

What is HTML?

HYPERTEXT

text which contains links to other texts

1945: Vannevar Bush proposed the Memex, which could create and follow links between documents on microfiche

1989: Tim Berners-Lee proposed Internet-based hypertext system to use and share CERN's information

MARKUP LANGUAGE

```
<!DOCTYPE html>
<html>
  <head>
    <title>Photo Gallery</title>
  </head>
```

Nested elements that
structure content

```
Image           Text
<body>
  <div class="photo">
    <h3>My first photo</h3>
    
  </div>
  ...
</body>
</html>
```

Start

The diagram shows the opening and closing tags of an `<h3>` element. A red curved arrow labeled "Start" points from the top left to the opening tag `<h3>`. Another red curved arrow labeled "End" points from the top right to the closing tag `</h3>`. The text "My first photo" is centered between the two tags.

`<h3>My first photo</h3>`

Name

The diagram shows the opening tag of an `` element. A red curved arrow labeled "Name" points from the top left to the tag ``. A red curved arrow labeled "Attribute" points from the bottom right to the attribute `src="picture1.jpg"`.

``

head

```
<!DOCTYPE html>
<html>
  <head>
    <title>Photo Gallery</title>
  </head>
```

body

```
<body>
  <div class="photo">
    <h3>My first photo</h3>
    
  </div>
  ...
</body>
</html>
```

COMMON HTML TAGS

<div>

group elements spanning multiple lines
line break before and after

group elements within a single line

<p>

new paragraph

**
**

line break

COMMON HTML TAGS

<h1>, ... , **<h6>** headings

<img src='' images

<a href='' hyperlink

COMMON HTML TAGS

<table><tr><td> tables

**** unordered list

**** ordered list

<form><input> forms that take in user input

COMMON HTML TAGS

<title>

set title that appears in
browser window

<link>

include CSS stylesheets

<script>

embed javascript

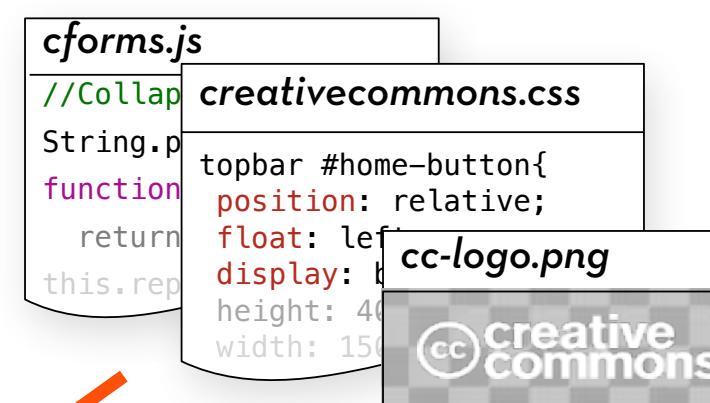
BROWSERS

WEB BROWSER

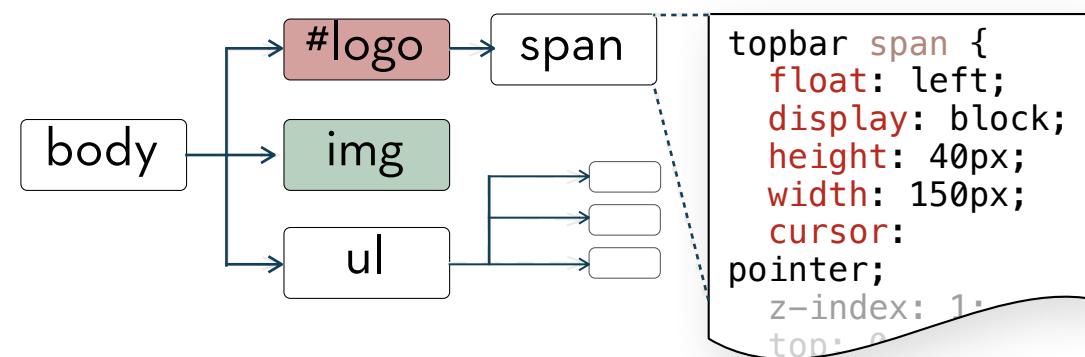
HTML

```
http://creativecommons.org
<a><span id="home-button">
</span></a>
<div id="logo">
  <span>
    Creative Commons
  </span>
</div>
```

