CSCI-UA-4-005

Intro to Web Design + Computer Principles

Midterm Review

Professor Emily Zhao

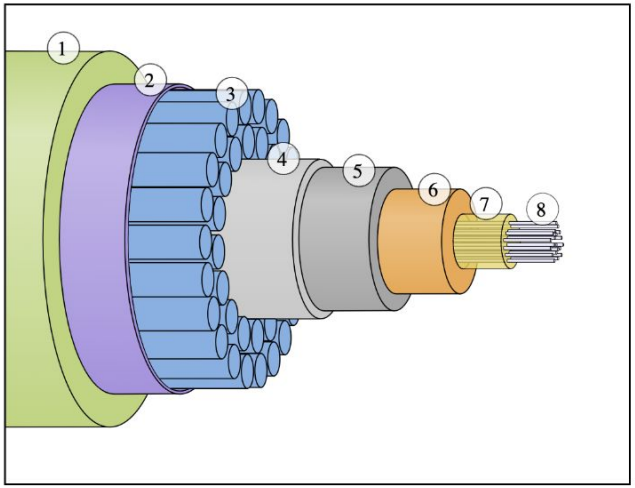
M/W 12:30PM – 1:45PM

Agenda

- Practice Website
- Review Topics
- Assignment #5
- Practice Exam

Practice Website

Submarine Communications Cables



A cross section of the shore-end of a modern submarine communications cable.

1. Polyethylene
2. Mylar tape
3. Stranded steel wires
4. Aluminium water barrier
5. Polycarbonate
6. Copper or aluminium tube
7. Petroleum jelly
8. Optical fibers

A submarine communications cable is a cable laid on the sea bed between land-based stations to carry telecommunication signals across stretches of ocean. The first submarine communications cables—laid in the 1850s—carried telegraphy traffic. Subsequent generations of cables carried telephone traffic, then data communications traffic. Modern cables use optical fiber technology to carry digital data, which includes telephone, Internet, and private data traffic.

Modern cables are typically about 25 millimeters (0.98 in) in diameter and weigh around 1.4 kilograms per meter (0.4 lb/ft) for the deep-sea sections, which comprise the majority of the run. Larger and heavier cables are used for shallow-water sections near shore. As of 2010, submarine cables link all the world's continents except Antarctica.

Practice Website

Download the file called `website-review.zip` from the class website.

- Inside, you'll find text and an image that we will use to create our website.
- The first thing we are going to do is set up our HTML (10 min)
- Then, we'll apply the CSS (15 min)

Assignment #5 – Vector Graphics

What should link to my Vector Graphics assignment on my homepage?

Vector Graphics link

- Assignment #5 specifies that you should "**code the image directly into the HTML of your i6 home page**".
- For your Vector Graphics link, please link to your vector image as a standalone web page. You should just be able to copy and paste all your in-line code into a new document called `YourLogoName.svg` Make sure you include the XML filetype header. Any styles you included can go inside `<def>` between `<style>` tags
- Remember to upload `YourLogoName.svg` and create a link to it.

```
<?xml version="1.0" encoding="UTF-8"?>
<svg width="100" height="100">

    <defs>
        <style>
            <!-- style rules here -->
        </style>
    </defs>

    <!-- paste your svg code here -->

</svg>
```

Midterm

Midterm

Date: Monday, March 8

Format: Multiple Choice

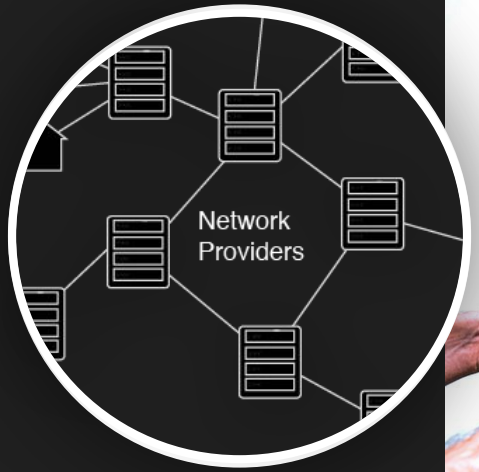
Topics Covered: Computer Principles, The Internet, Unix, HTML, CSS, Web Graphics

- Paper exam; no laptops/internet
- 1 Cheat sheet
- 5-10 multiple choice questions per unit
- 25-35 multiple choice questions in reference to attached code

Topics

- Key terms: servers, clients, ISPs, routers, IP addresses, URLs
- GUI vs CMI
- Web Permissions
- Semantic vs Non-Semantic HTML
- CSS Pseudo classes
- <srcset> attribute

Computer Principles/The Internet



Servers

A computer connected directly to the internet

- Special computers that “serve up” documents upon request
- Web servers are called HTTP servers

