Introduction to
HTML and CSS

Please check in at
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Agenda

- 2:30 – 2:35   HTML Basics

- 2:35 – 2:55   Example Website HTML

- 2:55 – 3:05   GitHub/CMU hosting

- 3:05 – 3:25   Example Website CSS
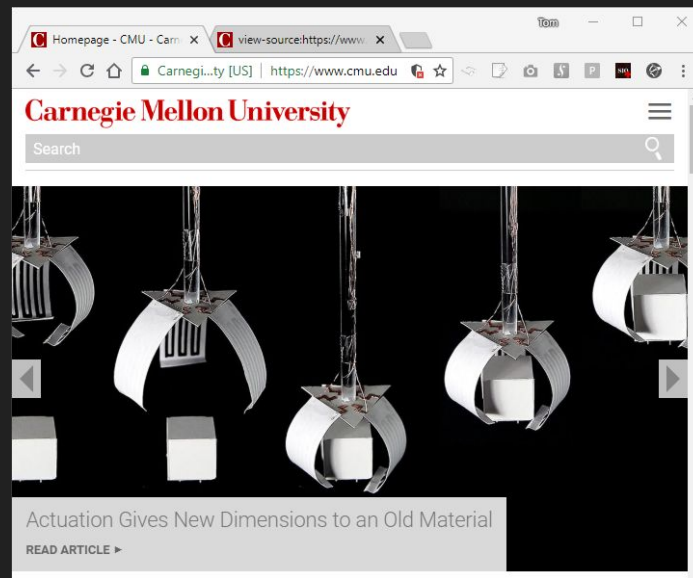
- 3:25 – 3:30   CSS Libraries

Showcase

https://evanyou.me/

http://willcrichton.net/

http://www.garysheng.com/

https://derolez.dev/

http://antiprojects.com

http://samfy.io

HTML Overview

What is a web page made of?

What is a web page made of?

- Website content is described using HTML (.html)
    - Stands for Hyper Text Markup Language
    - Can be edited in a text editor
    - Uses a tag hierarchy to describe document content

- Content is styled using CSS (.css)
    - Cascading Style Sheet
    - Can apply styles to elements of a certain type/class

- Interactive content uses JavaScript (.js)
    - Won't be covering this today

Tags

`<h1>`Some Content`</h1>`

Opening tag   Content   Closing tag

`<img src="awesome_image.png">`

Attribute

HTML Page structure

Tags are translated into a tree-like hierarchy

```
<html>
    <head>
        <title>Hello World!</title>
    </head>
    <body>
        <h1>I'm a heading!</h1>
        <p>I'm some content!</p>
    </body>
</html>
```

HTML Page structure

The HTML tag contains all the other elements

```html
<html>
    <head>
        <title>Hello World!</title>
    </head>
    <body>
        <h1>I'm a heading!</h1>
        <p>I'm some content!</p>
    </body>
</html>
```

HTML
HEAD
BODY
TITLE
H1
P

HTML Page structure

The HEAD tag contains metadata about the page (and links to CSS/JS files)

```
<html>
    <head>
        <title>Hello World!</title>
    </head>
    <body>
        <h1>I'm a heading!</h1>
        <p>I'm some content!</p>
    </body>
</html>
```

HTML Page structure

The BODY tag contains the main content of the document

```html
<html>
    <head>
        <title>Hello World!</title>
    </head>
    <body>
        <h1>I'm a heading!</h1>
        <p>I'm some content!</p>
    </body>
</html>
```
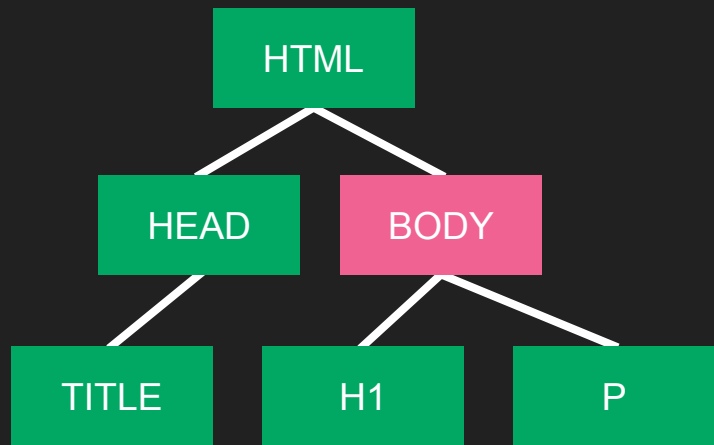
HTML Page structure

