



Introduction to Web Applications

HTML

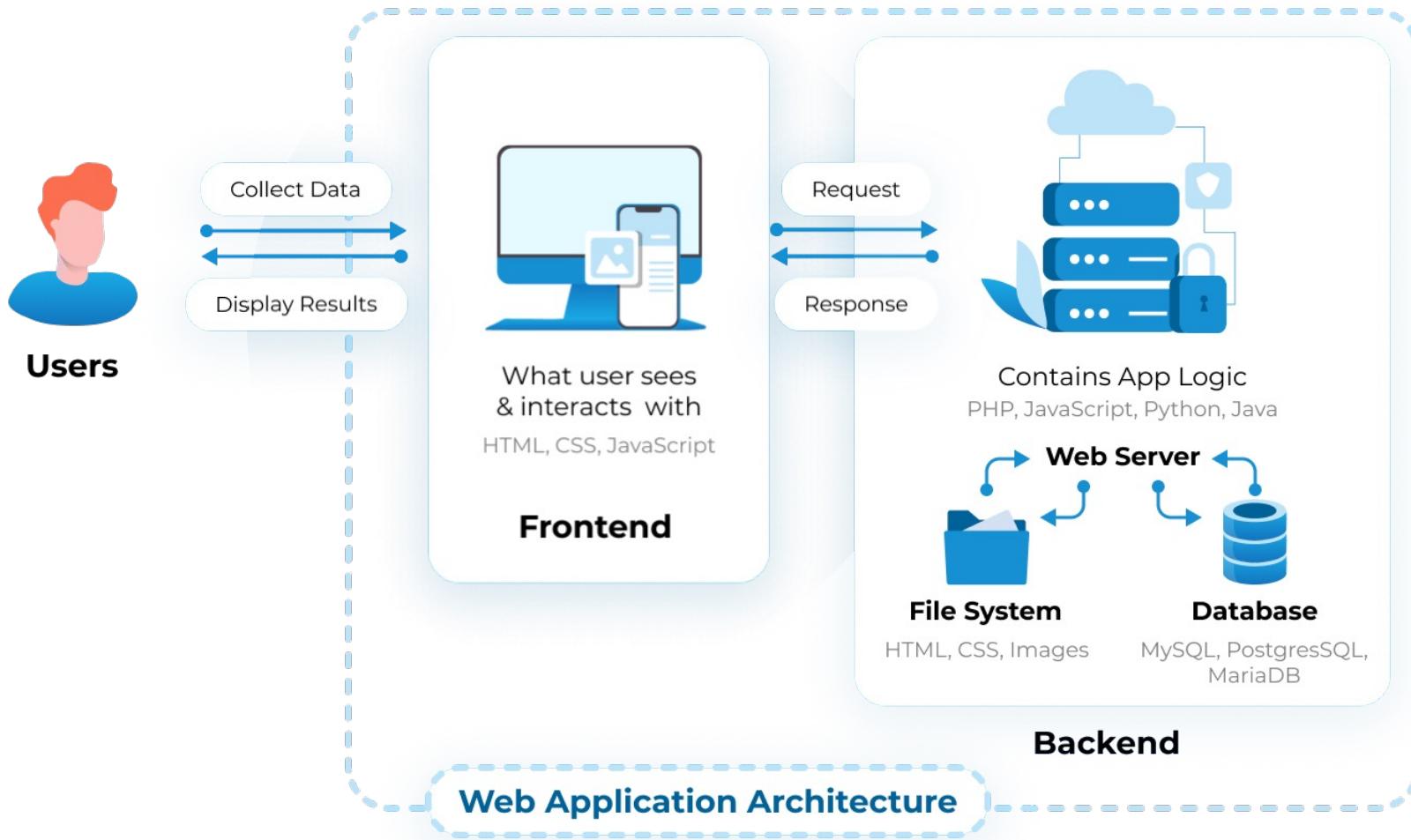
Juan Pablo Sáenz



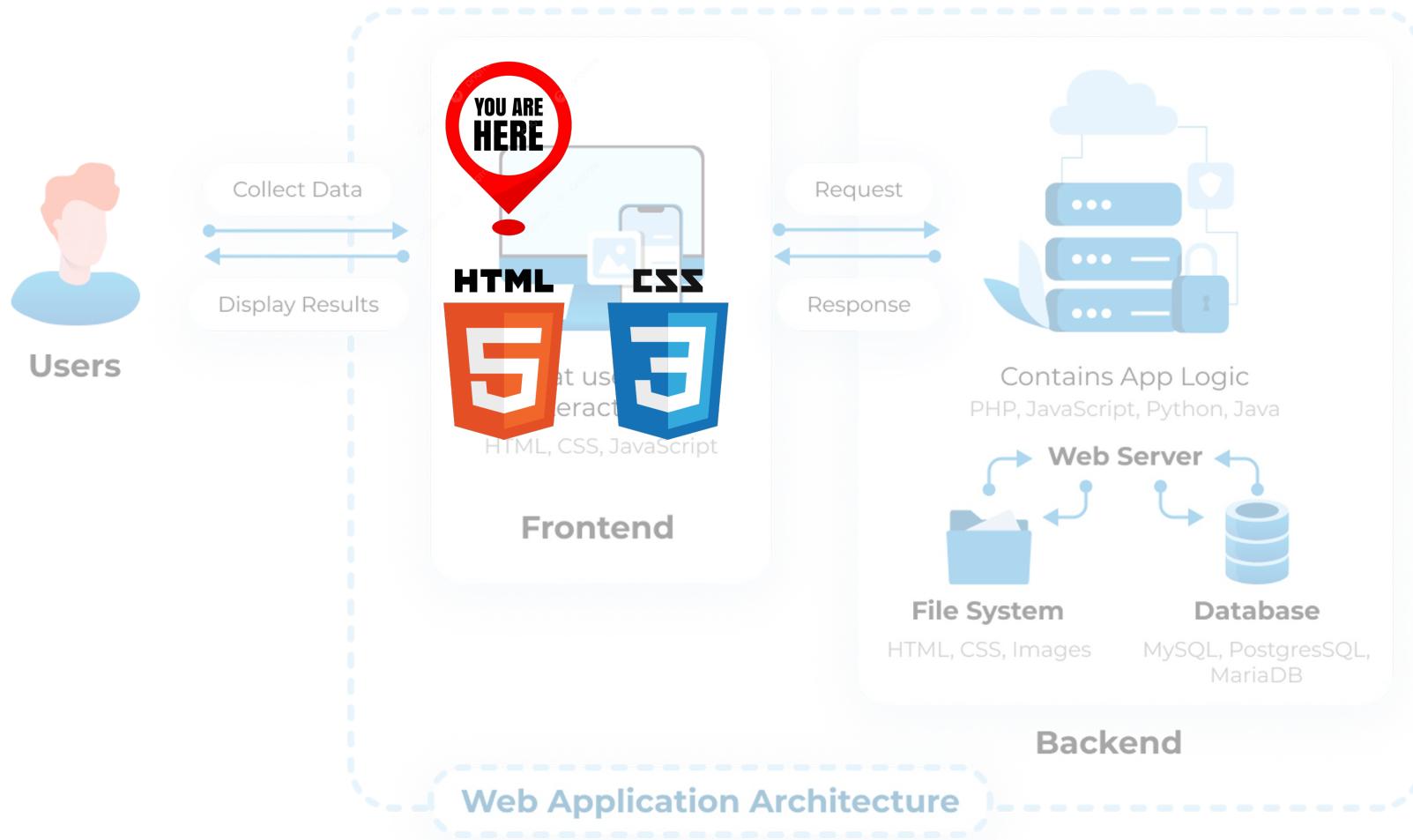
Goals

