

# CIS 371 Web Application Programming

## HTML



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# Getting Started: How does the WWW work?

The World Wide Web(WWW) is a system of interlinked hypertext documents and resources, accessed via the internet using a web browser. It allows users to view and interact with websites that contain text, images, videos, and other multimedia.

- All computers use a communication standard: **HTTP**.
- **Web Pages**: Documents written in HTML (Hypertext Markup Language).
- **Web Servers**: Computers that store and deliver web pages.
- **Web Browsers**(clients): Programs like Chrome, Firefox, Safari used to access and display web content.
- **URLs**: Uniform Resource Locators - addresses that identify resources on the web.

# Why do we need both HTML and CSS?

# Why do we need both HTML and CSS?

HTML → Structure



CSS → Style



# History of HTML

- In 1989, at the CERN Lab in Switzerland, Tim Berners-Lee introduced the first version of HTML for sharing research papers.
- In 1991, the WWW Talk showcased the introduction of HTML.
- In 1993, Marc Andreessen from the National Center for Supercomputer Applications had developed the Mosaic browser.
- In 1995, we saw two significant releases: Java by Sun Microsystems and JavaScript by Netscape."



# HTML Versions

- 1991: HTML 1.0 introduced with 20 tags/elements.
- 1993: HTML 1.0 is formally released. At this time, web development was still in its infancy, with few developers actively creating websites.
- 1995: HTML 2.0 is published, building upon HTML 1.0 with added features. This version set the standard for web design and creation until 1997.
- 1997: HTML 3.2 arrives with newer, more powerful features, enabling advanced website design. However, some of these features slowed down the browser in applying further improvements.
- 1999: HTML 4.01 is launched, marking the first release with CSS support. This combination proves highly successful.
- 2000: XHTML is introduced, merging HTML with XML to create a XML-based version of HTML, ensuring cleaner coding and better document structure.
- 2014: HTML5, an evolution of HTML 4.01, is rolled out, enhancing multimedia integration and improving semantic elements.
- October 2018: The latest standard at this time, HTML 5.3, is released, further refining and expanding the capabilities of the previous version.

# First Website

## The ultimate first website

<http://info.cern.ch/>

.ch is country code top-level domain (TLD) for  
**Switzerland**

# HTML

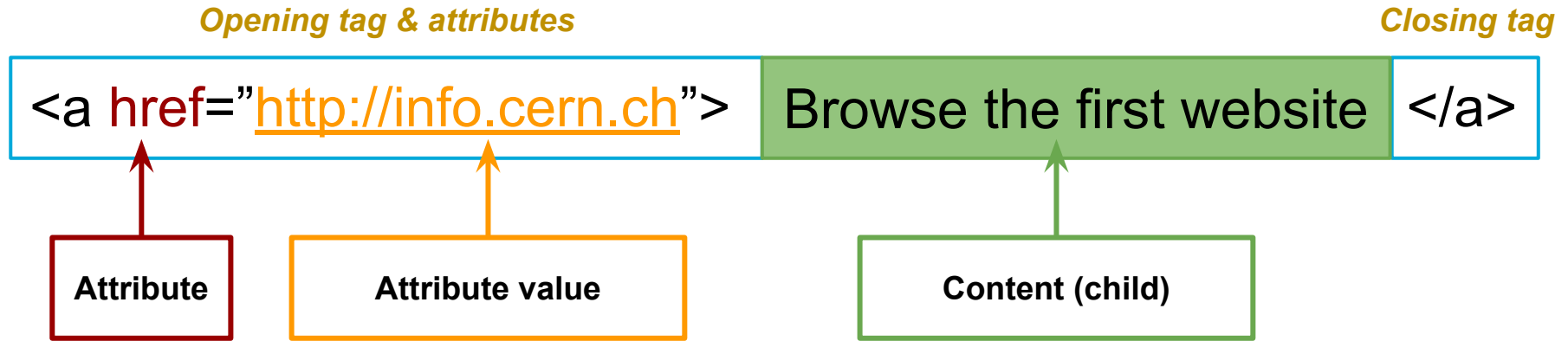
- Hypertext Markup Language
- Not a programming language, but a presentation language
- Code for structuring and displaying a web document
- An HTML file should have either an **.htm** or **.html** file extension.
- Vocabularies
  - Tags/Elements
  - Attributes
    - key="value"
    - "boolean"



# .html vs. .htm

- **Windows systems** typically use the **.htm** extension, while **UNIX systems** generally prefer **.html**.
- Historically, most Web servers ran on Unix and adopted **.html** as the standard file extension. This has led some to view **.htm** as slightly informal.
- Nowadays, most Web servers are configured to recognize **both extensions**.
- To ensure compatibility, always consult the system administrator about the **preferred file extension** they support.

