



Aim: What is the Web?

Do Now: What comes to mind when you think about the World Wide Web? What do you use the web for?



A Common Misconception: The Internet vs The Web

The Internet

- A network of networks
- Invented in 1983
- Can be considered a form of hardware

The Web

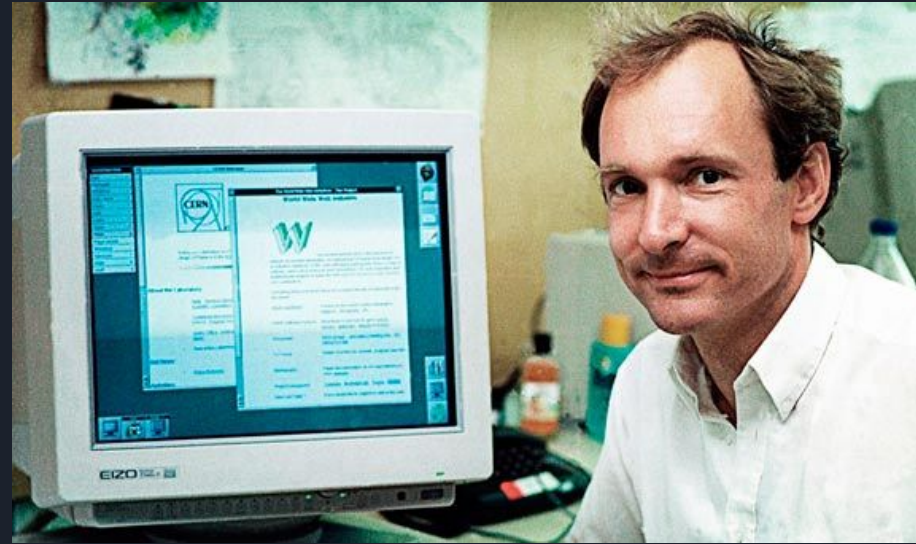
- A network of webpages
- Invented in 1989
- Can be considered a form of software

In other words, the web can be considered a way to use the internet, but it is only one use of the internet.

What other uses of the internet besides the web can you think of?

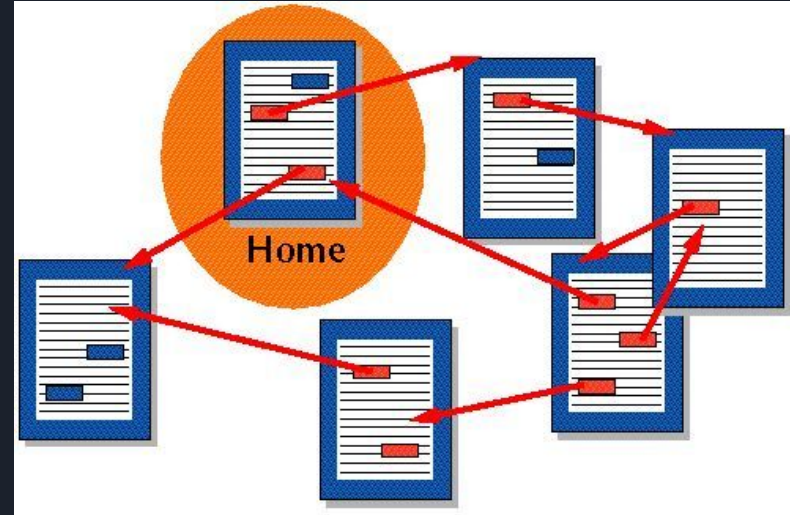
The Creation of the World Wide Web

- The web is officially known as the World Wide Web
- The World Wide Web was created in 1989 by Tim Berners Lee, a British Computer Scientist, at CERN
- Tim Berners Lee goal for creating the web was to make sharing information between scientists at CERN easier
- Eventually, the internet became available for public use in the early 1990s and spread throughout the world after
- In 1993, Tim Berners Lee and other computer scientists ensured that the World Wide Web would be free to use forever



How the Web Works: Hypertext

- Hypertext is one of the key technologies that make the web possible.
- Hypertext is text that contains references to other text that can be immediately accessed
- Example:
https://en.wikipedia.org/wiki/Computer_science
(This link itself is also an example of Hypertext)
- The World Wide Web essentially is a complex web of hypertext documents





How the Web Works: URL

- URL stands for Uniform Resource Locator
- URLs are unique references that lead to a specific resource on the web
- URLs can be thought of as the address of something on the web, hence their other name of web address
- Like real addresses though, sometimes the thing you want may move to a different address or something else may replace what's at that address
- Nowadays, if you enter something that is not a URL in the URL bar it will search for that term (often through Google), although that was not always the case