- 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?



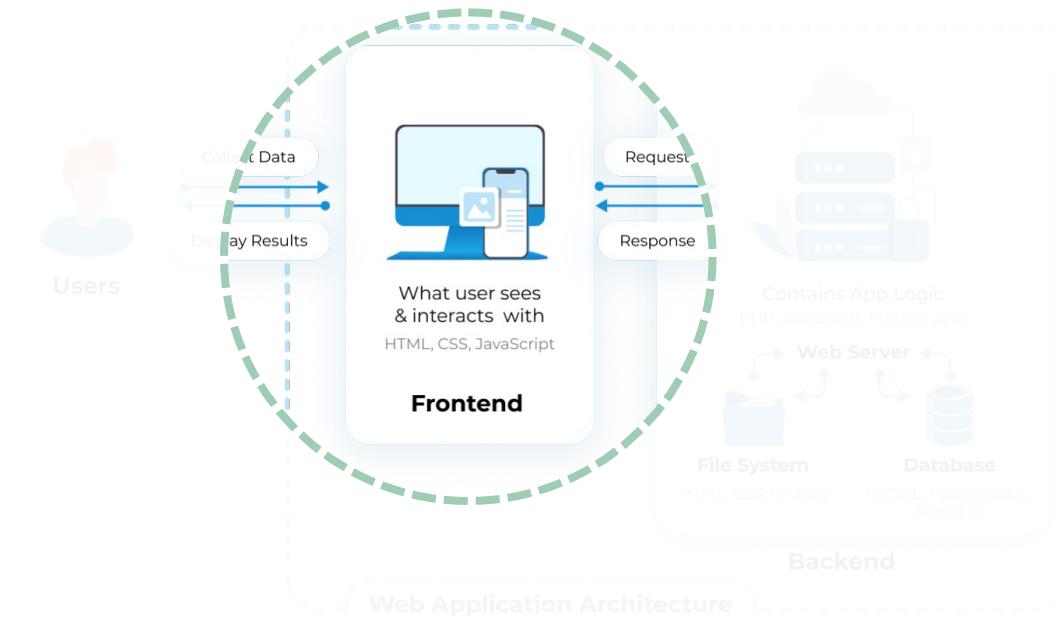


Web architecture components: Frontend

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.



