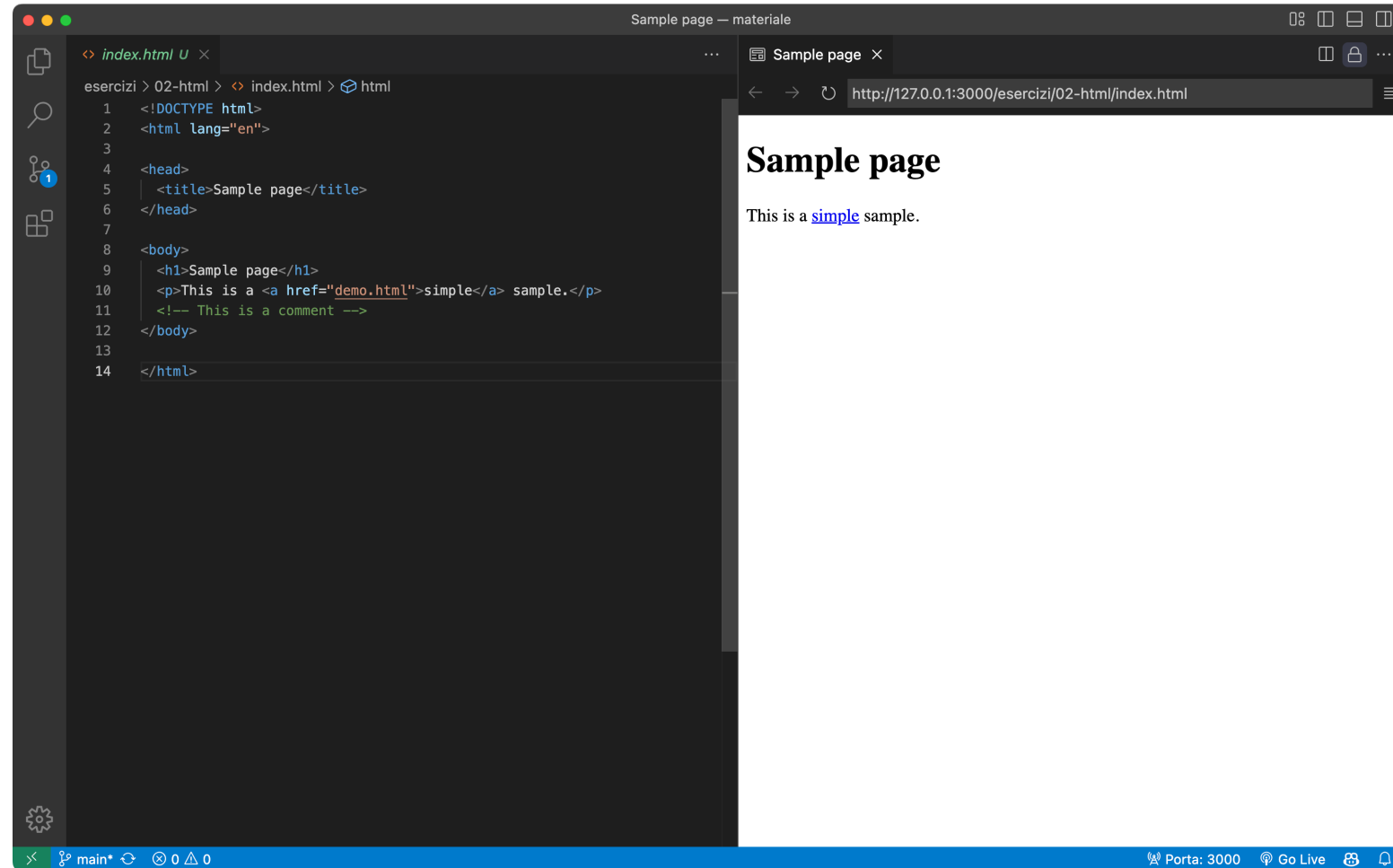
Publica... 2021-06-21, 22:33:59

Ultimo 2024-09-16, 11:20:57

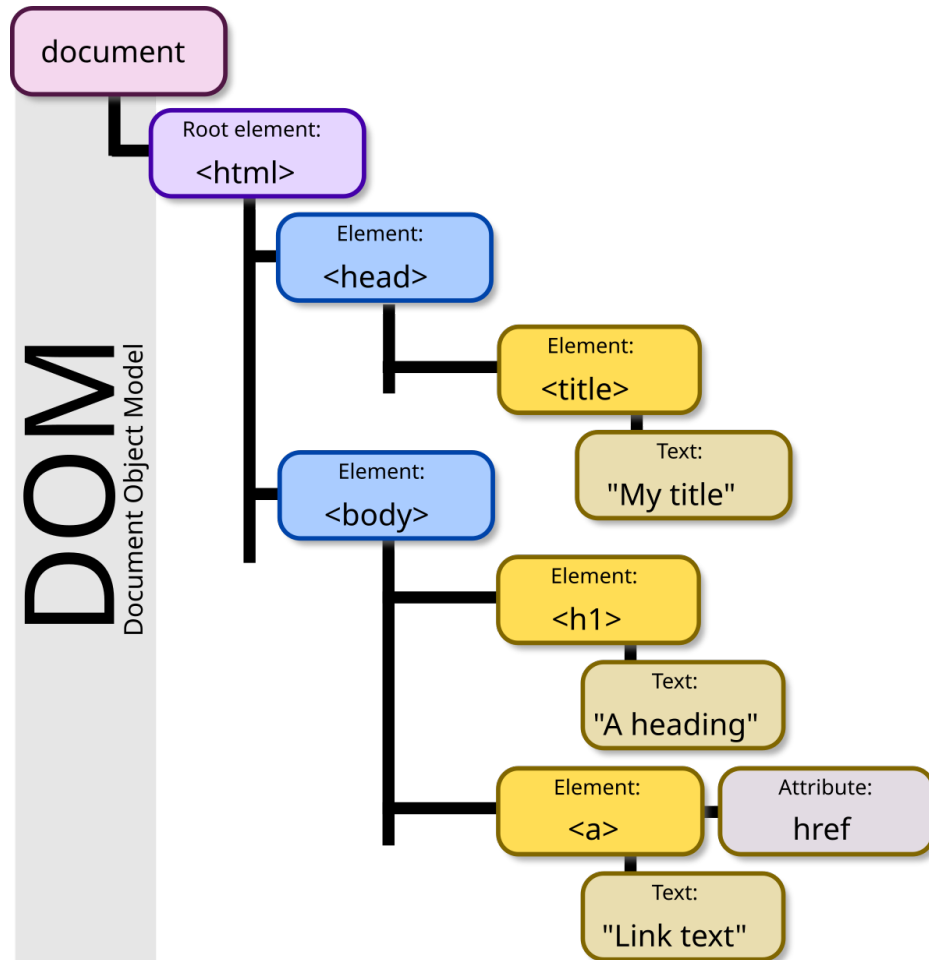
Categorie

Other

Install Live Preview



Document Object Model (DOM)



- **Browser's internal representation** of a web page.
 - Obtained through parsing HTML.
 - Each node corresponds to a part of the document (e.g., elements, attributes, text)
- **Dynamic content manipulation:** allows JavaScript to modify a webpage's content, structure, and style in real time.
