Overview/Questions

– Is it the Internet or the World Wide Web. What’s the difference?
– How do you visit a web site?
– How does your browser know what to do?
– How does the web page show up on the screen?
– Some background about files and file systems
– Main idea: developing a web page
Internet or WWW?

The Internet is like hardware...

The World Wide Web is like software...

The Internet is a prerequisite for the World Wide Web.

The World Wide Web

A system of interlinked hypertext documents and other resources (e.g. images) accessed via the Internet.

The WWW was conceived of and first implemented by Tim Berners-Lee, circa 1989-1991.
The World Wide Web

The World Wide Web
A system of *interlinked hypertext* documents and other resources accessed via the Internet.

Uniform Resource Locator (URL)
A standard way of specifying the location of a resource, its name, and how to get it.

Example:
http://www.clarku.edu.edu/index.html
http://www.facebook.com/login.php

Displaying a WWW Page

*Figure 16.1* A browser retrieving a Web page

*How do you “visit a website”?*
Displaying a WWW Page

– Browser decodes URL to parse out host name and document location.
– Browser makes network connection to server.
– Client requests resource, and waits for the server to respond (using the hypertext transfer protocol).
– Browser parses the response, requests any embedded data, and formats/displays output.

Protocol

A protocol is a standard way of doing something.

Hyper Text Transfer Protocol (HTTP) specifies how to request and deliver content (e.g. web pages).
Hyper Text Transfer Protocol

**HTTP** is a protocol which specifies requests and responses between clients and servers.

It assumes/builds upon:
- The Internet exists/computer is connected
- Reliable transport of data
- Web servers are waiting to service clients

HTTP is not limited to web pages --
It can be used to transfer any kind of data.

Mark Ups

Final Report
European Conference on Expert Systems

Submitted by Justin Parker

Allied Interactive
Sybernetics, Inc.
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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
<HTML>
<HEAD>
<TITLE>Student Dynamics</TITLE>
</HEAD>
<BODY>
<CENTER><IMG SRC="studynamics.gif"></CENTER>
<br>
<CENTER>(1)A student-based community organization.(1)</CENTER>
<br>
<P>Plan to participate in our upcoming events:(P)
<br>
1. Visit Children’s Hospital (March 23)(1)
   (L)Help clean renovated school grounds (April 4)(/L)
   (L)Continue the (a href="outreach.html")K-12 outreach
   program.(a)<IMG SRC="updated.gif"></L>

(P)<br>(E)(E)You should be involved!(E)(E) Help our active and
   energetic team make a difference in the lives of people. Our
   (a href="execBoard.html")executive board(a) is always willing
   to answer any questions you may have.(E)
(P)<br>(E)(E)How can we help you? What suggestions do you have regarding
   new activities? (a href="suggestions.html")Let us know!(a)
(P)<br>(E)(E)We are always in need of donations: equipment, money, or
   (better yet) you!(E)
<br>
<CENTER>(E)Join us for our Spring Picnic in May!(E)</CENTER>
</BODY>
</HTML>
```
Hypertext Markup Language

A student-based community organization.

Plan to participate in our upcoming events:

- Visit Children's Hospital (March 23)
- Help clean renovated school grounds (April 4)
- Continue the K-12 outreach program

You should be involved! Help our active and energetic team make a difference in the lives of people. Our executive board is always willing to answer any questions you may have.

How can we help you? What suggestions do you have regarding new activities?

Let us know!

We are always in need of donations: equipment, money, or (better yet) you!

Join us for our Spring Picnic in May!

Many HTML sources are a mess
Backgrounder:
Files and Directories

Pictured: Windows Explorer (left) and Finder (right), showing directories and files stored on a computer.

Backgrounder:
Files and Directories

File
A named collection of related data, used for organizing secondary storage (e.g. on disk)

Directory (a.k.a. Folder)
A named group of files.

Path (a.k.a. filename or directory)
A logical name used to identify a location in a file system.
Recall that a directory is a named group of files. A directory can also have subdirectories. It’s easy to visualize this as a hierarchical tree:

