# Cascading Style Sheets (CSS)

# Debugging Checklist

1. Check that your file is saved
2. Check that your HTML links to the correct CSS file
3. Check that the files you have open in sublime are the same ones that you have open in the browser
4. Open the Chrome Developer Tools and check out your style in the inspector

# Positioning

# Tutorial

- Position: http://learnlayout.com/position.html
- The whole series of tutorials is also useful review

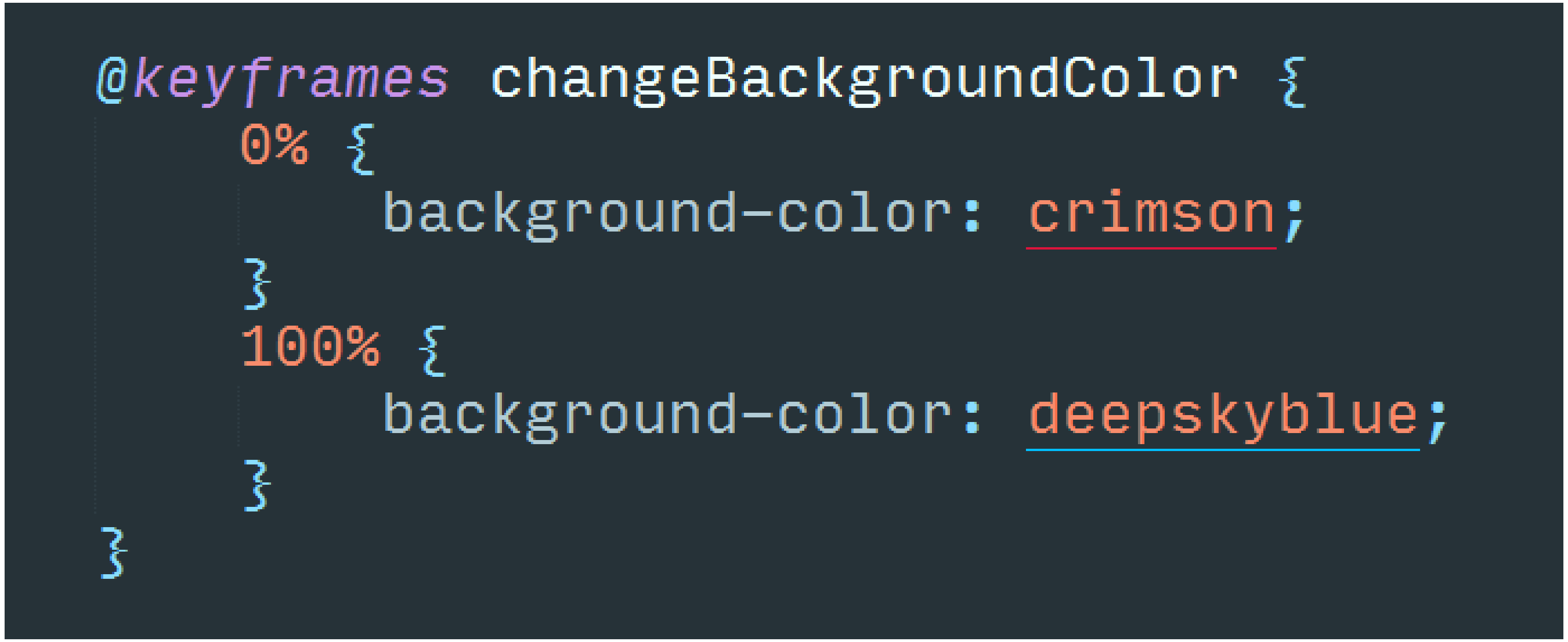
# Transforms

# Tutorials

- Shay Howe’s tutorial is comprehensive and walks through the transforms step-by-step
- This blog post goes a bit deeper into how the transforms work

