L04. Intro to HTML

CSCI 344: Advanced Web Technologies
Spring 2025

Announcements

1. Learning HTML is largely about self-study (see the readings)
2. Don’t forget to review programming concepts on your own time if you could use a refresher. Here are some resources:
    a. The Complete JavaScript Course 2024: From Zero to Expert!
    b. JavaScript Full Course for free 🌐 (2024)
    c. JavaScript Tutorial Full Course - Beginner to Pro (2024)
    d. Programming crash course + exercises added
3. Please open today’s slides on your computer (you can get to them from the Moodle) – you’ll need them for today’s activity.

Resume discussion of Net Neutrality & Content Moderation (10 minutes)

Outline

1. Overview of HTML, CSS, and JavaScript
2. Setting up your computer
3. Intro to HTML
4. Rules of thumb
5. Linking to resources
6. Activity

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1. **Overview of HTML, CSS, and JavaScript**
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Most web pages use three technologies

HTML

- controls the content & structure

CSS (Cascading Style Sheets)

- controls the style, colors, layout, fonts, etc.

JavaScript

- controls movement and interactivity
- can communicate with and transmit data to and from servers without refreshing the page
- can interact with local data stores

Demo: https://codepen.io/vanwars/pen/MRaaXL?editors=1000

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Install and Configure VS Code

1. Download and install Visual Studio Code (VS Code): https://code.visualstudio.com/
2. From within VS Code, install some plugins:
    a. “Live Server” (Ritwick Dey)
    b. “Prettier”
3. Together:
    a. Organize your files and folders (slides 5-6)
    b. Create a blank index.html page (slide 7)

Install and Configure Node

1. Open a command prompt
2. Check to see if Node.js is installed:
   a. **On Windows:** Navigate to your command prompt (cmd, powershell or WSL – whatever you use) and type **node** – it will give you an error message if it's not installed.

   b. **On Mac:** Open your terminal and type node – it will give you an error message if it's not installed.
3. If node **is installed**, make sure you're using at least version 18. You can check by typing: **node -v**
4. If it's not installed install it here: https://nodejs.org/en/download/prebuilt-installer

Side Note: Organizing Files

Now that you're taking a computer science class, it's important to think about where you're storing your files. Please do the following **EXACTLY** as specified:

1. Create a course folder called **csci344** somewhere on your computer. Many people store theirs in Documents or on their Desktop.
2. Create a **tutorials** folder inside of your **csci344** folder.
3. Create a **lectures** folder inside of your **csci344** folder.
4. Create a **lecture04** folder inside of your **lectures** folder.
5. Today, you will be creating new files inside your **lecture04** folder

Side Note: Organizing Files

When you’re done, your file structure should look something like this:

```
csci344
    ├── tutorials
    └── lectures
          └── lecture04
                └── index.html  <-- file you will make today
```

Create an HTML file in VS Code

1. Open VS Code
2. Click the “File” menu (top left) and select/click “Add Folder to Workspace…”
3. Then, navigate to your **csci344** folder (wherever you saved it), select it, and click the “Add” button.
4. When you’re done, you should see all of the folders you just made in the left-hand panel.
5. Right-click the **lecture04** folder and select “New File…”
    a. Name the new file **index.html** (all lowercase, no spaces).

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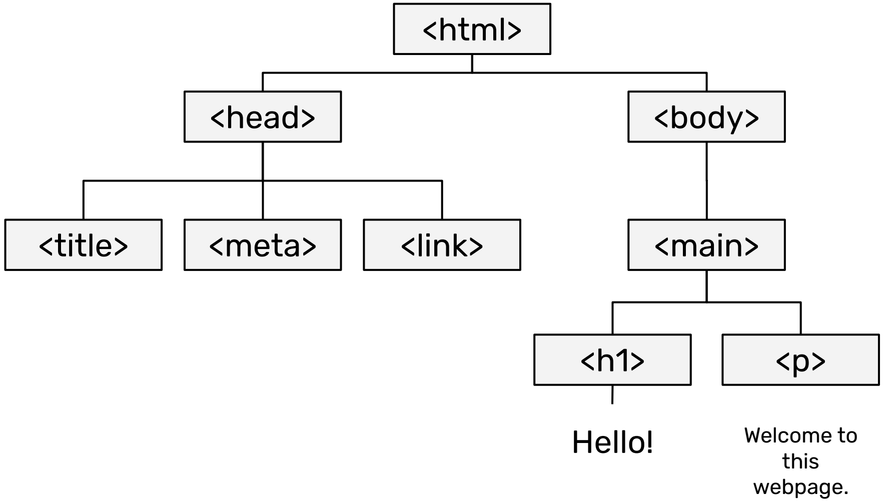
Intro to HTML (Hypertext Markup Language)

HTML is a way of creating web documents using “markup tags”

1. Each HTML tag has a set of rules that you have to follow to correctly use the tag.
2. Sometimes, tags need to be nested in a particular way to be understood by your browser.

