CS101 Lecture 07:
The World Wide Web and HTML

"Anyone who has lost track of time when using a computer knows the propensity to dream, the urge to make dreams come true and the tendency to miss lunch."
- Tim Berners-Lee

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What You Will Learn Today

- Is it the Internet or the World Wide Web? What’s the difference?
- What is the encoding scheme behind the web?
- How does the web page show up on the screen?
- How does your browser know what to do?
Text Editor Tools

We’re going to use a text editor to write/edit web pages. I recommend:

- **TextWrangler** (for Mac)
- **Notepad++** (for Windows)
  - [http://notepad-plus.sourceforge.net/uk/site.htm](http://notepad-plus.sourceforge.net/uk/site.htm)

Internet or WWW?

The Internet is hardware and software…

The World Wide Web is information…

The Internet is a prerequisite for the World Wide Web.
Nerds 2.0.1, Part 3: Wiring the World

- 00:00 – Intro
- 04:30 – CERN & Tim Berners-Lee
- 08:00 - Ted Nelson
- 10:25 - World Wide Web Consortium
- 11:55 - Commerce on the Net - legislation
- 13:10 - Marc Andreessen, Mosaic

The World Wide Web

A system of interlinked hypertext documents and other resources accessed via the Internet.

http://www.w3.org/People/Berners-Lee/
Mark Ups

Final Report
European Conference on Expert Systems
Submitted by Justin Parker

First of all, our thanks go out to the following sponsors for their support of the conference and its supplemental activities:

Allied Interactive
Cybernetics, Inc.
Dynamic Solutions of New Jersey

The conference was a great success. It ran a full four days, including workshops and special sessions. Subjective feedback from conference attendees was largely positive, and financially the revenues resulted in a surplus of over $10,000.

HyperText Markup Language

**Markup language**
A language that uses tags to annotate the information in a document.

**Tags**
The syntactic elements in a markup language that indicate how information should be displayed.

**HyperText Markup Language (HTML)**
The language used to describe how to display the content of a Web page.
### HTML Source Code

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml"
      xmlns:dc="http://purl.org/dc/elements/1.1/"
      xmlns:og="http://opensearch.org/og"
      xmlns:sv="http://www.w3.org/2003/01/sv-namespace#"
      xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="">
<head>
  <title>Tim Berners-Lee</title>
  <!--comment removed-->
  <meta http-equiv="content-type" content="text/html; charset=utf-8" />
  <link rel="metadata" type="application/rdf+xml" title="RDF" href="card.rdf" />
  <link rel="openid.delegate" href="http://www.jibe.net/personal
  openid.delegate" href="http://www.jibe.net/personal">
</head>
<body>

<h1>Tim Berners-Lee</h1>
<h2>Decoded and Rendered</h2>

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**Contents**

- Short bio
- Before you mail me
- Address
- Talks, articles etc
- Speaking engagements
- Press interviews

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On 4 February 2009, Tim Berners-Lee spoke on [Linked Data](http://www.w3.org/2009/LinkedData) at the TED 2009 conference, "The Great Unveiling" in Long Beach, CA, USA.

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**See also**

- Longer Bio
- Research at MIT-CSAIL
- Talks
- Design issues: web architecture
- World Wide Web Consortium
- Frequently Asked Questions
- Kids' Questions
- blog
- Weaving the Web - the book
Rendering a Web page

After download, the browser renders the HTML into a graphical display.

- Considers width and height of the browser window
- Incorporates formatting, fonts, images, etc.

Browsers are inconsistent!

HTML Basics

- Standardized by w3c
- Free-form language
- Plain text source code

Text Editors are programs which allow you to edit plain text (without formatting):

- Notepad, Notepad++ (Windows)
- TextWrangler (Mac)
Hypertext Markup Language

Tags/Elements:
<HTML></HTML> -- denotes start/stop of HTML document
<TITLE><TITLE> -- denotes start/stop of document title
<BODY></BODY> -- denotes start/stop of document body
<!-- ... --> -- denotes start/stop of comments

```html
<html>
  <title>Hello, World!</title>
  <body>
    This is my first web page.
  </body>
</html>
```

Some tags allow additional properties to be specified, e.g. BGCOLOR, TEXT, etc.