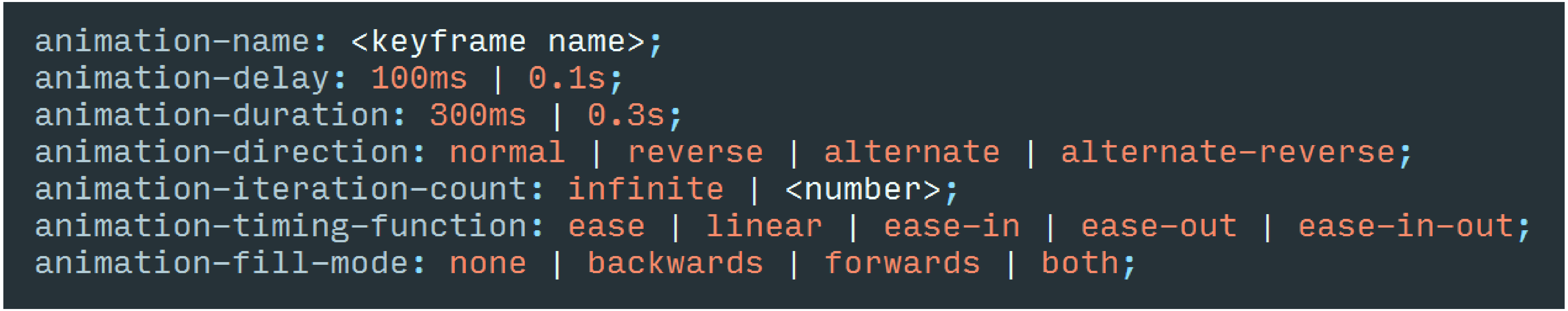
# CSS3 Animation

# Key Frames



```
@keyframes changeBackgroundColor {
    0% {
        background-color: crimson;
    }
    100% {
        background-color: deepskyblue;
    }
}
```

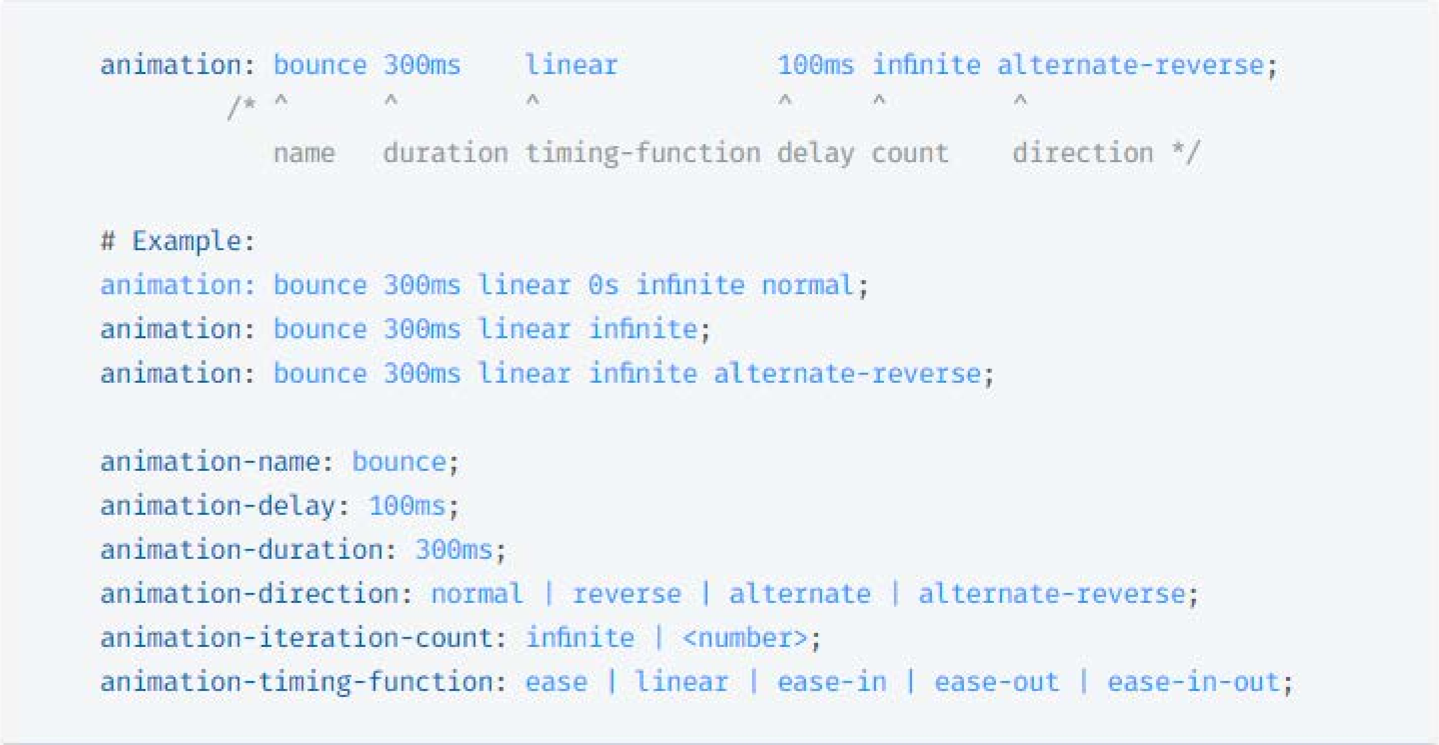
# Animation



```
animation-name: <keyframe name>;
animation-delay: 100ms | 0.1s;
animation-duration: 300ms | 0.3s;
animation-direction: normal | reverse | alternate | alternate-reverse;
animation-iteration-count: infinite | <number>;
animation-timing-function: ease | linear | ease-in | ease-out | ease-in-out;
animation-fill-mode: none | backwards | forwards | both;
```

