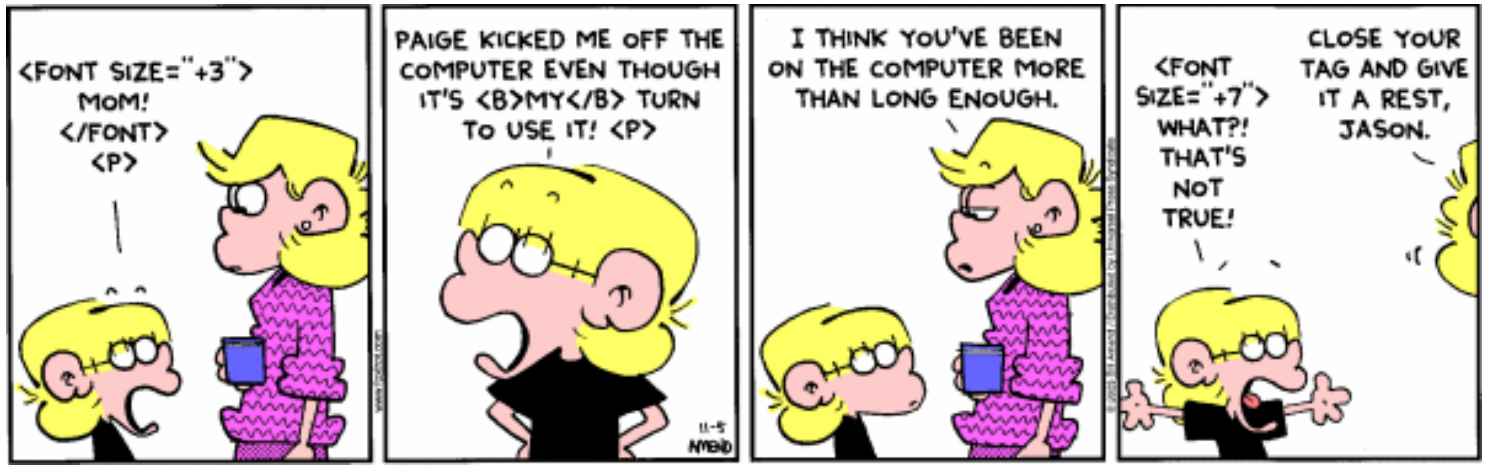
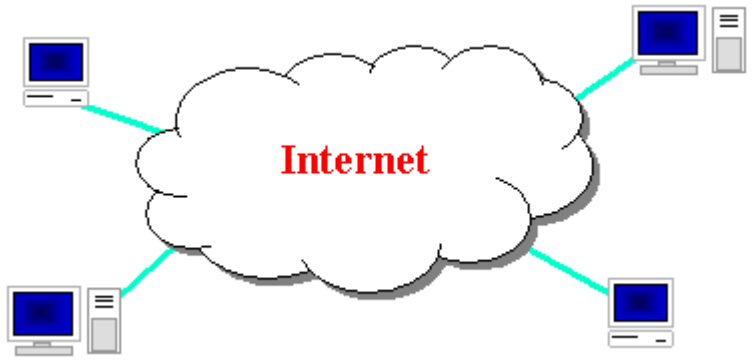
CSE 154



LECTURE 1: BASIC HTML AND CSS

The Internet



- Wikipedia: http://en.wikipedia.org/wiki/Internet
- a connection of computer networks using the Internet Protocol (IP)
- layers of communication protocols: IP → TCP/UDP → HTTP/FTP/POP/SMTP/SSH...

Web servers and browsers

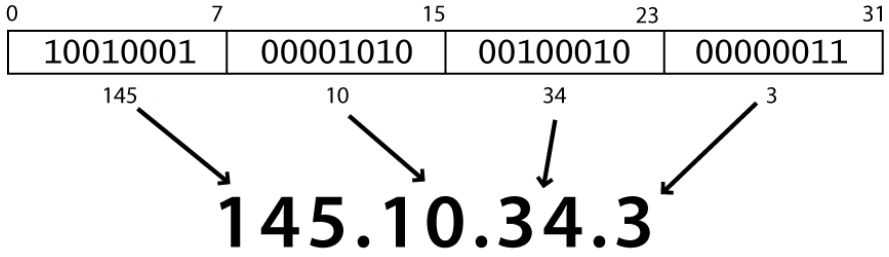
- **web server**: software that listens for web page requests
  - Apache
  - Microsoft Internet Information Server (IIS) (part of Windows)
- **web browser**: fetches/displays documents from web servers
  - Mozilla Firefox
  - Microsoft Internet Explorer (IE)
  - Apple Safari
  - Google Chrome
  - Opera

