

CSS Transitions & Keyframe animations

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What will be covered

- CSS transitions
 - Long- and short format
 - Transition functions & Bezier curves
- Animation tools in Chrome DevTools
- CSS keyframe animations
 - Syntax
 - Things carry over from 'transitions' part
- Additional info scattered around
 - Browser support
 - Examples
 - Open-ended exercise

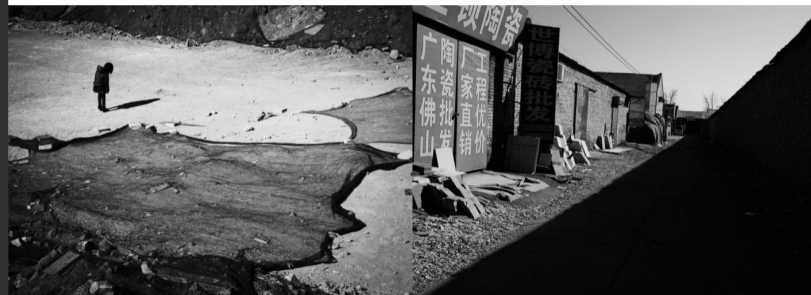
You need...

- Node/npm would help
- Git
- A text editor that hits your particular sweet spots
- ...basic CSS knowledge, no JS needed
- Working towards examples (videos, opens on click):



Self Intro

- Not CSS expert, but have gotten into hobby project (lazy loading image gallery) that would be good to move some things away from poor single JS-thread.
- Usually doing data analytics, viz, coding (mainly JS), dreading CSS parts of work, because easy to shoot yourself in the foot.



Why animations, Why CSS(!?!) animations?

- **Why Anims:**

- Guide user [attention](#), and common [neatness](#)
- Much better than having things jump from one place to the next...
- Moving changing things makes heart go boom-boom

- **Why CSS3:**

- You're able to move things away from Javascript, which usually is responsible for loooooads of other things
- Helps keep your code clean and more in line with single-responsibility principle if CSS does the 'adjectives' as much as possible

- **Good practices links:**

- [Less-is-more](#), [UX considerations](#), [More UX/UI \(important stuff\)](#)
- More nice use of animations: [1](#) [2](#) [3](#) [4](#) [5](#)

Setup

- Cd into directory of choice
- `$ git clone git@github.com:Tille88/css_transition_anims_talk.git`
- Basic exercise uses NOTHING but regular CSS and HTML
- More advanced examples does use SCSS and SVG as well. And a local server to make sure images can be shown... just do “`$ npm i`” from any of those subfolders ought to work.

CSS3 Transitions

Syntax

- Property and time **REQUIRED**
- **Note:** Placement of transition on base-selection = please watch changes to this, used in all MDN examples (contrast: on hover selection 18:28)

```
.base-selector{
  transition-property: <all|color|width|transform|...>; /*REQUIRED*/
  transition-duration: <numeric+[ms|s]>; /*REQUIRED*/
  transition-timing-function: <def: ease|ease-in|ease-out|ease-in-out|linear|cubic-bezier()|step()>;
  transition-delay: <def: 0, numeric+[ms|s]>;
}

/* Shorthand */
.base-selector{
  transition: transProp transDur <transFunc> <transDel> <,one-more-transition>;
}

.base-selector:modifier{
  property-to-modify: value;
}
```


Transition-property

- Advice - **avoid** property [all], be explicit to avoid future bugs + performance bottlenecks
- Not all properties can be animated

Transition-duration

- Not much to say, can be seconds or milliseconds

```
transition-duration: 2s;
```