# HTML Elements/Tags/Nodes



# Empty Elements

- No closing tag
- No (child) content

```
<link rel="stylesheet" href="....."/>
```

```

```

# Type of Elements

Two categories of HTML elements based on their effect on **new line**

- **Block:** induces a new line **before** and **after** its surrounding context
  - Examples: p, h[1-6], ol, ul, pre, blockquote, dl, div, form, hr, table
- **Inline:** contained within block-level elements **without starting newlines**
  - Examples: b, i, tt, code, em, strong, a, br, img, span, sub, sup, button, input, select

# Inline vs Block Elements

```
<!-- block elements -->  
<p>I taught myself</p><p>HTML</p>
```



I taught myself  
HTML

```
<!-- inline elements -->  
<span>And also</span>  
<span>CSS</span>
```



And also CSS

# Overall Structure of HTML Documents

```
<html>
```

```
<head>
```

```
<meta charset="UTF-8">
```

```
<title>Sample Page</title>
```

```
</head>
```

```
<body>
```

```
<h1>Welcome</h1>
```

```
<p>Hello world!</p>
```

```
</body>
```

```
</html>
```

Document is parsed:

- Left-to-right
- Top -to-bottom
- Understanding this order becomes important when you write `<script>s`

`<head>`:

parsed by web browsers,  
but **not rendered**

`<body>`:

**parsed and rendered** by  
web browsers

# HTML Documents and DOM Tree

```
<html>
```

```
<head>
```

```
<meta charset="UTF-8">
```

```
<title>Sample Page</title>
```

```
</head>
```

```
<body>
```

```
<h1>Welcome</h1>
```

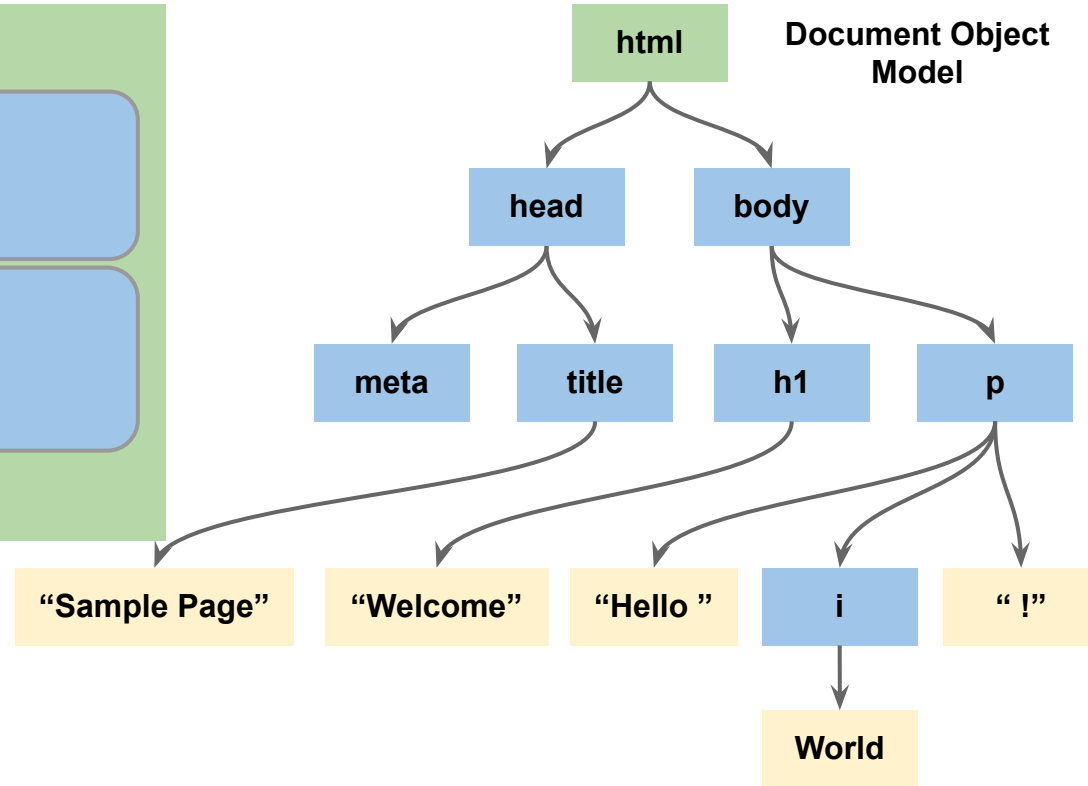
```
<p>Hello <i>World</i> !</p>
```

```
</body>
```

```
</html>
```

