



Politecnico
di Torino



Introduction to Web Applications

HTML

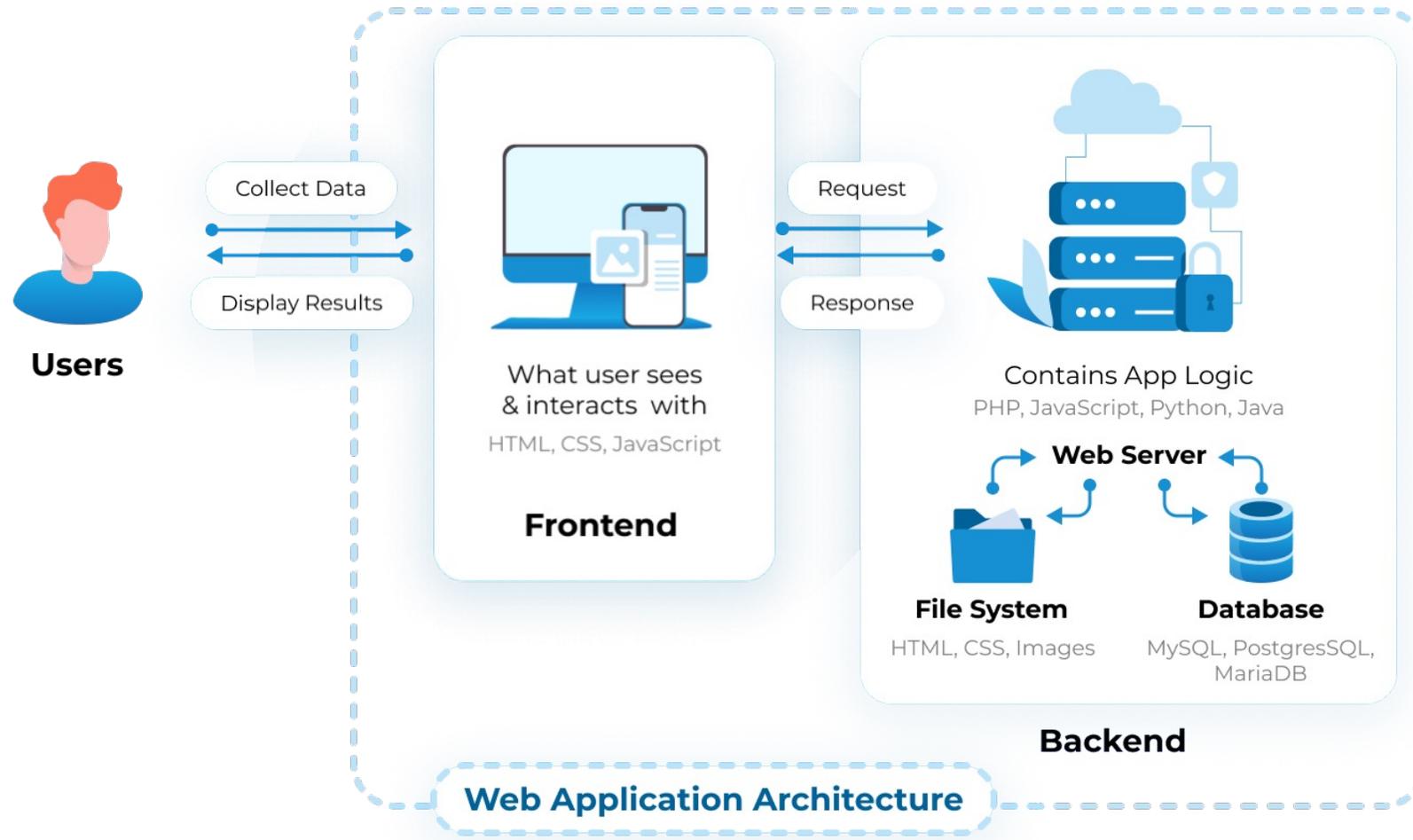
Juan Pablo Sáenz



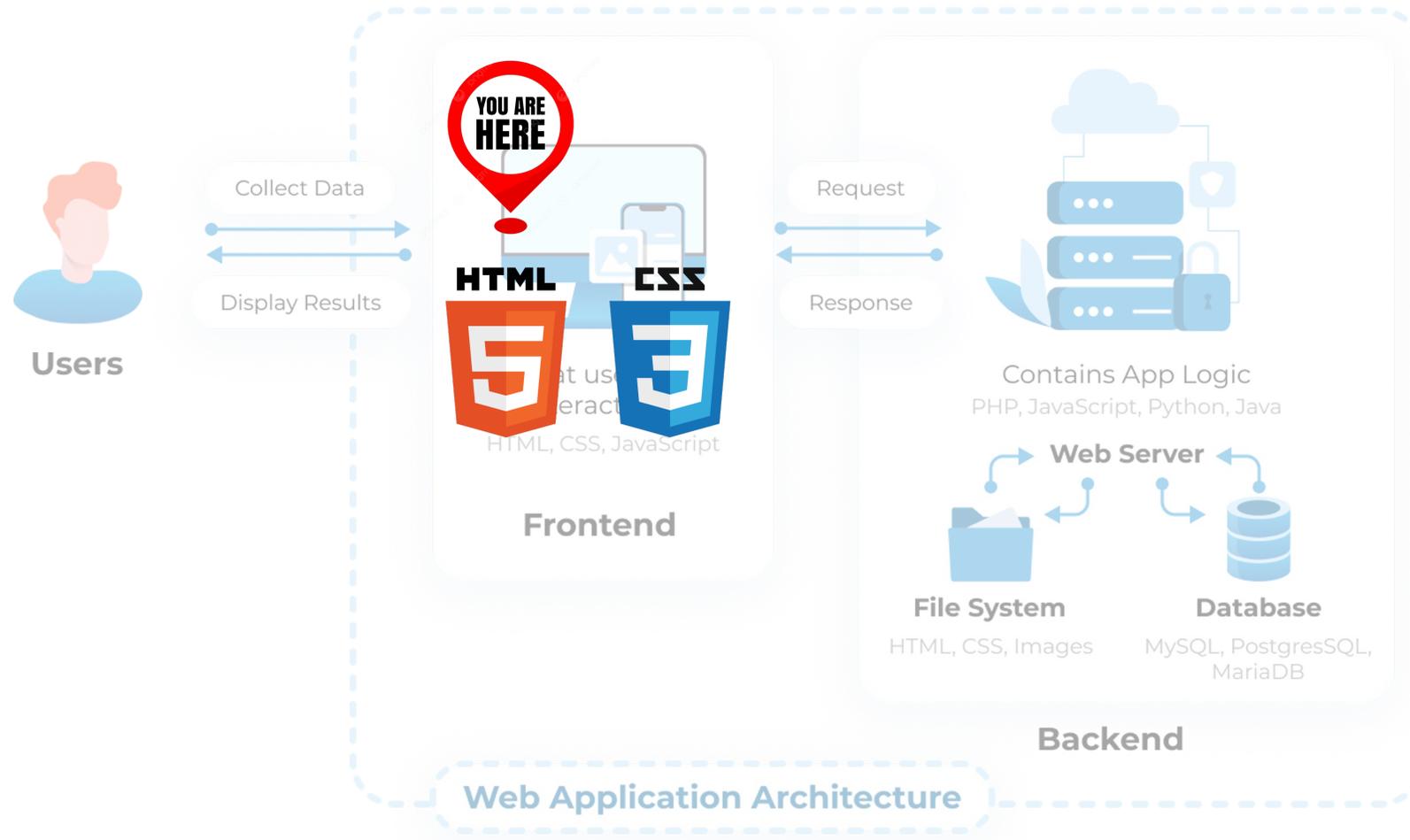
Goals

- 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?



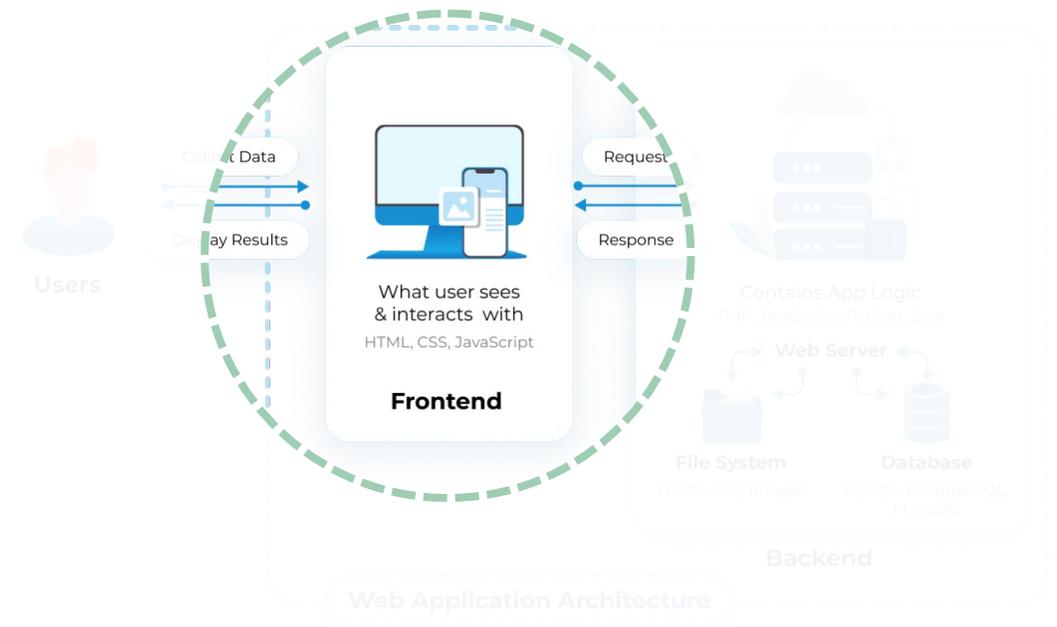


Web architecture components: Frontend

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.

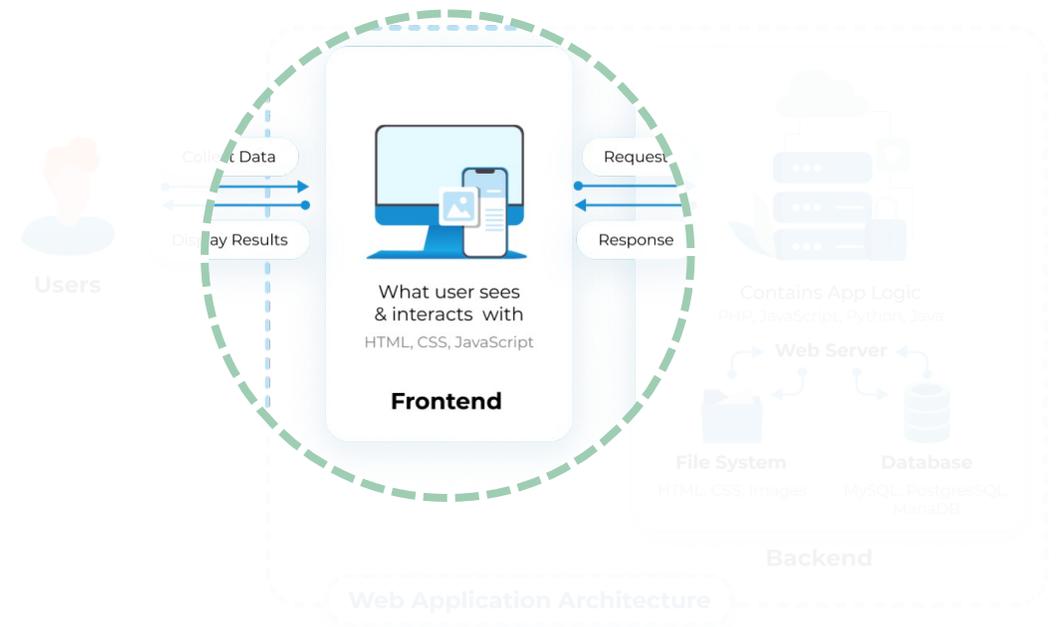


Web architecture components: Frontend

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 Visual Studio Code interface with the 'ESTENSIONI: MARKETPLACE' sidebar on the left. The search bar contains 'live preview'. The main area displays the 'Live Preview' extension by Microsoft, which is currently disabled. The extension's details include a warning that it is under development, a description of its functionality, and a table of contents. The right sidebar shows installation details and marketplace information.

