

# Images on Web Pages

- Only an Intro
- A lot of concepts
- A lot of potential interactions

## **Images are separate (usually)**

- HTML
- CSS
- Images as separate files
  - SOME small images are "inline"

# Images come in many formats

- All are collection of info
  - Binary values
  - Format defines how that binary is interpreted
- Common formats:
  - jpg/jpeg, gif, png, svg, .mp4, .webp
- Many more formats exist
  - Limited browser support

# **Images have many uses**

- Used as foreground "objects"
  - like text, buttons, etc
  - fit in document flow
- Used as backgrounds
  - like background colors
- Used as icons
  - Smaller foreground objects
  - Not all icons are images
- Favicon (used in browser tabs)

# the `img` element

- Empty element
- url for image is `src` attribute
- `alt` attribute should always be used
  - With meaningful description
  - UNLESS image is purely for visual impact
    - Example, a floral decoration on a side of a page
    - THEN have `alt=""`

# A Figure

*an image, illustration, diagram, code snippet, etc., that is referenced in the main flow of a document, but that can be moved to another part of the document or to an appendix without affecting the main flow*

Not all images are figures, but some are

- A lot of inconsistency about this

Not all figures are images, but most are

# Figure Element

A `<figure>` element can wrap an `<img>`

- optionally, a `<figcaption>` child of the `<figure>` (and sibling of any `<img>`)
  - `<figcaption>` would be any caption text
  - Notice the difference between `<figcaption>` (what the picture doesn't tell you) and `alt` text (what the picture DOES tell you)
- optionally may have other child elements
  - Whatever creates the "figure"

# Styling an image

- `aspect-ratio` sets the width/height ratio
  - Handy when resizing to maintain ratio
- Desire image files that match dimensions in use
  - Most people don't resize much
  - too big/too small is wasteful/slow/blurry
- `vertical-align`
  - `baseline` - allows text like "g" to have space beneath
  - `bottom` - not baseline, no space allowed



# Background images

For when **image is not content**

- If a user needs it, don't make it background
- No `alt` text option
- Image loaded by CSS, not by HTML
- CSS is on some HTML element

# Background property

- `background-color`, `background-image`
  - All part of `background-` collection
- Transparent image parts will try to show color

## **background-image property**

- Pass `url()` with the url inside
  - Fully qualified, absolute, or relative
    - Relative to CSS file, not HTML page!
  - Value can be in single, double, or no quotes
    - Most punctuation and spaces causes problems
      - Avoid when you can
      - Use quotes for these when you can't avoid

## Other background- properties

- `background-position` - how to align container and image
- `background-repeat` - when container is larger than image
- `background-size` - to resize image
- `background-attachment` - when container scrolls

See MDN for examples

# Sprites

Allows one bigger image to hold many small images

- Display only a portion of the image
- Efficiently have many small images
- Use `background-` properties
  - To display part of image

# **Sprites show up in different places**

- Icons might do this (fonts are more common)
- Repeated images might do this
  - 1-5 stars? Use one pic of 5 stars and show part of it
- "motion" can be created by cycling through a few
  - Like a flipbook
    - How Super Mario Bros works

# Stock Photos

Pre-existing images

- People, places, things
- Created/Collected in bulk by vendors
  - Example: getty

# Using Stock Photos

- Hero Images
- In cards/panels



# I'm a poor student!

- **<https://unsplash.com/>** is a good, free source
- "free" is complicated

# Copyright

I am not a lawyer

- Consider yourself warned of possibility

# Copyright not universal

## Berne Convention

- Most countries signed
  - China only big exception
- Defines common ground
  - Lots of details left to countries

# **Copyright grants "rights" to creators**

- Duplication ("right to copy")
- Derivative Works
- Expression, not Idea
- NOT based on "profit"
- Automatic!

# **Copyright protects duplication/distribution**

- You might download it without cost
- Does not mean you can DO things with it
  - Legally

## **Wait, are memes illegal?**

- Technically...most of them, yes
  - Civil, not criminal
- What you get away with vs what is allowed

When money gets involved people get more serious

- On the job, money is always involved

# Derivative Works

- If you change it for your uses
  - That's a "derivative work"
- Translations? Derivative work

Where is the line?