Helpful tutorial:
https://robots.thoughtbot.com/css-animation-for-beginners

# Animation Shorthand

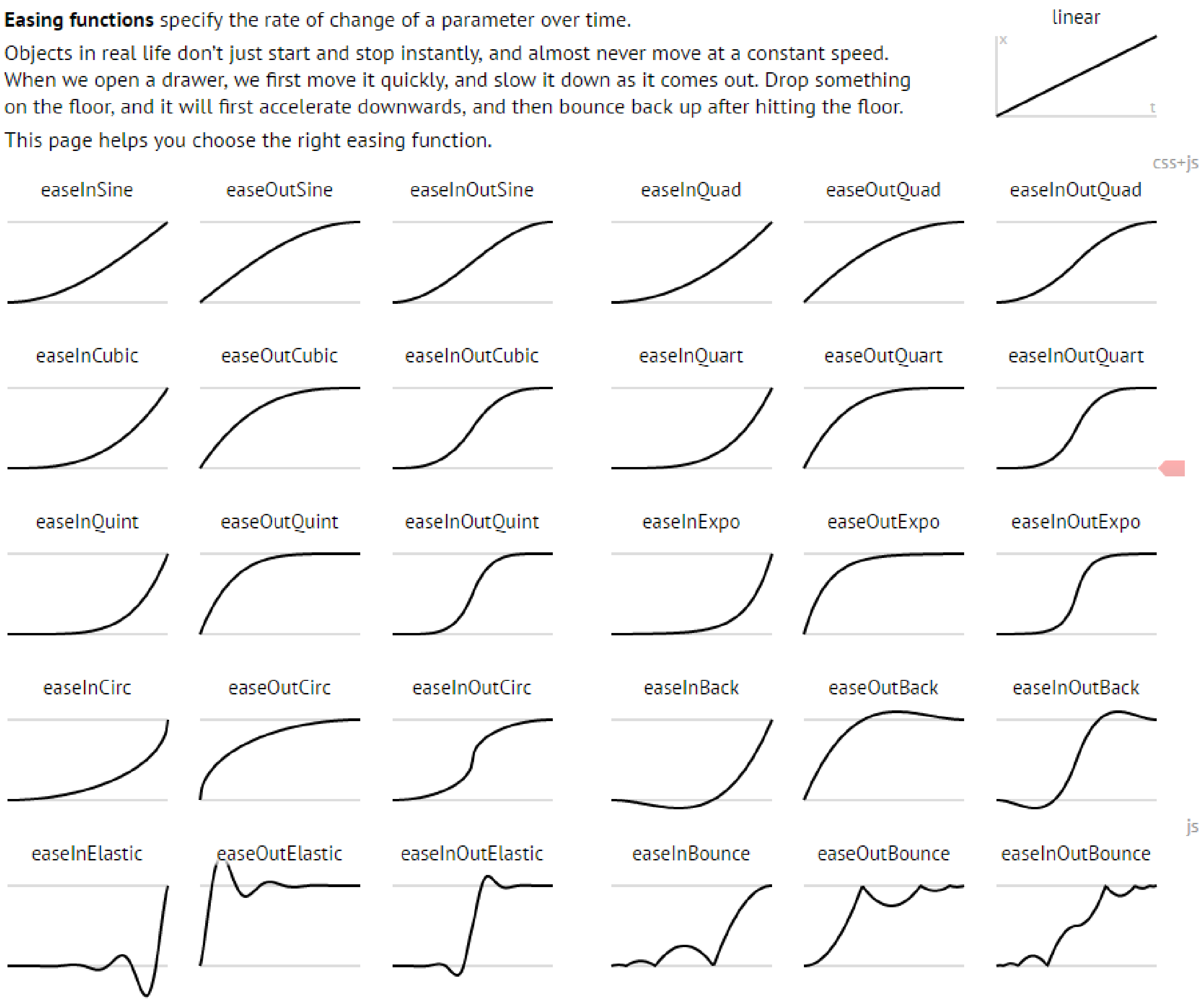


```
animation: bounce 300ms    linear          100ms infinite alternate-reverse;
        /* ^      ^        ^               ^     ^        ^
           name   duration timing-function delay count    direction */

# Example:
animation: bounce 300ms linear 0s infinite normal;
animation: bounce 300ms linear infinite;
animation: bounce 300ms linear infinite alternate-reverse;

animation-name: bounce;
animation-delay: 100ms;
animation-duration: 300ms;
animation-direction: normal | reverse | alternate | alternate-reverse;
animation-iteration-count: infinite | <number>;
animation-timing-function: ease | linear | ease-in | ease-out | ease-in-out;
```