- **Navigation:** provides a way to traverse through elements and attributes, allowing scripts to access and manipulate specific parts of the webpage.

https://en.wikipedia.org/wiki/Document_Object_Model

HTML elements

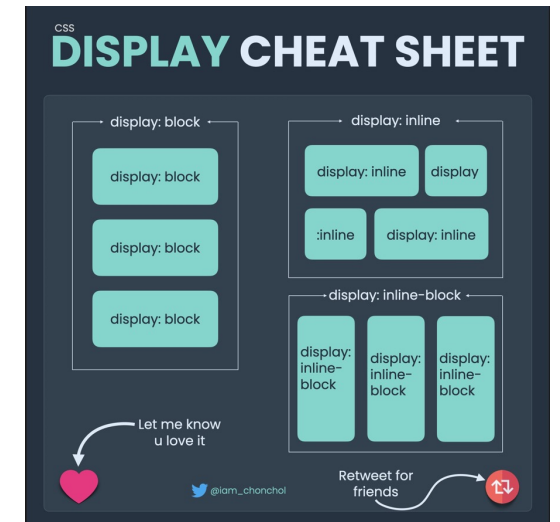
Used to define the **meaning** of a portion of a document.

The meaning will be rendered graphically, according to the stylesheets (CSS)

- ⚠ 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 at the end of line.