- Lawyers earn their pay

# Copyright protects Expression

- Not ideas, not facts
- Not methods
  - That's Patents
- Not identity (name or appearance)
  - That's Trademarks
- Code is usually expression



# **Lack of profit is no defense**

- Copyright is creator's right
  - So it doesn't matter if YOU are making money
  - About if it hurts THEM
    - Profit or profit potential
  - Disagreements resolved in court (\$\$\$)
- Being sued sucks
  - You lose even if you win
- Usually Cease and Desist first
  - C&D may not be legally correct

# **Copyright is automatic!**

- Work protected as soon as created
  - Owner decided in advance
    - Example: "Work for hire"
- Does not require "registration"
  - Helps to prove

# **"Fair Use" is a defense**

- Fair Use
  - Parody
  - Review
  - Education
- When sued, you can claim "fair use" as defense
  - Doesn't mean you win
  - Doesn't stop you from getting sued
- Lots of bad claims of fair use
  - Example: no profit is not fair use

# Licenses and Copyright

- Permission to use a copyrighted work
- What is allowed varies by License
- Common:
  - Highly permissive: MIT, BSD, DWTFYW, CC-BY
  - Restricted: CC-BY-NC
  - Copyleft: GPLv2, GPLv3, CC-BY-SA

Beware sites with "Free" downloads

- Do they offer/define a license?

# Practical Concerns

- Don't download and use random images/code in work
- Track where something came from
  - And what license it has
- Very different conversations with legal dept
- Know employers rules about open source -

# **Trademark protects CONSUMER**

- Limited identity rights to owner
  - to prevent consumer confusion
- Different kinds (trademark, tradedress, etc)
- "requires owner to protect" (ish)
  - They lose the protection if it becomes generic
  - Kleenex, McDonalds, Xerox, Google

# **Website Design can be Trade Dress!**

- Do not copy a sites' design too literally
- Be "inspired by", not "a copy of"
- Test is whether it confuses users
  - Make your identity clear!
- Hard to know
  - Safest to avoid approaching the line

# Icons

Small image-looking things

- Convey info
- May not actually be an image!
- Should have text
  - Either direct or associated



# Images?

Icons might be:

- Images
  - Sprites?
  - SVG allows easy resizing
- Special Font characters
- CSS!

# Icons as font example

- Font Awesome is one vendor
  - Offers font-based or SVG-based
  - <https://fontawesome.com/v4/icons/>

<https://cdnjs.cloudflare.com/ajax/libs/font-awesome/4.7.0/css/font-awesome.min.css>

```
<link rel="stylesheet" href= "https://cdnjs.cloudflare.com/ajax/libs/font-awesome/4.7.0/css/fc
/* later */
Test <i class="fa fa-mortar-board"></i>
```

Test 

# Icons from CSS

- Example: **<https://css.gg/>**
  - common, simple shapes
  - Provides the CSS to create
    - Or many other formats
  - Uses MIT License

# Icons are great

- But remember not to exclude text
  - For a11y text MUST be available
  - Many users will prefer to have anyway

# **What's with these fonts anyway?**

Browsers have Operating System fonts available

- Not all OSes have the same fonts!
- Safe to stick to a very limited set of fonts
- Or load external fonts

# Loading a Font

- Loaded via a CSS file
- Then set the font-family

```
<link rel="stylesheet" href="https://fonts.googleapis.com/css2?family=Crimson+Pro">
```

**<https://fonts.googleapis.com/css2?family=Crimson+Pro>**

```
body {  
  font-family: "Crimson Pro", serif;  
}
```

# Finding Fonts

- That's a whole thing
- Font people are SERIOUS about fonts
- Google has a widely used, free (CC-BY-SA) collection
- **<https://fonts.google.com/>**

# Deciding on Fonts

**[https://fonts.google.com/knowledge/choosing\\_type](https://fonts.google.com/knowledge/choosing_type)**

- Fonts are a Download!
  - Can slow page
  - What do you show before they load?
- Not too many!
  - Page can be very "busy"
- Legible!
  - Fancy Gibberish is still gibberish
- Appropriate Tone
  - **<https://www.comicsanscriminal.com/>**