Resources



Document Object Model (DOM)



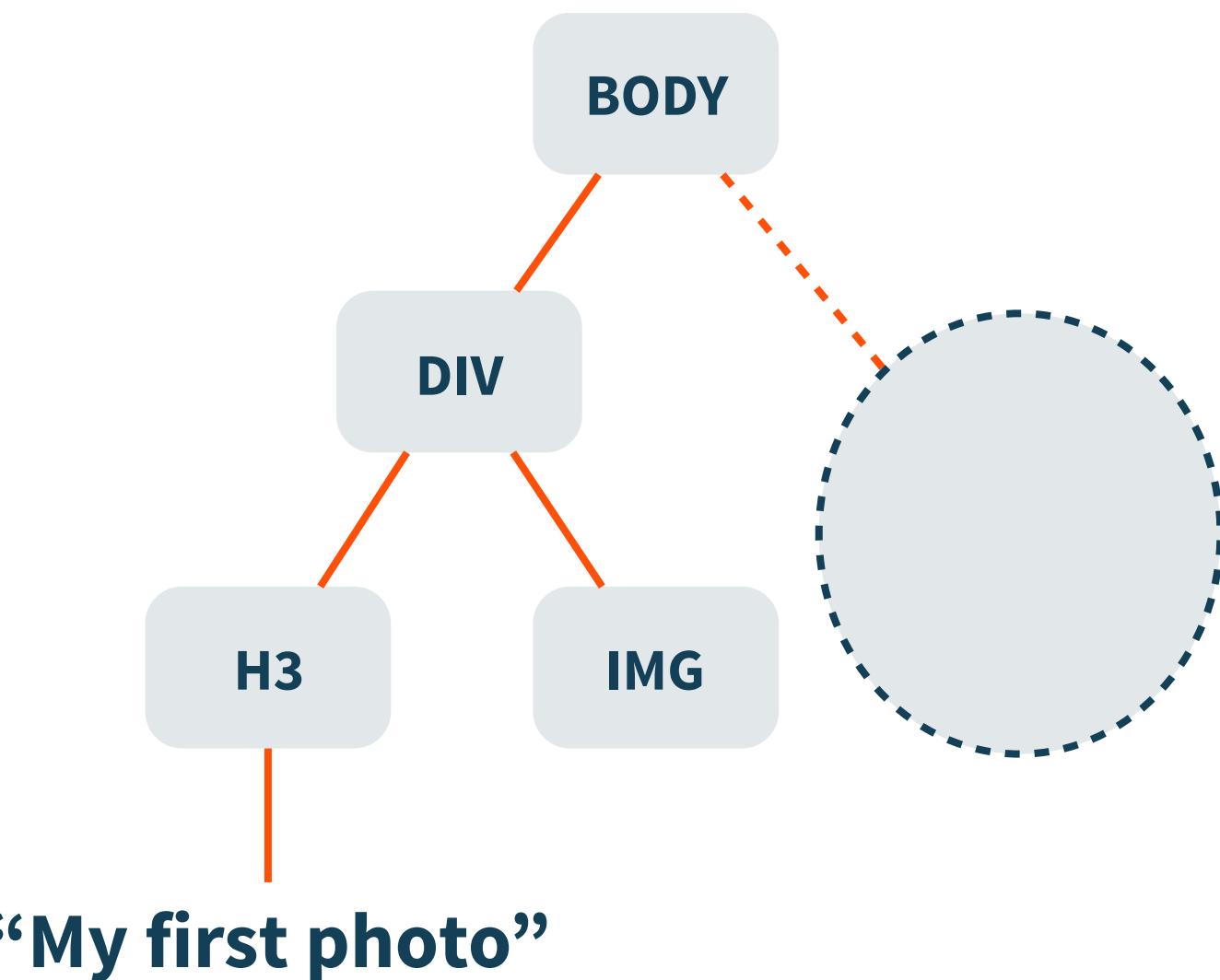
Rendered Page



DOCUMENT OBJECT MODEL

one-to-one correspondence between HTML elements and DOM nodes

```
<body>
  <div class="photo">
    <h3>My first photo</h3>
    
  </div>
...
</body>
```



LAYOUT ENGINE

WebKit

Blink (WebKit fork)

Gecko

Trident

WEB BROWSER

Safari

Chrome, Opera

Firefox

Internet Explorer

HTML5: A NEW HOPE

All code in this class will be written in HTML5!

