HTML5 beyond the hype

Chris Heilmann, JFokus, Stockholm, Sweden, 02/02/15



CSS Stuff

```
<div id="#really"
     class="no idea how i do"
     data-foo="thismarkupthing">
     [...]
</div>
```

```
p {}
p.oop {}
p#tag {}
p[class] {}
p[title="hi there"]{}
p[title^="hi"]{}
p[title$="hi"]{}
p[title~="hi"]{}
```

```
p + p {}
p > span {}
p ~ div {}
```

Semantic CSS With Intelligent Selectors

By Heydon Pickering

August 20th, 2013

CSS, HTML, Semantics

143 Comments

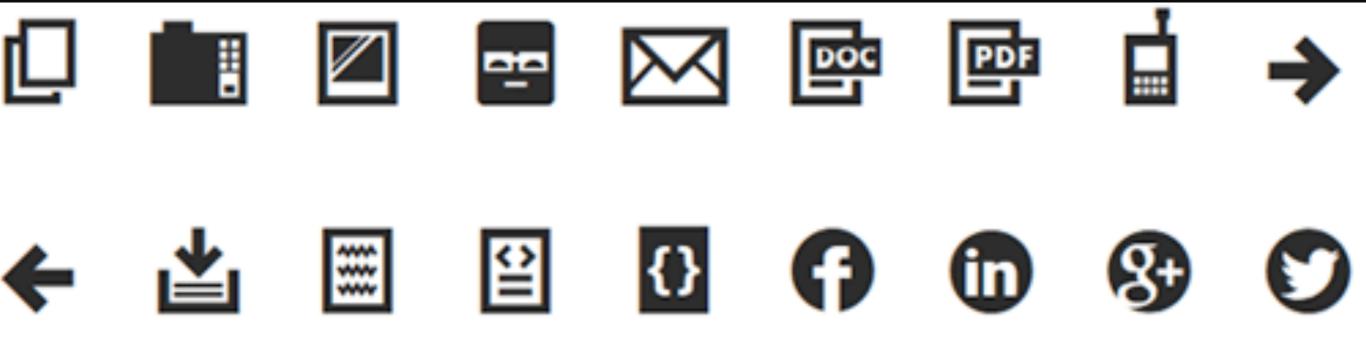
"Form ever follows function. This is the law." So said the architect and "father of skyscrapers" Louis Sullivan. For architects not wishing to crush hundreds of innocent people under the weight of a colossal building, this rule of thumb is pretty good. In design, you should always lead with function, and allow form to emerge as a result. If you were to lead with form, making your skyscraper look pretty would be easier, but at the cost of producing something pretty dangerous.

Advertisement



So much for architects. What about front-end architects — or "not real architects," as we are sometimes known? Do we abide by this law or do we flout it?

http://www.smashingmagazine.com/2013/08/20/semantic-css-with-intelligent-selectors/





















```
[href$=".zip"]:before,
[href$=".gz"]:before {
   content: 'E004';
   /* unicode for the zip folder icon */
}
```

<a href="http://twitter.com/heydonworks"
target="_blank" class="new-window-icon
twitter-icon">@heydonworks

<a href="http://twitter.com/heydonworks"
target="_blank">@heydonworks

💩

```
<l
```

- :link
- :visited
- :active
- :hover
- :focus

- :first-child
- :last-child
- :nth-child
- :nth-last-child
- :nth-of-type
- :first-of-type
- :last-of-type
- :empty
- :target
- :checked
- :enabled
- :disabled
- :not()

```
<l
<//r>
</
```

