

# What is the Web

- Constant use doesn't tell you everything
  - Lightswitches don't teach electricity
- Originally used to share and link sci papers
  - "HyperText"
- Makes use of Internet
  - Web not the same as Internet
  - One kind of traffic
  - Cars aren't Roads
    - Even if most of the traffic

# Web Page

A **Web Page** is an **HTML Document** (.html)

- HTML is a way of "marking" text
- A web page may **link** to other pages
- May also refer to other **assets** (files)
  - Images, video, fonts, CSS files, JS files, etc

# Browser

A **web browser** is a program

- Can make **requests** from a **web server**
  - To get web pages or assets as a **response**
- Can **render** a web page
  - Providing visual output
    - Uses CSS to decide what to show
  - NOT the raw HTML
  - Executes any **javascript** (JS) on the page
    - Or loaded by the page

# Webserver

A program that **responds** to web **requests**

- Can **serve** (respond with) **static** assets (files)
- Can serve **dynamic assets**
  - responses created in the moment

HTTP (web) traffic is request-response

- Server cannot send except in response
- Later tech (Websockets) CAN violate this rule
  - But it all has to start from basic HTTP

# Navigation

A browser can load a different page

- Navigation
- Triggered by user or program action
  - Ex: Click a link
  - Ex: Page loads different page after 10 seconds

Previous page is now gone

- Can navigate "back" to it
- But current page is new page

# URLs

Every page and asset has a URL

- "address" of the asset
- URLs have many parts
  - protocol
  - port
  - domain
  - path
  - query string
  - hash fragment
- Some used by Internet, some by server

# HTML

**HTML** (Hyper Text Markup Language)

- Provides **structure** to the text of the document
- Defines data about the text
- Does NOT directly define the appearance
  - Common mistake!
  - You CAN use HTML to make an appearance
    - But it ends up hard to use/change
    - Bad idea to try

# Cascading Style Sheets (CSS)

**CSS** provides the rules for how web content LOOKS

- Appearance, visuals, **styling**
- Based on the *structure* of the document
  - Relies on **semantic HTML** for full benefit
- Completely different syntax from HTML
- Same CSS could apply to different HTML pages
- Same HTML page might have different CSS stylings
  - <https://csszengarden.com>



# JavaScript (JS)

- **Javascript** is a programming language
  - No relationship to Java
  - Name was a marketing deal that fell through
  - Can be run on a computer with NodeJS
  - Usually runs **in the browser**, "on" a page
- Returned by a server, RUN by the browser
  - A different computer entirely
- Can see, read, and change the page HTML
- Can react to user or page actions
  - Click a link, a button, type a key, etc
- Provides **interactivity** beyond navigation

# Accessibility (a11y)

- **a11y** because 11 letters between 'a' and 'y'
  - Programmers are lazy
- Ensuring everyone can *access* your content
- Often neglected in web efforts of the past
  - And still is neglected
- But Web has grown in importance
- New presentations also benefit
  - Watches, Augmented Reality, etc

# a11y Benefits

- The benefits are wide
  - Not just blind, handicapped, etc
    - Though that should be enough
  - Also injuries, children, bouncy bus/train
  - Same solutions help new tech/programs
- Solutions not well known...yet
  - Demand is growing

# **a11y Technique**

Much of web tech is accessible by default!

- We devs just need not to break it
- Need to know what breaks it

# Servers

A server can provide **dynamic pages**

- Beyond the scope of this class (see 6250)

A server can manage dynamic data

- JS on the web page can send/get data from server
  - While staying on the same HTML page
  - Can change the HTML, a little or a lot
- Also beyond this class (still 6250)
  - But we can add UI to provided **services**

# What are UI/UX?

**User Interface** (UI) are the visuals and controls

- Technically not just visuals
- We write UI
- Hopefully with intent

**User Experience** (UX) is what the user experiences

- Users have UX in reaction to UI
- May not be the experience we desire

# Just kidding, the difference is actually ketchup

- Designers have a running joke about UI/UX and ketchup
  - I mention in case you run into it
  - <https://uxdesign.cc/the-infamous-ui-vs-85e3c4dab43f>
  - <https://uxplanet.org/ok-boomer-it-depends-that-ux-ketchup-meme-e89372053077>
  - <https://www.uxdesigninstitute.com/blog/user-research-tomato-ketchup/>

# UI/UX

## Inherent Contradiction

- Everyone has valid opinions
- Education involves surprise truths



# **We must restrain our ego**

- We can be wrong
  - and still right!
- Goal is to empower USER
  - Not ourselves
- Users can surprise you

# **Audience, Context, and Goals**

- UI/UX has definitely WRONG answers
- UI/UX has fewer definitely RIGHT answers
- Must build with Audience, Context, and Goals in mind
  - Businesses often have terrible goals
  - Welcome to late-stage capitalism

# SO MUCH!

- So many terms
- 3 different syntaxes

Getting into modern web dev is complex!

- We will focus on UI/UX
  - Still complex
- Recognize the goal of each concept
  - HTML to provide structured content
  - CSS to give visuals based on structure
  - JS to provide interactivity