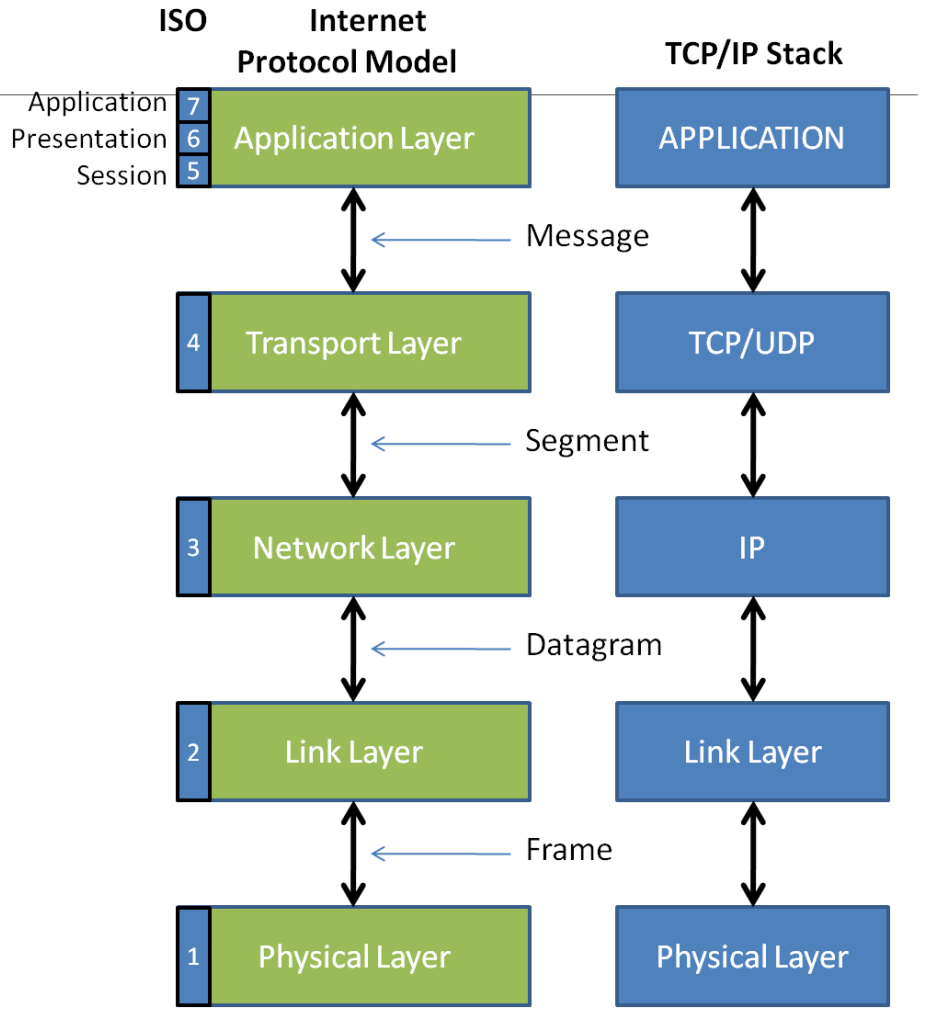
Layers of protocol

Protocol:

a set of rules governing the format of data sent

IP address:





How do web addresses work?

DNS:

- a set of servers that map written names to IP addresses
  - Example: `www.cs.washington.edu` → `128.208.3.88`
- many systems maintain a local cache called a hosts file

URL:

- a basic URL: `http://www.aw-bc.com/info/regesstepp/index.html`

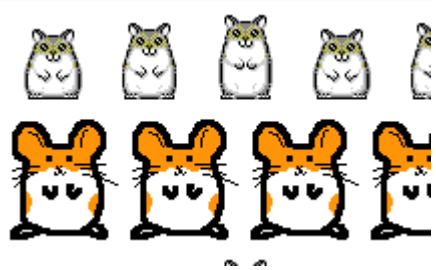
```
~~~~   ~~~~~~~~~~~~~~ ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
protocol     host                    path
```

Who "runs" the internet?

- Internet Engineering Task Force (IETF): internet protocol standards
- Internet Corporation for Assigned Names and Numbers (ICANN): decides top-level domain names
- World Wide Web Consortium (W3C): web standards

Brief History

- began as a US Department of Defense network called ARPANET (1960s-70s)
- initial services: electronic mail, file transfer
- opened to commercial interests in late 80s
- WWW created in 1989-91 by Tim Berners-Lee
- popular web browsers released: Netscape 1994, IE 1995
- Amazon.com opens in 1995; Google January 1996
- Hamster Dance web page created in 1999



Web languages / technologies

- Hypertext Markup Language (HTML): used for writing web pages
- Cascading Style Sheets (CSS): stylistic info for web pages
- JavaScript: interactive and programmable web pages
- PHP Hypertext Processor (PHP): dynamically create pages on a web server
- Asynchronous JavaScript and XML (Ajax): accessing data for web applications
- eXtensible Markup Language (XML): metalanguage for organizing data
- Structured Query Language (SQL): interaction with databases

Structure of an HTML page

