

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

The `img` element

- Empty/void/self-closing element
- url for image is `src` attribute
- `alt` attribute should always be used
 - With meaningful, accurate description!
 - UNLESS image is purely for visual impact
 - Ex: a floral decoration on a side of a page
 - THEN have `alt=""`
 - But should be background, not content

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 ``

- Optionally, a `<figcaption>` child of the `<figure>` (and sibling of any ``)
 - `<figcaption>` would be any caption text
 - `<figcaption>` - What the picture doesn't say
 - `alt` text - What the picture DOES show you
- 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
 - Avoids "stretched" or "squished" images
- 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 space below for text like "g"
 - `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
 - Punctuation and spaces cause problems
 - Avoid when you can
 - Use quotes when you can't avoid

Other background- properties

- `background-position` - Align container and image
- `background-repeat` - If container 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
 - Make sure alt text is correct though!
- "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

- I am warning of *potential* risks

Copyright not Universally the same

Berne Convention

- Most countries signed
- 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!

LLM and "AI" use in training data isn't decided(!)

Copyright protects duplication/distribution

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

Wait, are memes illegal?

- Technically...many of them, probably
 - 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"
 - Registration may help prove timing

"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/use random images/code in work
- Track where something came from
 - And what license it has
- Very different conversations with legal dept
- Know employer's rules about open source
 - Often based on specific licenses

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/font-awesome.min.css" /* later */
Test <i class="fa fa-mortar-board"></i>
```

Test 

Icons from CSS

- Example: [**https://css.gg/**](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

- Browser must download custom fonts!
 - 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/>**