ul > li:first-child {}

```
<l
<//r>
</
</
```

ul > li:last-child {}

```
<l
```

ul > li:nth-child(odd) {}

```
<l
```

ul > li:nth-child(even) {}

```
<l
<//>
```

ul > li:nth-child(3n) {}

```
<l
</
```

```
ul > li:nth-child(3n+1) {}
```

Support = epic

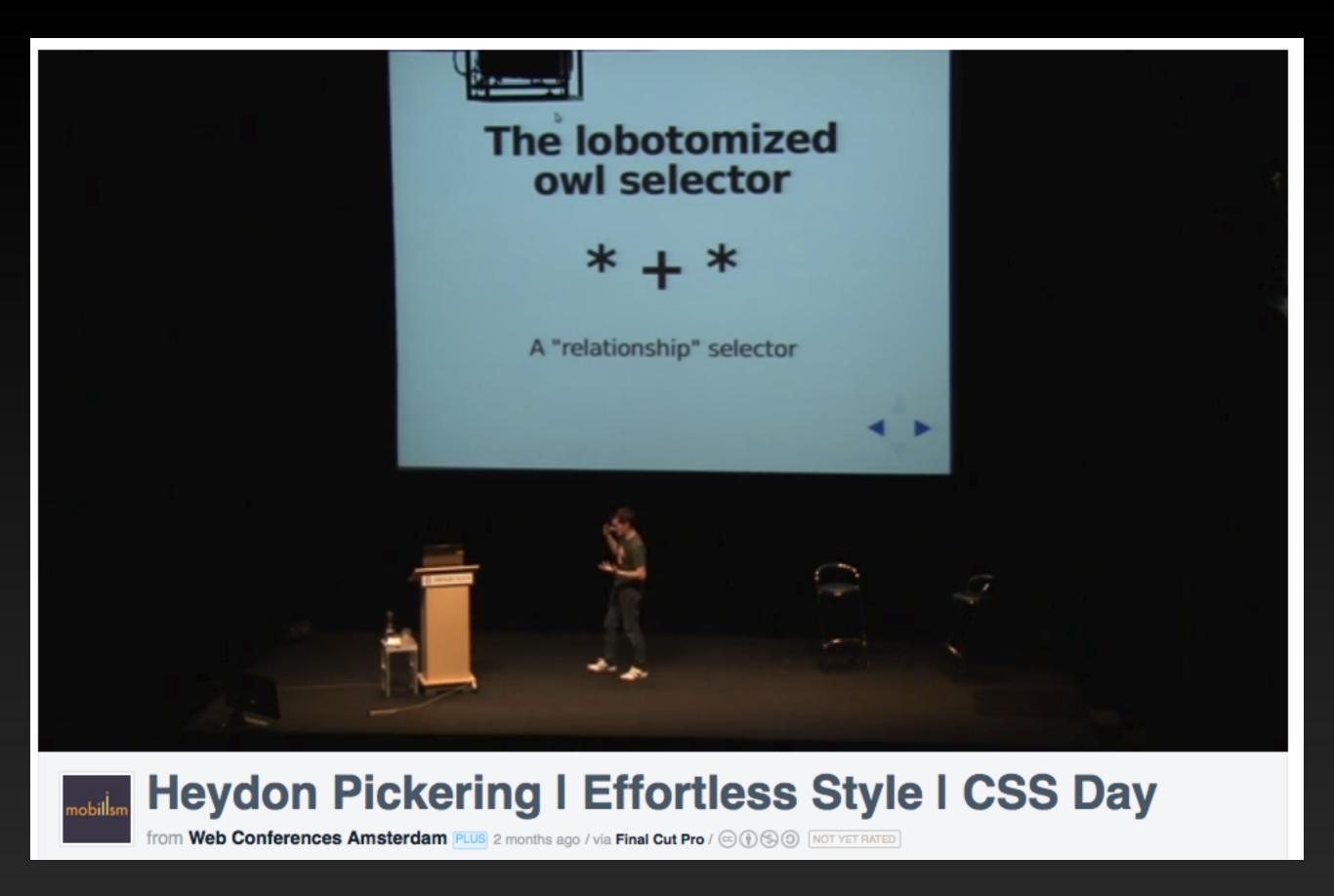
IE	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
		31						
		33					2.3	
		34					4	
8		35	5.1				4.1	
9	31	36	6.1		7.1		4.3	
10	32	37	7	24	8		4.4	
11	33	38	7.1	25	8.1	8	4.4.4	38
	34	39	8	26			37	
	35	40		27				
	36	41						

Notes Known issues (5)

Resources (5)

