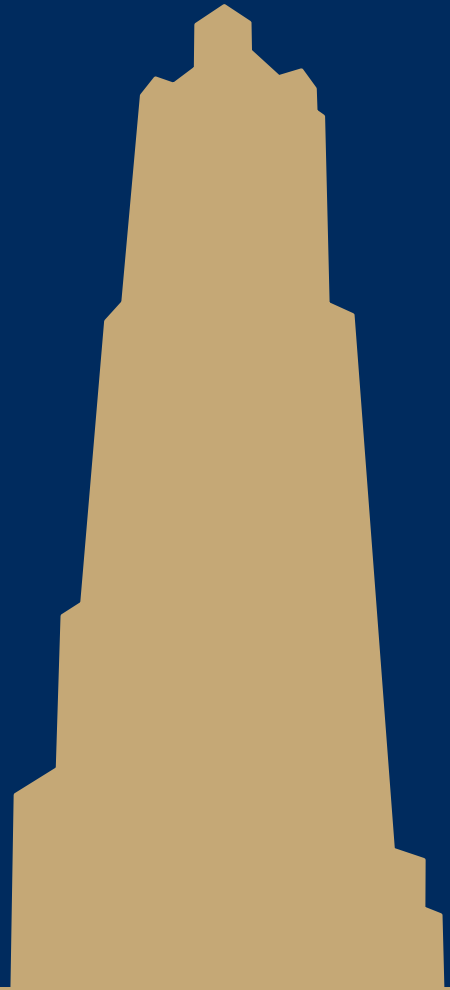


CS/COE 1520

www.cs.pitt.edu/~nlf4/cs1520/

Introduction



Meta-notes

- These notes are intended for use by students in CS1520 at the University of Pittsburgh. They are provided free of charge and may not be sold in any shape or form.
- These notes are NOT a substitute for material covered during course lectures. If you miss a lecture, you should definitely obtain both these notes and notes written by a student who attended the lecture.

Instructor Info

- Nicholas Farnan (nlf4@pitt.edu)
Office: 6313 Sennott Square
- All other info appears on the class website
 - E.g., office hours, TA contact info/office hours

A note about email

- Prefix all email subjects with [CS1520]
- Address all emails to both the instructor and the TA

Course Info

- Website:
 - www.cs.pitt.edu/~nlf4/cs1520/
- **Review the Course Information and Policies**
- **Assignments will not be accepted after the deadline**
 - No late assignment submissions
 - If you do not submit an assignment by the deadline, you will receive a **0** for that assignment

Programming languages for web applications

- Goals for the course:
 - Examine the functionality of several different **programming languages** to gain a better understanding of the study of programming languages, themselves
 - Learn the basics of and current practices for developing **web applications**

The World Wide Web

"a part of the Internet accessible through a graphical user interface and containing documents often connected by hyperlinks" — called also "Web"