Order doesn’t matter – except duration **must** come before delay

http://ricostacruz.com/cheatsheets/css-animation.html

# Easing



**Easing functions** specify the rate of change of a parameter over time.

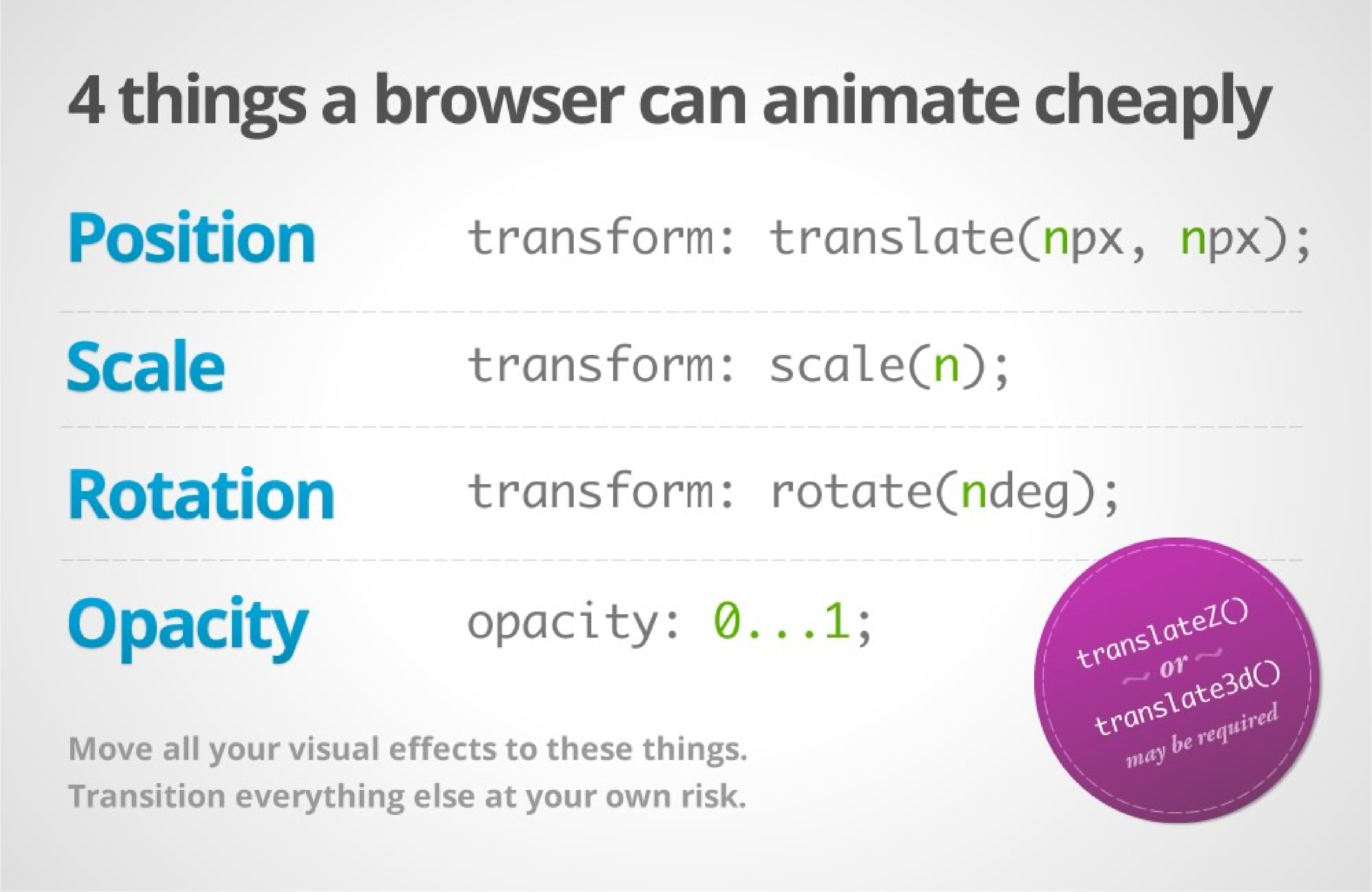
Objects in real life don't just start and stop instantly, and almost never move at a constant speed. When we open a drawer, we first move it quickly, and slow it down as it comes out. Drop something on the floor, and it will first accelerate downwards, and then bounce back up after hitting the floor.