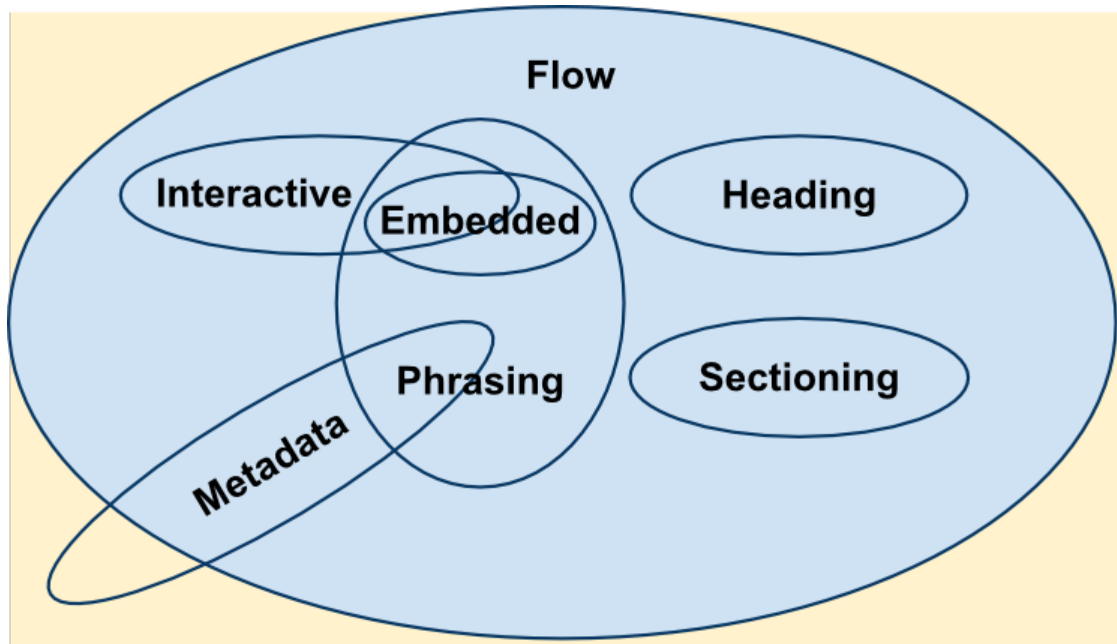
HTML elements reference



The **MDN Web Docs** site provides information about Open Web technologies, including **HTML**, **CSS**, and APIs for both Web sites and progressive web apps.

- <https://developer.mozilla.org/en-US/docs/Web/HTML/Element>

HTML elements categories

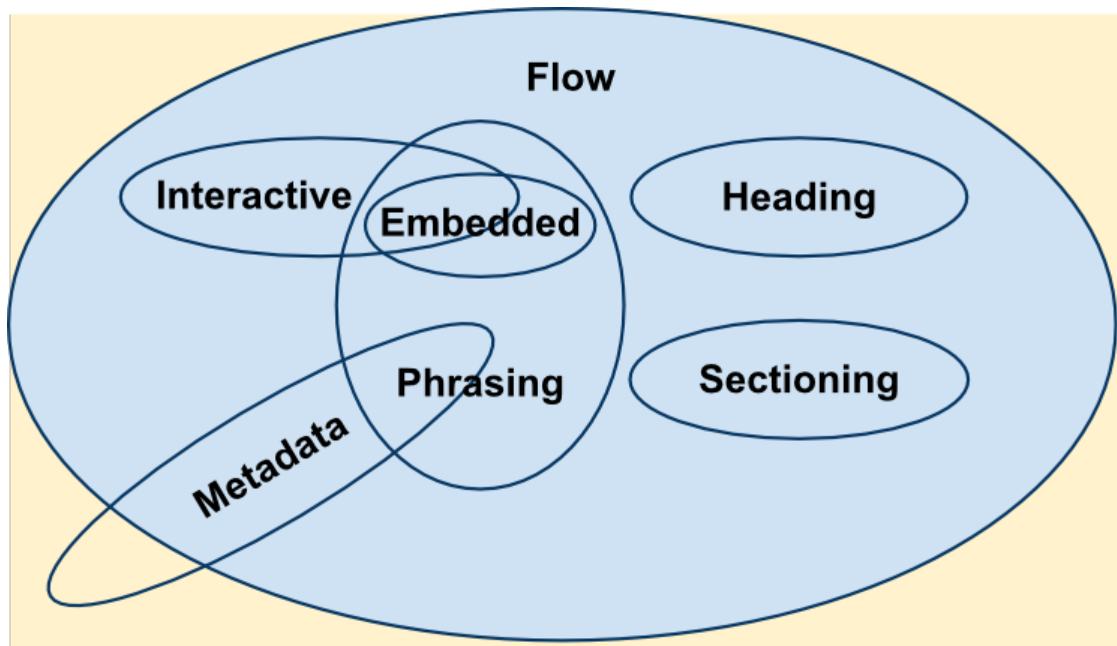


- **Flow content:** a broad category that encompasses most elements that can go inside the `<body>`
- **Sectioning content:** define the structure of a webpage by grouping related content into sections. Divide the page into logical areas, such as headers, footers, navigation, and main content.

```
<article>  
<aside>  
<nav>  
<section>
```

```
<header>  
<footer>
```

HTML elements categories



- **Phrasing content (inline)**: elements that define the structure of inline content, typically within sections

Mark up text, links, media, and other content that maintains the flow of the document.

- **Heading content (block)**: defines the title of a section.