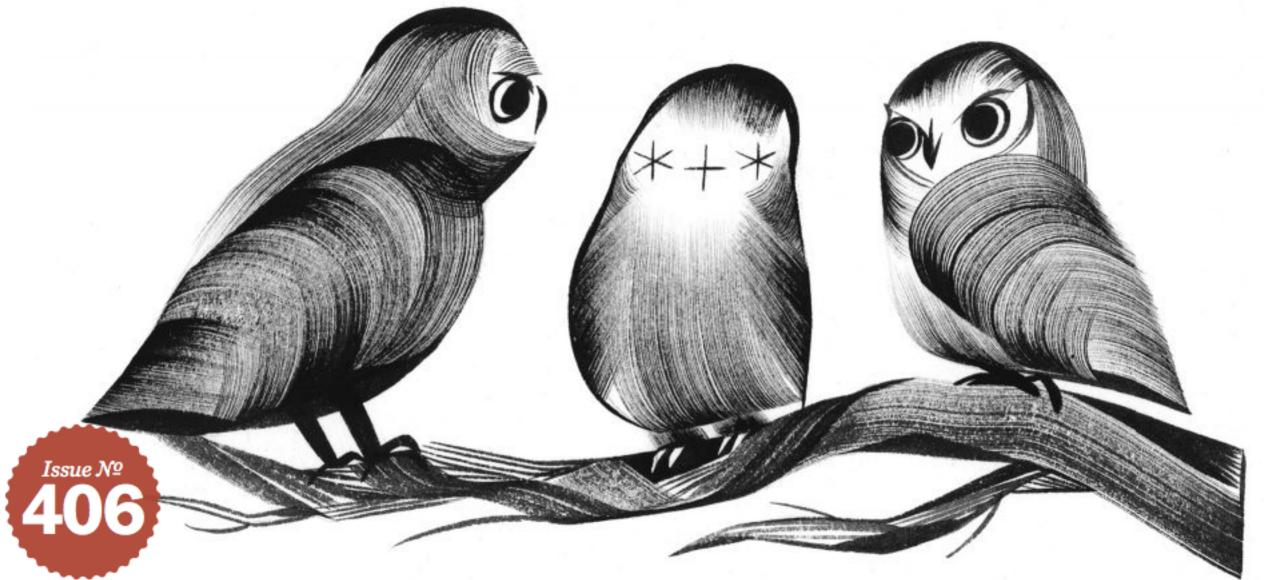
Feedback

- 1. IE7 doesn't support all pseudo classes (like :focus) or pseudo elements (like :before and :after)
- 2. : first-child fails in IE7 if the first child is a comment.
- 3. Safari 5.1 and Android browsers do not support the adjacent selector if the adjacent element is a "nav" element.
- 4. IE8-11 does not update an element's :hover status when scrolling without moving the pointer.
- 5. IE6 does not properly support combinations of pseudo classes like :link, :active and :visited



https://vimeo.com/101718785

ALIGIATAIL



Axiomatic CSS and Lobotomized Owls

by **HEYDON PICKERING** · October 21, 2014

Published in CSS, HTML · 17 Comments

http://alistapart.com/article/axiomatic-css-and-lobotomized-owls

DOM manipulation

querySelector(); querySelectorAll();

...and that is all.

 querySelector/querySelectorAll ■ - REC
 Global
 91.99% + 3.96% = 95.95%

 Method of accessing DOM elements using CSS selectors

Current aligned	Usage relative	Show all							
IE	Firefox		Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser*	Chrome for Android
			31						
			33					2.3	
			34					4	
8			35	5.1				4.1	
9	31		36	6.1		7.1		4.3	
10	32		37	7	24	8		4.4	
11	33		38	7.1	25	8.1	8	4.4.4	38
	34		39	8	26			37	
	35		40		27				
	36		41						

classList (add, remove, toggle, contains)

classList (DOMTokenList) ■ - wD Global 85.23%

Method of easily manipulating classes on elements, using the DOMTokenList object.

Current aligned L	sage relative Show	v all						
IE	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser*	Chrome for Android
		31						
		33					2.3	
		34					4	
8		35	5.1				4.1	
9	31	36	6.1		7.1		4.3	
10	32	37	7	24	8		4.4	
11	33	38	7.1	25	8.1	8	4.4.4	38
	34	39	8	26			37	
	35	40		27				
	36	41						

cow

p.dataset.sound => "moo"

dataset & data-* attributes ■ - wD Global 82.36% + 13.96% = 96.33%

Method of applying and accessing custom data to elements.

