

CS193X: Web Programming Fundamentals

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HTML: Background and History

What HTML elements can I use?

Q: Instead of ``,
can I create a `<highlight>` element?

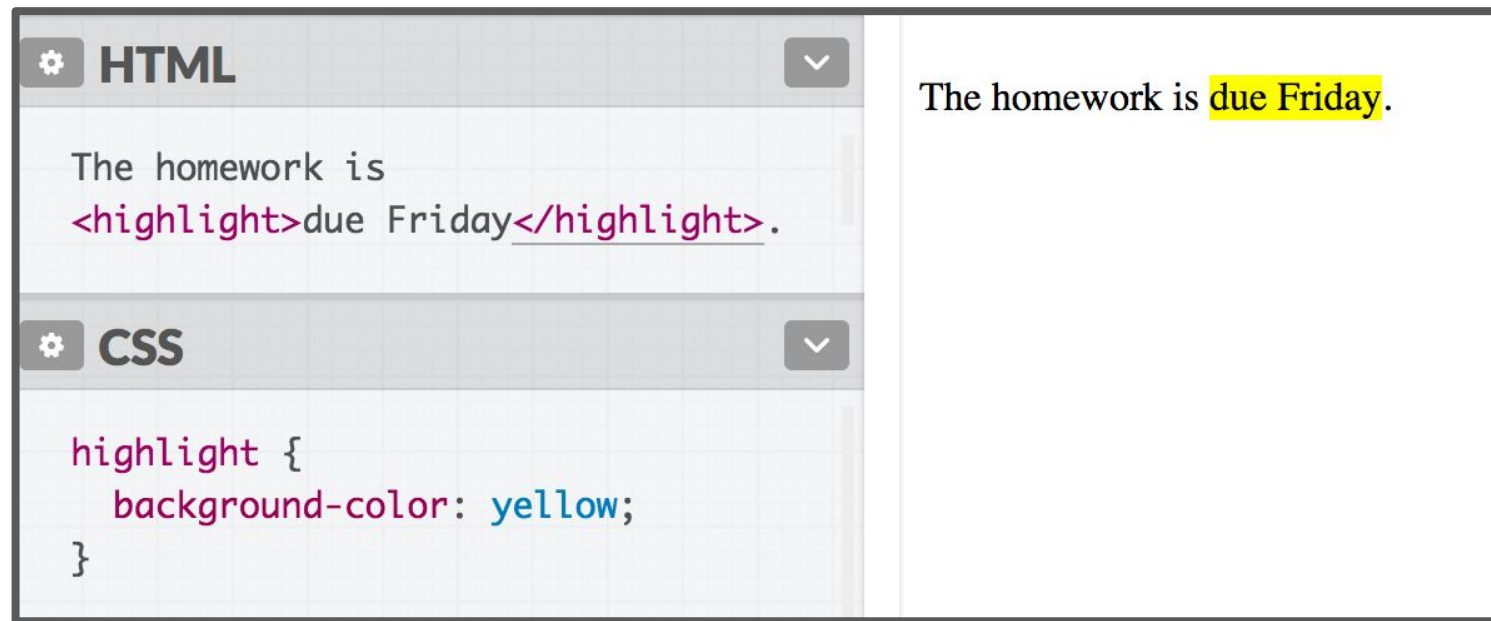
```
<p>  
  The homework is  
  <highlight>due Friday</highlight>.  
</p>
```

```
highlight {  
  background-color: yellow;  
}
```

Q: Does this
even work?

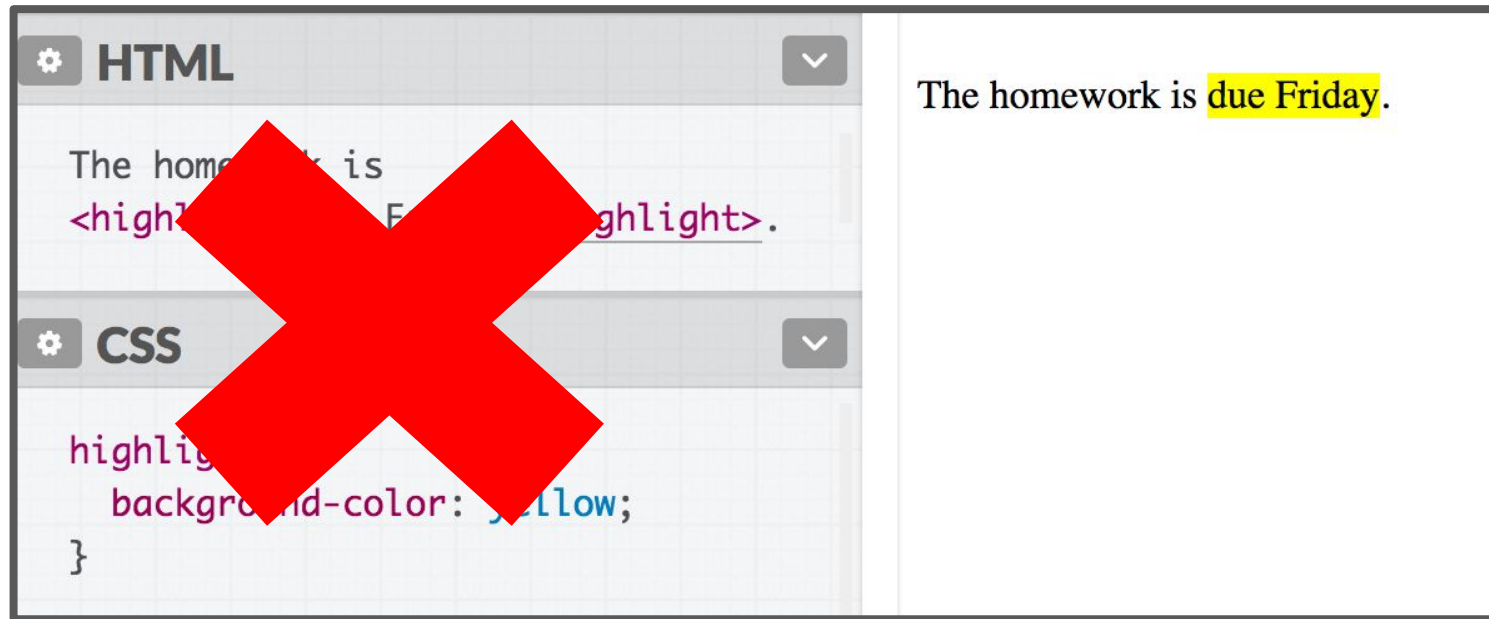
What HTML elements can I use?