ESTENSIONI: MARKETPLACE

live preview

- Live Preview** (Microsoft) - Hosts a local server in your workspace for you to preview your webpages on. **Installa**
- Live Preview** (Cumpanasu Florin) - 157K stars, 5 rating. **Installa**
- Live Server** (Ritwick Dey) - Launch a development local server. **Installa**
- Live Server Pr...** (negokaz) - 1.3M stars, 3.5 rating. **Installa**
- Live Server (F...)** (Yannick) - 1.7M stars, 4.5 rating. **Installa**
- Live HTML Previ...** (Harshdeep Gu...) - 1M stars, 2 rating. **Installa**
- [Deprecated]...** (Kenneth Aucher) - 729K stars, 3 rating. **Installa**
- Svg Preview** (Simon Siefke) - 1.1M stars, 5 rating. **Installa**
- DBML Live Prev...** (Nicolas Liger) - 14K stars, 5 rating. **Installa**

Estensione: Live Preview

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 aggiorn...	2024-09-13, 09:47:54
Dimensi...	853.71 KB

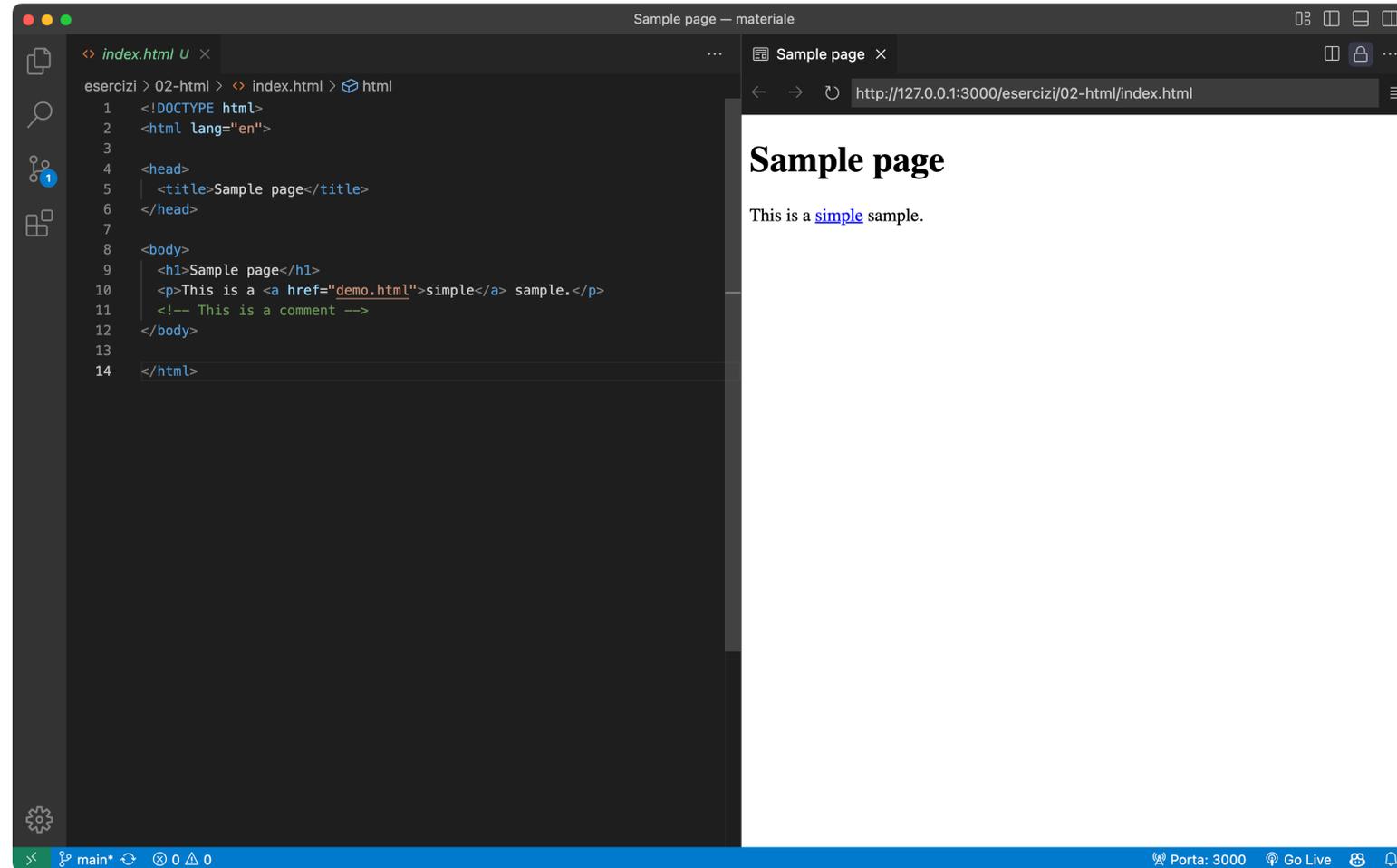
Marketplace

Pubblica...	2021-06-21, 22:33:59
Ultimo rilascio	2024-09-16, 11:20:57

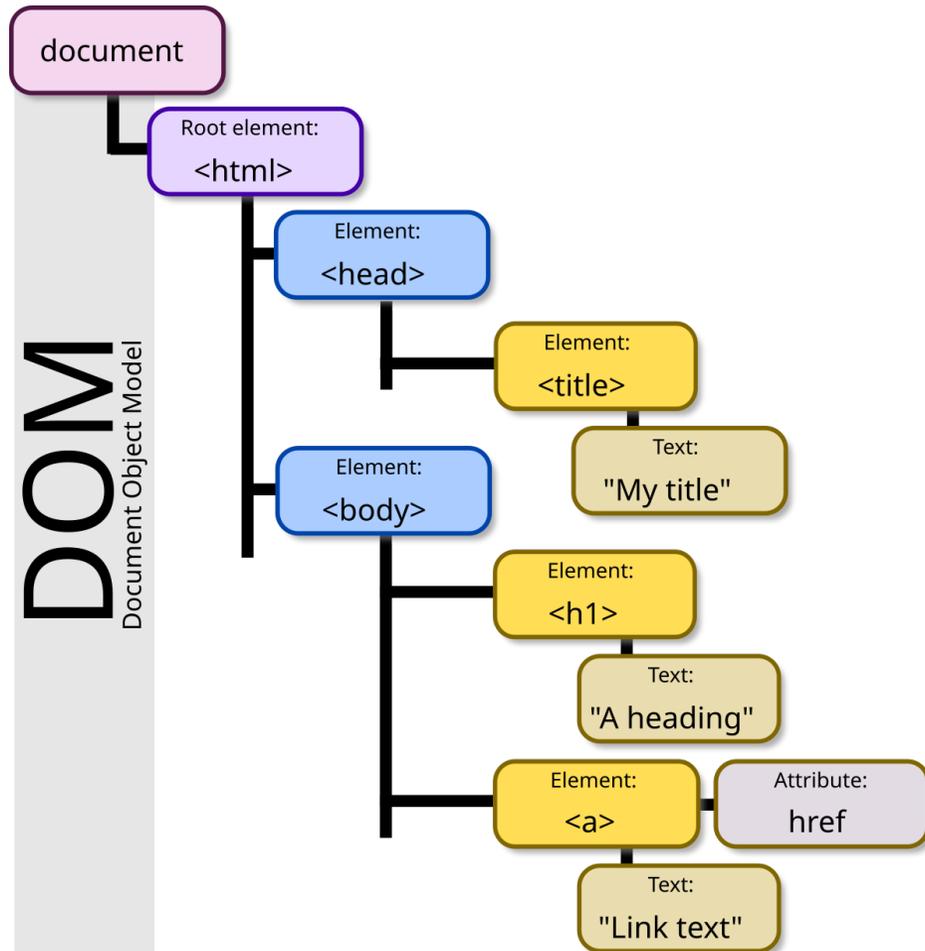
Categorie

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

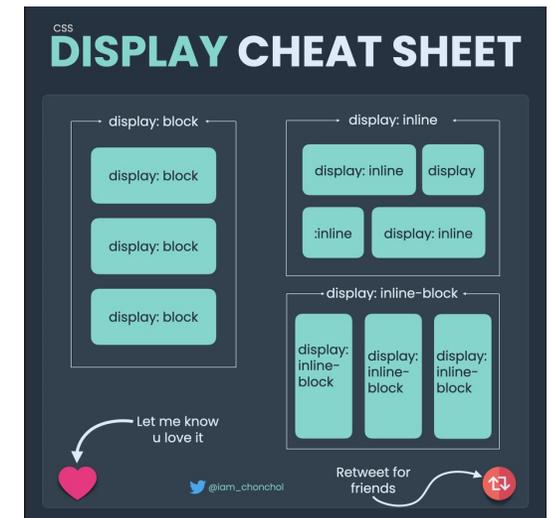
Used to define the **meaning** of a portion of a document.

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.