Current aligned Us	sage relative Show	w all						
IE	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
		31						
		33					2.3	
		34					4	
8		35	5.1				4.1	
9	31	36	6.1		7.1		4.3	
10	32	37	7	24	8		4.4	
11	33	38	7.1	25	8.1	8	4.4.4	38
	34	39	8	26			37	
	35	40		27				
	36	41						

DATA ATTRIBUTES ROCK - AS BOTH CSS AND JAVASCRIPT KNOW THEM

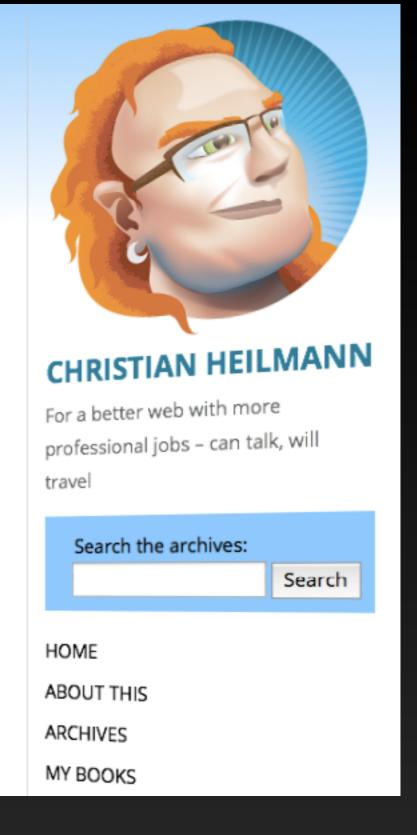
Wednesday, October 10th, 2012 at 3:06 pm

Currently my better half Kasia is working on a JavaScript training course and wanted to explain the concepts of JavaScript with a game. So we sat down and did a simple game example whilst she was fretting over the structure of the course. As she wanted to explain how to interact with the DOM in JavaScript rather than using Canvas we had some fun using CSS animation in conjunction with simple keyboard controls. More on the game in due time, but here is a quick thing we found to be extremely useful and not really used enough in the wild – the interplay of data attributes, CSS and changing states.

DEFINING A PLAYER ELEMENT

We wanted to make the game hackable, people playing with HTML could change it. That was more a request by me as Mozilla has the Webmaker project and there will be a lot of game hacking at Mozfest in November.

In order to define a player element the semantic fan in me would do something like this:

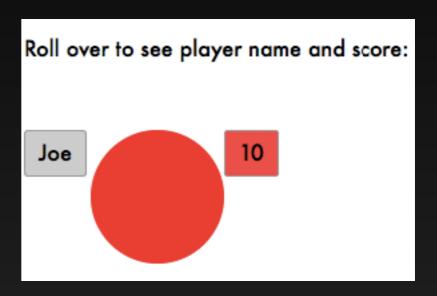


http://christianheilmann.com/2012/10/10/data-attributes-rock-as-both-css-and-javascript-know-them/

```
var player =
document.querySelector('#dataplayer');
alert('Score:' + player.dataset.score);
alert('Name:' + player.dataset.name);
player.dataset.score = 10;
alert('Score:' + player.dataset.score);
```

```
<div id="dataplayer"</pre>
     data-name="Joe"
     data-score="100">
</div>
#dataplayer[data-score='10'] {
  color: #c00;
```

```
<div id="dataplayer"</pre>
      data-name="Joe"
      data-score="100">
</div>
#dataplayer::after {
  content: attr(data-name);
  position: absolute;
  left: -50px;
#dataplayer::before {
  opacity: 0;
  content: attr(data-score);
  position: absolute;
  left: 100px;
```



MediaQueries

```
@media only screen
and (min-device-width : 320px)
and (max-device-width : 480px)
{
  ...
}
```

Support = epic

CSS3 Media Queries - REC

Global

91.99% + 0.01% = 92%

Method of applying styles based on media information. Includes things like page and device dimensions

Current aligned	Jsage relative Sh	ow all						
IE	Firefox	Chrome	Chrome 31	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
		31	Supported 31 Browser usage					
		33	Global: 0.61%				2.3	
		34					4	
8		35	5.1				4.1	
9	31	36	6.1		7.1		4.3	
10	32	37	7	24	8		4.4	
11	33	38	7.1	25	8.1	8	4.4.4	38
	34	39	8	26			37	
	35	40		27				
	36	41						