The DOCTYPE declaration (not a tag) tells the browser this is an HTML file
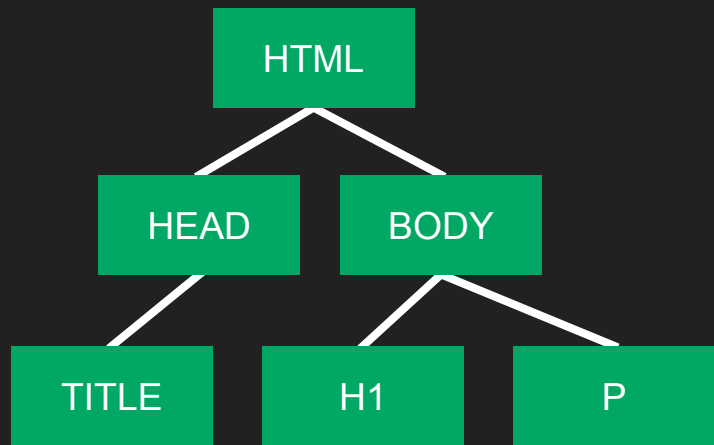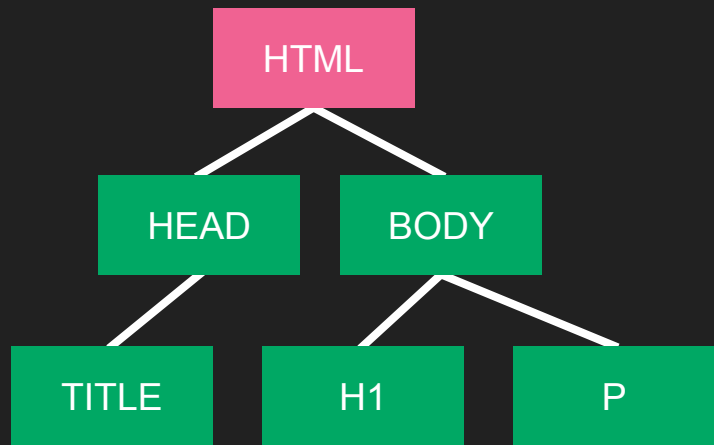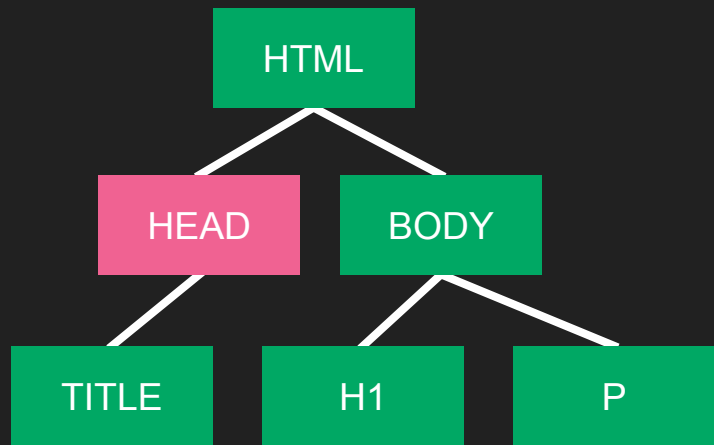
```html
<!DOCTYPE html>
<html>
    <head>
        <title>Hello World!</title>
    </head>
    <body>
        <h1>I'm a heading!</h1>
        <p>I'm some content!</p>
    </body>
</html>
```