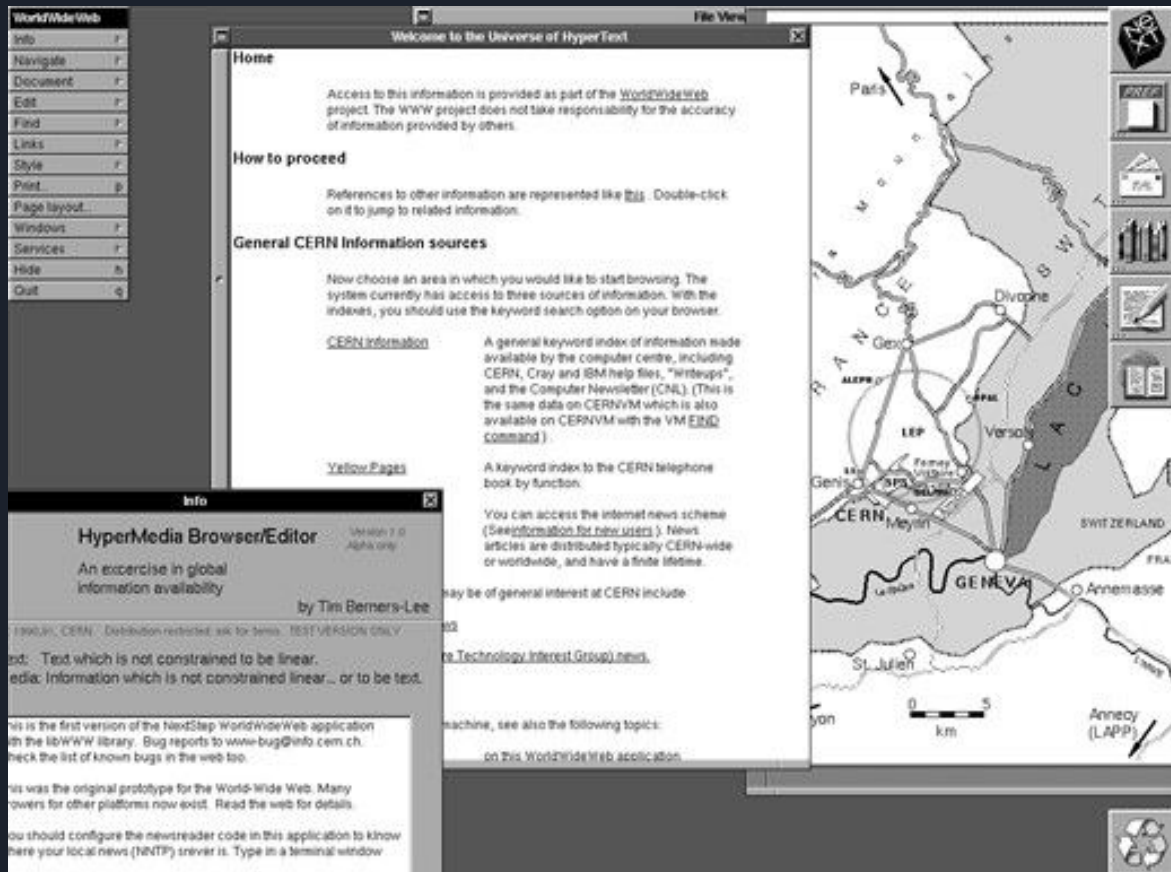
HTTP URL Anatomy

1 2 3 4 5 6 7 8
<https://www.example.com:3000/path/resource?id=123#section-id>

Key

- 1 Scheme - defines how the resource will be obtained.
- 2 Subdomain - www is most common but not required.
- 3 Domain - unique value within its top-level domain.
- 4 Top-level Domain - hundreds of options now exist.
- 5 Port - if omitted HTTP will connect on port 80, HTTPS on 443.
- 6 Path - specify and perhaps find requested resource.
- 7 Query String - data passed to server-side software, if present.
- 8 Fragment Identifier - a specific place within an HTML document.

The First Web Browser



How the Web Works: Browsers

- Browsers are the program used to actually surf the web and interact with web pages
- What are some browsers that y'all know of or have heard of?
- What browser do you use? Why do you use that browser over others?
- Nowadays, many browsers are built off of Chromium, an open-source browser project by Google
- Although all browsers are capable of surfing the web, there are differences between them
- Some web pages work better on some browsers than others because of that
- To fully understand how browsers work, we need to mention two more parts of the web