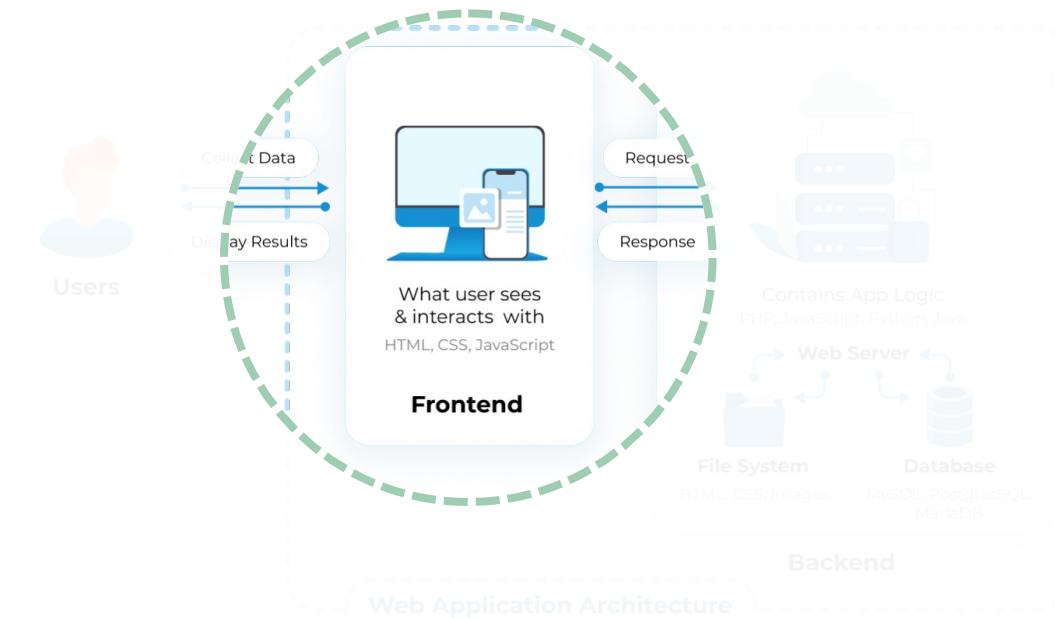


Web architecture components: Frontend

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

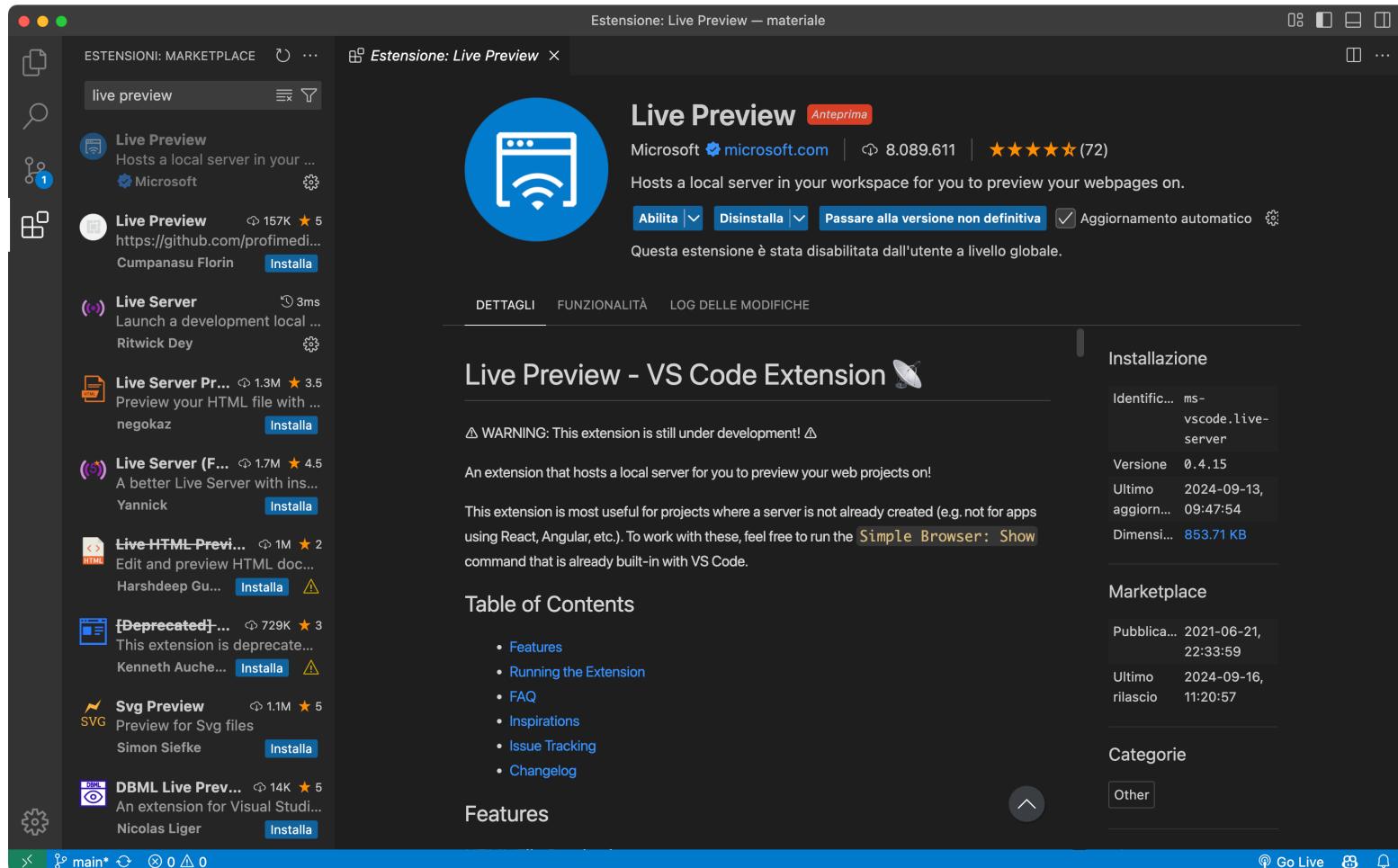
```
<ul id="bigBarNavigation">
<li><a href="/">Home</a></li>
<li><a href="/contact">Contact US</a></li>
<li>
    <a href="/about">About US</a>
    <div class="subMenne">

    </div>
</li>
</ul>
```