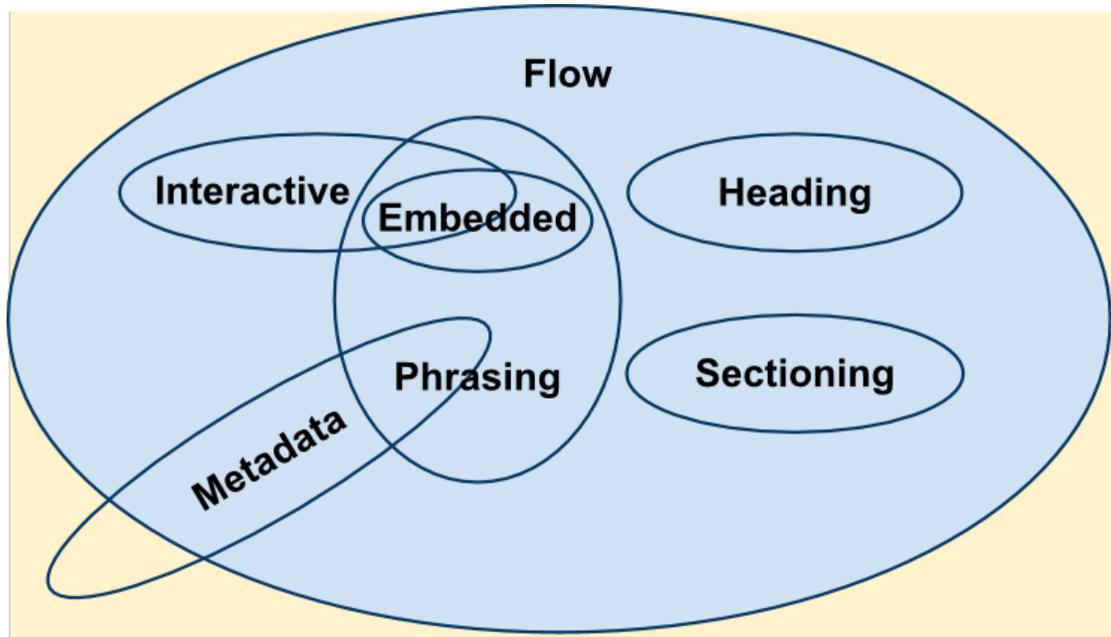
HTML elements reference



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

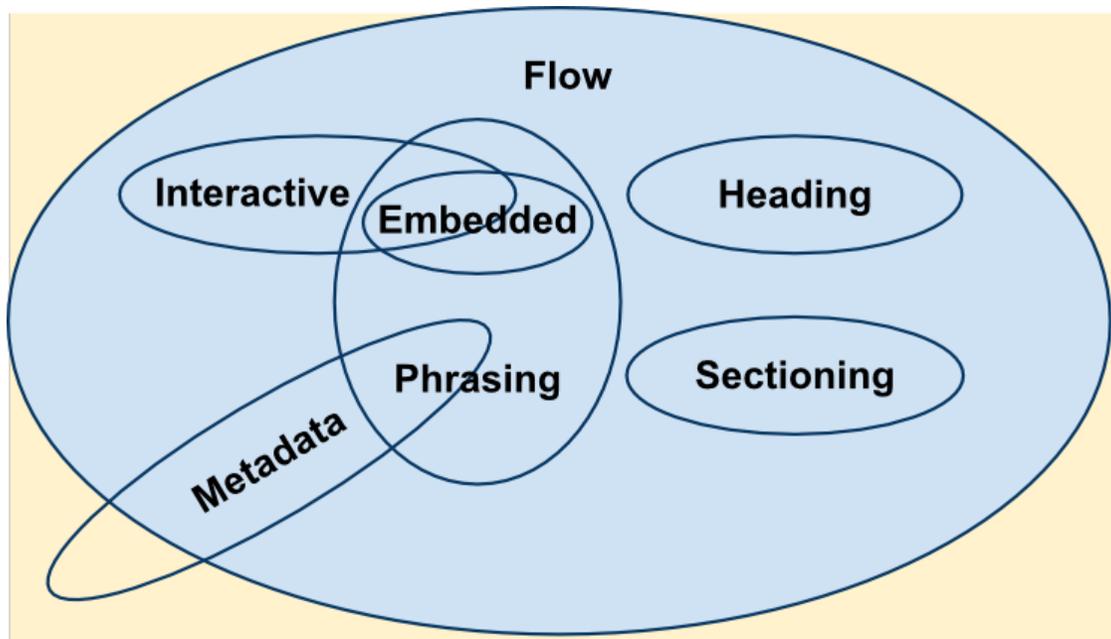


- **Flow content:** a broad category that encompasses most elements that can go inside the `<body>`
- **Sectioning content:** define the structure of a webpage by grouping related content into sections. Divide the page into logical areas, such as headers, footers, navigation, and main content.

```
<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.

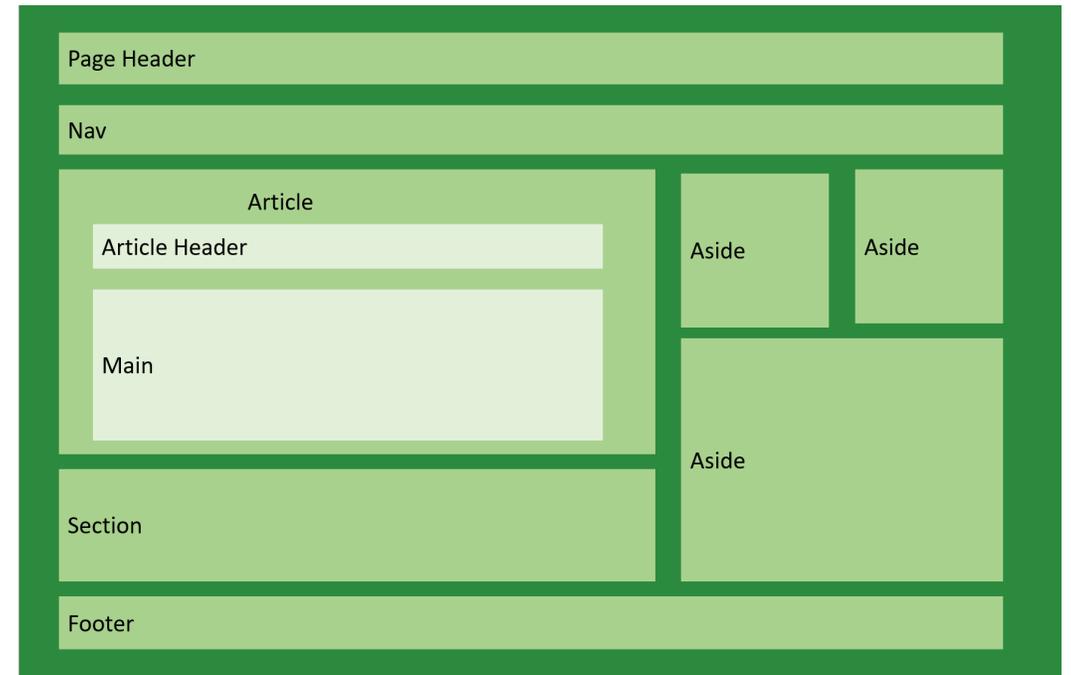
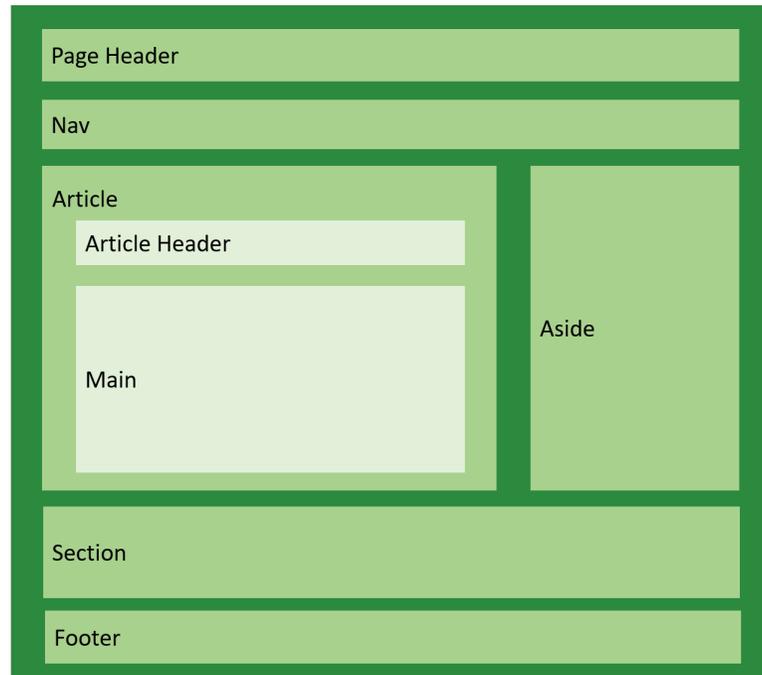
`<h1>` - `<h6>`

`<hgroup>`

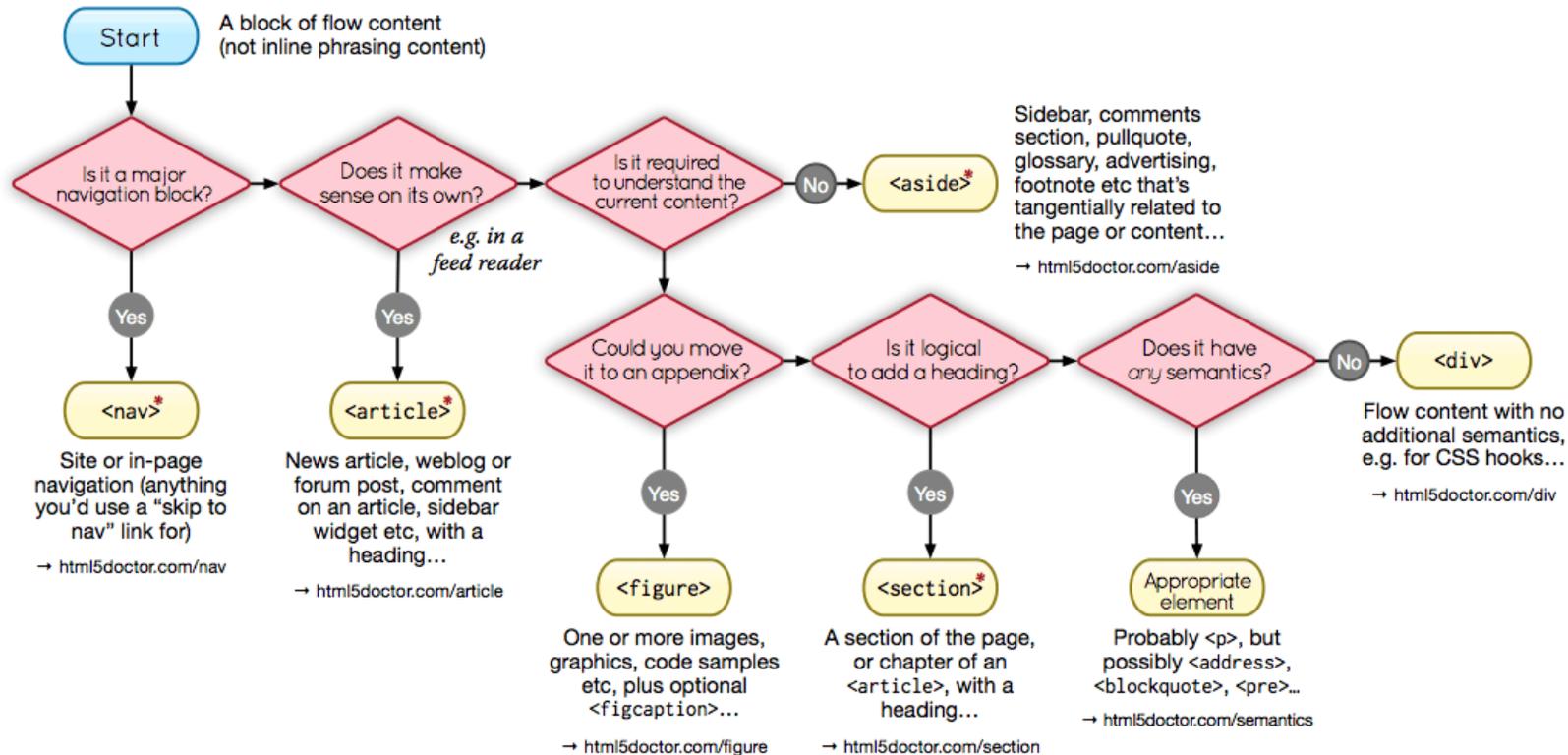
Sectioning elements (block display)

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.

