Today’s topics

Networks & the Internet

Basic HTML

- The basis for web pages
- “Almost” programming

Upcoming

- Connections
- Algorithms

Reading

Internet history readings

Great Ideas Chapters 1

Computer Science, Chapter 4
Networks

- **Need to communicate. How to do it?**
  - Robustly, efficiently, securely
- **Classifications**
  - LAN vs. WAN
  - Closed (proprietary) vs. Open
- **Topologies**
The Internet

- **Network of networks**
  - Connect networks through *routers* and *bridges*
  - Internet: Started by DARPA in 1973
The World Wide Web

- **Servers disseminate hypertext documents**
  - Hypertext is text with a link or *reference*
  - Uniform resource locator (URL): unique address of data on web

- **HyperText Markup Language (HTML) is a common formatting language for the web**
  - Tags are *non-printing* formatting markers
    - Identified by angle brackets (i.e. `<TAG>`)
    - Example: `<TITLE>The Human Tornado</TITLE>`
    - Come in delimiting pair

- **General Goals**
  - Platform independent Text Specification
    (also called a Markup Language)
  - Links to other network resources
Delimiting with tags

- First tag says, “Begin mode”
- Second tag (containing “/”) says, “End mode”
- So `<TITLE>The Human Tornado</TITLE>` means
  - Begin title mode
  - The text “The Human Tornado” is in title mode
  - End title
- Using this construct, we can *nest* several different modes and have interesting behavior
- Good tutorials on HTML
  - [http://www.w3.org/MarkUp/Guide/](http://www.w3.org/MarkUp/Guide/)
  - [http://archive.ncsa.uiuc.edu/General/Internet/WWW/HTMLPrimer.html](http://archive.ncsa.uiuc.edu/General/Internet/WWW/HTMLPrimer.html)
  - [http://www.w3schools.com/html/](http://www.w3schools.com/html/)
- In lab, you will create a webpage
HTML

- **Some General HTML rules**
  - For tags, case doesn’t matter, e.g., `<html>` = `<HTML>`
  - In the text, spaces don’t matter: *it* will decide!
    (we call that “free format”)
  - `<br>` starts a new line

- **Headings**
  - Use `<h>` to specify heading where smaller `n` designates more important heading
  - For example `<h1>- - -</h1>` is largest, boldest heading
  - `<h4>- - -</h4>` designates a fairly minor heading
HTML

- Basic Web Page Structure

```html
<html>
<head>
<title> Ted’s Home Page </title>
</head>
<body bgcolor="White">
<center> <h1> Ted’s Page </h1> </center>
Welcome to Duke University! <br>
<i> more to come ... </i>
</body>
</html>
```
HTML

- Want to link things together!
- Hypertext (from the Webopedia)
  - A special type of database system, invented by Ted Nelson in the 1960s, in which objects (text, pictures, music, programs, and so on) can be creatively linked to each other.
- An anchored link:
  <a HREF="http://www.duke.edu">The Duke Web Page</a>
  - Produces link to URL specified in HREF and display info between <a> tags: The Duke Web Page
HTML

- **Other useful info**
  - For italics or emphasis use
    `<i>` or `<em>`
  - For darker or bold use
    `<strong>` or `<b>`
  - For text space exactly as typed (*not* free format) use
    `<pre>`
Specifying Colors

- Can be specified in different ways
- e.g., for standard colors can specify “white” or “red”
- Can specify arbitrary colors by specifying the amount of red, blue, and green involved. (RGB)
- Uses base 16 arithmetic: 0, 1, ..., 9, a, b, c, d, e, f

Red: “fff0000” Green: “00ff00” Blue: “0000fff”
Black: “000000” Gray: “7f7f7f” White: “ffffff”
Yellow: “ffff00” Orange: “ff7f00” Purple: “c000e0”
- Can experiment!
HTML

● More useful HTML
  ➤ *Bulleted list* `<ul> ... </ul>`
    – `<li>` for items
    • • •
  ➤ *Ordered list* `<ol> ... </ol>`
    1. • • •
    2. • • •
    3. • • •
  ➤ Can *nest* arbitrarily deep - - lists within lists

● Tables
  `<table border=1>`
  `<tr> <td> Cell 1 </td>`
  `<td> Cell 2 </td> </tr>`
  `<tr> <td> Cell 3 </td>`
  `<td> Cell 4 </td> </tr>`
  `</table>`
  produces simple table

● Images
  `<img src="http://www.cs.duke.edu/~f orbes/construct.gif">`
  displays image
HTML/Web/UNIX practice

- In UNIX, your web page folder is found in a standard location:
  - ~userID/public_html/
  and for OIT Duke files is accessed with a web browser at
  - //www.duke.edu/~userID

- Many people don’t code in raw HTML
  - Save as Web Page in Microsoft Word
  - Netscape Composer, Macromedia Dreamweaver, Bluefish

- These all generate HTML for you

- View other people’s web page source (HTML) from most browsers -- learn from others