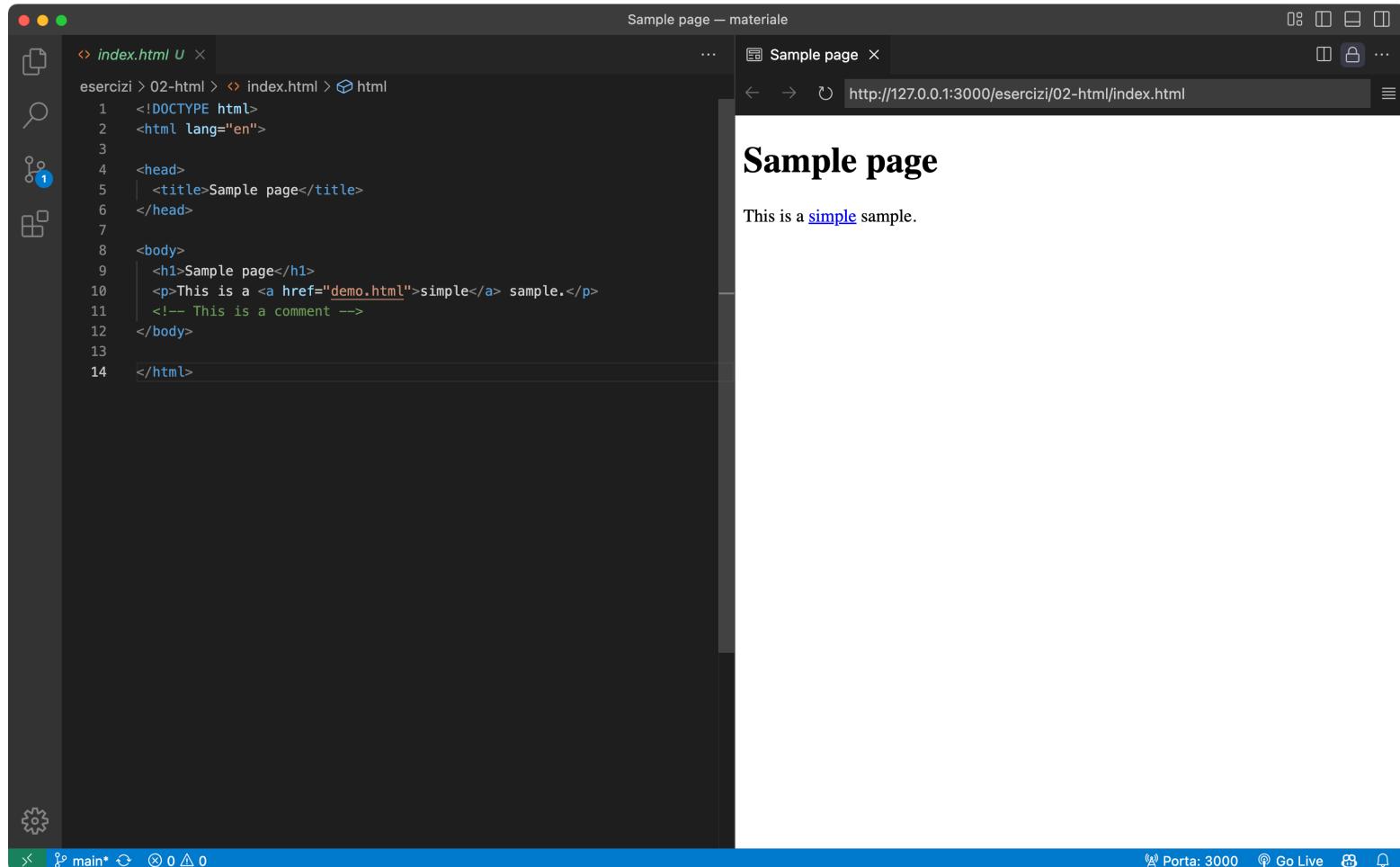
Looks nice, clean and easy to read

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

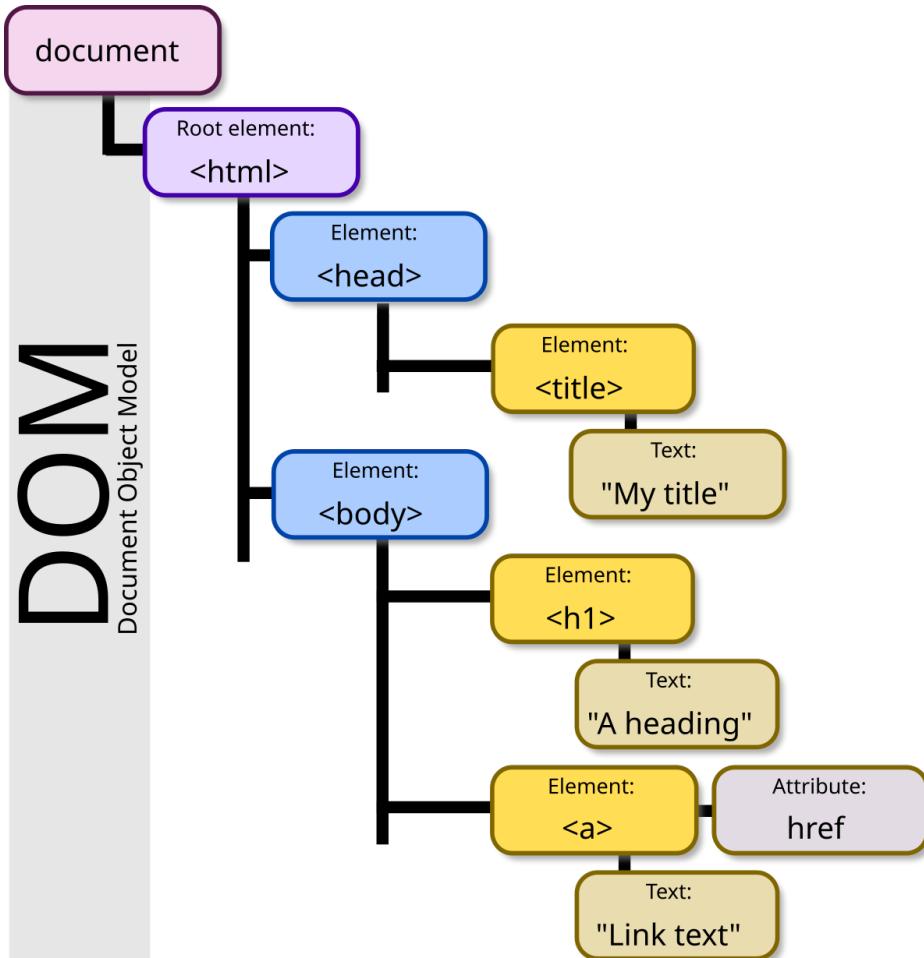
Install Live Preview



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

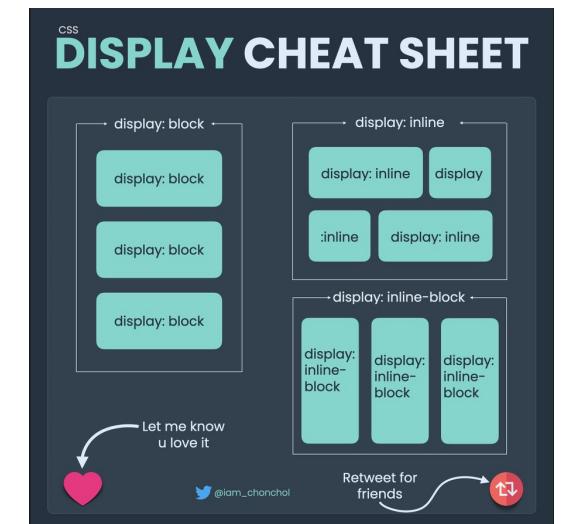
Used to define the **meaning** of a portion of a document.

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.