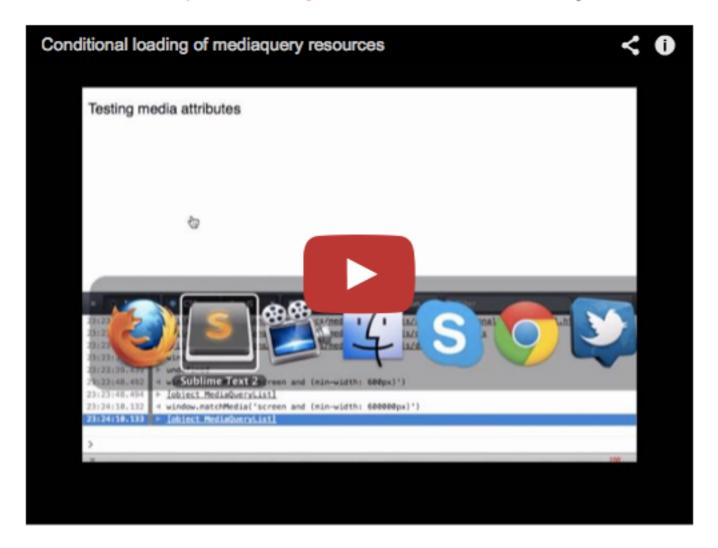
No support = opportunity!

```
@media all and (min-width:0) {
    ...
}
@media only {
    ...
}
```

CONDITIONAL LOADING OF RESOURCES WITH MEDIAQUERIES

Wednesday, December 19th, 2012 at 12:51 am

Here is a quick idea about making mediaqueries not only apply styles according to certain criteria being met, but also loading the resources needed on demand. You can check a quick and dirty screencast with the idea or just read on.



CHRISTIAN HEILMANN For a better web with more professional jobs - can talk, will trave Search the archives: Search HOME **ABOUT THIS** ARCHIVES MY BOOKS WHERE'S CHRIS? - UPCOMING SPEAKING APPOINTMENTS

VIDEOS

Mediaqueries are very very useful things. They allow us to react to the screen

http://christianheilmann.com/2012/12/19/conditional-loading-of-resources-with-mediaqueries/

Inline media queries?

```
<!DOCTYPE HTML>
<html lang="en-US">
<head>
  <meta charset="UTF-8">
  <link rel="stylesheet"</pre>
        media="screen and (min-width: 600px)"
        href="small.css">
  <link rel="stylesheet"</pre>
        media="screen and (min-width: 4000px)"
        href="big.css">
  <title>CSS files with media queries</title>
</head>
<body>
</body>
</html>
```

Gotta load them all!

```
<link rel="stylesheet"
    media="screen and (min-width: 600px)"
    href="small.css">
<link rel="stylesheet"
    media="screen and (min-width: 4000px)"
    href="big.css">
```

file:///Users/bender/Dropbox/Public/mediaqueryload/conditional-loading-fail.html

Testing media attributes

matchMedia = the JS brother

Support = meh IE?

matchMedia ■ - wd Global 84.91%

API for finding out whether or not a media query applies to the document.

Current aligned	Usage relative	Show all						
IE	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
		31						
		33					2.3	
		34					4	
8		35	5.1				4.1	
9	31	36	6.1		7.1		4.3	
10	32	37	7	24	8		4.4	
11	33	38	7.1	25	8.1	8	4.4.4	38
	34	39	8	26			37	
	35	40		27				
	36	41						

document.yougottobekiddin?

mediaQuery all the things!

```
<img data-src="http://placekitten.com/500/500"
    data-alt="kitten"
    class="mediaquerydependent"
    data-media="screen and (min-width: 600px)">
```

match and apply...

```
var qs = document.
         querySelectorAll('.mediaquerydependent'),
    all = qs.length,
    cur = null,
    attr = null;
while (all--) {
  cur = qs[all];
  if (cur.dataset.media &&
      window.matchMedia(cur.dataset.media).matches) {
    for (attr in cur.dataset) {
      if (attr !== 'media') {
        cur.setAttribute(attr, cur.dataset[attr]);
```

but JS is bad!

```
<link rel="stylesheet" class="mediaquerydependent"
href="standard.css"
data-media="screen and (min-width: 600px)"
data-href="green.css">
```

Video



Fallbacks are good!