This page helps you choose the right easing function.

http://easings.net/

# Animated Properties

- MDN Reference
- font-size, text-shadow, letter-spacing, etc.
- border, padding, margin, width, height
- transform
- etc.



## 4 things a browser can animate cheaply

| | |
|---|---|
| **Position** | `transform: translate(npx, npx);` |
| **Scale** | `transform: scale(n);` |
| **Rotation** | `transform: rotate(ndeg);` |
| **Opacity** | `opacity: 0...1;` |

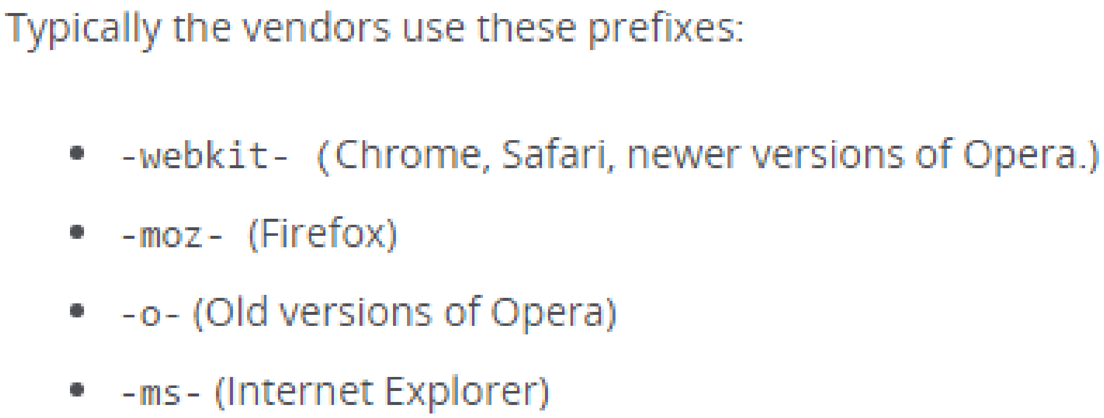
translateZ()
~ or ~
translate3d()
*may be required*