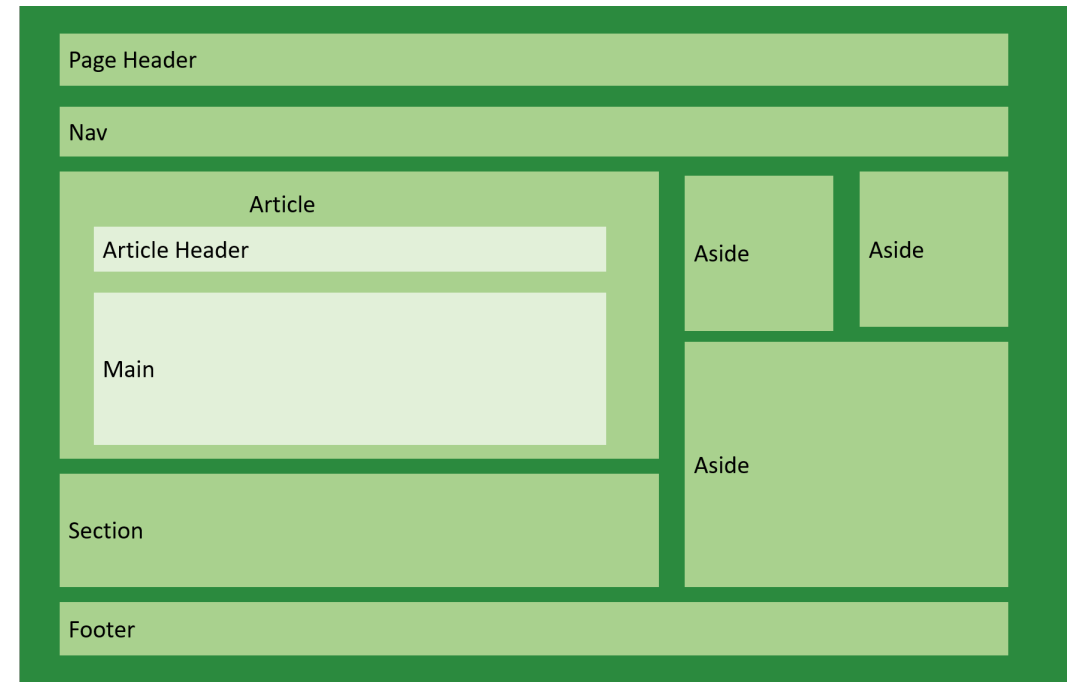
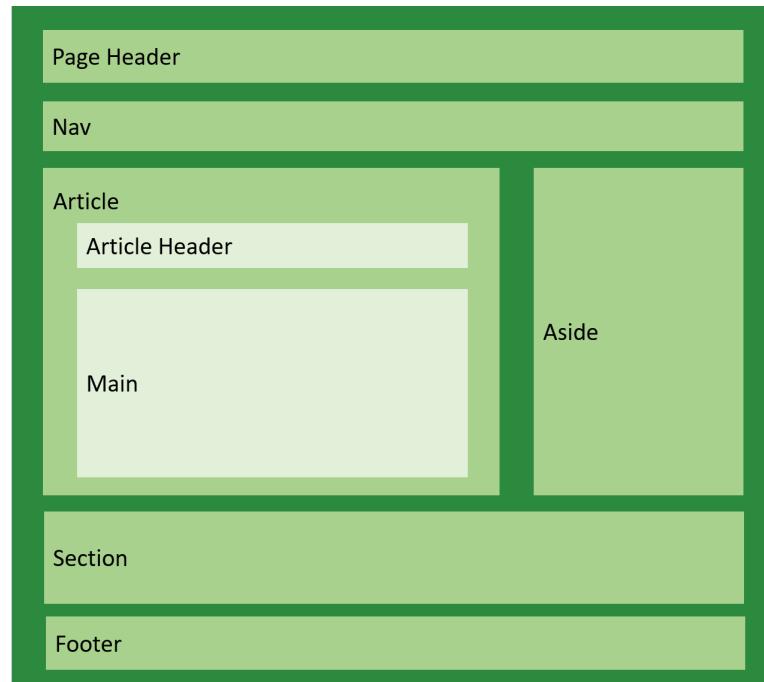
`<h1> - <h6>`

`<hgroup>`

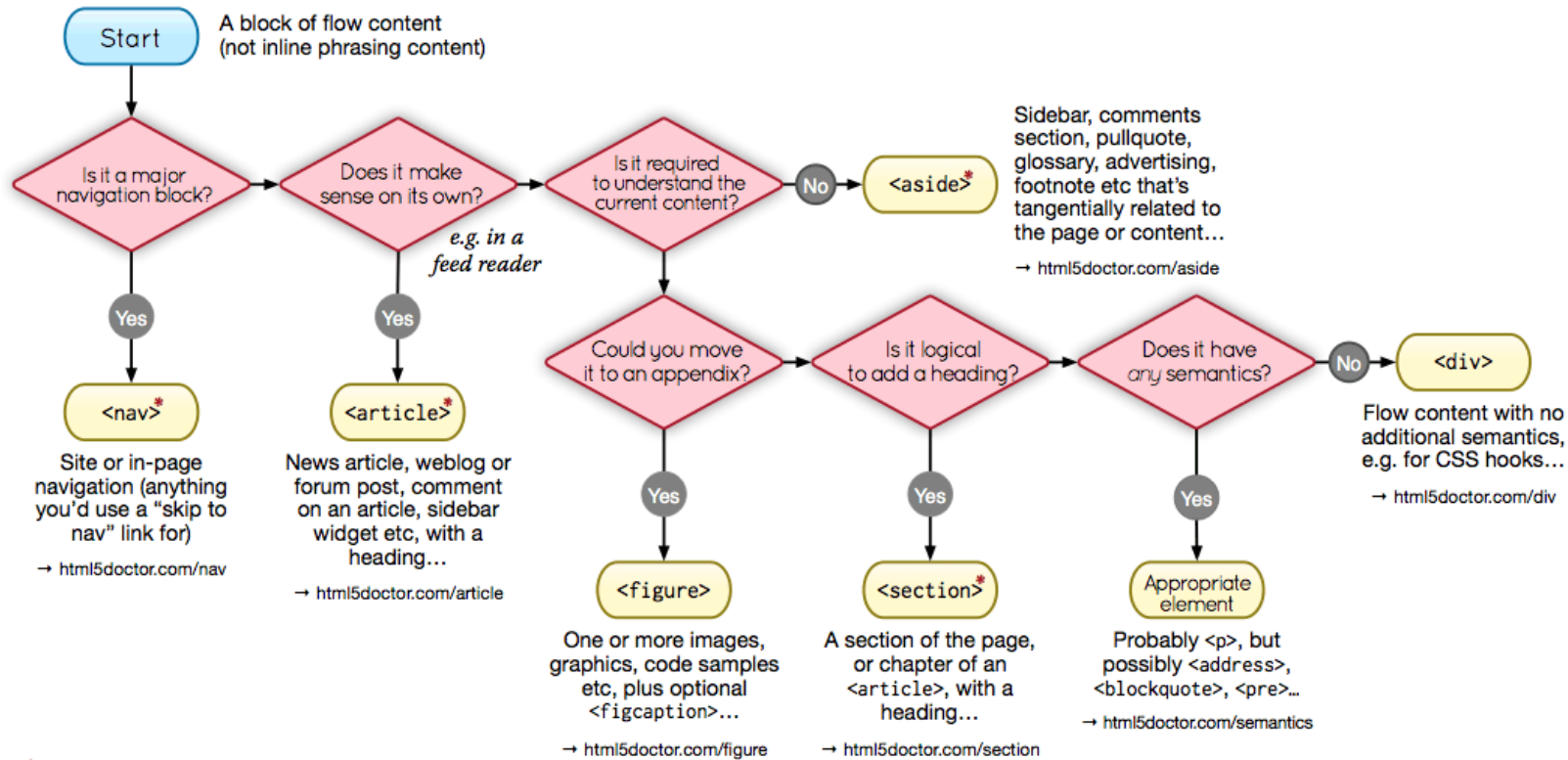
Sectioning elements (block display)