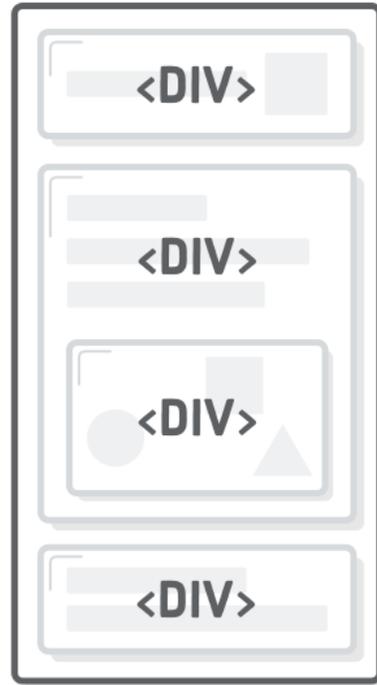
- ` `

Inline-level container with no predefined semantics.

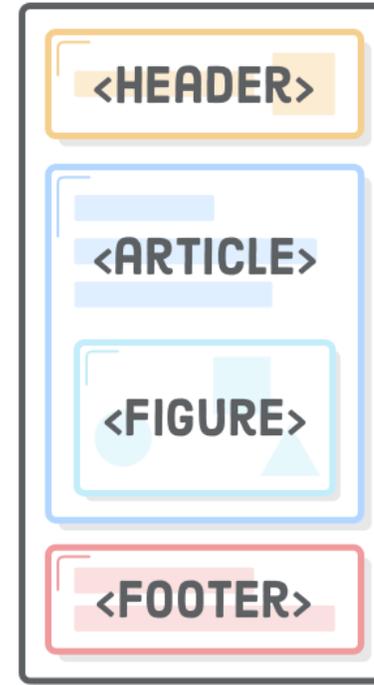
Invisible layout structure.

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

Opaque vs. Semantic elements in HTML



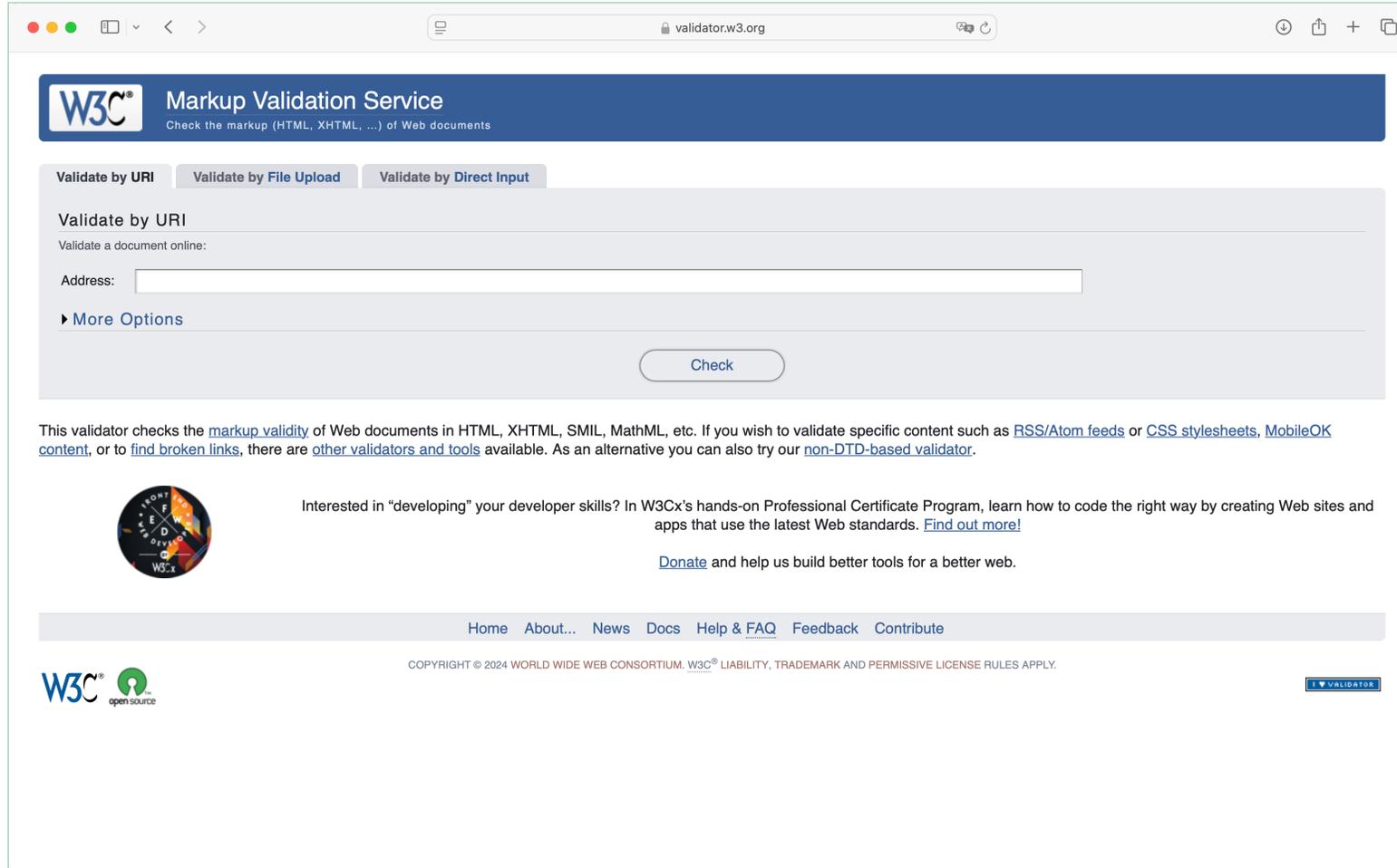
AMBIGUOUS STRUCTURE
(AKA "<DIV> SOUP")



IDENTIFIABLE SECTIONS
(AKA "SEMANTIC MARKUP")

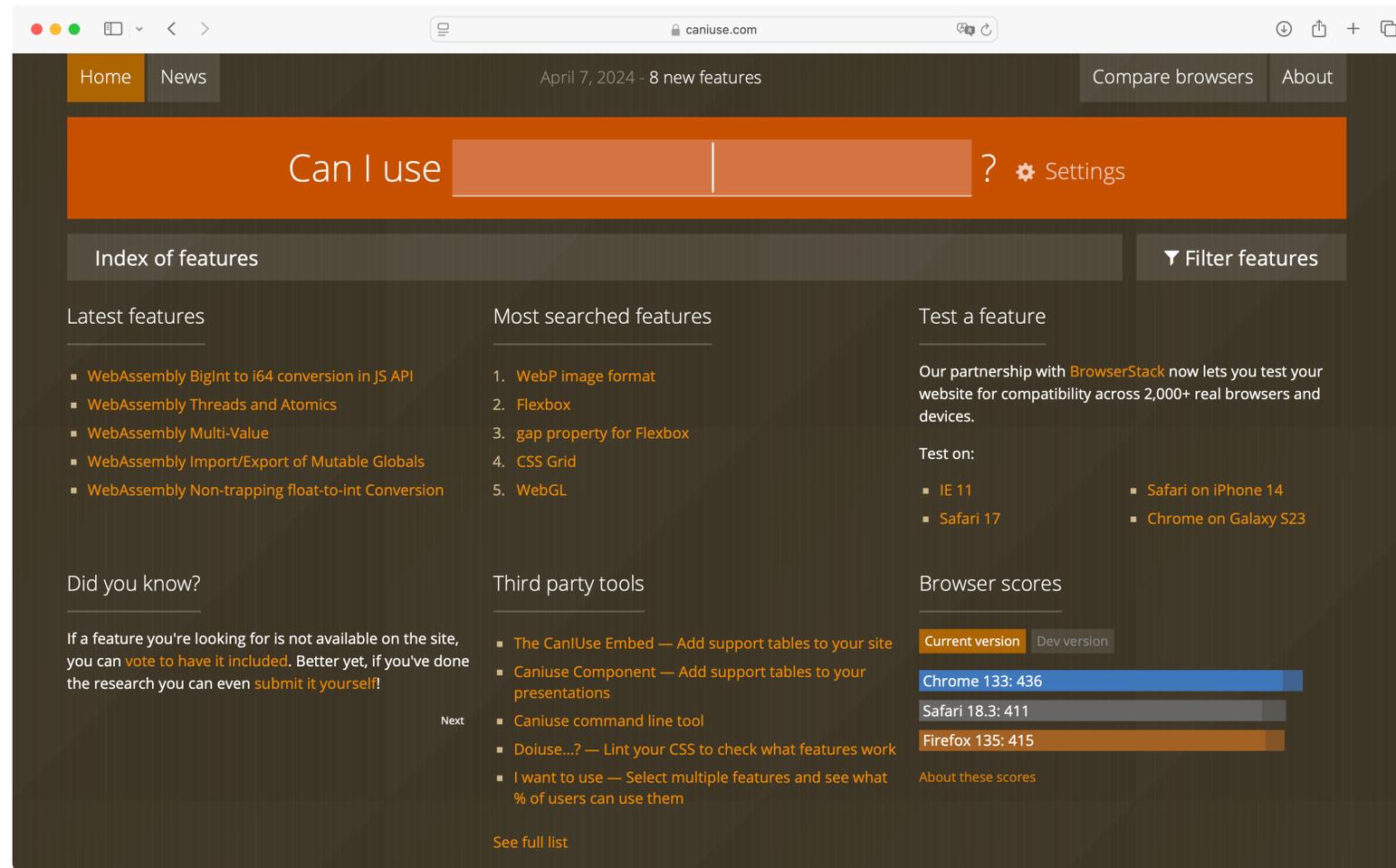
<https://medium.com/@aschemily/html5-semantic-a-simple-web-page-246541d742aa>

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

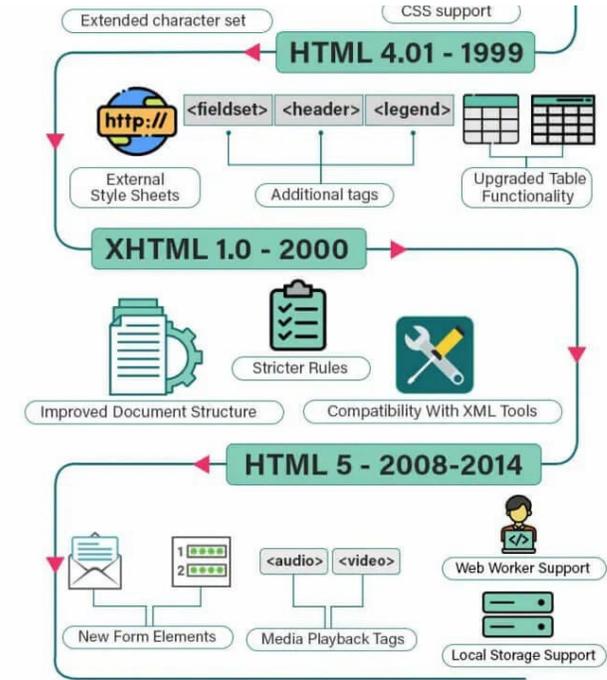
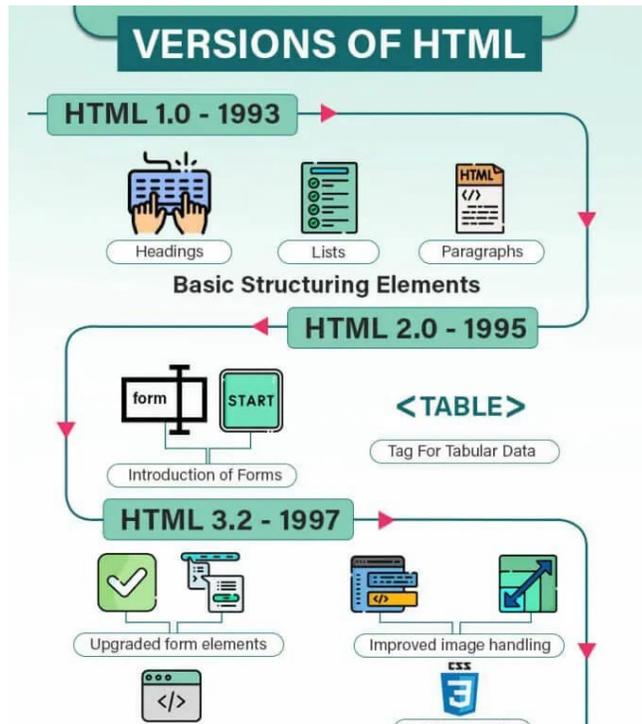


The screenshot shows the W3C Markup Validation Service website. The browser address bar displays "validator.w3.org". The page header features