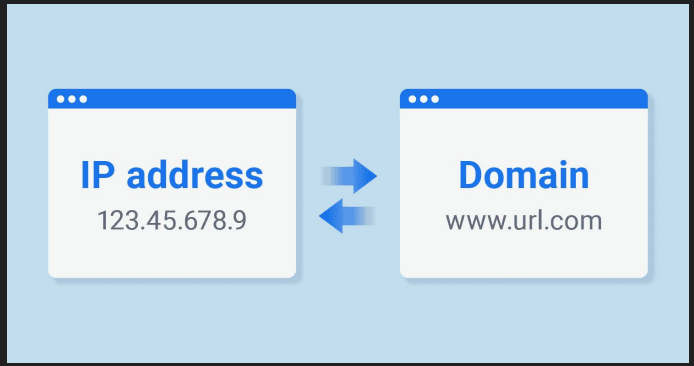
The New York Times

Internet Service Provider (ISP)

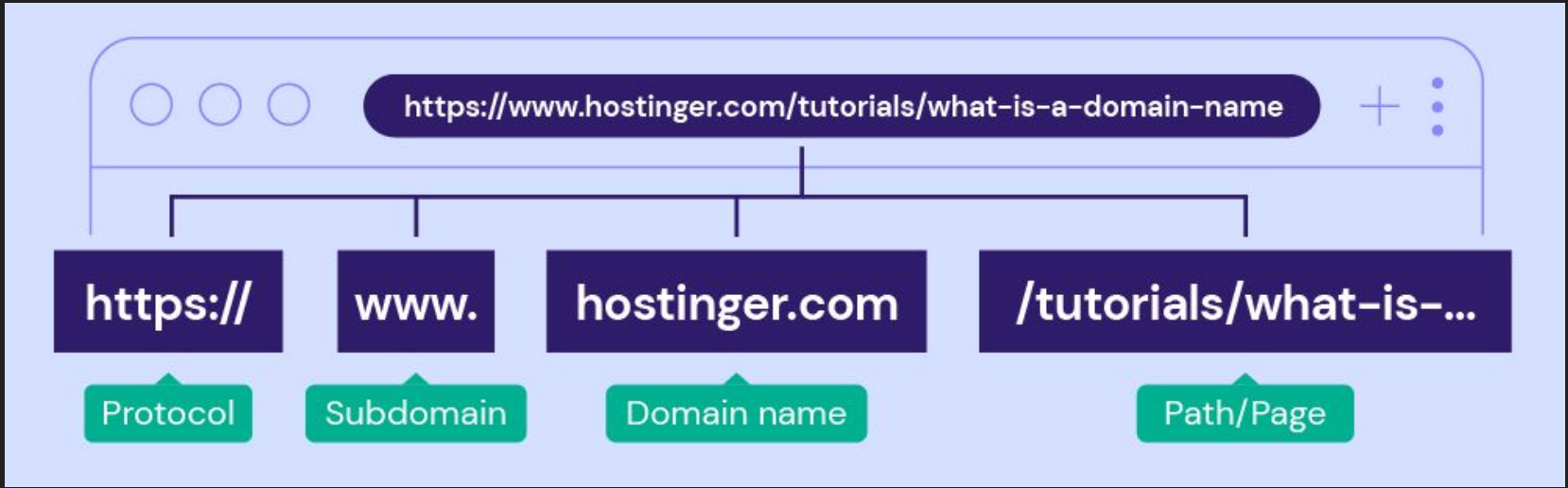
- a company that provides Internet access to users, or clients
- provides the physical infrastructure that allows users to connect to the Internet

IP Addresses

- every computer and device connected to the internet is assigned a unique IP (Internet Protocol) numeric address (i.e. 123.45.678.90)
- Domain Name System (DNS) was created so developers can refer to servers by domain names (i.e. emilydidthis.com)



URLs


https://www.hostinger.com/tutorials/what-is-a-domain-name
https://
www.
hostinger.com
/tutorials/what-is-...
Protocol
Subdomain
Domain name
Path/Page

Router

- A router is a networking device that relays data packets between computer networks
- direct the flow of Internet traffic so that packets arrive at their appropriate destination
- the address to which data is sent is normally in the form of a numeric IP address

Unix

Common Unix Commands

`% ls`	list directory files
`% pwd`	show current directory
`% cd`	change directory
`% cd ~`	go to home directory
`% cd ..`	go to parent directory
`% touch`	create, change, modify timestamp of file
`% mkdir`	create directory

chmod

Every file and directory has nine permissions associated with it

The Unix `chmod` command sets permissions of files and directories

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

- r (read)
- w (write)
- x (execute)
- - (no permission)