HTML5

successor to HTML 4.01 and XHTML 1.1

not based on SGML; backwards compatible

<!DOCTYPE html>



So much simpler!

CONTENT MODEL

defines how elements can be nested

html4 had two categories: inline and block

html5 is more fine-grained

HTML5 CONTENT MODEL

Metadata: **link, script**

Flow: **span, div**

Sectioning: **aside, section**

Heading: **h1**

Phrasing: **span, img**

Embedded: **img, iframe**

Interactive: **a, button**

OTHER HTML5 FEATURES

support for richer graphics and video

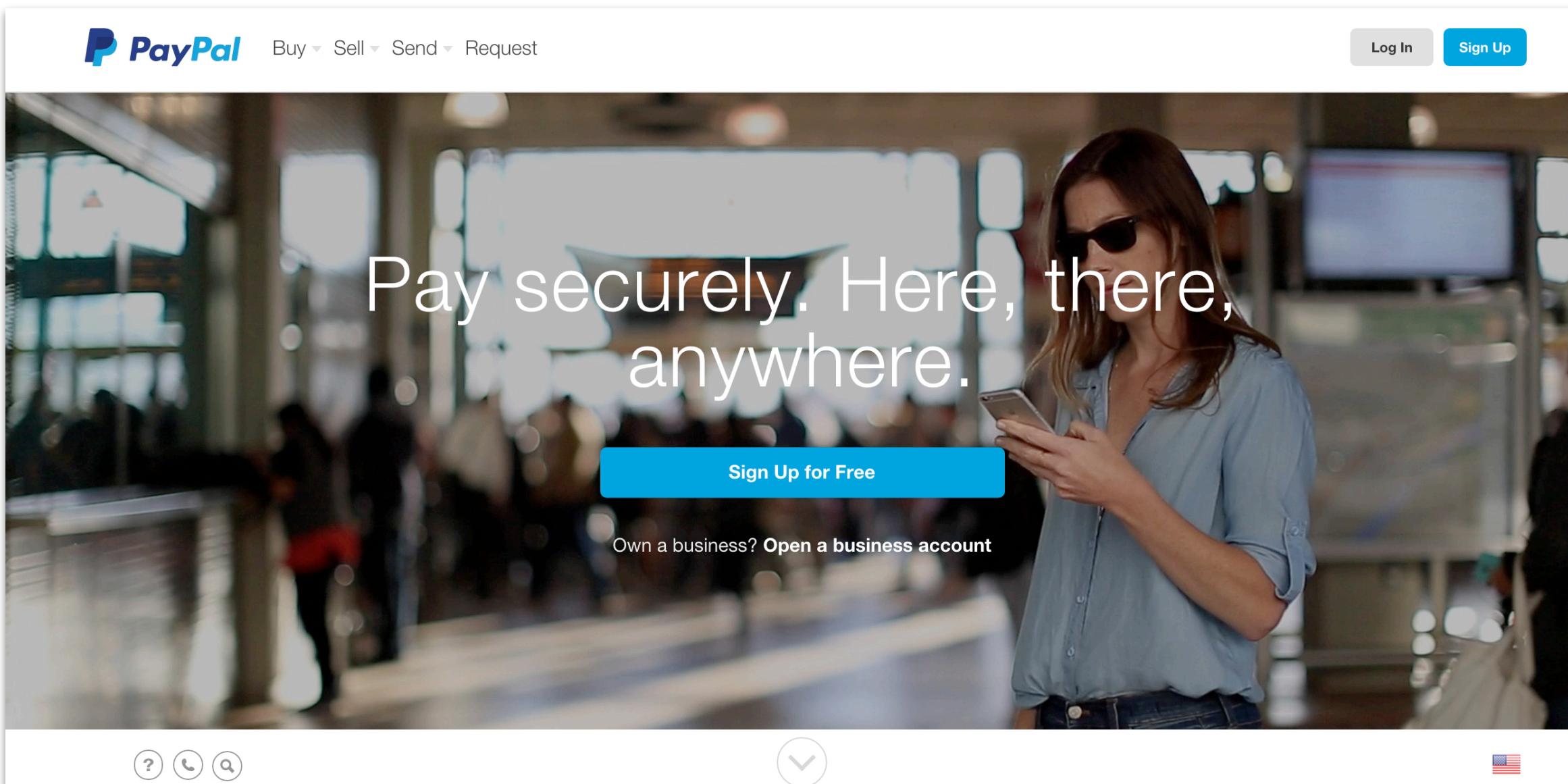
structural semantics

Fewer Flash sites

Semantic Web?