Element	Usage
<code><article></code>	self-contained composition in a document, page, application, or site, which is intended to be independently distributable or reusable
<code><section></code>	generic section of a document or application. A thematic grouping of content, typically with a heading
<code><nav></code>	section of a page that links to other pages or to parts within the page: a section with navigation links
<code><aside></code>	a portion of a document whose content is only indirectly related to the document's main content

Typical layout



<https://devpractical.com/basic-one-column-layout-html-css/>



* Sectioning content element

These four elements (and their headings) are used by HTML5's outlining algorithm to make the document's outline
→ html5doctor.com/outline

2011-07-22 v1.5
For more information:
www.html5doctor.com/semantics

Grouping content (block display)

Element	Usage
<code><p></code>	a paragraph of text
<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 on the list are <code></code> elements)
<code></code>	A list of items where the order of the items is not important (the items on the list are <code></code> elements)
<code><menu></code>	An unordered list <code></code> , whose elements are commands that may be executed

Grouping content (block display)

Element	Usage
<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.
<code><main></code>	Represents the dominant contents of the document
<code><div></code>	The <code><div></code> element has no meaning on its own. ⚠ Use it with class and title attributes to group elements, but only when necessary

Tabular data



Information presented in a **two-dimensional table** comprised of **rows** and **columns** of **cells** containing data

- <https://developer.mozilla.org/en-US/docs/Web/HTML/Element/table>

Key attributes (usable on all elements)

- **class = "aa bb cc"**

A space-separated list of class names.

Defines the classes an element belongs to.

Commonly used in CSS and JS for styling and selection.

- **id = "unique"**

A unique identifier for an element.

Must be unique within the HTML document.

Used in CSS and JS to select and manipulate the element.

Key attributes (usable on all elements)

- **style = "css fragment"**

Applies CSS styles to a specific HTML element (**CSS inline styling**)

⚠ Never do this! ☠

«Wildcard» elements

- `<div>` `</div>`

Block-level container with no predefined semantics.

Invisible layout structure.

Groups **blocks** using specific classes.

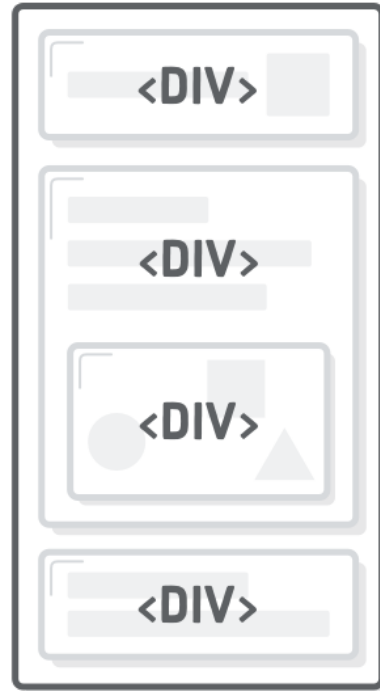
- `` ``

Inline-level container with no predefined semantics.