The above permissions occur for each of the following classes

- or users:
- u (user/owner)
- g (group)
- o (other/world)

Standard Web Permissions

Permissions	Unix Commands
U G W	
rwx rwx rwx	% chmod 777 filename
rwx rwx r-x	% chmod 775 filename
rwx r-x r-x	% chmod 755 filename
rw- rw- r--	% chmod 664 filename
rw- r-- r--	% chmod 644 filename

Standard **file** permission: 644

Owner can read and write file;
group can read file;
others can read file

Standard **directory** permission: 755

Owner can read, write and execute file;
group can read and execute file;
others can read and execute file

HTML

Semantic HTML

- Semantic HTML involves using HTML markup to reinforce the ***meaning*** of the information in webpages rather than merely defining its presentation or look.
- Semantic HTML tags give the browser and other devices understanding the content's structure and how it's supposed to be used or interpreted.
- By using semantic tags, you make your content more accessible to a wider range of users, including those using screen readers and other assistive technologies.

Examples of Semantic HTML Tags

<article> Defines a piece of self-contained content that could stand alone and potentially be syndicated.

<footer> Defines the footer of a document, containing info about the author, related documents, copyright, etc...

<header> Denotes the introductory content of a page, section, or article, which can contain navigation links

<main> Represents the dominant content of the <body> of a document, unique to that document and excluding content repeated across documents such as sidebars and footers.

<nav> Designates a section of navigation links, either within the current document or to other documents. Common examples include menus, tables of contents, and indexes.

<section> Represents a generic standalone section of a document, which doesn't have a more specific semantic element to represent it

Non-Semantic HTML Tags

Unlike semantic tags, non-semantic HTML tags are those that don't define any meaning about the content they enclose. They are used to group content, primarily for styling purposes or for achieving a particular layout

`<div>` the Content Division element – as a "pure" container, the `<div>` element does not inherently represent anything. Instead, it's used to group content so it can be easily styled using the `class` or `id` attributes.

`<span>` a generic inline container for phrasing content– very much like a `<div>` element, but `<div>` is a block-level element whereas a `<span>` is an inline-level element

URI Fragment

A URI (Uniform Resource Identifier) fragment is a part of a URL that follows a # symbol and is used to identify a subsection of a document. The fragment directs the browser to scroll to a specific part of the page, which is identified by an element with a matching `id` attribute.

```
http://example.com/page.html#section2
```

CSS

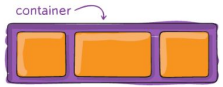
CSS Flexbox

HOME / GUIDES /

A Complete Guide to Flexbox

Our comprehensive guide to CSS flexbox layout. This complete guide explains everything about flexbox, focusing on all the different possible properties for the parent element (the flex container) and the child elements (the flex items). It also includes history, demos, patterns, and a browser support chart.

Flexbox properties



Properties for the Parent (flex container)

display

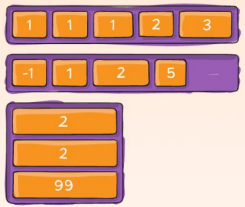
This defines a flex container; inline or block depending on the given value. It enables a flex context for all its direct children.

```css
.container {
  display: flex; /* or inline-flex */
}
```

Note that CSS columns have no effect on a flex

Properties for the Children (flex items)

order



Raster Graphics

`srcset`

- `srcset` is an HTML image attribute that specifies the list of images to use in different browser situations.
- The browser will pick the most optimal image version, based on the screen size and resolution.

```
<img alt="image alt text" src="default url"
   srcset="url size, url size, url size"/>
```

`srcset` + image density

- A common way to to set include **size** information in the `srcset` attribute is to label each file by image density.
- You do this by putting 1x, 2x, 3x and so forth after the URL.

```
<img alt="flamingo in lake" src="flamingo-400.jpg"
   srcset="flamingo-800.jpg 2x,flamingo-1200.jpg 3x"/>
```

`srcset` + image width

- The other way to inform the browser about the different sizes is to actually specify the image width in pixels.
- This gives the browser more information about the images, so it can make a better decision about which one to select.
- This is also good if your image versions aren’t in exact proportion to each other.

```
<img
  alt="flamingo in lake"
  src="flamingo-400.jpg"
  srcset="
    flamingo-800.jpg 800w,
    flamingo-1200.jpg 1200w,
    flamingo-1600.jpg 1600w,
    "
/>
```

Vector Graphics

Practice Exam

Practice Exam

Open the `midterm-practice-exam.pdf` from the class website.

— Take the next 5-10 minutes to go through the questions

The format of the midterm will look very similar to this but with more questions.

Homework

- Assignment #5 (due midnight)
- Study for the midterm on Monday!