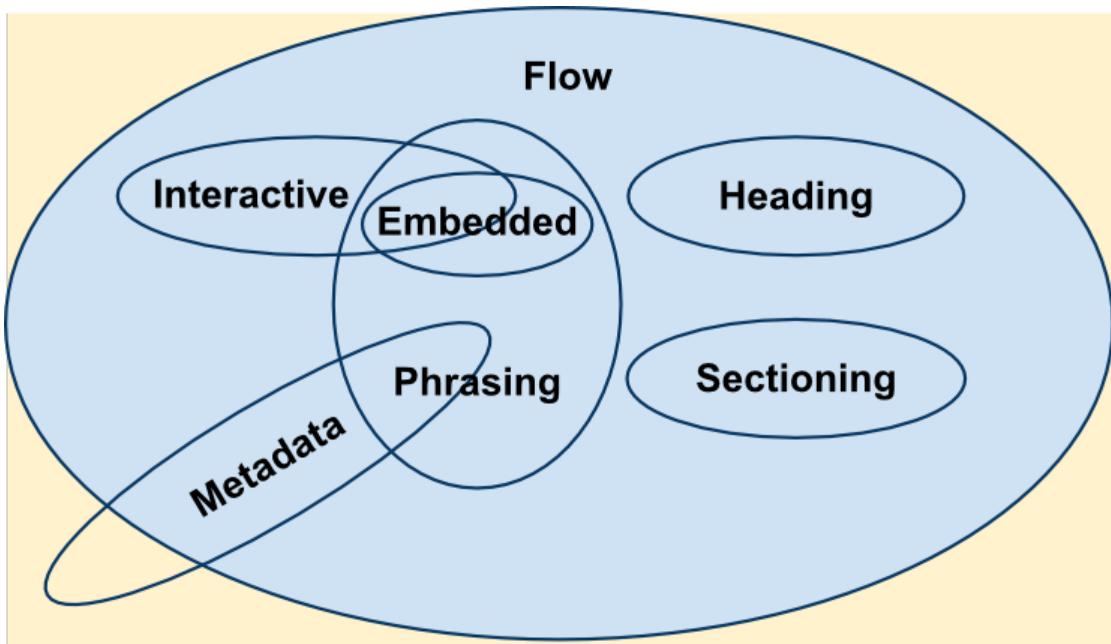
HTML elements reference



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>

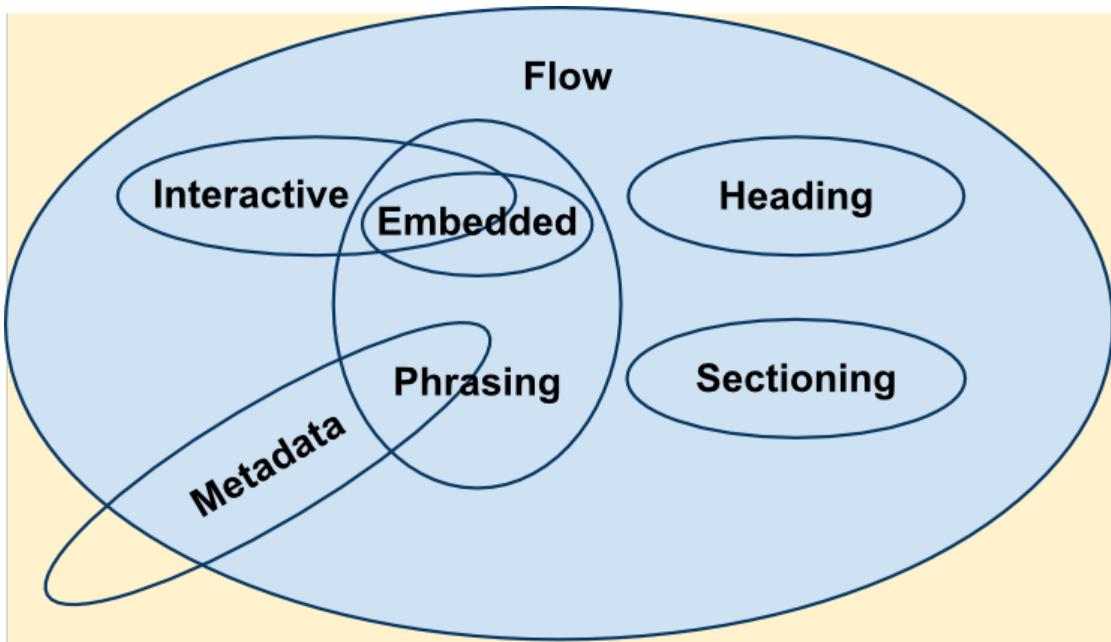
<nav>