Testable fallbacks!

```
var img = document.querySelector('img');
img.addEventListener('error',
function(ev) {
  if (this.naturalWidth === 0 &&
      this.naturalHeight === 0) {
    console.log('Image ' + this.src +
                ' not loaded');
}, false);
```

Bullet proof video?

```
<video controls>
  <source src="dynamicsearch.mp4" type="video/mp4">
  </source>
  <a href="dynamicsearch.mp4">
    <img src="dynamicsearch.jpg"</pre>
         alt="Dynamic app search in Firefox OS">
  </a>
  Click image to play a video demo of
     dynamic app search
</video>
```



Bullet proof video!

```
var v = document.querySelector('video'),
    sources = v.querySelectorAll('source'),
    lastsource = sources[sources.length-1];
lastsource.addEventListener('error', function(ev) {
    var d = document.createElement('div');
    d.innerHTML = v.innerHTML;
    v.parentNode.replaceChild(d, v);
}, false);
```

Codecs are hard;)

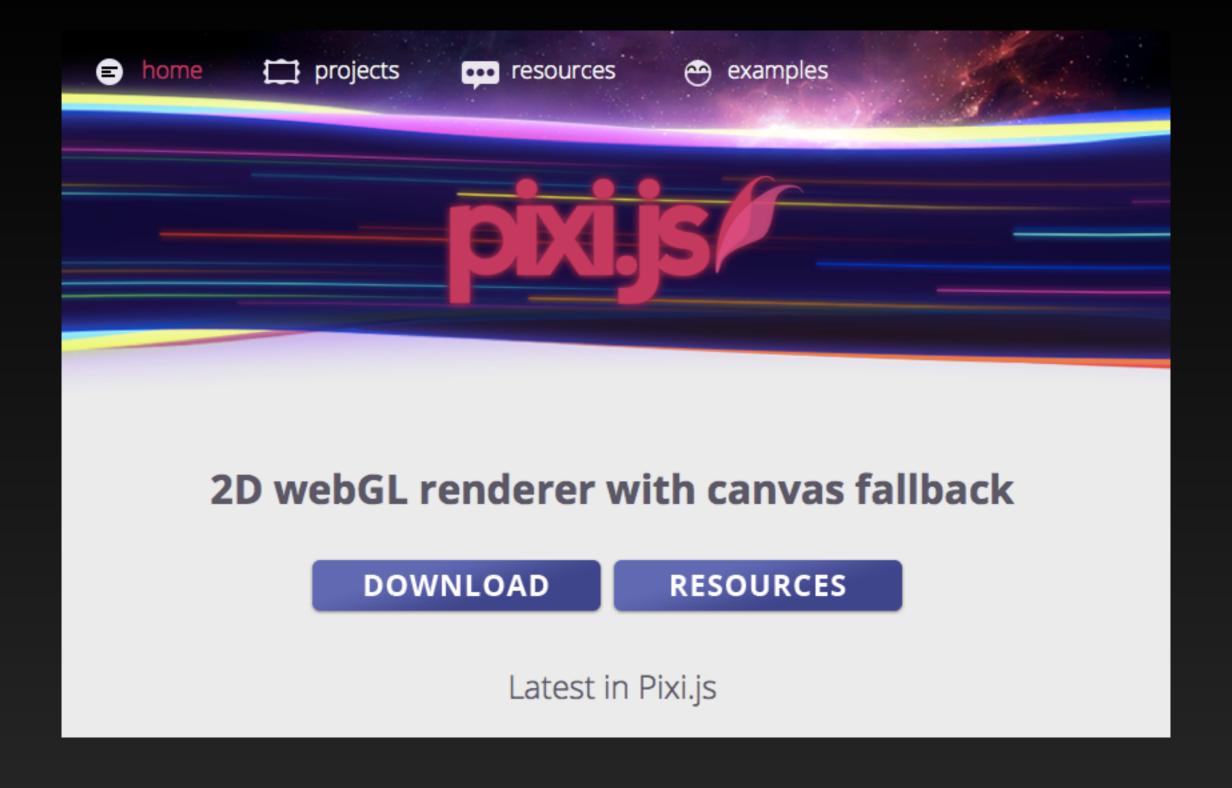
The canPlayType(type) method must return the empty string if type is a type that the user agent knows it cannot render or is the type "application/octet-stream"; it must return "probably" if the user agent is confident that the type represents a media resource that it can render if used in with this audio or video element; and it must return "maybe" otherwise.