```
/  Directory
  ↓  Directory
  text
  ↓  Files
  …
  alcohol.txt
  ↓
  jane.txt
```

**Directory Trees**

**Directory tree**
A logical view of the nested directory organization of a file system. Each directory is a branch, and each file is a leaf.

**Root directory**
The directory at the highest level.
Every directory descends from the root.

**Parent directory**
Every directory has a parent, up to the root.

**Subdirectory**
A directory contained within another directory.
A Windows Directory Tree

An Example of the Windows directory tree.

A Unix (Mac) Directory Tree

An Example of a UNIX directory tree; Mac OS is based on BSD UNIX.
Absolute Path
A path that begins at the root and includes all successive subdirectories.

Examples:
- C:\text\mypoem.txt (Windows)
- /Users/jmagee/mypoem.txt (Mac)
- /home/grad3/mageejo/mypoem.txt (Linux)

Present Working Directory
The default/current path used by a program or user.

Relative Path
A path name that begins at the present working directory.

Example:
If present working directory is
/home/grad3/mageejo
Then the relative path *mypoem.txt* is sufficient.
File Types

**File Type**
Describes the *kind* of information contained in a file.

**File extension**
Part of a file name that indicates the type
File names are often in two parts:

```
<filename>.<extension>
```

File Extensions

Some common file types and their extensions.
Microsoft pioneered the 8.3 filename standard.

<table>
<thead>
<tr>
<th>Extensions</th>
<th>File type</th>
</tr>
</thead>
<tbody>
<tr>
<td>txt</td>
<td>text data file</td>
</tr>
<tr>
<td>mp3, au, wav</td>
<td>audio file</td>
</tr>
<tr>
<td>gif, tiff, jpg</td>
<td>image file</td>
</tr>
<tr>
<td>doc, wp3</td>
<td>word processing document</td>
</tr>
<tr>
<td>java, c, cpp</td>
<td>program source files</td>
</tr>
</tbody>
</table>

*Why give file names different extensions? What is the benefit to the user?*

For more info, see http://filext.com/faq/file_extension_information.php
Rendering a Web page

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

– HTML is a free-form language
– Considers width and height of the browser window
– Incorporates images, HTML tags, etc.
– Browsers are inconsistent!

Review: HTML

**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.
Hypertext Markup Language

Tags are enclosed in angle brackets
(..<...>)

Words such as HEAD, TITLE, and BODY are called elements and specify the type of the tag.

Tags are often used in pairs, with a start tag such as <BODY> and a corresponding end tag with a / before the element name, such as </BODY>.

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

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

Tags/Elements:

- `<P>` -- creates a paragraph space
- `<BR>` -- creates a line break
- `<H1>` -- creates a heading font (also, try `<H2>`, …)
- `<B>` -- creates bold text
- `<I>` -- creates italicized text
- `<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.clarku.edu">Clark University’s</A> web site.

Having interlinked pages is what makes it a web!
Images in HTML Documents

Images are stored in separate files. The `img src="filename.jpg"` tag inserts an image into a web page.

Example:

```
<img src="CU_Logo_White_Large.png">
```

Image Files

Images are stored in their own files:
- Popular formats include: GIF, JPG, PNG, ...
- Example: `CU_Logo_White_Large.png`

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).
- Absolute path: filename is an absolute location (e.g. URL or file system location).
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

Describing List Data

Describe list items with `<LI>` tag.

Unordered (Bulleted) List
- Wrap list items in `<UL>` and `</UL>` tags

Ordered List
- Wrap list items in `<OL>` and `</OL>` tags
List Example

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

```html
<ul>
  <li>New England Patriots</li>
  <li>Indianapolis Colts</li>
  <li>Chicago Bears</li>
</ul>
```

```html
<p>My favorite spectator sports:<ul>
  <li>NFL Football</li>
  <li>College Basketball</li>
  <li>Golf</li>
</ul></p>
```

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

**<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> 12
  </tr>
  <tr>
    <td> Coca-Cola
    <td> 10
  </tr>
  <tr>
    <td> Red Bull
    <td> 14
  </tr>
</table>
```
Java Applets

- First, Create a Java Archive (.jar) file:

```
<applet archive="cs120demo.jar" code="cs120demo.class" width=400 height=400>
</applet>
```

- Include this tag in your HTML
- The archive attribute must match the name of your .jar file
- The code attribute must match the name of your .class file
- Place both your .jar and the objectdraw .jar in the same folder
Take-Away Points

- Internet, World Wide Web
- Browser
- Protocol
- HTTP
- Files, directories, filenames, file types
- HTML
  - Tags/elements
  - Links
  - Images in web pages
  - Describing list data
  - Describing table data