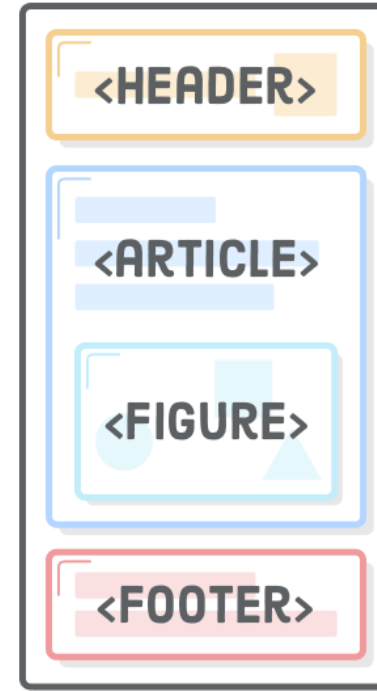
Invisible layout structure.

Marks parts of a **paragraph** using specific classes.

Opaque vs. Semantic elements in HTML



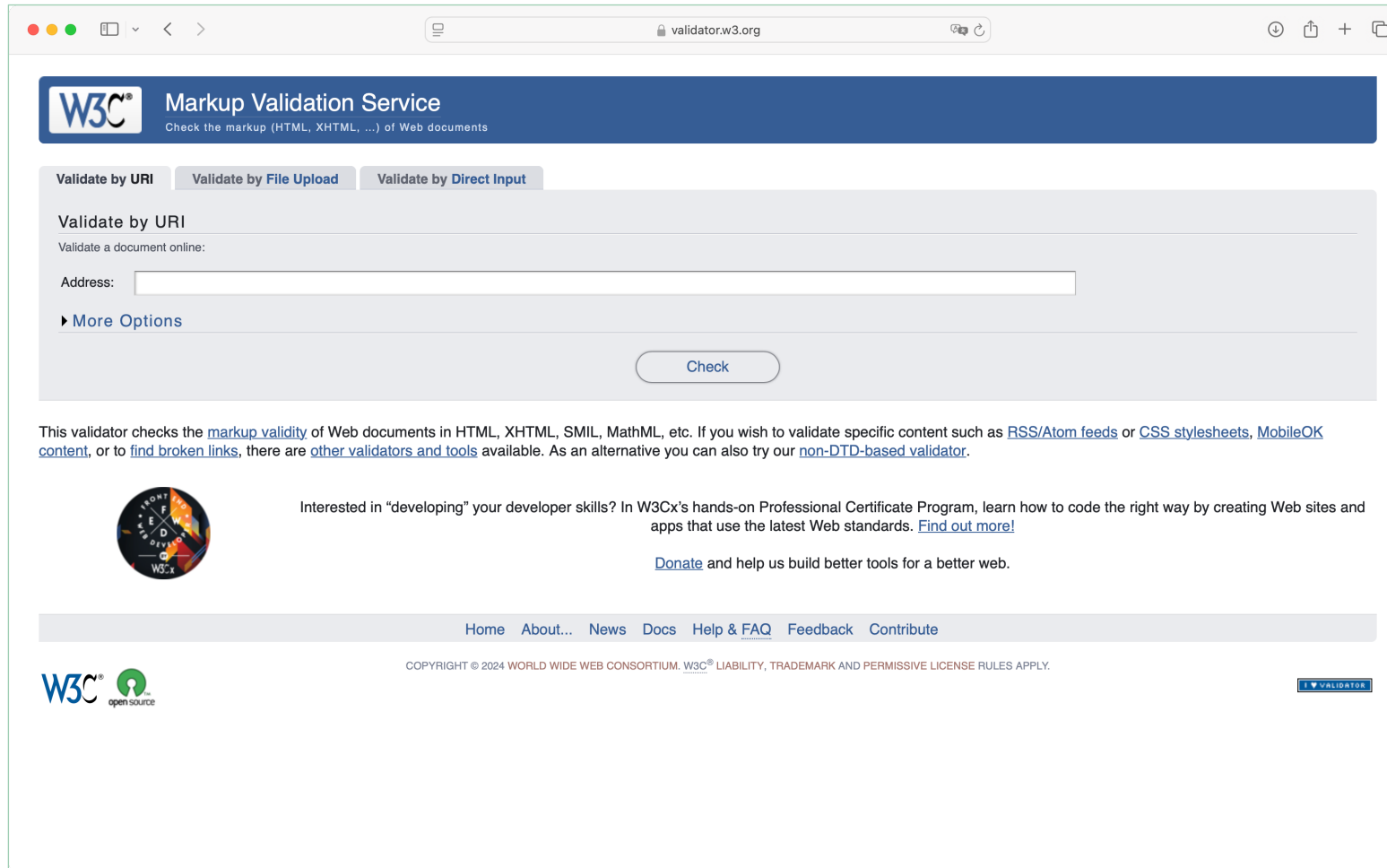
AMBIGUOUS STRUCTURE
(AKA "<DIV> SOUP")



IDENTIFIABLE SECTIONS
(AKA "SEMANTIC MARKUP")