<video> and <audio>

pages with sound and large video backgrounds



STRUCTURAL SEMANTIC TAGS

focus on **structure** rather than content

describe the information architecture of pages

step on the road to a semantic “web of data”

STRUCTURAL SEMANTIC TAGS

```
<body>
  <header>
    <h1>How to Get a PhD</h1>
    <nav>...</nav>
  </header>
  <article>
    <section>
      <figure></figure>
      <h3>Bribing your Committee</h3>
      <p>When blackmail fails...</p>
    </section>
    <aside>
      <h4>Useful Links</h4>
      <a href="www.bevmo.com">Research Supplies</a>
    </aside>
  </article>
</body>
```

“THERE ARE TWO TYPES OF DEVELOPERS:

those who argue about DIVs not being semantic,

and those who create epic shit.”

Thomas Fuchs

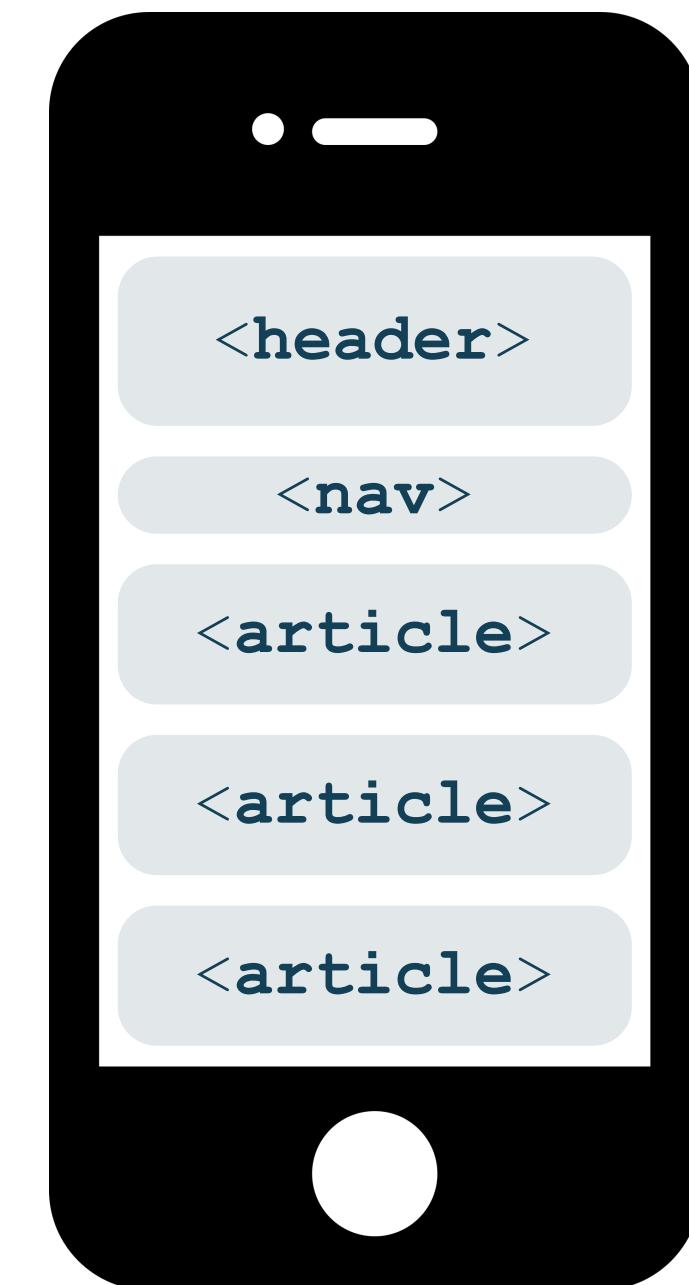
@thomasfuchs

STRUCTURAL SEMANTIC APPLICATIONS

Reuse stylesheets

Remix pages and applications

Retarget between form factors



class AND id ATTRIBUTES

Often contain structural semantic clues

many elements can share the same class value; id values are unique

Use semantic class and id values for readability and maintainability

```
<div class='product'>  
  <img class='product_image' />  
  <div class='product_description'>...</div>  
</div>
```

WRITING GOOD HTML IS HARD

DESIGN FOR DIFFERENT...