Use indentation result as hint

Document Object  
Model



# HTML Tags/Elements

- Alphabetical List
- Categorical List



# <meta>

- Meta tags are used for “machine readable” information about the document
  - Document character encoding
  - Content Description for web bots
- App specific metadata that can be used to customize embedding of web contents into another (app)
  - Facebook
  - Twitter
  - Slack
  - WhatsApp, and many more...

# Comments and Special Characters

<!-- this is a comment -->

Special Character	Encoding
<	&lt;
>	&gt;
&	&amp;
“	&quot;
‘	&apos;

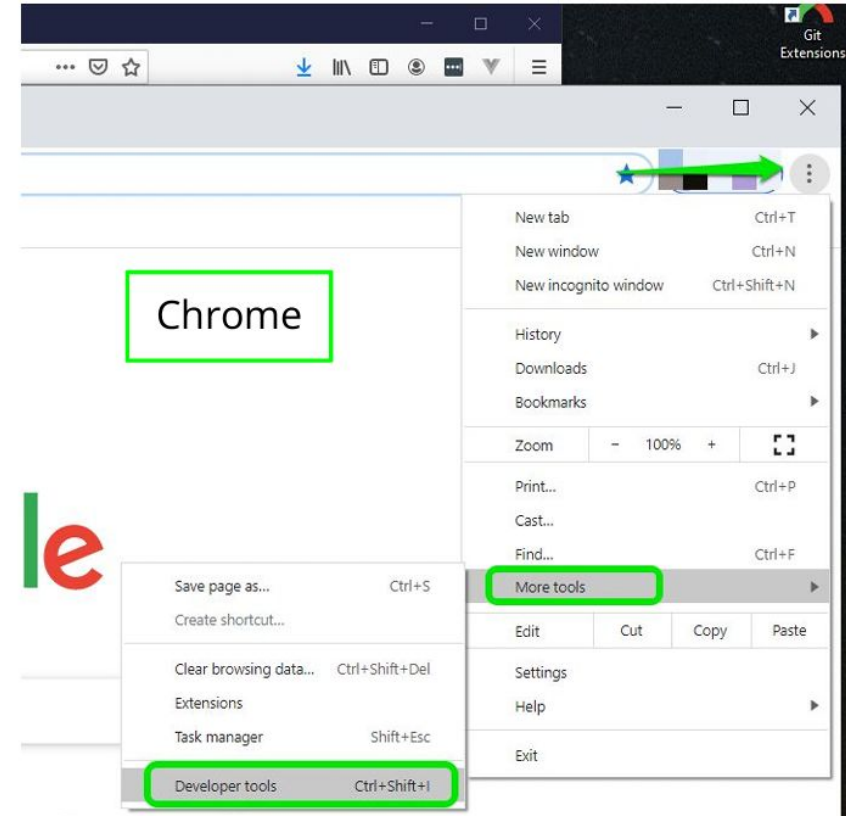
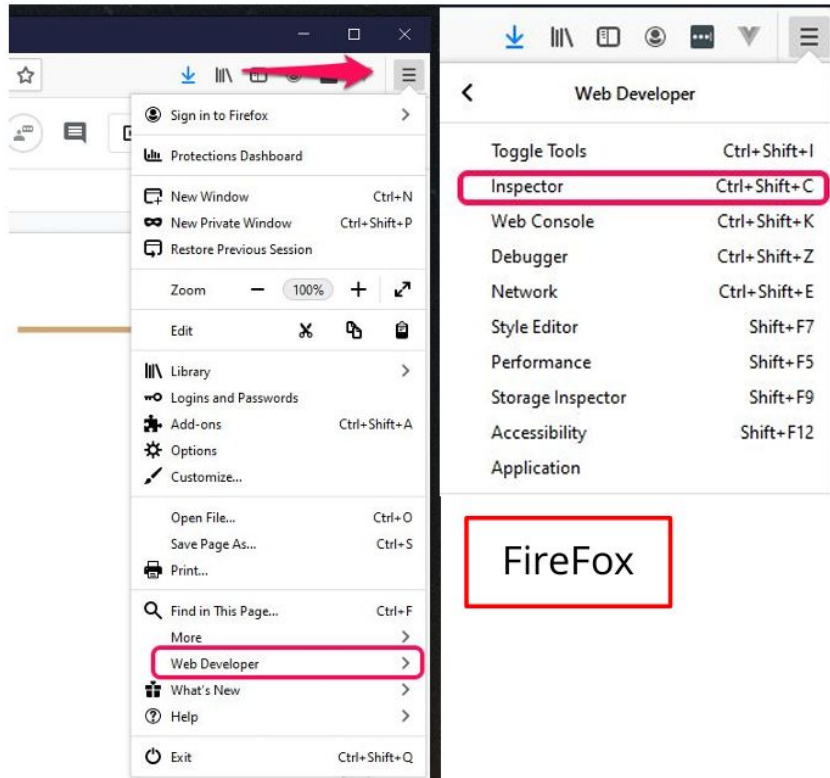
<!-- in HTML -->  
Tom &amp; Jerry