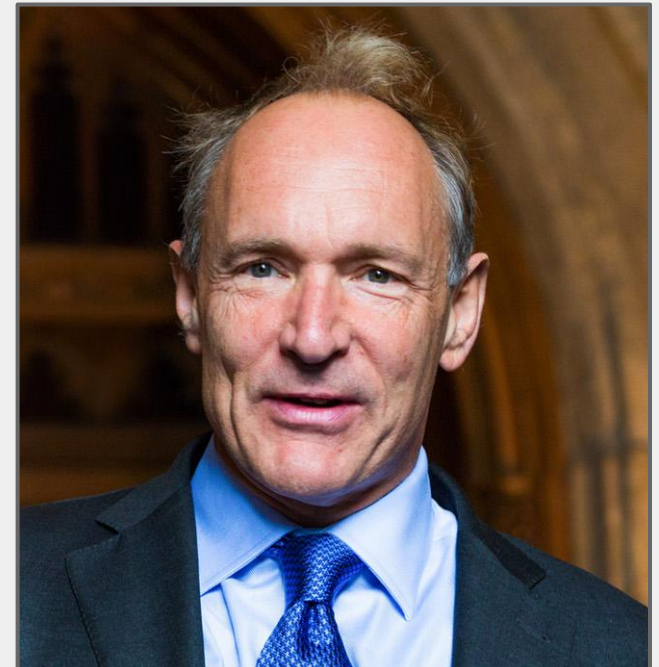
**TERRIBLE
DEFINITION**

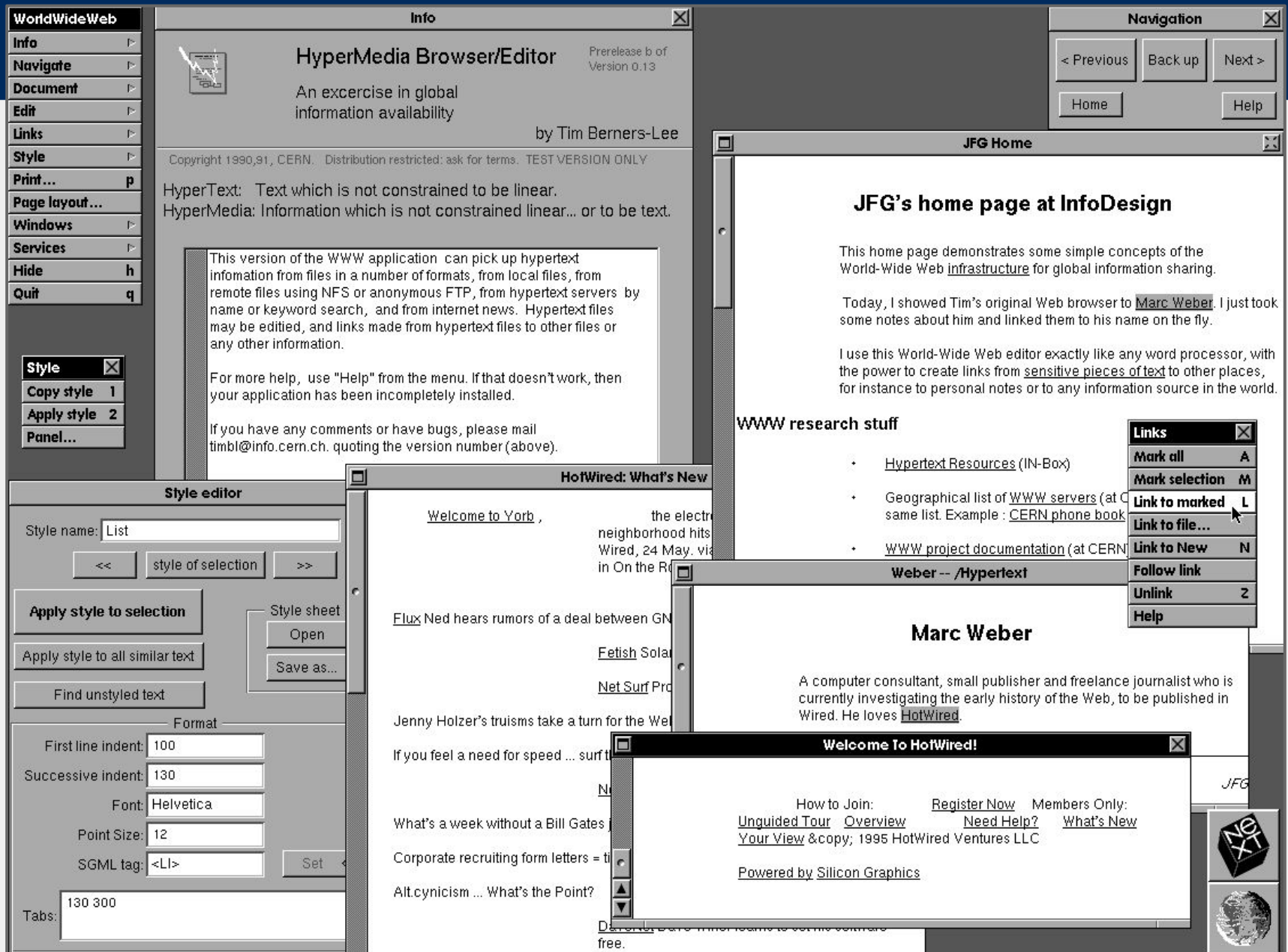
The World Wide Web

"The World Wide Web (WWW) is an information space where documents and other web resources are identified by URLs, interlinked by hypertext links, and can be accessed via the Internet"