Browsers: Cross-browser Compatibility

Form-Factors: Responsive Design

People: Accessibility, Localization

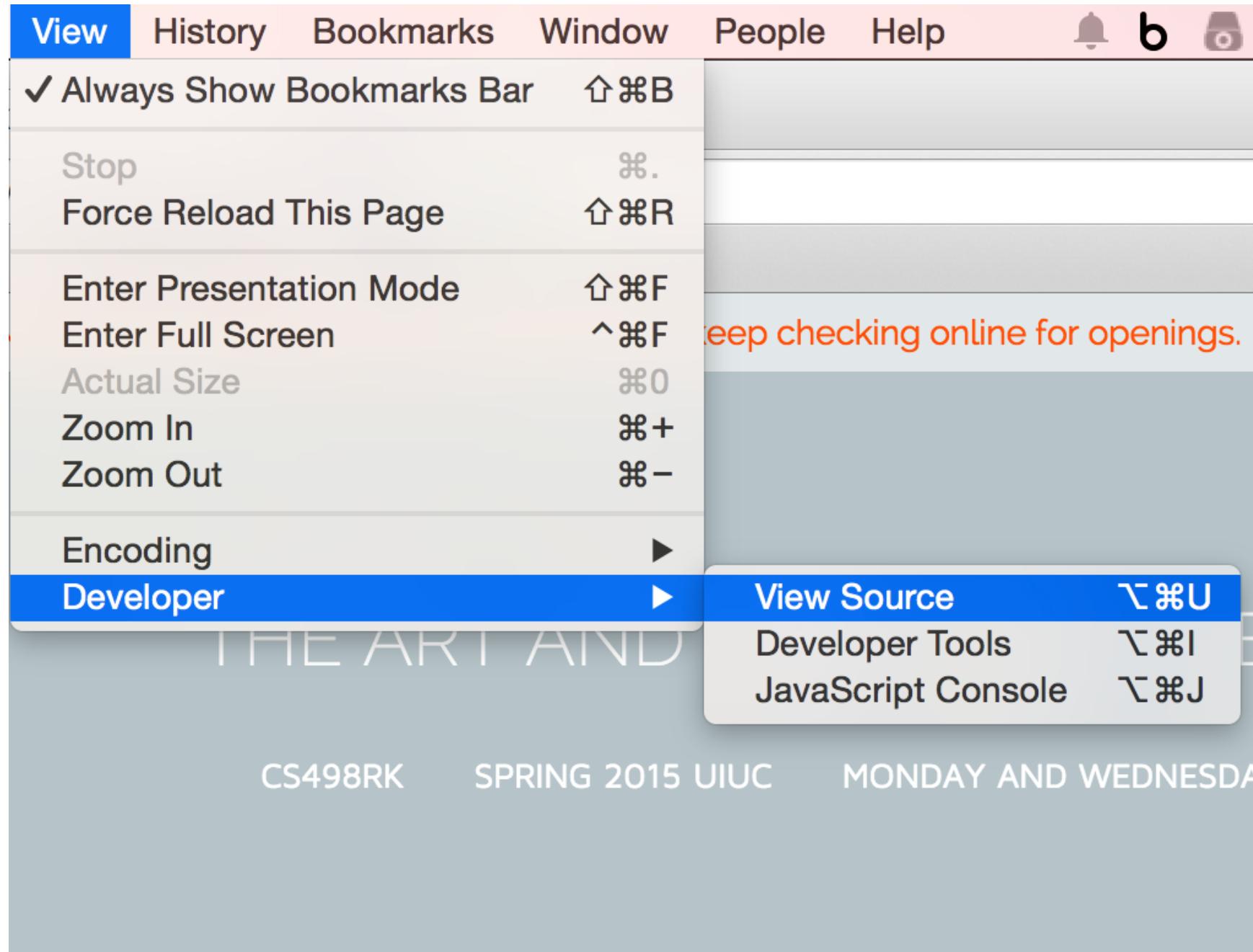
ACCESSIBILITY

Alternative text for images

Use <h*> tags for headings, nested properly

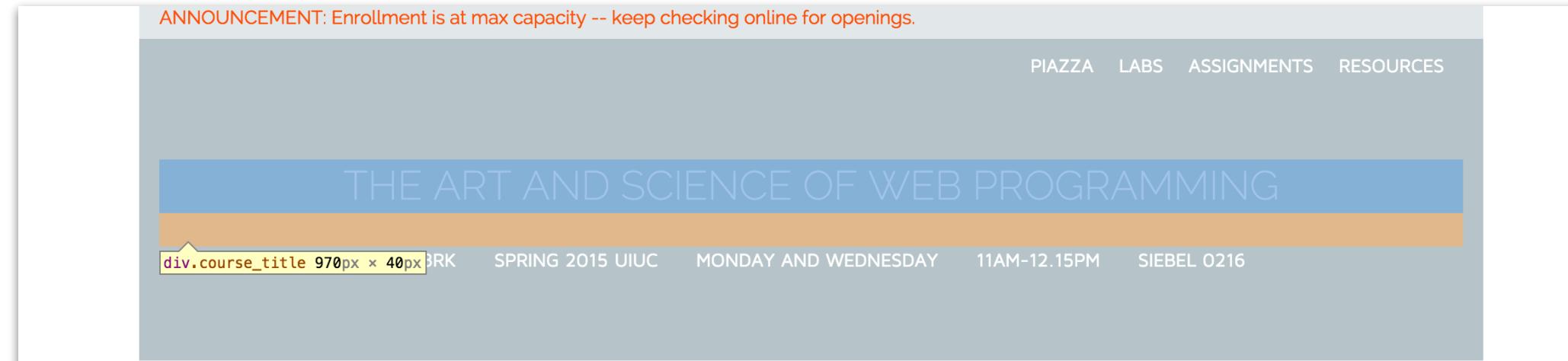
Sufficient contrast between text and background

VIEW SOURCE



inspect a page's implementation

BROWSER INSPECTOR



OVERVIEW

Presents client- and server-side technologies that enable modern Web applications. Topics include the building blocks of the Web (HTML, CSS, the Document Object Model, Javascript) and data exchange (HTTP, JSON, RESTful APIs, and SQL/NoSQL databases). Programming assignments will expose students to CSS

STAFF

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The screenshot shows the Chrome DevTools interface. The Elements tab is active, displaying the DOM structure of the page. A specific element, `<div class="course_title">`, is selected and highlighted with a blue border. The Styles tab in the DevTools sidebar is also active, showing the CSS rules applied to this element. One rule is visible: `.course_title { margin-bottom: 25px; }`. This rule is defined in the file `app.css:2198`. The DevTools interface includes a top navigation bar with tabs like Elements, Network, Sources, Timeline, Profiles, Resources, Audits, and Console.

