Last time we talked about HTTP

- HTTP
  - A stateless application layer protocol used for requesting access to resources on the World Wide Web
Today

- We will start talking about what we actually transfer over HTTP
- Specifically: **Web pages**
Web pages

- Web pages are requested by web browsers, which interpret and display their contents
Web pages are written in **HTML**
- HyperText Markup Language

HTML is a **markup language**
- Describes a web page’s **content** and **structure**
- Not a programming language
HTML basic structure

<!DOCTYPE html>
<html>
<head>
    <head>
        This is where page metadata and invisible content goes
    </head>
<body>
    This is where visible page content goes
</body>
</html>
HTML Elements

- HTML is written as a collection of elements which can contain content

```html
<p>This is a paragraph element</p>
```

- Elements provide a structure to the document
HTML elements

- Most elements are indicated by an opening `<>` and closing `</>` tag
  - `<p>This is a paragraph element</p>`

- Some elements don’t need a closing tag
  - `<br>` line break
  - `<img ...>` image tag

- Elements can contain other elements
  - `<p>This is `<strong>`important.`</strong>`</p>`
HTML boilerplate

- Let’s create an HTML file with all the tags necessary to make a **valid** HTML page

- Can check if HTML is valid using: [https://validator.w3.org/](https://validator.w3.org/)
HTML simple web page

- Now let’s add some elements to our html file
Semantic tags

- **Semantic Tags/Elements**
  - HTML tags that indicate their expected use
    - `<form>`, `<table>`

- **Accessibility** - screen readers can change voice tone on a tag

- **Design** - meaning of page is always the same regardless of style

- **Search Engine Optimization** - density of keywords is higher when more semantic tags are used
CSS
CSS

● **Cascading Style Sheets**

● A language that describes the “**style**” (layout and appearance) of web pages
  ○ Separation of content (HTML) and layout (CSS)

● **“Cascading”**: How we style a web page has priority rules
  ○ We’ll see how this works
Style Rules

- CSS files are simply a set of rules to style different parts of a web page

```css
selector {
    property1: value;
    property2: value;
    ...
}

..more selectors..
```

**selector**: Identifies HTML element (or set of elements)

**property**: Layout property to assign value to

**value**: Value of property
Properties

● What are these ‘properties’?
  ○ Colour
  ○ Size
  ○ Shape
  ○ Position
  ○ Font
  ○ How to align text
  ○ ...and many more!
Let’s add some CSS to our site

- Need to make a css file
- Need to **link** it in our .html file
Inline and Block elements

- Elements on a web page can be **displayed** in different ways.

- **Block** elements (such as: `<p>`, `<h1>`, `<h2>`, `<ul>`):
  - Height and width can be specified and changed.
    - By default:
      - Width is full width of parent element.
      - Height is enough to fit the content.
  - Forces creation of newlines.
Block elements expand naturally.

And naturally drop below other elements.
Inline

- **Inline** elements (such as: `<strong>`, `<a>`, `<br>`)  
  - Don’t have defined width/height  
  - Can’t have block element inside it
Inline-block

- Inline elements that can have a height/width
  - Images `<img>`
<div> and <span>

- Two **non-semantic** elements
  - Generic - no specific purpose

- `<span>` is a generic inline element
- `<div>` is a generic block element

- Are used more for creating **natural divisions** throughout your page
  - **Note:** Don’t *visually* divide anything themselves
  - You have to indicate how they should appear relative to other elements
How do we select elements on a page more specifically?
- Not just all `<p>`’s or `<h1>`’s?

For example, maybe you’re writing an article and want to **highlight** some sentences for readers to pay attention to.
CSS classes

- Can define your own CSS selectors: **classes**
  - An attribute of an HTML element

In HTML:

```
<span class="highlight">This is important</span>
```

This gives this specific `<span>` tag a class attribute named “highlight”
CSS classes

• In CSS, selected by putting a dot before the class name

.highlight {
    background-color: yellow;
}
**HTML/CSS id’s**

- **id** attribute in HTML meant to be a unique identifier
  - Only one element should have a particular id

- In CSS, selected by a **hash symbol**

```
#navbar {
  color: white;
}
```

Can also be used as ‘anchors’ in URL

```
http://mysite.ca/index.html#anchor
```

Auto-scrolls to position of anchor
Combining selectors

- Different ways to combine selectors

- **Descendant selector**

```css
p strong {
    background-color: yellow;
}
```

applies to all `<strong>` elements that are inside a `<p>`
Combining selectors

- `element.class selector`

```css
p.highlight {
    background-color: yellow;
}
```

applies to all `<p>` elements that have class `highlight`
Combining selectors

- **Multiple element selector**

```css
p, strong, h1 {
  background-color: yellow;
}
```

applies to all `<p>`, `<strong>`, and `<h1>` elements