HTML

HEAD

BODY

TITLE

H1

P
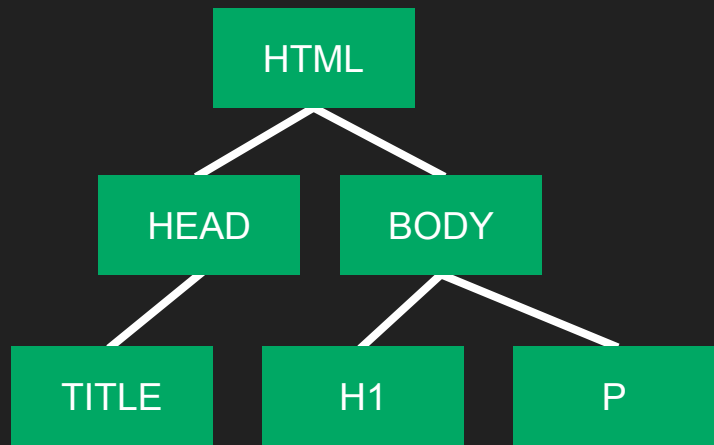
Common tags

Headings

```
<h1>I'm a heading!</h1>
<h2>I'm a subheading!</h2>
<h3>I'm a subsubheading?</h3>
```

I'm a heading!

I'm a subheading!

I'm a subsubheading?

- Are declared using the H1, H2, … H6 tags.

- H1 is the largest

- Are used by search engines to index content

Paragraphs

```
<p>First paragraph</p>
<p>Second paragraph</p>
```

→

First paragraph

Second paragraph

- Necessary since HTML ignores whitespace

Line breaks

```
<p>
    First line<br>
    Second line
</p>
```

→ First line
  Second line
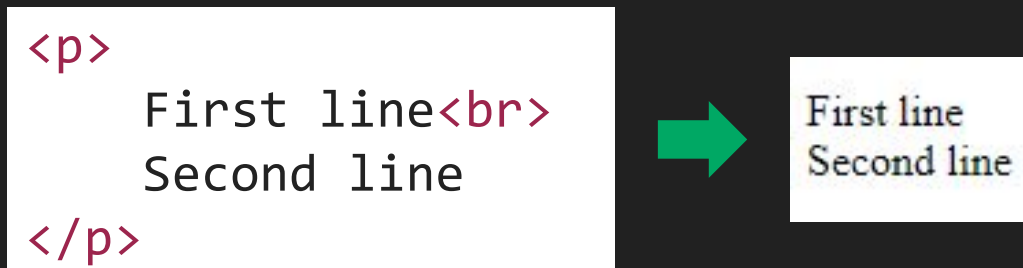
- Create a new line without adding space

- Interpreted differently by search engines/screen readers

Links

```
<a href="page2.html">Click here!</a>
```

→ Click here!

- Links to another HTML file on your computer or the internet

- Created using anchor tags

- Destination page can be specified as a relative or absolute path

Images

`<img src="scotty.jpg" alt="CMU mascot">`

- Can point to any image the browser supports (.jpg, .png, .svg, etc.)

- Alt text is required

- Height/Width can be controlled with CSS

Divs

```
<div>First div</div>
<div>Second div</div>
```

→

First paragraph

Second paragraph

- Used to split page into rectangular regions
- Can be positioned/styled independently using CSS

Tag summary

`<h1>, <h2>, ...` - Headings

`<p>` - Paragraph

`<br>` - Line break

`<a href="url">content</a>` - Hyperlink

`<img src="path" alt="description">` - Image

`<div>` - Div (rectangular portion of a page)

`<ul>, <ol>` - Unordered and ordered lists

`<li>` - List item

Walkthrough

Publishing using Andrew Hosting

- Name your home page `index.html`

- Copy files to your www directory
    - `scp index.html andrew:~/www/index.html`