History of the web

- 1945: Vannevar Bush proposed the "memex", a device for storing and linking information stored on microfilm
- 1963: Ted Nelson coined the term "hypertext" as a text approach breaking away from traditional linear limitations
- Sir Tim Berners-Lee
 - 1980: proposed ENQUIRE as a hypertext documentation system for CERN in Switzerland
 - 1989: proposed implementing a hypermedia system on top of the Internet, inventing the Web
 - 1990: wrote the first web browser (called WorldWideWeb)





Hypertext



HTML



- Web documents are commonly formatted and annotated using the HyperText Markup Language
 - First references to HTML made by Sir Tim in 1991
 - First real standard proposed in 1995 with HTML 2.0
 - Current version is HTML5
- HTML documents are built out of HTML *elements*
 - Elements are delineated by *tags*

Intro to HTML

- HTML5 documents have the following basic shell:

```
<!DOCTYPE html>  
<html>  
    <head> </head>  
    <body> </body>  
</html>
```

HTML tag basics

- Most tags are pairs, start and end tags:
 - `<p>`
This text would be considered a paragraph
`</p>`
 - `` This text would be emphasized ``
- Comments have their own start and end tags:
 - `<!-- This is an HTML comment -->`
 - `<!--`
Multiline comment
`-->`
- There are also self closing tags
 - `
` `<!-- The br tag inputs a line break -->`
- Tags also have attributes
 - `click here!`

id and class attributes

- **id** allows you target a specific instance of an element
 - `<!-- ids should be unique on a page -->`
``
``
~~``~~
- **class** allows you target a group of elements
 - `<!-- classes can repeat -->`
``
``
`<div class="custom"></div>`

Modern use of HTML

- HTML is used to present the *structure* of a document
 - What/where text should be displayed
 - Where images should be placed
- It is often used in conjunction with Cascading Style Sheets (CSS), which describe the *presentation* of the document
 - Colors, fonts, etc.
- Italics example:
 - `this will be italicized`
 - `span.italics {font-style: italic;}`
- ... Emphasis tag (``) normally displays in italics
 - Difference?

Italicized emphasis isn't the only default style

- Browsers have default stylings for many elements that can be overridden

World Wide Web

The WorldWideWeb (W3) is a wide-area [hypermedia](#) information retrieval initiative aiming to give universal access to a large universe of documents.

Everything there is online about W3 is linked directly or indirectly to this document, including an [executive summary](#) of the project, [Mailing lists](#), [Policy](#), November's [W3 news](#), [Frequently Asked Questions](#).

[What's out there?](#)

Pointers to the world's online information, [subjects](#), [W3 servers](#), etc.

[Help](#)

on the browser you are using

[Software Products](#)

A list of W3 project components and their current state. (e.g. [Line Mode](#), [X11 Viola](#), [NeXTStep](#), [Servers](#), [Tools](#), [Mail robot](#), [Library](#))

[Technical](#)

Details of protocols, formats, program internals etc

[Bibliography](#)

Paper documentation on W3 and references.

[People](#)

A list of some people involved in the project.

[History](#)

A summary of the history of the project.

[How can I help ?](#)

If you would like to support the web..

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Getting the code by [anonymous FTP](#), etc.

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CSS Selectors

- CSS target examples:
 - HTML elements
 - `span {`
 `color: red;`
 `}`
 - Specific ids
 - `#unique {`
 `color: blue;`
 `}`
 - Specific classes
 - `.custom {`
 `color: green;`
 `}`
 - Combinations
 - `span#unique {`
 `color: yellow;`
 `}`

Tentative Syllabus

- Responsive Design
- Interpreted languages
- The DOM
- Web Storage
- Regular Expressions
- Networking Overview
- Python
- The Flask Microframework
- AJAX
- REST
- Functional Programming
- Web Security

JavaScript

Python