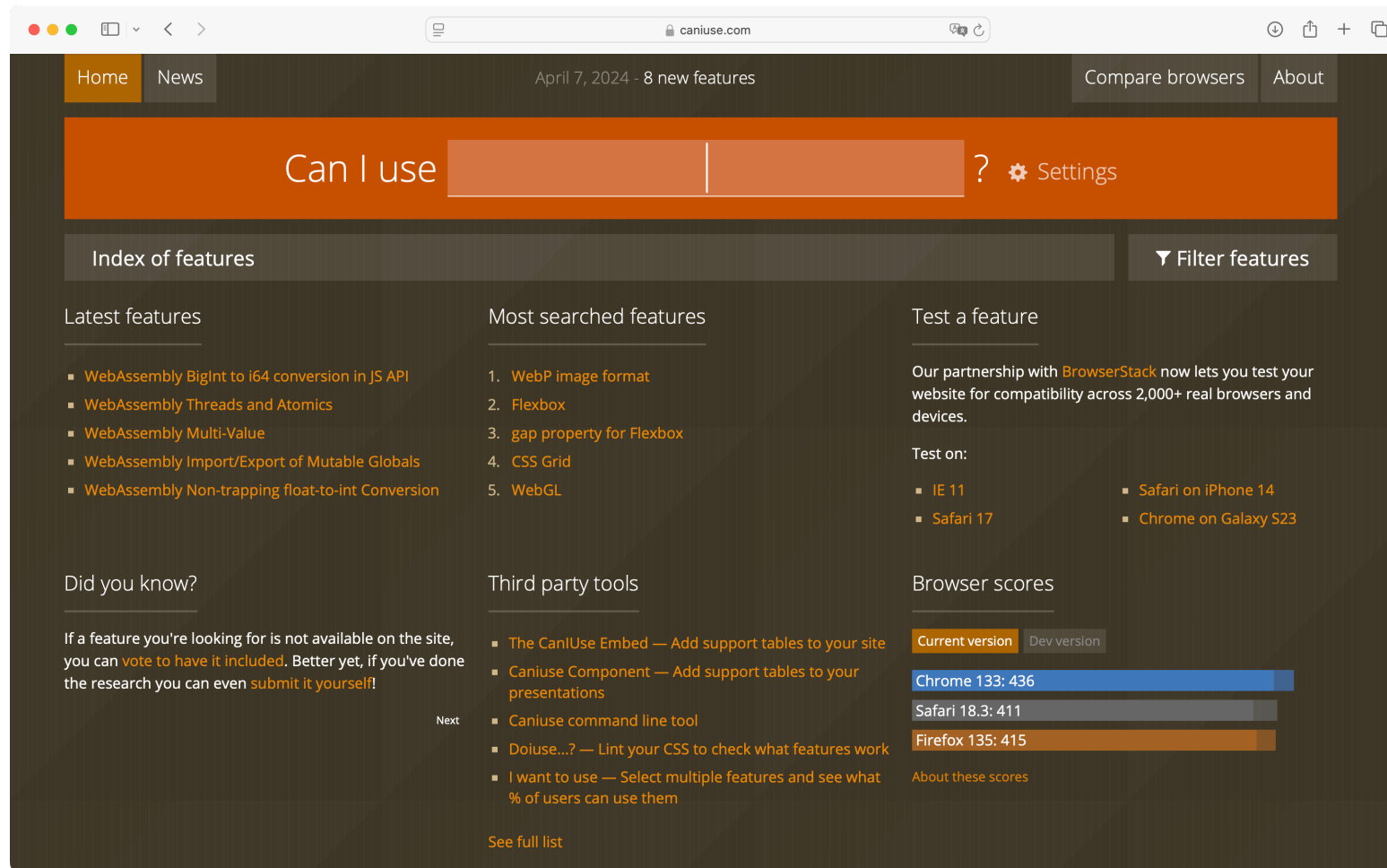
<https://medium.com/@aschemily/html5-semantic-a-simple-web-page-246541d742aa>

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



The screenshot shows the W3C Markup Validation Service website. At the top, there is a blue header with the W3C logo and the text "Markup Validation Service" and "Check the markup (HTML, XHTML, ...) of Web documents". Below the header, 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 is a section titled "Validate by URI" with the instruction "Validate a document online:". Below this, there is a text input field labeled "Address:" and a "Check" button. Below the input field, there is a link for "More Options". Below the "Check" button, there is a paragraph of text explaining the validator's capabilities and providing links to "markup validity", "RSS/Atom feeds", "CSS stylesheets", "MobileOK content", "find broken links", and "other validators and tools". Below this text, there is a circular logo for W3Cx and a paragraph of text about the Professional Certificate Program, with a link to "Find out more!". Below the paragraph, there is a link to "Donate". At the bottom of the page, there is a navigation menu with links for "Home", "About...", "News", "Docs", "Help & FAQ", "Feedback", and "Contribute". Below the navigation menu, there is a copyright notice: "COPYRIGHT © 2024 WORLD WIDE WEB CONSORTIUM. W3C® LIABILITY, TRADEMARK AND PERMISSIVE LICENSE RULES APPLY." and a logo for "W3C open source".