the W3C logo and the text "Markup Validation Service" with the subtitle "Check the markup (HTML, XHTML, ...) of Web documents". Below the header, there are three tabs: "Validate by URI", "Validate by File Upload", and "Validate by Direct Input". The "Validate by URI" tab is active, showing a form with the label "Validate by URI" and the instruction "Validate a document online:". The form includes a text input field labeled "Address:" and a "Check" button. Below the form, there is a link for "More Options". A paragraph of text explains that the validator checks the markup validity of Web documents in HTML, XHTML, SMIL, MathML, etc., and provides links to other resources like "RSS/Atom feeds", "CSS stylesheets", "MobileOK content", and "find broken links". There is also a link to "other validators and tools" and a mention of a "non-DTD-based validator". A circular logo with the text "FRONT END DEVELOPER" and "W3Cx" is shown. Below the logo, there is a promotional message for the W3Cx Professional Certificate Program, a link to "Find out more!", and a "Donate" link. The footer contains a navigation menu with links for "Home", "About...", "News", "Docs", "Help & FAQ", "Feedback", and "Contribute". The copyright notice reads "COPYRIGHT © 2024 WORLD WIDE WEB CONSORTIUM. W3C® LIABILITY, TRADEMARK AND PERMISSIVE LICENSE RULES APPLY." and there is a "VALIDATOR" badge.

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



HTML versions



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



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