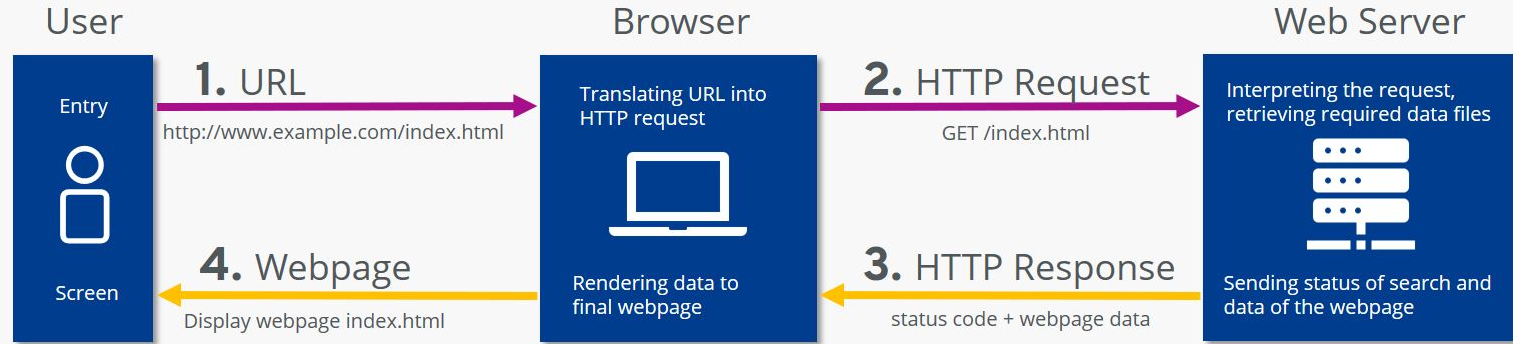




How the Web Works: HTTP

- HTTP stands for HyperText Transfer Protocol
- HTTP is how data is exchanged on the web between clients and servers
- Whenever one accesses a web page or something else on the web, it goes through this process
 1. The browser makes a request to the server containing the data we want
 2. The server receives and processes the request from the browser
 3. The server retrieves the desired data and sends it back to the browser
 4. The client receives the data from the server
 5. The browser displays that data as a web page
- Sometimes we don't always get the data we request on the web, but we'll go into more detail about that and HTTP overall in a future lesson

Communication process according to HTTP



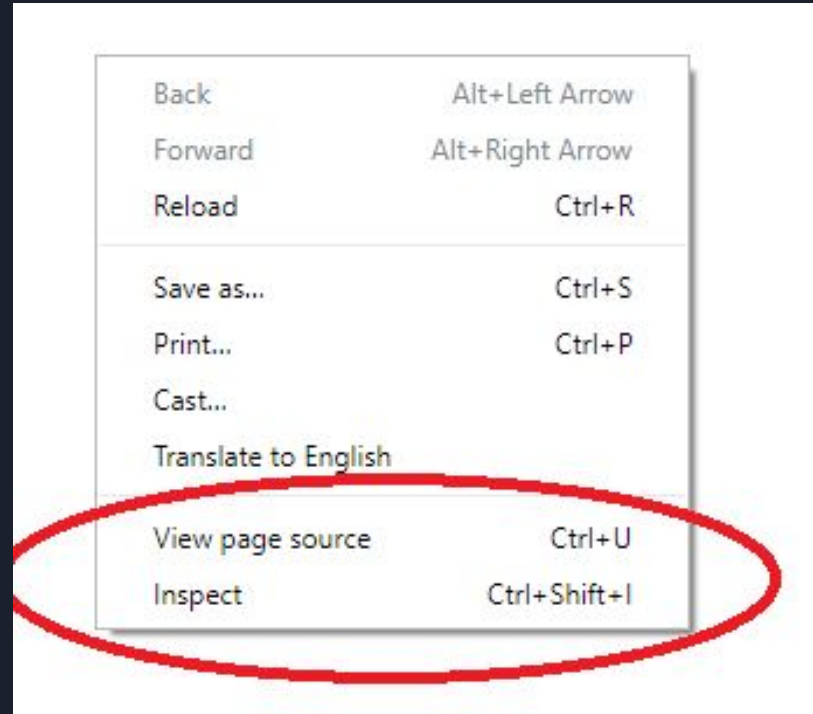


How the Web Works: HTML

- HTML stands for HyperText Markup Language
- HTML is the language that web pages are written in and the first language we'll be learning in this class
 - A website is a collection of web pages under a common domain.
- When we make a request to a server for a web page, we get back an HTML file written in HTML code
- The browser interprets the HTML code into the more visual web pages that we're familiar with, but an HTML file itself just looks like text
- In fact, we can actually see the HTML code that makes up a web page by doing one of two things

Viewing the HTML Behind the Scenes

- We can see the HTML that makes up a web page by right clicking and selecting Inspect Element or View Page Source (or by using the appropriate keyboard shortcut)
- The code you see may not make sense now, but hopefully you'll have a better understanding as time goes on





To Be Continued...

- While we be learning more about different aspects of the web later, this about does it for the basics of the history of the web and how the web works
- The web is very complex however and entire classes could be dedicated to discussing parts of the web, such as networks, culture, history, or development
- For the remainder of class and for homework, browse the web and think about
 - What's something you'd want to learn how to do with web development
 - What's something you'd want to know about the web itself
- Submit your thoughts to Google Classroom.