<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.

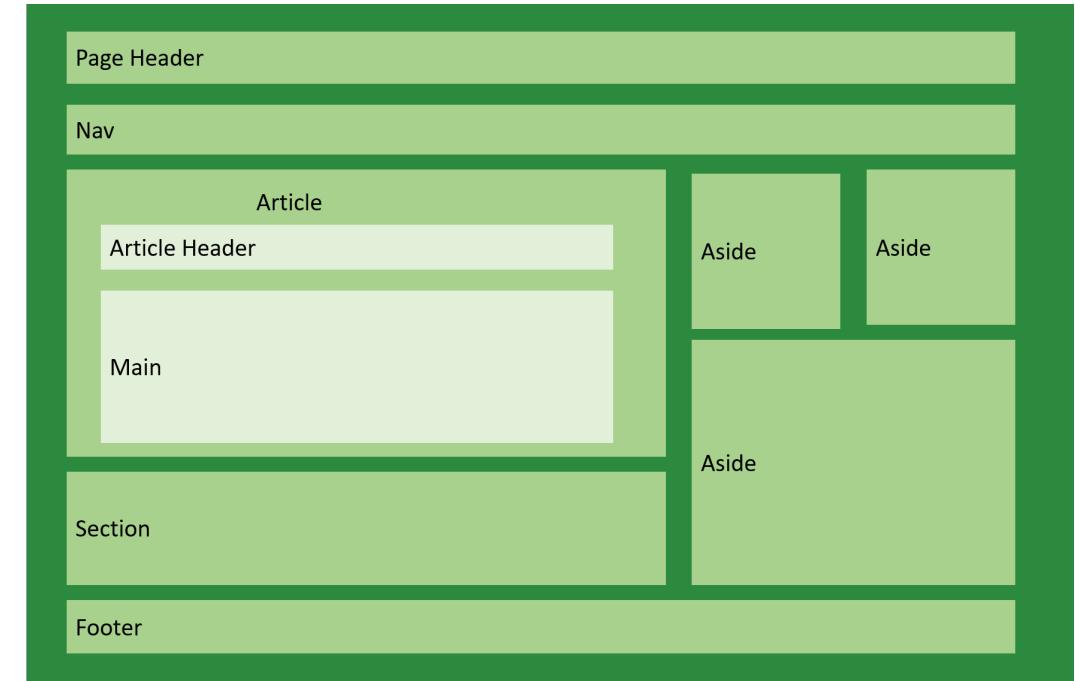
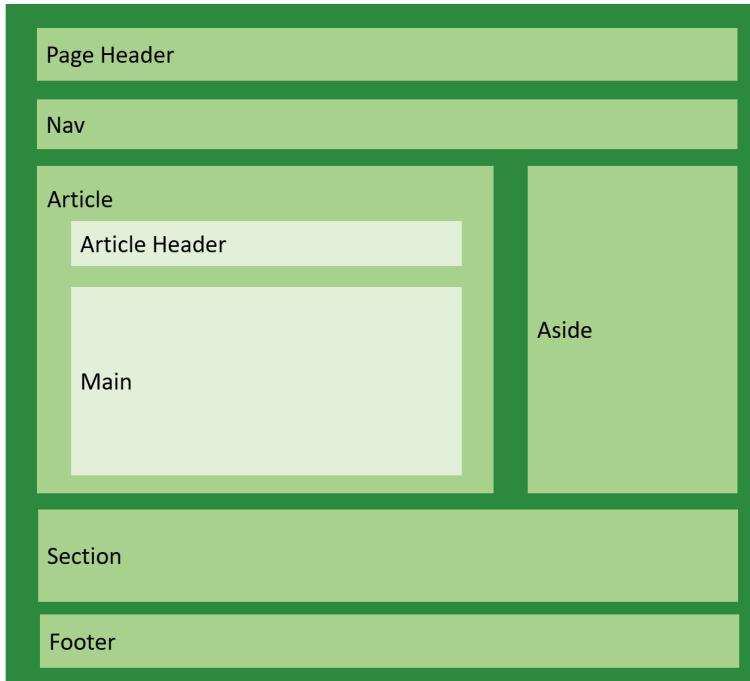
`<h1> - <h6>`

`<hgroup>`

Sectioning elements (block display)