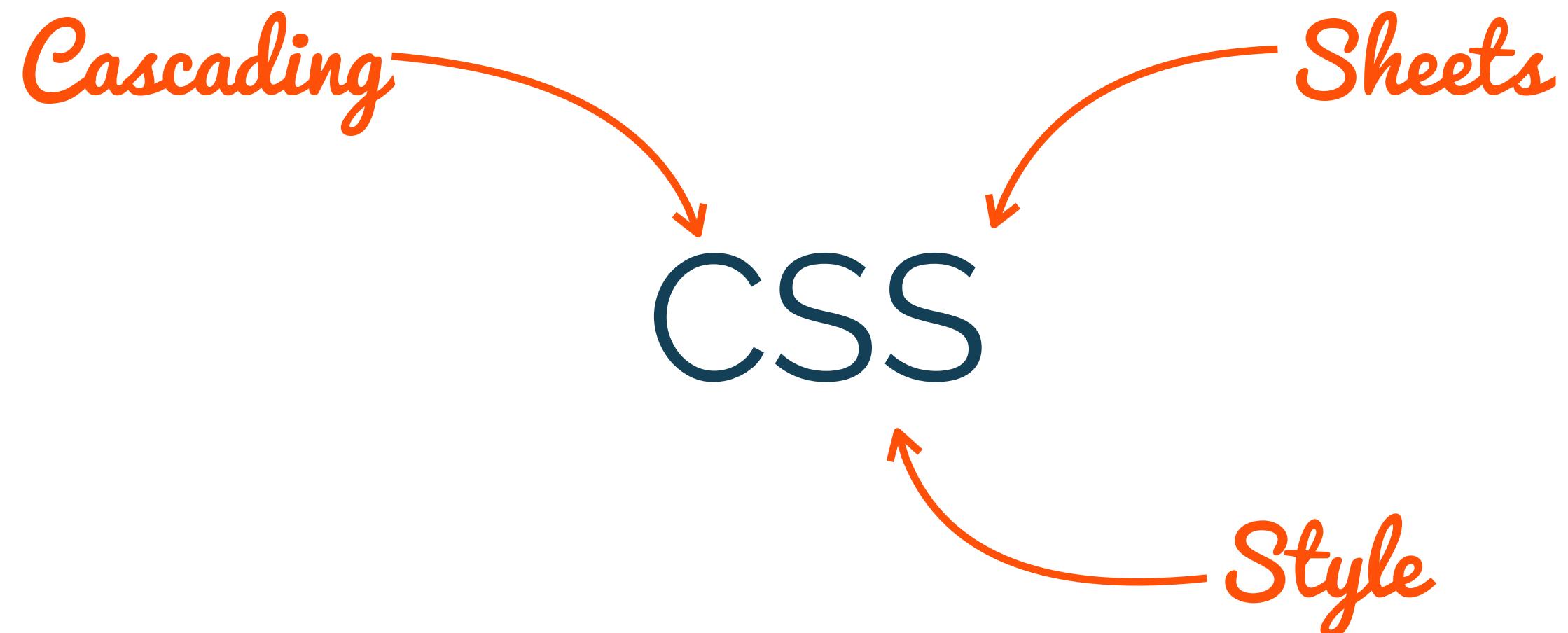
map code to render-time environment

OTHER RESOURCES

HTML5 Reference: www.w3schools.com/

HTML5 Validator: html5.validator.nu

History of HTML: diveintohtml5.info/past.html



WHAT IS CSS?

language for specifying the
presentations of Web documents

IF THERE WAS NO CSS...

This is a historical document, one of the oldest on the web. Telektronikk 4-93 was made available on www.nta.no/telektronikk/4.93 on Dec 17, 1993. It pioneered the concept of thumbnail images in HTML documents. Also, during the Quark-to-web conversion process, it became clear to the editor that a proper style sheet language for the web was needed.



text in images

Welcome to the electronic Telektronikk. The electronic version was available through the web one week before paper, and has enjoyed several corrections after the ink had dried. It has also received honorable mention at the [best of Web'94](#). Due to high demand, we are no longer able to send out complimentary paper copies, but help yourself to the electronic version - of which there are unlimited copies.

- [Guest editorial](#) by Håkon W Lie
- [Windows into Cyberspace](#) by Håkon W Lie
- [Altruism and benefit in Cyberspace](#) by Børre Ludvigsen
- [Listen to Internet](#) by Per E Dybvik
- [Telecommunications and CD-ROM - friends or foes?](#) by Erling Maartmann-Moe
- [The digital video album: On the merging of media types in multimedia](#) by Gunnar Liestøl
- [Hypertext reading as practical action: notes on technology, objectivation and knowledge](#) by Terje Rasmussen
- [Information exchange in MultiTorg](#) by Dag Solvoll, Geir Ivarsgård, Håkon W Lie, and Per E Dybvik
- [Media streams: an iconic visual language for video annotation](#) by Marc Davis
- [SCREAM: Screen-based navigation in voice messages](#) by Håkon W Lie, Per E Dybvik, and Jan Rygh
- [Telecommunications and social interaction - Social constructions in virtual space](#) by Ola Ødegård
- [Distributed Virtual Reality: applications for education, entertainment and industry](#) by Carl E Loeffler
- [Coordination: challenge of the nineties: Multimedia as a coordination technology](#) by Per M Schiefloe and Tor G Syvertsen
- [An informal requirements analysis of Norwegian public administration relative to CSCW](#) by Pål Sørgaard
- [International Information Infrastructure: social and policy considerations](#) by David Hakken

[howcome](#)