This renders correctly:



What HTML elements can I use?

This renders correctly:

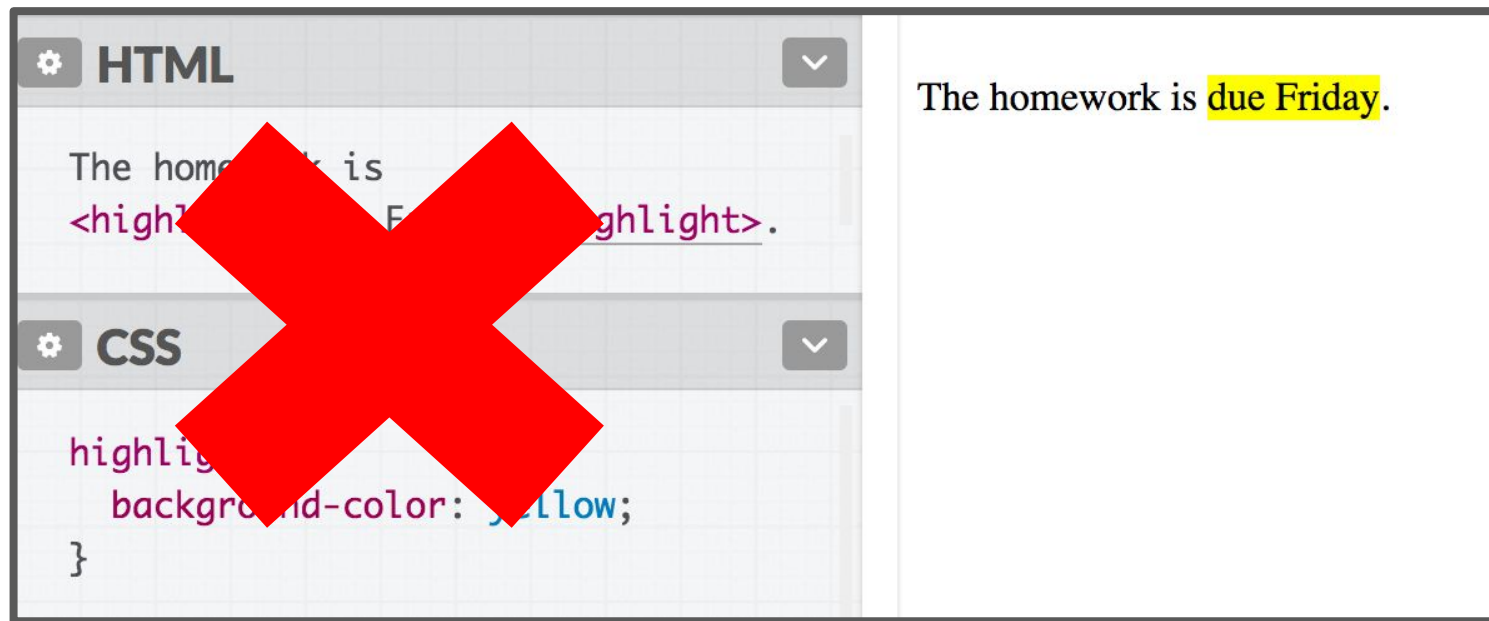


But you shouldn't do this!

It is non-standard behavior.

What HTML elements can I use?

This renders correctly:



What?!?!?

But you shouldn't do this!
It is non-standard behavior.

What?!

- What is "standard" HTML?
- Why does invalid HTML/CSS still work sometimes?
 - If my Java code is wrong, I get a compiler error... If my HTML or CSS is wrong, why don't I get an error?
- Why does it matter that I follow "standard" HTML?