- SSH into Andrew

- Update file permissions
    - Run this command from your home directory:
    - `fs sa www system:anyuser rl`

- Visit http://www.andrew.cmu.edu/server/publish.html

- Your website is at:
http://www.andrew.cmu.edu/user/ANDREWID/

Publishing using GitHub

- Name your home page `index.html`

- Go to GitHub repository settings

- Lok under "GitHub Pages"

- Set source to master branch

- Your website is at:

  http://username.github.io/
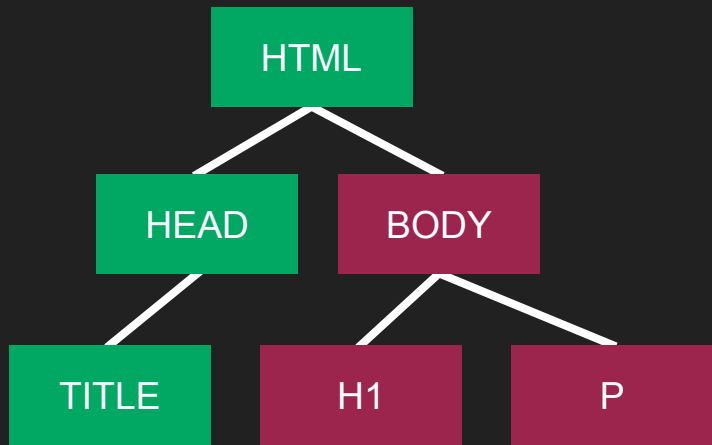
CSS Overview

CSS

CSS applies styles to HTML elements. The styles *cascade* down the hierarchy.

```
body {
    font-family: Arial, serif;
    font-weight: bold;
    font-size: 12px;
    background-color: red;
}
```

CSS

CSS is referenced from an HTML file using the LINK tag.

```
<html>
    <head>
        <title>Hello World!</title>
        <link rel="stylesheet" type="text/css" href="style.css">
    </head>
    <body>
        <h1>I'm a heading!</h1>
        <p>I'm some content!</p>
    </body>
</html>
```

CSS Structure

Property

```css
body {
Body {font-family: Arial, sans-serif;
    font-weight: bold;
}
    font-size: 12px;
}
```

Tag name

Value

```css
.colorful {
    color: #ff0000;
    background-color: blue;
}
```

Class name

CSS Structure

Element id

```
#mascotImage {
    width: 10%;
    float: right;
    margin: 10px;
}
```

CSS

Classes and ids can determine where styles are applied

```html
<html>
    <head>
        <title>Hello World!</title>
        <link rel="stylesheet" type="text/css" ...
    </head>
    <body>
        <h1>I'm a heading!</h1>
        <p class="colorful">I'm some content!</p>
        <img id="mascotImage" src="scotty.jpg" ...
    </body>
</html>
```
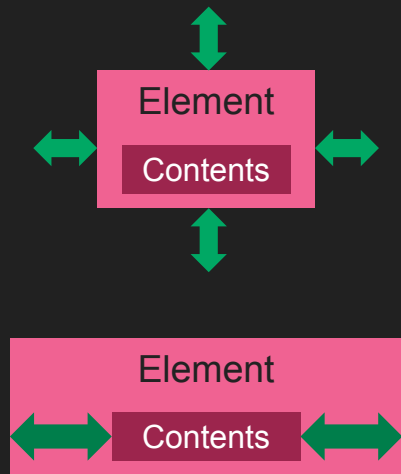
Positioning elements

`margin` – Amount of space around element

`padding` – Space between element and contents

`width/height` – Uses units of **em**, **px**, or **%**

`float` – Place content off to the side

Other resources

- Use a CSS template
  - https://materializecss.com/
- W3Schools has excellent documentation for HTML tags
  - https://www.w3schools.com/
- Bootstrap 4
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