CSS
INFO 253A: Frontend Web Architecture
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CSS
Cascading Style Sheets
Style

- color, size, visibility, positioning
- Specified separately from HTML
- Why separate?
<strong>hello</strong>

```css
strong {
  font-weight: bold;
  color: magenta;
  font-size: 45px;
}
```
How else could we do it?

Just like the funky ASCII symbols, we could set the style of each element

```html
1 <!-- Warning: Invalid HTML -->
2 <strong font-color="magenta" font-size="45px">hello</strong>
```
Now all main headers are centered and have a light blue look

What's the trade-off we made?
ID & Class attributes

- id: Identifier. Unique per page
- class: Grouping. Multiple per page and per element

```html
1 <strong id="logo" class="big red">Pinterest</strong>
```

What's wrong with the above?
Compromises

- Truth is, most sophisticated sites make a compromise
- Sharing styles between semantic elements
- Frameworks that are used by different sites
Leaky Abstraction

- When details of the composition or layers merge
- Often must write your HTML with knowledge of how you will style it
- But avoid too much coupling!
- Bootstrap
Element Selectors

- Selectors specify the element to apply a style
- This is selecting all strong elements

```css
strong {
  font-weight: bold;
  color: red;
  font-size: 45px;
}
```
ID & Class Selectors

```css
#logo {
    font-size: 64px;
    color: red;
}

.symbol {
    font-size: 32px;
    color: darkblue;
}

<span id="logo">Pinterest</span>
<span class="symbol">PINTEREST</span>
<span class="symbol">New York Times</span>
```
Comma = OR

```html
1 h1, h2, h3 {
2     color: #B3D4FC; /* light blue */
3     text-align: center;
4 }
```

all h1 or h2 or h3 elements
Descendant

- Think nested tags
- Let's write a table in HTML
- What is an example of a descendant?
Descendant CSS = (space)

```css
1 table a {
2   font-weight: bold;
3 }
```
Cascading & Inheritance

- Some properties are passed down to descendants, like font-family
- Some elements may be affected by multiple rules, which "cascade"
- Most specific wins
Cascading

```html
1  table {
2    font-family: sans-serif;
3    color: blue
4  }
5
6  .data {
7      border: 1px solid rgba(0, 0, 0, 0.2);
8      color: red
9  }
10 <table>
11   <tr><td>Color blue</td></tr>
12   <tr><td class="data">Color red</td></tr>
13 </table>
```
What's the trade-off?

- Now we can specify styles in another file
- Can select groups of tags or tags with IDs
- But how can we style individual tags?
Style Attribute

- Change the style of individual elements in-line in HTML
- Value of the style attribute is the same format as the definition block
- Only for very special cases!

```html
<h1 style="color: brown;
  background-color: yellow;">Individual</h1>
```
The power of CSS

- CSS Zen Garden: One site, many designs
- Garden
- Under the Sea
Sneak Peak

- JavaScript can manipulate CSS too!
- Composability: they play well together, but don't require each other
Overview

Browser → Server

DNS → Browser

Browser ← Server

HTML → Server

CSS → Server

Images → Server

Javascript → Server

Server → Browser

Render HTML

Run Javascript

Style CSS

User Input