A very brief history of HTML

History



**Tim
Berners-Lee**

- 1989: World Wide Web created
(WWW: web pages and the protocol in which they are served HTTP/HTTPS)
- 1994: World Wide Web Consortium created
 - "**W3C**": Goal to maintain and develop standards about how the web should work
 - Oversees several languages:
 - HTML, CSS, DOM, XML, etc
- 1997: "HTML4" published
 - The first major stable version of HTML

Degrading gracefully

The W3C HTML spec lists several [design principles](#), and one is degrading gracefully:



"An escalator
can never
break: it can
only become
stairs"

This is why browsers do a **best-effort** to render non-standard ("invalid") HTML and CSS.

Best-effort rendering



It's also why `<highlight>` "works", even though it's Invalid HTML.

Why not enforce strict HTML?

It's super weird that:

- Browsers don't fail when given invalid HTML / CSS
- Browsers not only don't fail, but they render invalid HTML/CSS seemingly "correctly"

Q: Why doesn't the browser reject poorly written HTML/CSS?

Why not enforce strict HTML?

It's super weird that:

- Browsers don't fail when given invalid HTML / CSS
- Browsers not only don't fail, but they render invalid HTML/CSS seemingly "correctly"

Q: Why doesn't the browser reject poorly written HTML/CSS?

A: There was a (failed) attempt to enforce this, but it was too late: the Internet grew too big!

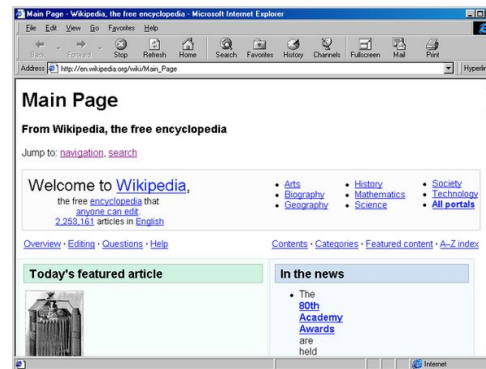
The nerdy, mostly* accurate backstory for HTML today

*I would be more accurate, but it's hard to get valid sources online... so I'm going off of what I can + the lore I've heard while working on a browser.

State of the world, 1997:



Standards say
one thing,



Browsers do
another thing,

Developers write
weird, non-standard
code.



State of the world, 1997:

**In 1997, things are
kind of a mess!**



Standard
one thing,

another thing,

Developers write
weird, non-standard
code.



2000ish:



W3C

Oops, that "degrading gracefully" thing was a mistake.

Browsers, stop rendering pages that have invalid HTML.

(This was the proposal of XHTML 1.1)

2000ish: (not totally accurate)



W3C

**That would
break the
internet!**

What?!?!

Sure
whatever



**We can't
do that!**



2004: WHATWG formed



**Let's burn everything and
start from scratch with
XHTML 1.1**

(break approx. 64 million websites)



WHATWG



Let's work on HTML5
(an imperfect but realistic standard)

Fast forward 2017?!



- W3C gave up XHTML 1.1 in 2007
- W3C and WHATWG are mostly friends (I think), though they are still separate entities
- Can still find some snarky quotes on [WHATWG website](http://whatwg.org)

"HTML5" vs HTML

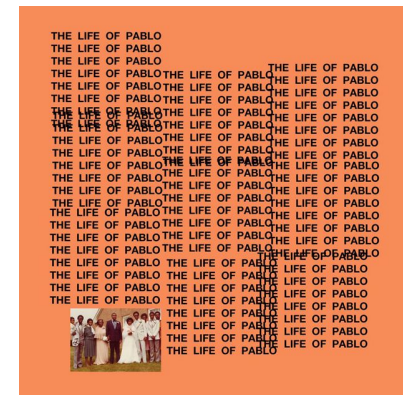
W3C maintains [HTML5](#):

- More stable version of WHATWG's HTML
- Usually copies what WHATWG does after the dust settles



WHATWG maintains [HTML: The Living Standard](#)

- No number, no versions
- Updated frequently and being updated today!
- Most browsers implement WHATWG
- This is why I don't say "HTML5"



What you need to know

Q: What HTML elements can I choose from?

- Check [MDN's list of HTML tags](#)

Q: How do I know if an HTML tag (or CSS property, or JS feature) is implemented on all browsers?

- Check [caniuse.com](#)

Q: Why shouldn't I use non-standard HTML/CSS/JavaScript, even if it works in every browser?

What you need to know

Q: What HTML elements can I choose from?

- Check [MDN's list of HTML tags](#)

Q: How do I know if an HTML tag (or CSS property, or JS feature) is implemented on all browsers?

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Q: Why shouldn't I use non-standard HTML/CSS/JavaScript, even if it works in every browser?

- Because it won't be guaranteed to work in the future
- Because it won't be guaranteed to work on all "user agents" (not just browsers)

What you need to know

Q: Wouldn't it be super useful to create custom elements?

- Yes! There is a [spec for this](#) currently under development.
 - (Note that custom elements are not really meant for our example; custom elements are meant for defining custom behavior and not just style. For defining style, CSS classes/ids are still most appropriate.)