How the Browser Interprets HTML



HTML File

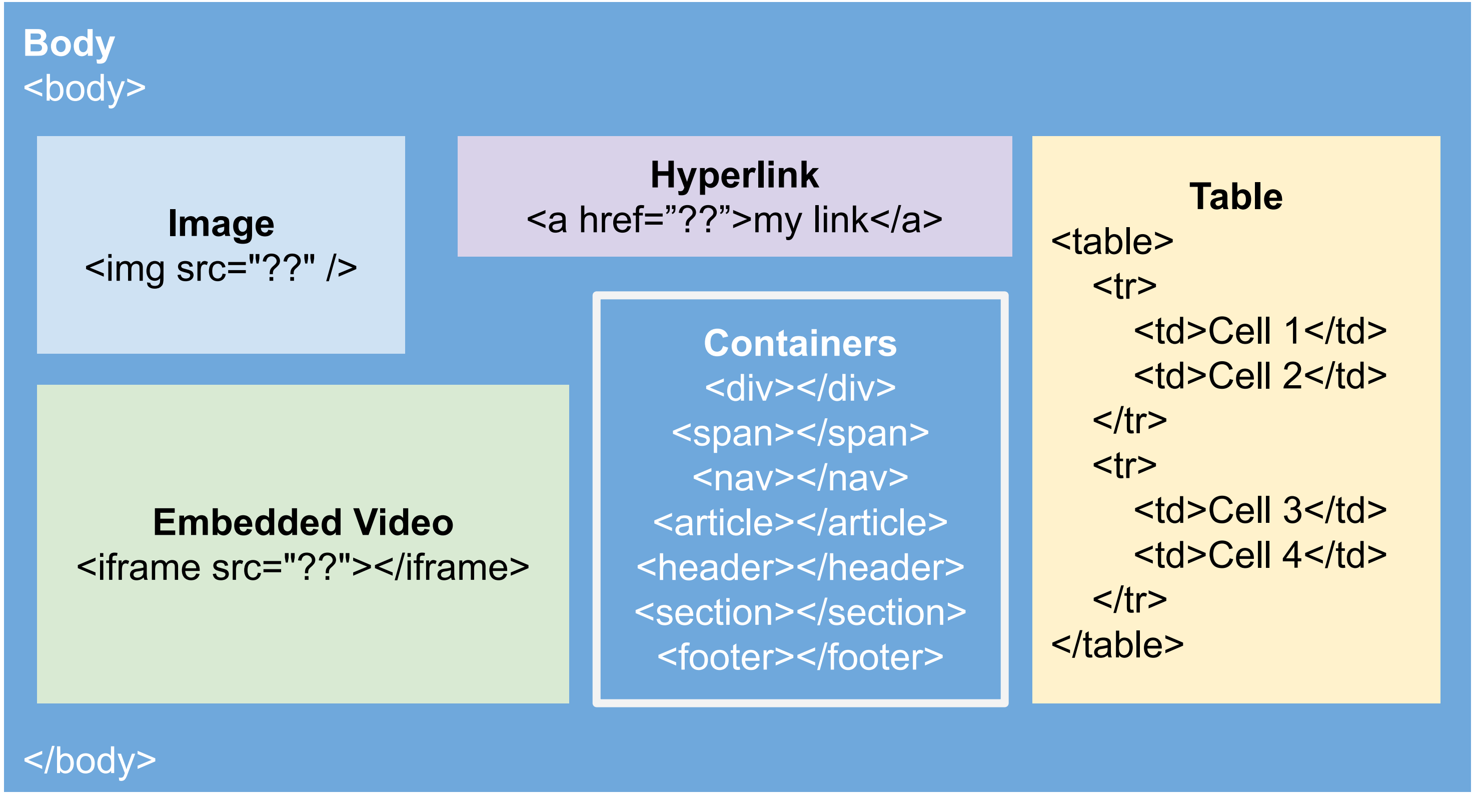
Invisible section (for metadata)

```
<html lang="en">
<head>
    <title>DOM Example</title>
    <meta name="author" content="Sarah V.">
    <link rel="stylesheet" href="main.css">
</head>

<body>
    <main>
        <h1>Hello!</h1>
         <p>Welcome to this webpage.</p>
    </main>
</body>
</html>
```

Visible section (99% of your stuff goes here)

Lots of elements can go inside of the body element



Body

```
<body>
```

Image

```
<img src="??" />
```

Hyperlink

```
<a href=”??”>my link</a>
```

Table

```
<table>
    <tr>
        <td>Cell 1</td>
        <td>Cell 2</td>
    </tr>
    <tr>
        <td>Cell 3</td>
        <td>Cell 4</td>
    </tr>
</table>
```