Move all your visual effects to these things.
Transition everything else at your own risk.

http://www.html5rocks.com/en/tutorials/speed/high-performance-animations/

# Vendor Prefixes

- Prefixes for supporting older browsers
- Online prefixer



Typically the vendors use these prefixes:

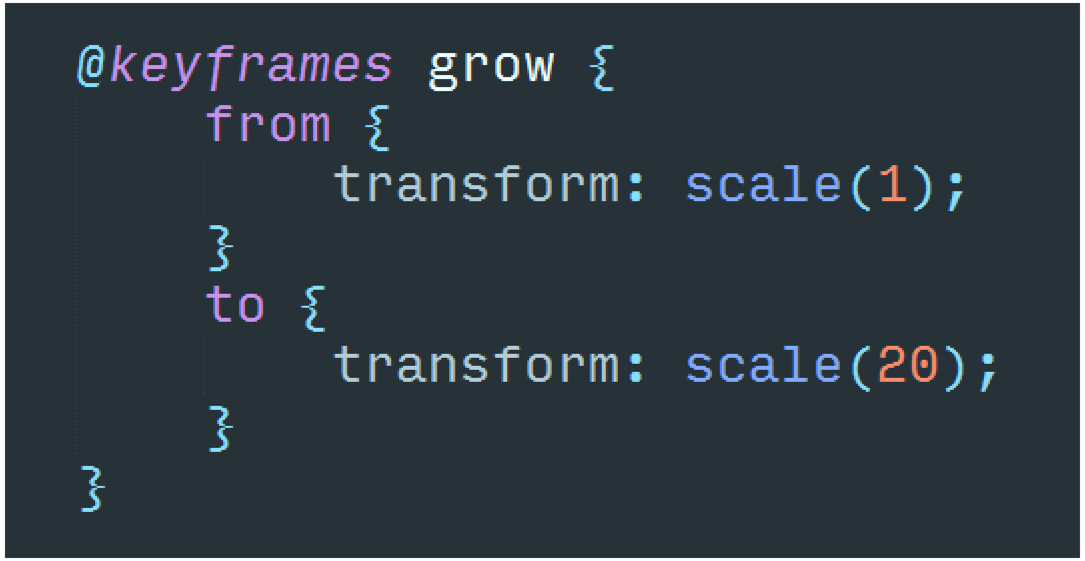
- `-webkit-` (Chrome, Safari, newer versions of Opera.)
- `-moz-` (Firefox)
- `-o-` (Old versions of Opera)
- `-ms-` (Internet Explorer)