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

Typical layout

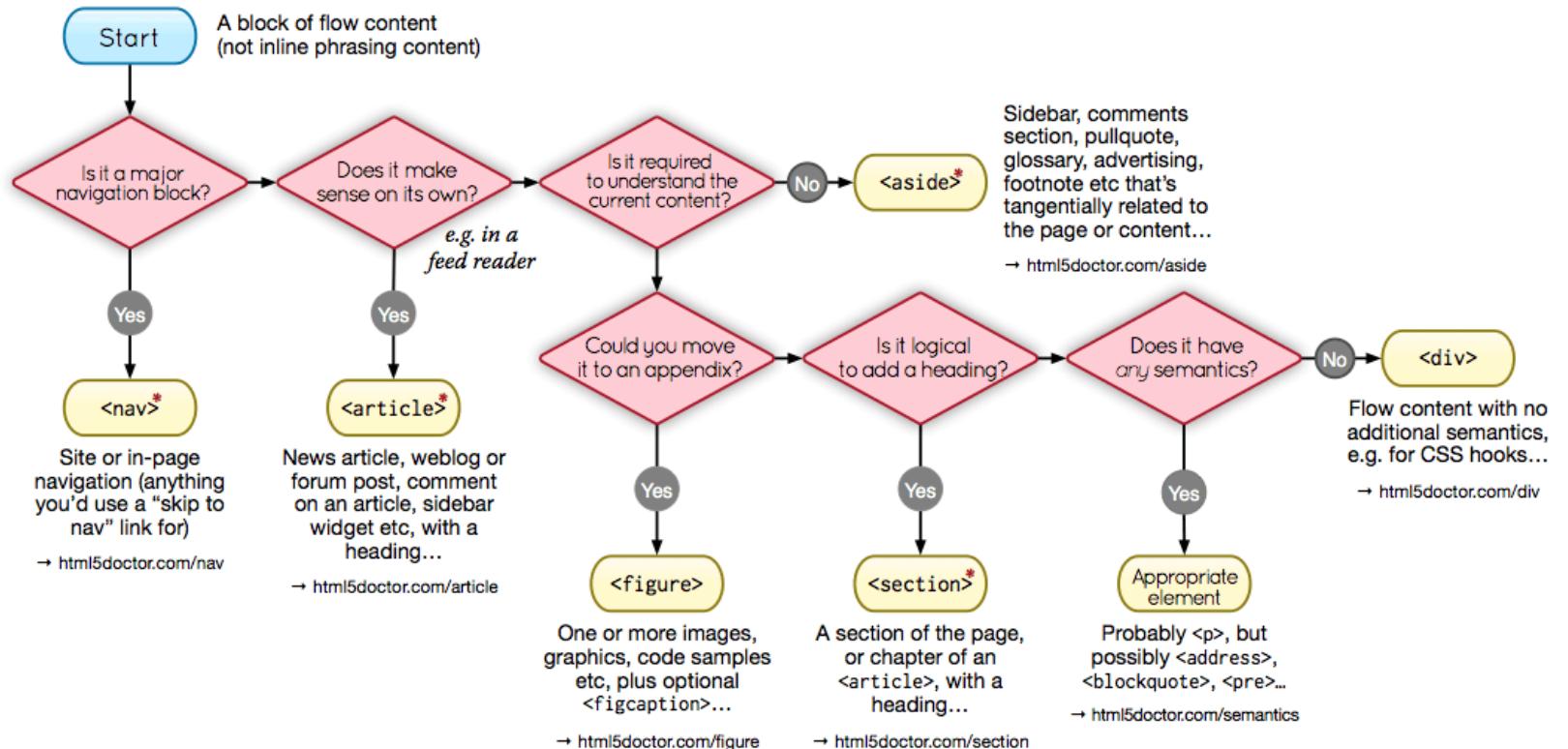


<https://devpractical.com/basic-one-column-layout-html-css/>

HTML5 Element Flowchart

Sectioning content elements and friends

By @riddle & @boblet
www.html5doctor.com



* 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
<p>	a paragraph of text
<pre>	Block of preformatted text
<blockquote>	A section that is quoted from another source
	A list of items where the items have been intentionally ordered (the items on the list are elements)
	A list of items where the order of the items is not important (the items on the list are elements)
<menu>	An unordered list , whose elements are commands that may be executed

Grouping content (block display)

Element	Usage
<dl>	A list of definitions. Each definition has a name (<dt>, definition term) and a value (<dd>, definition description)
<figure>	A sectioning element that can be used to annotate illustrations, diagrams, photos, code listings, etc.
<main>	Represents the dominant contents of the document
<div>	The <div> 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.

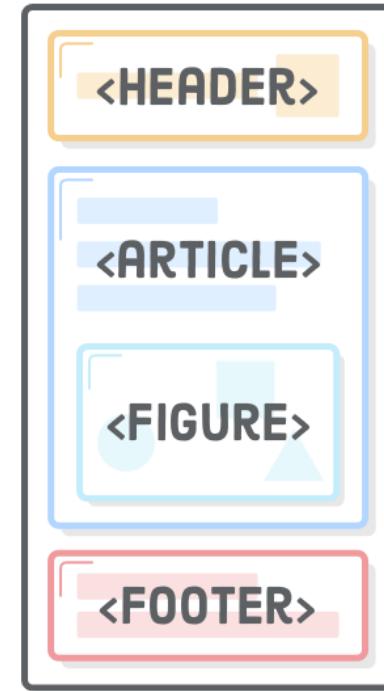
Invisible layout structure.