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Hypertext Markup Language

```html
<html>
  <title>Hello, World!</title>
  <body>
    <h1>Hello, World!</h1>
    This is my first web page.
    <p>This is another paragraph.</p>
  </body>
</html>
```

Tags/Elements:
<P> -- creates a paragraph space
<BR> -- creates a line break
<H1></H1> -- creates a heading font (also, try <H2>,...)
<B></B> -- creates bold text
<I></I> -- creates italicized text
<CENTER></CENTER> -- centers the text between the tags
Hyperlinks

Hyperlinks are created using the HTML <A> tag. The HREF property gives a URL for the link. Example:

This a link to <A HREF="http://www.bu.edu">Boston University's</A> web site.

Having interlinked pages is what makes it a web! This a link to Boston University's web site.

Images in HTML Documents

Images are stored in separate files. The <IMG> tag inserts an image into a web page.

Example:

```html
<html>
  <head>
    <title>Images and text</title>
  </head>

  <body>
    The Boston University Seal
    <img src="logo_bu_seal.gif">
  </body>
</html>
```
Image Files

Images are stored in their own files:
- Popular formats include: GIF, JPG, PNG, ...
- **Example:** logo_bu_seal.gif

The SRC attribute of the IMG tag gives the *filename* of the image file.
- Relative path: filename is relative to the location of the HTML document (e.g. in same directory/folder).

```html
<img src="logo_bu_seal.gif"/>
```
- Absolute path: filename is an absolute location (e.g. URL or file system location).

```html
<img id='my-se-btm' src='http://1.yimg.com/a/i/us/my/mw/scrh/lip_closed_093008.gif'/>
```

Images Tag Attributes

IMG tag can customize the appearance of the image using these attributes:
- **SRC:** gives the source location of image file
- **ALT:** text to display if image not available
- **BORDER:** how many pixels of border
- **HEIGHT:** how many pixels tall
- **WIDTH:** how many pixels wide
Organizing a Webpage

“Professional” websites organize data using tables and lists...

List Example

Suppose we want to create a list of our favorite sports teams. Two examples:

```html
<p>My favorite spectator sports:
<ol>
<li>NFL Football</li>
<li>NCAA Football</li>
<li>NCAA basketball</li>
<li>Golf</li>
</ol>

My favorite sports teams:
<ul>
<li>New England Patriots</li>
<li>Indianapolis Colts</li>
<li>Chicago Bears</li>
</ul>
```
Describing List Data

Describe list items with \texttt{<LI>} tag.

Unordered (Bulleted) List

- Wrap list items in \texttt{<UL>} and \texttt{</UL>} tags

Ordered List

- Wrap list items in \texttt{<OL>} and \texttt{</OL>} tags

Describing Table Data

A table is a set of rows of data.
Each row has a number of fields.

Example:
Let’s take a poll of people’s favorite drinks, and display rows with results.
Describing Table Data

```html
<TABLE></TABLE> describe the start/stop of the table data.

<tr></tr> describe start/stop of a row of data within the table.

<td></td> describe the start/stop of table data items within a row.
```

Table Example

These are the drinks we like to drink:
```
<table>
<tr><td>Coffee</td><td>12</td></tr>
<tr><td>Coca-Cola</td><td>10</td></tr>
<tr><td>Red Bull</td><td>14</td></tr>
</table>
```

These are the drinks we like to drink:

- Coffee: 12
- Coca-Cola: 10
- Red Bull: 14
What You Learned Today

- Internet, World Wide Web
- HTTP
- HTML
  - Tags/elements
  - Links
  - Images
  - Lists
  - Tables

Announcements & To Do List

- Readings:
  - Reed ch 2, pp 19-35 (this week)
  - HTML Tutorial: [http://www.w3schools.com/HTML/](http://www.w3schools.com/HTML/)
- HW 03: due WED 2/6