Source: MDN

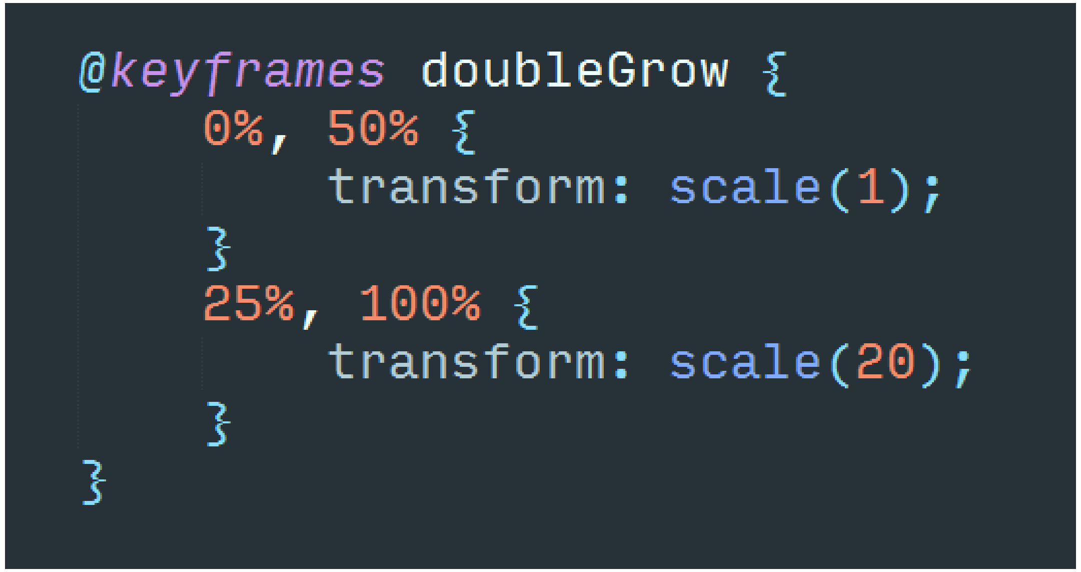
# Animation Tools

- Online CSS Animation Editors
  - https://jeremyckahn.github.io/stylie/
  - http://cssanimate.com/
  - http://bouncejs.com/
- Collections of CSS Animations
  - http://www.theappguruz.com/tag-tools/web/CSSAnimations/
  - https://daneden.github.io/animate.css/

# Shorthand

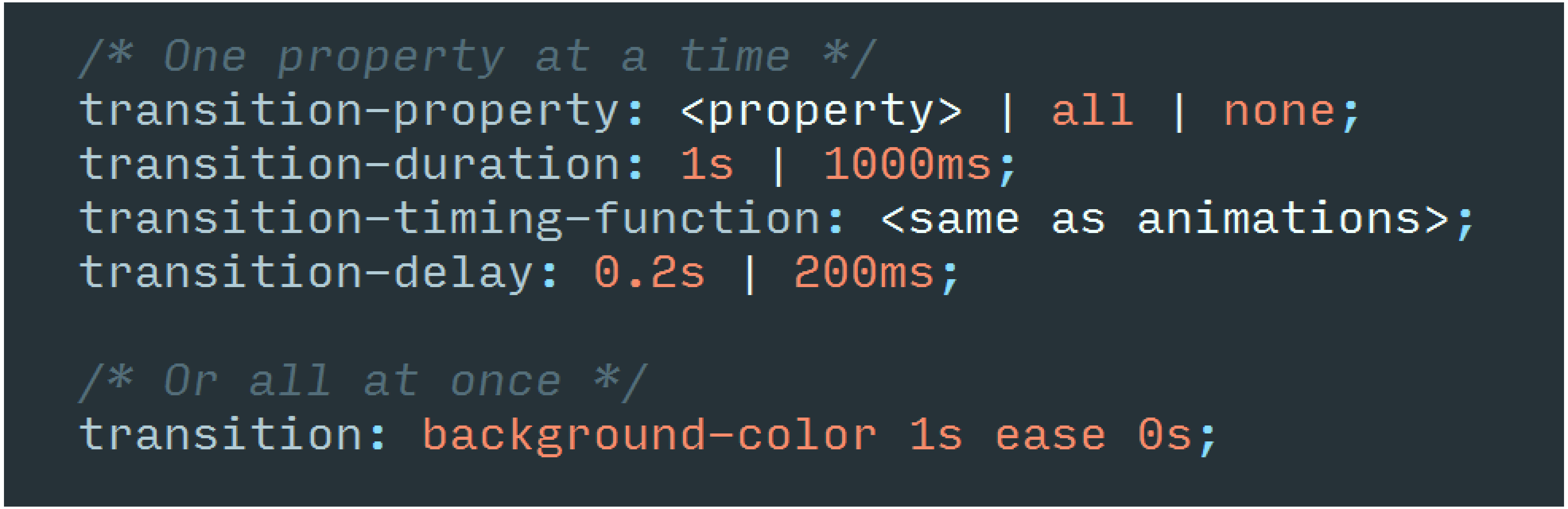


```
@keyframes grow {
    from {
        transform: scale(1);
    }
    to {
        transform: scale(20);
    }
}
```



