

Intro to Browsers & Web Languages

CS 130:
Tools and Technologies of the World Wide Web
Spring, 2022

Outline

1. How do web browsers work?
2. Overview of HTML, CSS, and JavaScript

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1. **How do web browsers work?**
2. Overview of HTML, CSS, and JavaScript

What Can a Browser Do?

Browsers have several different jobs...

1. They interact with servers to access resources
 - a. text files (HTML, CSS, and JavaScript files)
 - b. images
 - c. data files
 - d. video & audio files

Browsers can also **create**, **delete**, and **modify** server resources

What Can a Browser Do?

Browsers have several different jobs...

2. Interpreting instructions and rendering (i.e. “drawing”) text, images, and graphics to the screen.
3. Responding to user events via default behaviors or via custom behaviors that are controlled by JavaScript
4. Writing local data (cookies, local storage, password storage, history to your hard drive)

How a browser interprets files

Here are the steps that a browser follows to render an HTML page to the screen:

1. Pulls down the HTML file
2. Reads it, scans it for links (“src” and “href” attributes), and then pulls down linked files
3. As it pulls down resources, it redraws the screen with the information. The addition of new image, CSS, and JavaScript files usually triggers a screen redraw

Using the Browser Inspector

Like with all programming, you will encounter errors as you develop your websites. The Browser Inspector is the very best resource that you have to help you resolve issues. It can help you...

- Inspect and change elements and CSS properties
- Examining the files that your browser retrieves
- Examining requests and responses (communications)
- Help you identify JavaScript errors

Activity 1

Examining different sources of content:

<https://www.huffpost.com/>

Activity 1: The Network Panel

- Open a web browser (preferably Chrome) and navigate to <https://www.huffpost.com/>
- Right-click on the page and select “Inspect” from the context menu
- Navigate to the network panel
- Right-click on one of the column headers (like Name), and when the context menu appears, ensure that “Domain” is turned on
- Reload the page

See if you can figure out the following...

- How many resources did your browser pull down from a server?
- How many servers did your browser access?
- How many companies are represented in these resources?
- How many POST were made?
- How many GET requests were made?

Activity 2

Hack the Northwestern Homepage:
Editing files after they have been retrieved

Northwestern

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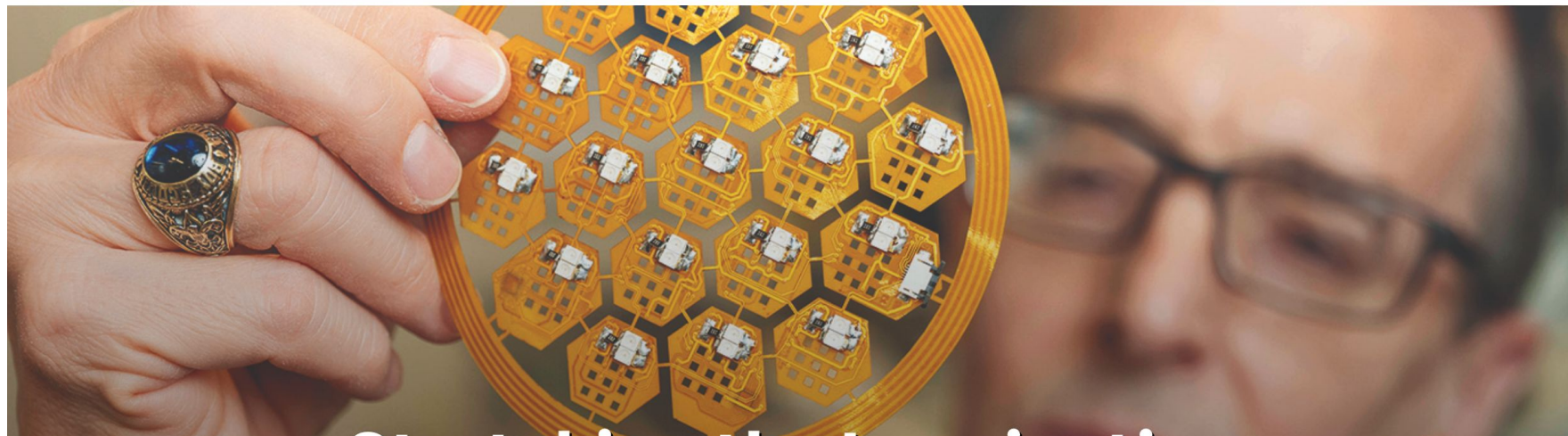
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Most web pages use three technologies

- HTML
 - controls the content & structure
- CSS (Cascading Style Sheets)
 - controls the style, colors, layout, fonts, etc.
- JavaScript
 - controls movement and interactivity
 - can communicate with and transmit data to and from servers without refreshing the page
 - can interact with local data stores

For Wednesday (tomorrow)...

For Wednesday: Intro to HTML

[Assigned readings / videos for Wednesday:](#)

- Watch the LinkedIn Learning videos
- Also take a look at the [HTML Resources](#) section on the course website, run the samples, and commit the 10 “Rules of Thumb” to memory

Coming up...

1. Tutorial Activity this Wednesday - Friday:
 - a. HTML lab: resource linking
2. Next week:
 - a. Monday: Intro to Web Infrastructure
 - b. Wednesday: Web Crawlers & the semantic web
 - c. Friday: Intro to GitHub + publishing your website to a server