Embedded Video

```
<iframe src="??"></iframe>
```

Containers

```
<div></div>
<span></span>
<nav></nav>
<article></article>
<header></header>
<section></section>
<footer></footer>
```

```
</body>
```

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1. Avoid spaces, capital letters, and special characters when naming files

When creating new HTML files, it is important to follow the naming conventions listed below:

1. **No whitespace**
   Rename `page 1.html` → `page_1.html` or `page1.html`

2. **No capitalization; all lowercase**
   Rename `Page1.html` → `page1.html`

3. **No special characters (‘,*!^%#). Dashes & underscores are OK**
   Rename `Jenny's Page!.html` → `jennys_page.html` In addition, all HTML files end with either the .htm or .html file extension.

2. Most tags have an opening tag and a closing tag

<h1>My Heading</h1>

But some don’t:

1. Images: <img src="dog.png" alt="Photo of a dog" />
2. Line Breaks: <br />
3. Horizontal Rules: <hr />
4. Stylesheet Links: <link rel="stylesheet" href="my_style.css" />

You’ll eventually figure out the rules as you continue building web pages. You can also consult the HTML Reference to learn more about the rules of each individual tag.

3. The browser ignores whitespace

The browser ignores whitespace:

```
<h1>My Title</h1>
```

...is interpreted the same way as...

```
<h1>    My
     Title
</h1>
```

4. Make your code readable by indenting and using line breaks

Make your code readable by indenting and using line breaks. Please don’t do this:

```
<main><p>Welcome, <strong>Leonard</strong></p><ol><li>item 1</li><li>item2</li><li>item 3</li>
</ol></main>
```

4. Make your code readable by indenting and using line breaks

Instead, do this:

```
<main>
    <p>
        Welcome, <strong>Leonard</strong>
    </p>
    <ol>
        <li>item 1</li>
        <li>item 2</li>
        <li>item 3</li>
    </ol>
</main>
```

5. Attribute syntax

Many tags have required or optional attributes (e.g. a tags, img tags, input tags, etc).

Ensure that your attributes are always followed by an equals sign and values are surrounded by quotation marks.

Example:

```
<img src="my_image.jpg" alt="description of image for screen reader" />
```

No space between attribute, equals sign, and quotations

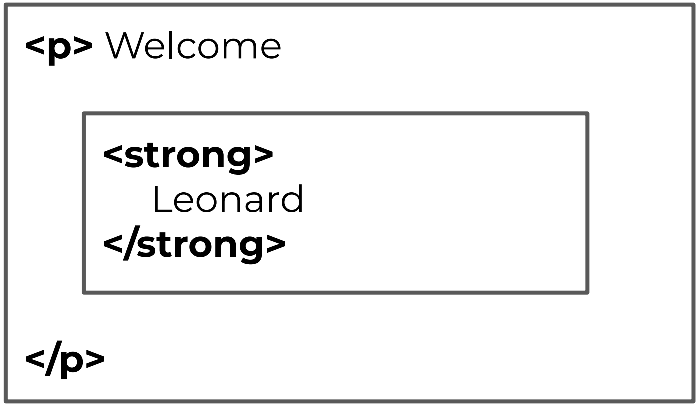
6. Last in, first out (LIFO)

Correct

```
<p>Welcome,
    <strong>Leonard</strong>
</p>
```

Incorrect

```
<p>Welcome,
    <strong>Leonard</p>
</strong>
```



```
<p> Welcome
    <strong>
        Leonard
    </strong>
</p>
```

Think boxes inside of boxes inside of boxes

7. Use comments to help you understand your code

```
<!-- Welcome Section -->
<section>
    <p>
        Welcome, <strong>Leonard</strong>
    </p>
    <ol>
        <li>item 1</li>
        <li>item 2</li>
    </ol>
</section>
```

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Linking to Resources

Linking is perhaps the biggest idea of the web: documents link together creating a “web” of networked resources.

Many different HTML tags use the concept of linking:

1. Stylesheet references
2. JavaScript references
3. Multimedia embedding (e.g., images, videos, audio files)
4. Hyperlinks

Linking to Resources

Absolute links

- When the file isn’t on your computer, you have to specify the server name, and then the path to the file.
- Example: `https://i.pinimg.com/originals/ac/f4/9b/acf49bd0f42b441160a9363dce88b243.jpg`

Relative links

- When the file is on your computer, you specify the file path **relative to your current file**.
- Example: **`../images/my_puppy.jpg`**
  Go up one directory, then into the images directory, and then access the “my_puppy.jpg” image.

Internal links

- When you want to jump to a spot on your current page.
- Example: **`#contacts`**

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Please see the

Activity 4 Instructions