Tom & Jerry

Complete Reference: <https://dev.w3.org/html5/html-author/charref>

# Browser DevTools



# HTML Editors

- **WYSIWYG** (What You See Is What You Get) editors are available for creating HTML documents. Using them, you design the HTML visually, like a word processor, eliminating the need to write and visualize markup tags manually.
- To become a proficient Web developer, it's advisable to start with a **plain text editor**. This foundational approach ensures you deeply understand HTML at its core.
- In this course, crafting HTML source code from scratch will be our primary method of instruction.



# VSCode

## Use Open Folder (instead of Open File)

In VSCode, you can open an entire folder as a workspace instead of just individual files. This is particularly helpful for projects where you need to access multiple files and see the project structure.



## Search Command Palette

The Command Palette in VSCode provides quick access to commands, features, and functionalities. By pressing **F1** or **Ctrl+Shift+P**, you can search for and execute any command without navigating through menus.



## Emmets

Emmet is a toolkit for web developers that streamlines the process of writing HTML and CSS by using abbreviations. For example, in an HTML context, typing an exclamation point ( `!` ) and pressing `Tab` will initialize a basic HTML template. Similarly, if you type `div>p*5` and then press `Tab`, it will expand into a `div` element containing five `p` elements.

# Self Paced Tutorial

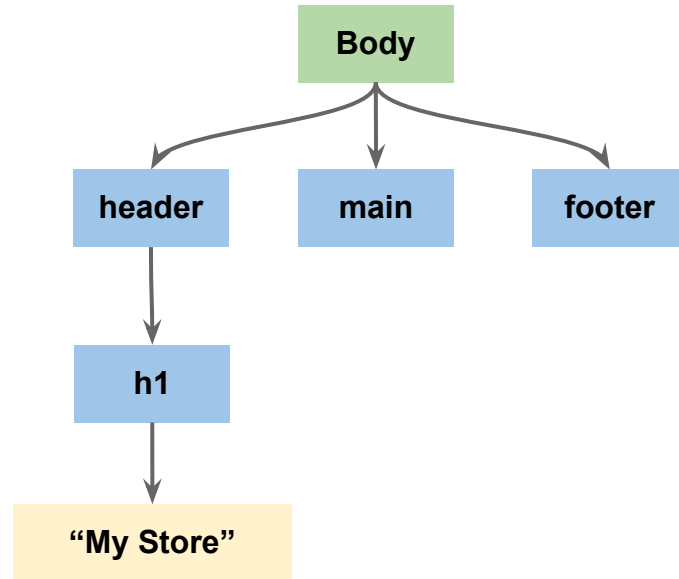
<https://www.w3schools.com/html/default.asp>

(try it yourself)



# Emmet Exercise

<https://www.youtube.com/watch?v=V8vizNQKtx0>



**Practice**