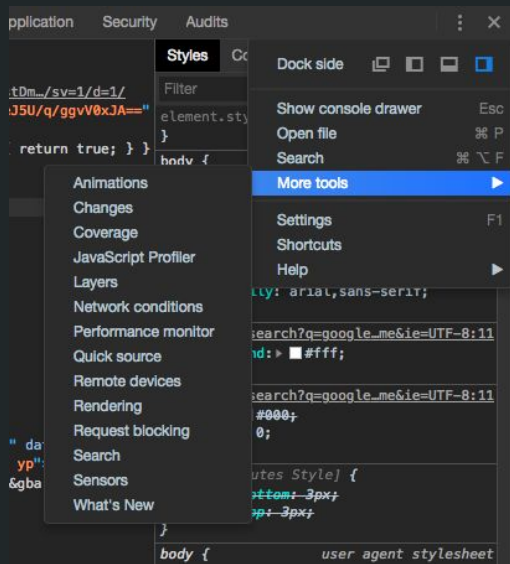
```
transition-duration: 4000ms;
```

Transition-delay

- Default=0, CAN BE NEGATIVE VALUE

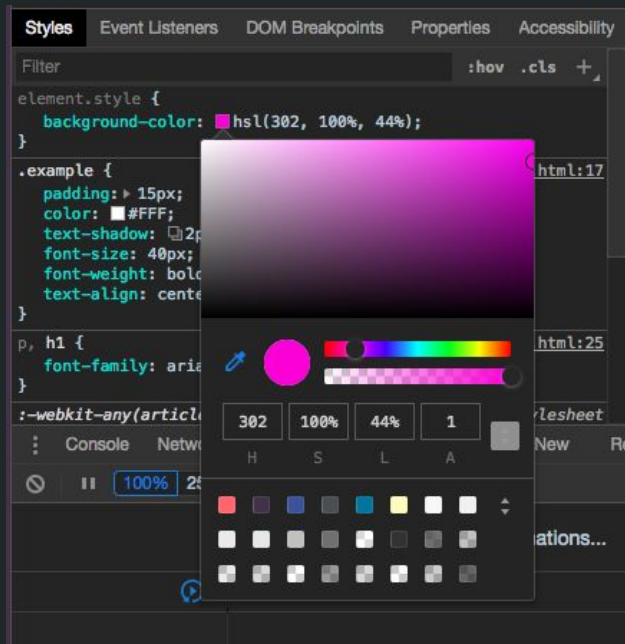
Transition-timing-function

- Ease-in, ease-out, ease-in-out, etc.
- Cubic-bezier, best shown as example in DevTools
- Side-note: can slow down animations and do other cool stuff



Advice in color transitions

- Use DevTools, and pick color-space that easily can interpolate between colors
- Personally, hsla() is really useful, RGB(A) sometimes less so.
- DEMO



Browser support

- Short story: pretty good
- Usually fails gracefully anyway...

Exercise time

- Have basic setup in folder /project-folder/css_transition_anims_talk/exercise
- You should only have to make changes to index.css
- Comments show where you can plug in transitions as you wish
- Maybe make a local copy of the files to use for keyframes animations later on

More advanced example

- Go through code of thumbnail_viewer
- Leads to => Keyframe animations

CSS3 Keyframe Animations

Keyframe animations

- When simple transition doesn't cut it. Can use multiple linked transitions, but easily gets messy.
- Similar structure as transitions, [detailed description with defaults](#)

```
.will-be-animated {  
  animation: keyframeName dur <timing-func=ease> <anim delay=0> <iterations=1>... a few more...;  
}  
  
@keyframes keyframeName{  
  0%, 100%{  
    background-color: col1;  
    /* Other.... */  
  }  
  50%{  
    background-color: col2;  
    /* Other.... */  
    /* Can also change animation timing function here  
    [animation-timing-function: linear ], ought to override set in  
    .will-be-animated-block  
    */  
  }  
}
```


Gotcha!

- This is not a transition! Meaning:
 - When transition ends, you need to specify what will happen. Unless 'infinite', then you can choose `animation-direction`
 - Best demo:ed interactively... `animation-fill-mode` to the rescue!
 - No real need to memorize all the options, look up what you need...
 - Not covered:
 - step animations using `step-timing-function`
 - `animation-play-state` possible that you want to start animation as paused...

=> `animation: slidein 3s linear 1s [backwards|forwards|both];`

=> `animation: slidein 3s linear 1s infinite alternate;`

Exercise

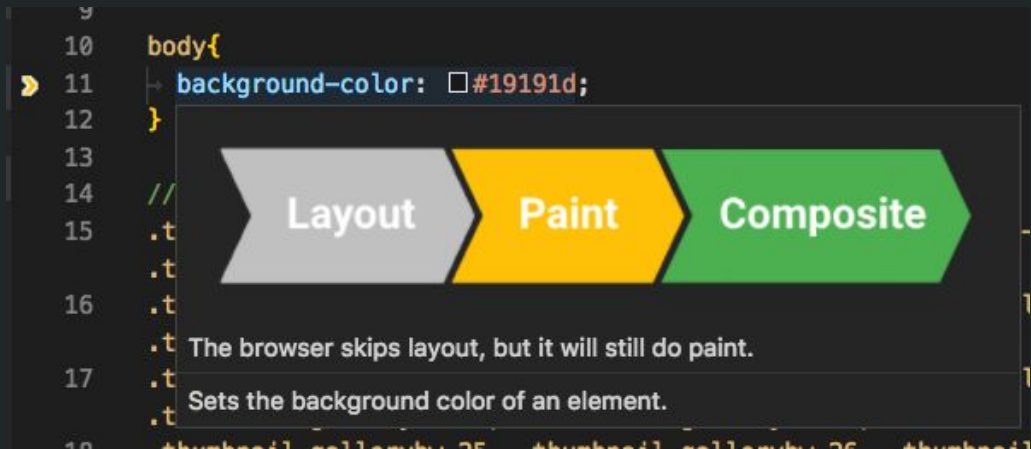
- Two choices:
 - Introduce keyframe animation to the previous exercise files
 - Use link from previous slide
- Will have an example after you have had a go

Advanced example code-review

- Inspiration
- If time, go through code of cheap_spinner

Additional Topics

- [Browser support](#)
- JS events to hook up [[animationstart](#) | [animationend](#) | [animationiteration](#)]
- For performance: will-change and TranslateZ(0)-hack
- [What is cheap to animate?](#) = transform and opacity
- [Extension](#) in VSCode



Lastly...

- If you can make the thumbnail_viewer actually usable without JS, let me know of ideas...

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