HTML

HyperText
Language
Markup
What is HTML?
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
<!DOCTYPE html>
<html>
  <head>
    <title>Photo Gallery</title>
  </head>
  <body>
    <div class="photo">
      <h3>My first photo</h3>
      <img src="picture1.jpg"/>
    </div>
    ...
  </body>
</html>
<h3>My first photo</h3>

<img src="picture1.jpg"/>
<!DOCTYPE html>
<html>
  <head>
    <title>Photo Gallery</title>
  </head>
  <body>
    <div class="photo">
      <h3>My first photo</h3>
      <img src="picture1.jpg"/>
    </div>
  </body>
</html>
COMMON HTML TAGS

`<div>` group elements spanning multiple lines
line break before and after

`<span>` group elements within a single line

`<p>` new paragraph

`<br>` line break
COMMON HTML TAGS

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

<img src=''>  images

<a href=''>  hyperlink
COMMON HTML TAGS

<table><tr><td> tables

<ul><li> unordered list

<ol><li> 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
CODEPEN
BROWSERS
one-to-one correspondence between HTML elements and DOM nodes

```html
<body>
  <div class="photo">
    <h3>My first photo</h3>
    <img src="picture1.jpg"/>
  </div>
...  
</body>
```

“My first photo”
Tim Berners-Lee proposed HTML draft to the IETF
Draft referenced Mosaic (Marc Andreessen @ UIUC)
STANDARDS

Internet Engineering Task Force (IETF)

World Wide Web Consortium (W3C)

Web Hypertext Application Technology Working Group (WHATWG)
1993: 1st HTML spec
  Tim Berners-Lee

1995: HTML 2.0
  IETF takes first stab

the IETF created HTMLWG, who created HTML 2
Tim Berners-Lee creates the W3C in 1994.

1993: 1st HTML spec
Tim Berners-Lee

1995: HTML 2.0
IETF takes first stab

1997: HTML 3.2
W3C takes over

1998: HTML 4
W3C release
1989

1993: 1st HTML spec
Tim Berners-Lee

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W3C takes over

1998: HTML 4
W3C release

2008: HTML5
working draft

2014: HTML5
finalized

2015

10 years later — HTML5
Ten Years of Solitude?

1998: HTML 4 W3C release

2008: HTML5 working draft

2015
A Tale of Two Working Groups
TOWARDS A CLEANER WEB

Web browsers have forgiving parsers

99% of pages have at least one error

Move HTML from SGML to stricter XML

X for extensibility
XHTML

2000: XHTML 1.0 (HTML 4 as XML and not SGML)

2001: XHTML 1.1

XHTML2: complete departure from HTML 4

Browser vendors were slow to adopt
XHTML SYNTAX

<!DOCTYPE HTML PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">

All tags must be closed: <p>...</p>, <br />

lower case tags

quotes around attribute values
XHTML LOOPHOLE

Set DOCTYPE to XHTML, MIME type to text/html

Upgrade to XHTML syntax

Browsers interpret document as HTML

Loophole closed in XHTML 1.1
“The WHATWG was founded by individuals of Apple, the Mozilla Foundation, and Opera Software in 2004, after a W3C workshop. Apple, Mozilla and Opera were becoming increasingly concerned about the W3C’s direction with XHTML, lack of interest in HTML and apparent disregard for the needs of real-world authors. So, in response, these organizations set out with a mission to address these concerns and the Web Hypertext Application Technology Working Group was born.”
WORK BACKWARDS TO MOVE FORWARD

understand error-handling done by browsers

HTML parsers should be compatible with existing Web content

backwards compatibility a must
It is really important to have real developers on the ground involved with the development of HTML. *It is also really important to have browser makers intimately involved and committed…*

*It is necessary to evolve HTML incrementally.* The attempt to get the world to switch to XML, including quotes around attribute values and slashes in empty tags and namespaces all at once didn't work…

Tim Berners-Lee

*Reinventing HTML, 2006*
Browser vendors shape the future of HTML?

“The W3C HTML working group actively pursues convergence of the HTML specification with the WHATWG living standard…”

www.w3.org/TR/html5/
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

www.w3.org/TR/html5-diff/#content-model
HTML5 CONTENT MODEL

Metadata: link, script

Flow: span, div

Sectioning: aside, section

Heading: h1

Phrasing: span, img

Embedded: img, iframe

Interactive: a, button

www.w3.org/TR/html5-diff/#content-model
OTHER HTML5 FEATURES

- Fewer Flash sites
- Support for richer graphics and video
- Structural semantics
- Semantic Web?
<video> and <audio>

pages with sound and large video backgrounds
How many people read blogs on WordPress.com?

Over 346 million people view more than 2.5 billion pages each month.

View weekly page view stats.
focus on **structure** rather than content

describe the information architecture of pages

step on the road to a semantic “web of data”
<body>
  <header>
    <h1>How to Get a PhD</h1>
    <nav>...</nav>
  </header>
  <article>
    <section>
      <figure><img src="benfranklin.jpg"></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>
CODEPEN
“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?
STRUCTURAL SEMANTIC APPLICATIONS

Reusable 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

```
<img alt='UIUC logo'/>
```

Alternative text for images

Use `<h*>` tags for headings, nested properly

Sufficient contrast between text and background

www.w3.org/WAI/eval/preliminary.html
VIEW SOURCE

inspect a page’s implementation
BROWSER INSPECTOR

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
NEXT CLASS: CSS

courses.engr.illinois.edu/cs498rk1/