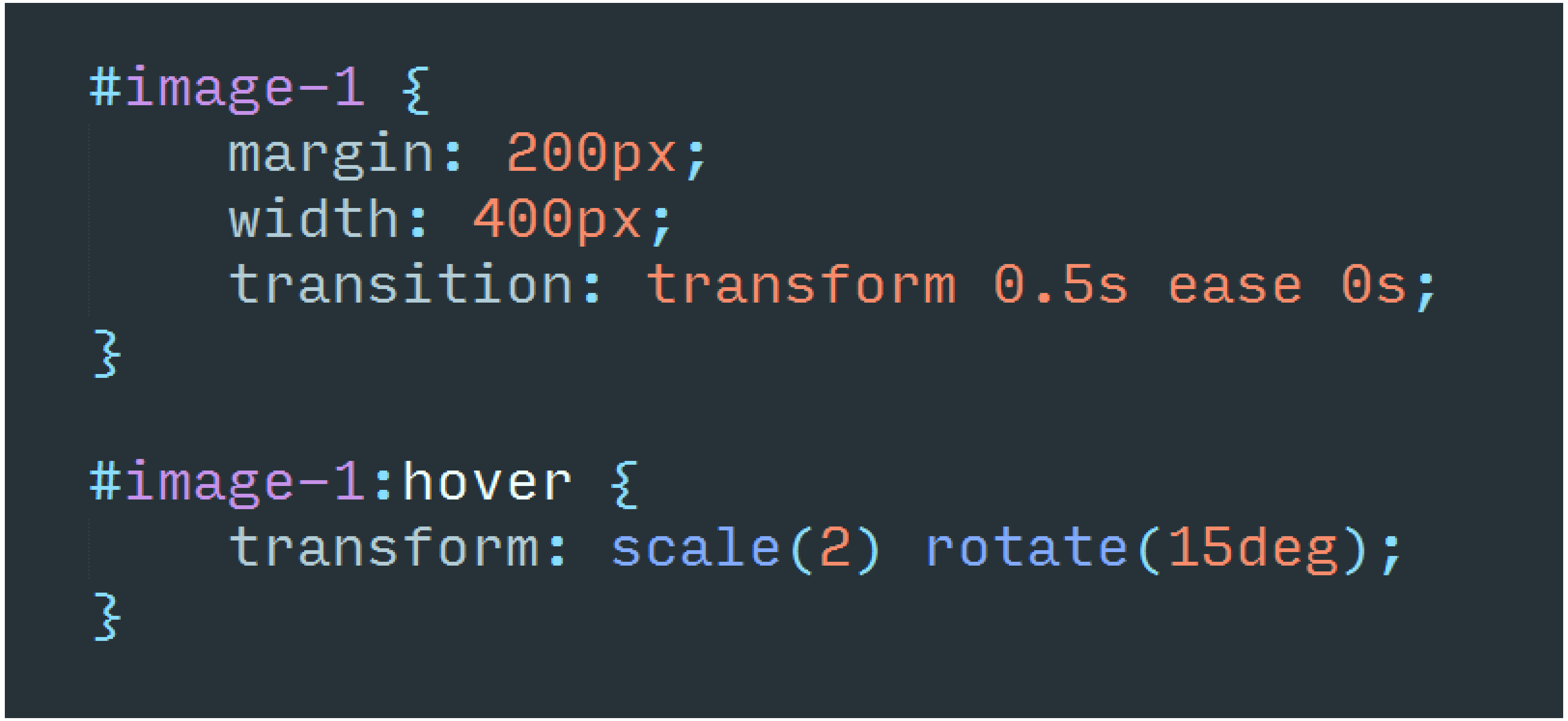
```
@keyframes doubleGrow {
    0%, 50% {
        transform: scale(1);
    }
    25%, 100% {
        transform: scale(20);
    }
}
```

# CSS3 Transitions



```css
/* One property at a time */
transition-property: <property> | all | none;
transition-duration: 1s | 1000ms;
transition-timing-function: <same as animations>;
transition-delay: 0.2s | 200ms;

/* Or all at once */
transition: background-color 1s ease 0s;
```

Check out Shay Howe’s [transition tutorial]



```css
#image-1 {
    margin: 200px;
    width: 400px;
    transition: transform 0.5s ease 0s;
}

#image-1:hover {
    transform: scale(2) rotate(15deg);
}
```

# Transition vs Animation

- Comprehensive blog post
  - Transitions don’t have keyframes
  - Transitions are more useful for user interfaces