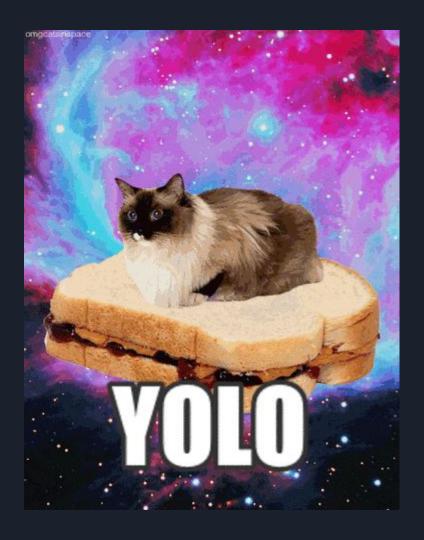# Intro to Web Design and Computer Principles

CSCI-UA 4 005
3:30 PM - 4:45 PM
Professor Sarah Dahnke

THE INTERNET VS. THE WORLD WIDE WEB

- The Internet is a massive network of networks, a networking infrastructure that connects computers globally.

- The Web is a way of accessing information over the medium of the Internet, an information sharing model that is built on top of the Internet.

Internet Access 1980s-present

- Personal Computing

- Portable Computing

- Mobile Computing

- Ubiquitous Computing

- Ambient Computing

Postdigital Society

The digital revolution, which represented a shift from analog and electronic technology to digital, is now commonplace.

In many ways we are experiencing the afterglow of the digital revolution.

Digital tools and media still offer lots of possibilities but also problems.

Digital Media Transfer Megabits (Mb)

Internet connection speed is normally measured in megabits.

Megabits (Mb) are not the same as megabytes (MB).

8 bits = 1 byte; therefore, a megabyte is 8 times the size of a megabit.

The average Internet connection speed in the United States in 2015 was 12.6 Mb/second.

Moore's Law

Describes a constant rate of change in computer processor speed

The number of transistors that can be placed inexpensively on an integrated circuit doubles every two years.

The number of transistors is closely connected to processor speed, memory, etc.

Computer processor speed has doubled approximately every two years.

 Moore's Law seems to be plateauing but has held steady for the past 40 years.

Digital media is in a constant state of flux.

Guiding Principles
Web Standards

The formal, non-proprietary standards and technical specifications that define and describe aspects of the World Wide Web and its interoperability.

These include:

- HTML5

- CSS

- JavaScript

- SVG

- WOFF

Computer Terminal

A computer terminal is an electronic or electromechanical hardware device that is used for entering data into, and displaying or printing data from a computing system.

Navigating the Command Line

[Refer to Unix Commands resource on Github](#)

Additional: [Unix Tutorial](#)

Chmod: sets permissions

Every file and directory has nine permissions associated with it.

Files and directories have three types of permissions (or none):

r (read)

w (write)

x (execute)

- (no permission)

Chmod continued

The below permissions occur for each of the following classes or users:

u (user/owner)

g (group)

o (other/world)

FTP

FTP stands for *file transfer protocol*

Allows for the transfer of files from computer to server

You will need an [SFTP](#) client to transfer your files

HTML: Hypertext Markup Language

- A language for describing Web pages
- HTML is not a programming language, it is a markup language
- A markup language is a set of markup tags HTML uses markup tags to describe Web pages

Parts of an HTML Element

Follow along on [Codepen](#)

HTML Elements, continued

- All elements are surrounded by angle brackets: <html>
- Elements have opening and closing tags: <h1> and </h1>
- Opening and closing tags mark-up text, images, and links to make them visible on a web page

Basic HTML Skeleton

- Refer to HTML skeleton with comments [here](#)
- Additional HTML [resources](#)

Semantic Elements

HTML5 Reference

https://developer.mozilla.org/en-US/docs/Web/Guide/HTML/HTML5

File Path Review

What is the difference in the locations of these files?

Div, Span, Class, ID

<div></div> Refers to an empty block element that contains no inherent style

 Also an empty element with no inherent style, used inline

<div class = "class"> Classes are used to distinguish specific style that is applied only to that class. Classes should be defined when there will be multiple elements on your page that require the same style.

<div id = "id"> IDs are also used to distinguish specific style but are *more specific* than classes and should be applied when those style elements will only be used once

CSS: Cascading Style Sheets

- Defines a Web page's appearance
- CSS separates style and content
- Consists of a plain text file with rules for the display of HTML elements
- Formatting includes fonts and colors as well as layout and position
- Can be created outside of your HTML and applied to multiple Web pages
- Well-formed HTML is important for your CSS to work properly

Application of CSS

CSS can be applied in three different ways to a Web page:

• In an external .css file

• In the section of an HTML document

• Inline with HTML code

Reminder: https://www.w3schools.com/css/css_howto.asp

CSS Rule Set

- Selector: Indicates which HTML element will be formatted
- Declaration block: Describes the formatting to apply
- Property/value pair: Specifies format
- Style rules are separated by a semicolon

```
h1 {

color: green;

background: yellow;

}
```

CSS Cascade

The principle of the "cascade" is applied when style rules are in conflict

Three primary factors determine which style rule wins out:

• Inheritance

• Specificity

• Location

CSS Box Model

[View on W3 Schools](#)

Classes and IDs: Review

[Difference between classes and ids](#)

- IDs are unique, used only once per page
- Classes are not unique and can be reused

A Note About Fonts in CSS

[Fallback system for fonts](#)

[The best web-safe fonts](#)

Specifying color in CSS

Multiple ways to specify color in CSS

- Color name
- RGB values
- Hex value
- Hue, Saturation, Lightness

CSS Float Property

[Used to flow html around an element](#)

CSS Clear Property

[What is clear?](#)

CSS Grid Layout

[Intro to CSS Grid](#)

Bitmap/raster graphics

- A grid of picture elements, "pixels," each of which contain color and brightness information
- Pixels can be changed individually or as a group with program algorithms
- Contrast vector graphics which describe points and lines
- Layer support introduced in version 3 (c. 1993)

Raster vs. Bitmap Explained

Resolution refers to the amount of pixels in an image, or the amount of detail an image holds.

Often identified by the width and height of the image. Example: 1920 x 1080

Image Compression

Uncompressed images contain all the pixels included in the original.

Uncompressed file formats: .bmp or .tiff

Image Compression, con't

- Compression allows the file size to shrink but also reduces the amount of detail.
- .Jpg or .jpeg is a compressed file format but can utilize low or high compression. High compression makes a drastically smaller file size but lower quality image (larger loss of detail).

Wireframing

- Website wireframing allows you to plan the layout of your website
- It is the process of making design decisions before they are implemented
- Wireframing can range from a simple skeletal framework to a detailed mockup of each page
- Spending time planning your site makes coding easier