Håkon Wium Lie Interview

*Separation of
CONTENT from PRESENTATION*

CSS RULES

```
img {  
  border:1px solid black;  
}  
.photo {  
  width:300px;  
}  
.photo h3 {  
  font-weight:bold;  
}  
...
```

describe how markup
should be rendered

visual properties

positioning in page's layout

CSS RULES

Selector

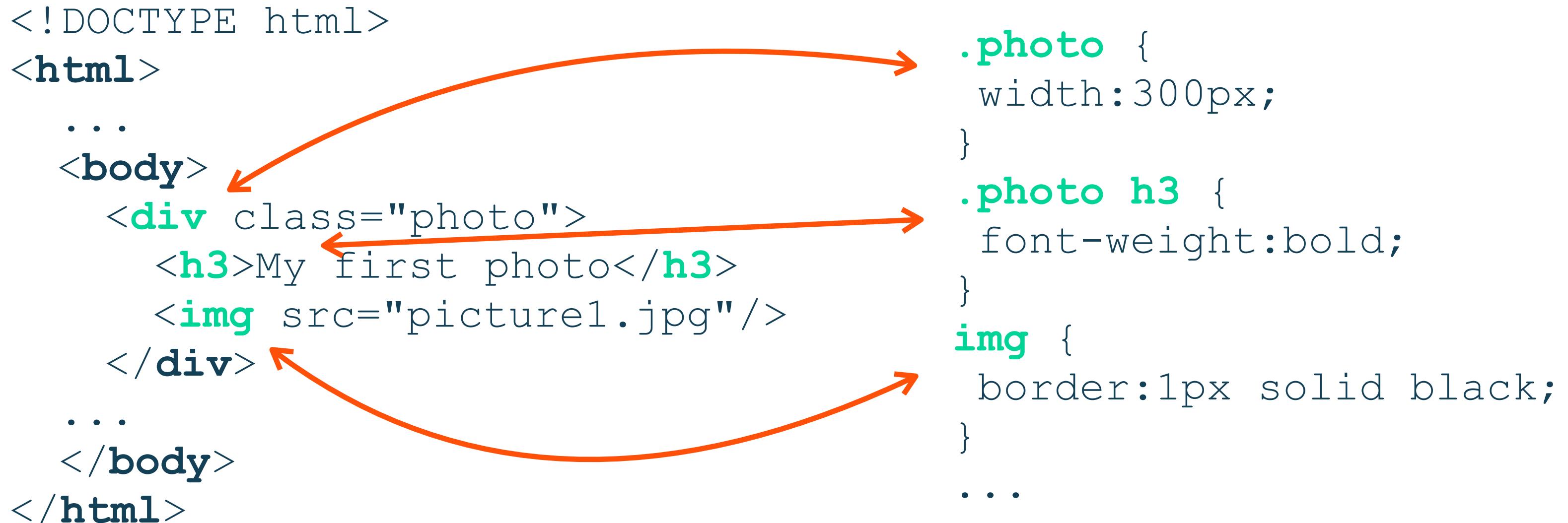
```
.photo {
```

```
width: 300px;
```

```
}
```

Declaration

CSS SELECTORS



map HTML elements to CSS rules

ELEMENT SELECTORS

html:

css:

```
img {  
    border:1px solid black;  
}
```

selects all elements matching the tag name

class SELECTORS

html:

```
<div class="photo">...
```

css:

```
.photo {  
    width: 300px;  
}
```

id SELECTORS

html:

```
<div id="llama-photo">...
```

css:

```
#llama-photo {
```

```
width: 300px;
```

```
}
```

HIERARCHICAL SELECTORS

html:

```
<div class="photo">  
  <h3>My first photo</h3>...
```

css:

```
.photo h3 {  
  font-weight:bold;  
}
```

Which selectors promote
the most *reuse*?

WHY CASCADING?

more than one rule can apply to an HTML element

priority rules for resolving conflicts

more *specific* = higher priority (class trumps element)

some properties (**font-size**) are inherited, while
others aren't (**border, background**)

LINKING TO HTML

(1) `<link rel="stylesheet" href="gallery.css" type="text/css"/>`

(2) `<html>`
 `<head>`
 `<style>`
 `h1 {color:red;}`
 `p {color:blue;}`
 `</style>`

(3) `<div style="color:blue;text-align:center">`

higher priority

CSS PROPERTIES

`background`

`background-image`



Hello World!

`color`

`font-family`

`font-size`

`font-weight`

`font-style`

`text-align`

`text-decoration`



CSS3 PROPERTIES