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's a navigation bar with icons for window control, a search bar containing "validator.w3.org", and various browser controls. Below the bar is a blue header with the W3C logo and the text "Markup Validation Service" and "Check the markup (HTML, XHTML, ...) of Web documents". The main content area has three tabs: "Validate by URI" (which is selected), "Validate by File Upload", and "Validate by Direct Input". Under "Validate by URI", there's a form to "Validate a document online" with an "Address:" input field and a "Check" button. A "More Options" link is also present. Below this section, a note explains the validator's capabilities and links to other tools like RSS/Atom feeds, CSS stylesheets, and MobileOK content. There's also a link to find broken links and another to non-DTD-based validators. In the center, there's a circular graphic with the text "INTERESTED IN 'DEVELOPING' YOUR DEVELOPER SKILLS? IN W3Cx'S HANDS-ON PROFESSIONAL CERTIFICATE PROGRAM, LEARN HOW TO CODE THE RIGHT WAY BY CREATING WEB SITES AND APPS THAT USE THE LATEST WEB STANDARDS. FIND OUT MORE!" and a "Find out more!" button. To the left of the graphic is the W3Cx logo. Below the central text, there's a "Donate" link. At the bottom, there's a navigation menu with links to Home, About..., News, Docs, Help & FAQ, Feedback, and Contribute. The footer contains the W3C open source logo, a copyright notice ("COPYRIGHT © 2024 WORLD WIDE WEB CONSORTIUM. W3C® LIABILITY, TRADEMARK AND PERMISSIVE LICENSE RULES APPLY."), and a "VALIDATOR" button.

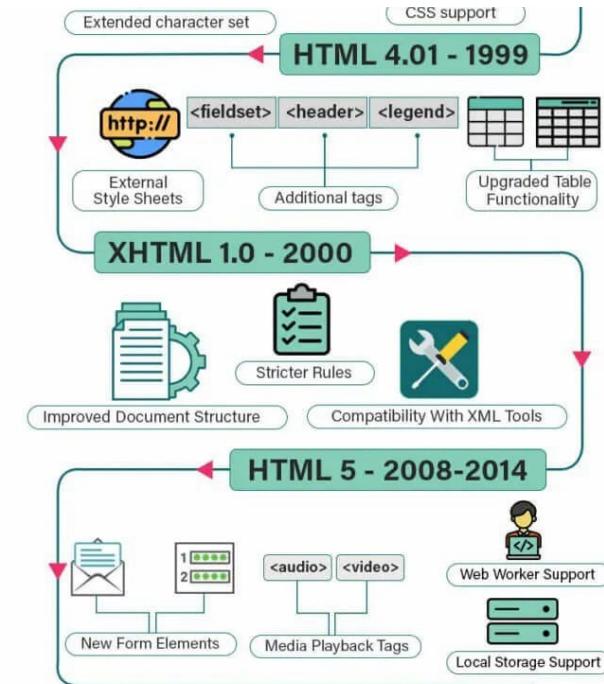
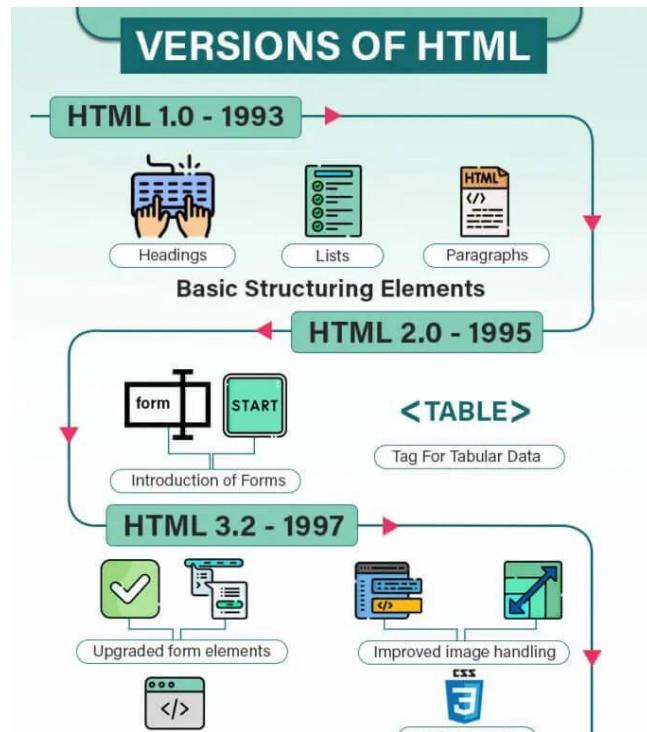
Can I use: <https://caniuse.com/>

The screenshot shows the CanIUse.com homepage with a dark theme. At the top, there's a navigation bar with links for Home, News, April 7, 2024 - 8 new features, Compare browsers, and About. Below the navigation is a search bar with the placeholder "Can I use" and a "Filter features" button. The main content area is divided into several sections:

- Latest features:** A list of recent browser 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:** A list of the top searched features:
 - WebP image format
 - Flexbox
 - gap property for Flexbox
 - CSS Grid
 - WebGL
- Test a feature:** A section about testing with BrowserStack, featuring a "Test on:" dropdown with options for IE 11, Safari 17, Safari on iPhone 14, and Chrome on Galaxy S23.
- Did you know?** A note encouraging users to vote for features or submit their own research.
- Third party tools:** A list of 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
- Browser scores:** A chart showing current browser scores:

Browser	Score
Chrome	133: 436
Safari	18.3: 411
Firefox	135: 415

HTML versions



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



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