Can I use: <https://caniuse.com/>



The screenshot shows the Can I Use website interface. At the top, there's a navigation bar with 'Home' and 'News' on the left, 'April 7, 2024 - 8 new features' in the center, and 'Compare browsers' and 'About' on the right. Below this is a large orange header with the text 'Can I use' followed by a search input field and a 'Settings' link with a gear icon. Underneath the header, there's a 'Filter features' button. The main content area is divided into several sections: 'Latest features' with a list of recent updates, 'Most searched features' with a list of popular features, 'Test a feature' with a description and a 'Test on:' section listing various browser versions, 'Did you know?' with a tip about voting for new features, 'Third party tools' with a list of external resources, and 'Browser scores' with a bar chart showing the number of users for Chrome, Safari, and Firefox. The browser scores section includes a 'Current version' and 'Dev version' toggle, and a link to 'About these scores'.

Home News April 7, 2024 - 8 new features Compare browsers About

Can I use ? Settings

Index of features Filter features

Latest features

- WebAssembly Bigint to i64 conversion in JS API
- WebAssembly Threads and Atomics
- WebAssembly Multi-Value
- WebAssembly Import/Export of Mutable Globals
- WebAssembly Non-trapping float-to-int Conversion

Most searched features

- WebP image format
- Flexbox
- gap property for Flexbox
- CSS Grid
- WebGL

Test a feature

Our partnership with [BrowserStack](#) now lets you test your website for compatibility across 2,000+ real browsers and devices.

Test on:

- IE 11
- Safari on iPhone 14
- Safari 17
- Chrome on Galaxy S23

Did you know?

If a feature you're looking for is not available on the site, you can [vote to have it included](#). Better yet, if you've done the research you can even [submit it yourself](#)!

Next

Third party tools

- The CanIUse Embed — Add support tables to your site
- CanIuse Component — Add support tables to your presentations
- CanIuse command line tool
- DoIuse...? — Lint your CSS to check what features work
- I want to use — Select multiple features and see what % of users can use them

See full list

Browser scores

Current version Dev version

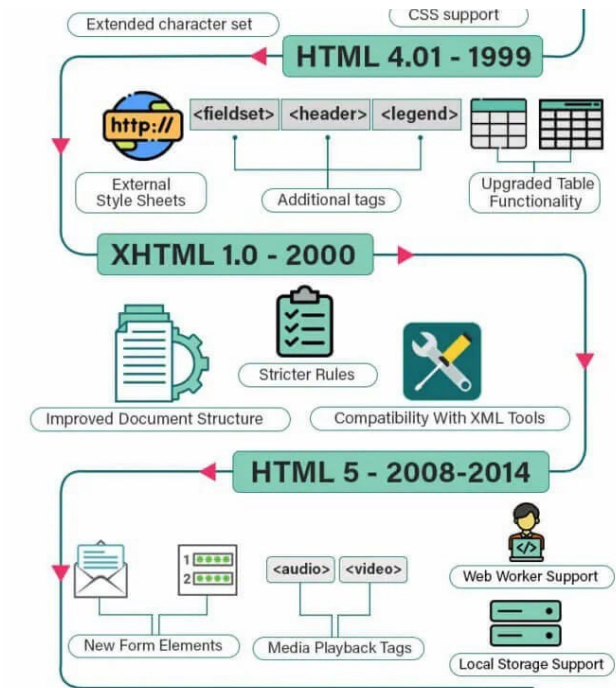
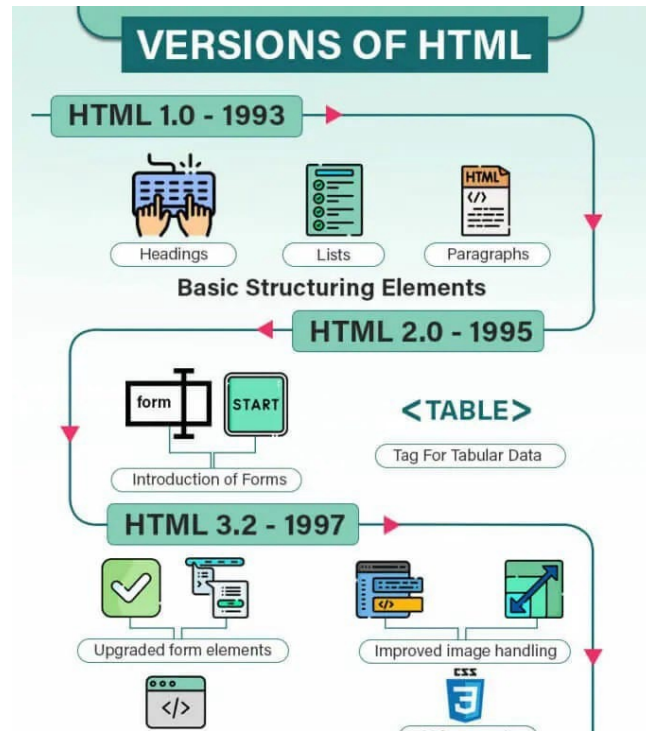
Chrome 133: 436

Safari 18.3: 411

Firefox 135: 415

About these scores

HTML versions



<https://bharathikannansambasivam.wordpress.com/html-version-timeline/>



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