```
<!DOCTYPE html>
<html>
    <head>
        information about the page
    </head>
    <body>
        page contents
    </body>
</html>
```

Page title: <title>

describes the title of the web page

```
<title>Chapter 2: HTML Basics</title>
```

- placed within the head of the page
- displayed in the web browser's title bar and when bookmarking the page

Paragraph: <p>

paragraphs of text (block)

```
<p>You're not your job.
You're not how much money you have in the bank.
You're not the car you drive.   You're not the contents
of your wallet. You're not your          khakis.  You're
   the all-singing, all-dancing crap of the world.</p>
```

You're not your job. You're not how much money you have in the bank. You're not the car you drive. You're not the contents of your wallet. You're not your khakis. You're the all-singing, all-dancing crap of the world.

- placed within the body of the page
- more paragraph examples

Headings: <h1>, <h2>, …, <h6>

headings to separate major areas of the page (block)

```
<h1>University of Whoville</h1>
<h2>Department of Computer Science</h2>
<h3>Sponsored by Micro$oft</h3>
```

<h1>University of Whoville</h1>
<h2>Department of Computer Science</h2>
<h3>Sponsored by Micro$oft</h3>

- More heading examples

Horizontal rule: <hr>

a horizontal line to visually separate sections of a page (block)

```
<p>First paragraph</p>
<hr />
<p>Second paragraph</p>
```

First paragraph

Second paragraph

- should be immediately closed with />

Links: <a>

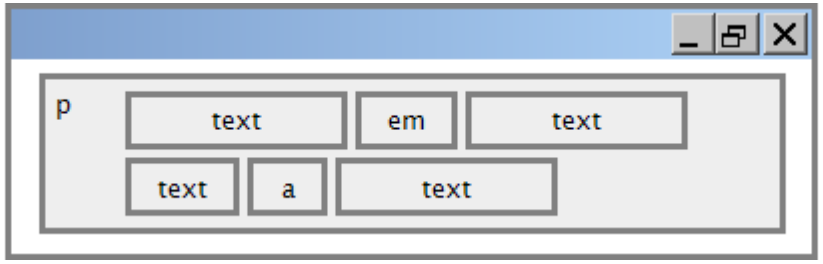
links, or "anchors", to other pages (inline)

```
<p>
  Search
  <a href="http://www.google.com/">Google</a> or our
  <a href="lectures.html">Lecture Notes</a>.
</p>
```

Search Google or our Lecture Notes.

- uses the href attribute to specify the destination URL
  - can be absolute (to another web site) or relative (to another page on this site)
- anchors are inline elements; must be placed in a block element such as p or h1

Block and inline elements



block elements contain an entire large region of content

- examples: paragraphs, lists, table cells
- the browser places a margin of whitespace between block elements for separation

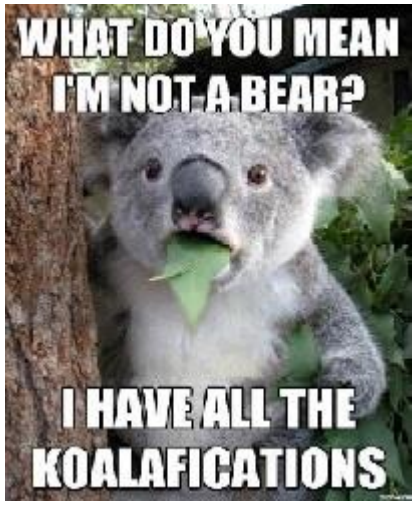
inline elements affect a small amount of content

- examples: bold text, code fragments, images
- the browser allows many inline elements to appear on the same line
- must be nested inside a block element

Images: <img>

inserts a graphical image into the page (inline)

```
<img src="images/koalafications.jpg" alt="Koalified koala" />
```



- the src attribute specifies the image URL
- HTML5 also requires an alt attribute describing the image

Line break:

forces a line break in the middle of a block element (inline)

```
<p>The woods are lovely, dark and deep, <br /> But I have promises to keep,
<br /> And miles to go before I sleep, <br /> And miles to go before I sleep.</p>
```

The woods are lovely, dark and deep,
But I have promises to keep,
And miles to go before I sleep,
And miles to go before I sleep.

- Warning: Don't over-use br (guideline: >= 2 in a row is bad)

Phrase elements : ,

em: emphasized text (usually rendered in italic)
strong: strongly emphasized text (usually rendered in bold)

```
<p>
  HTML is <em>really</em>,
  <strong>REALLY</strong> fun!
</p>
```

HTML is *really*, **REALLY** fun!

- as usual, the tags must be properly nested for a valid page