

CMPS 3680 Homework 1

Spring 2024

World Wide Web Communication

The World Wide Web is about communication between web **clients** and web **servers**.

Clients are often browsers (Chrome, Edge, Safari), but they can be any type of program or device.

Servers are most often computers in the cloud.

HTTP Request / Response

Communication between clients and servers is done by **requests** and **responses**:

1. A client (a browser) sends an **HTTP request** to the web
2. A web server receives the request
3. The server runs an application to process the request
4. The server returns an **HTTP response** (output) to the browser
5. The client (the browser) receives the response

The HTTP Request Circle

A typical HTTP request / response circle:

1. The browser requests an HTML page. The server returns an HTML file.
2. The browser requests a style sheet. The server returns a CSS file.
3. The browser requests an JPG image. The server returns a JPG file.
4. The browser requests JavaScript code. The server returns a JS file
5. The browser requests data. The server returns data (in XML or JSON).

HyperText Markup Language

HTML is a markup language used with web documents that consists of markup <tags> with data encapsulated within them. Each tag is a different instruction for the browser to 'interpret'. HTML defines the content of a webpage.

Cascading Style Sheets

CSS is a set of declarations and rules for the browser. These 'rules' tell the browser 'how' to display the data within an HTML tag, depending on which tag is being used. Style sheets are widely used for the overall look and feel of a webpage (layouts).

JavaScript

JS is a lightweight and effective client side scripting language. Like HTML and CSS, JS is interpreted by the browser. In short, JS allows a static webpage to become dynamic and interactive within your browser environment.

Bootstrap

- <https://getbootstrap.com/>
- Free front end framework of defined html, javascript, and css classes
- Support for responsive web design - mobile/tablet/desktop friendly
- Grid Layout

jQuery

- <https://jquery.com/>
- Lightweight, fast, and feature rich JavaScript library
- `$(document).ready(function () { ... });`
- query element(s), event handling, effects and animations
- AJAX (Asynchronous JavaScript and XML)

CDN Links

CDN = Content Delivery Network.

Since importing standard javascript and css libraries such as jQuery or Bootstrap has become commonplace, many sites will actually host these files remotely so you can quickly import them into your projects for prototyping and testing. In fact, they will often provide minified versions to reduce load times. Using CDNs for external libraries and tools is not only acceptable, it is encouraged.

Additional Reading

- Monolithic Servers vs Microservices
<https://www.digitalocean.com/blog/monolithic-vs-microservice-architecture>
- Review Javascript Version Changes & Support
https://www.w3schools.com/js/js_es6.asp
<https://caniuse.com/>
- var vs let
<https://javascript.plainenglish.io/4-reasons-why-var-is-considered-obsolete-in-modern-javascript-a30296b5f08f>
- Emmet (Import HTML/CSS workflow)
<https://emmet.io/>
- Browser Developer Console
<https://developer.chrome.com/docs/devtools/>
- Building Forms with HTML5
<https://htmlreference.io/forms/>