W3C media elements spec

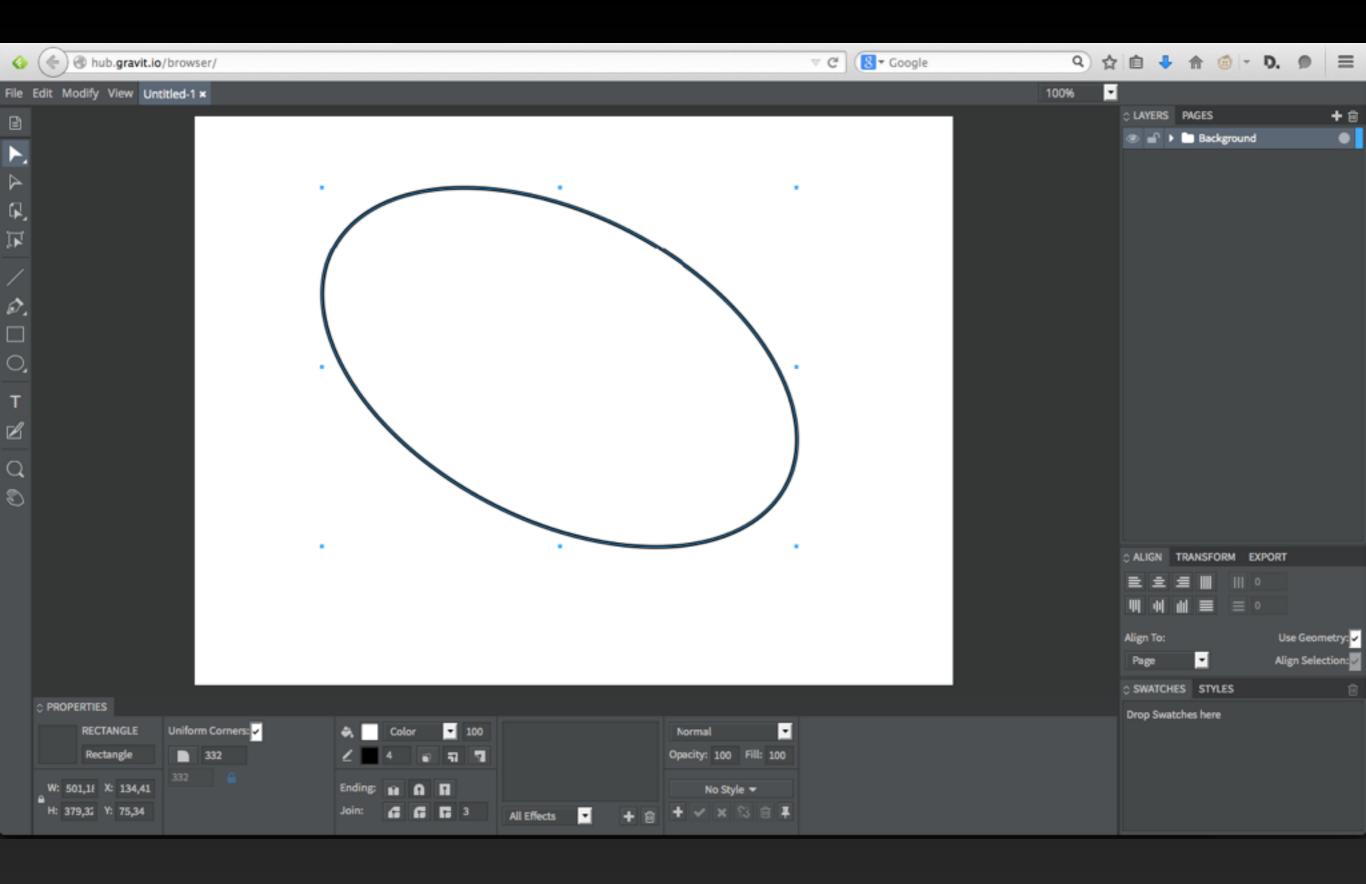
Canvas



http://phaser.io/



http://www.pixijs.com/



http://hub.gravit.io/browser/

A very basic painting API...

```
Name
beginPath()
closePath()
fill()
stroke()
clip()
moveTo(float x, float y)
lineTo(float x, float y)
quadraticCurveTo(
  float cpx, float cpy,
  float x, float y)
bezierCurveTo(
  float cp1x, float cp1y,
  float cp2x, float cp2y,
  float x, float y)
arcTo(
  float x1, float y1,
  float x2, float y2, float radius)
arc(
  float x, float y, float radius,
  float startAngle, float endAngle,
  boolean anticlockwise )
rect(float x, float y, float w, float h)
isPointInPath( float x, float y)
```



A collection of pixels!

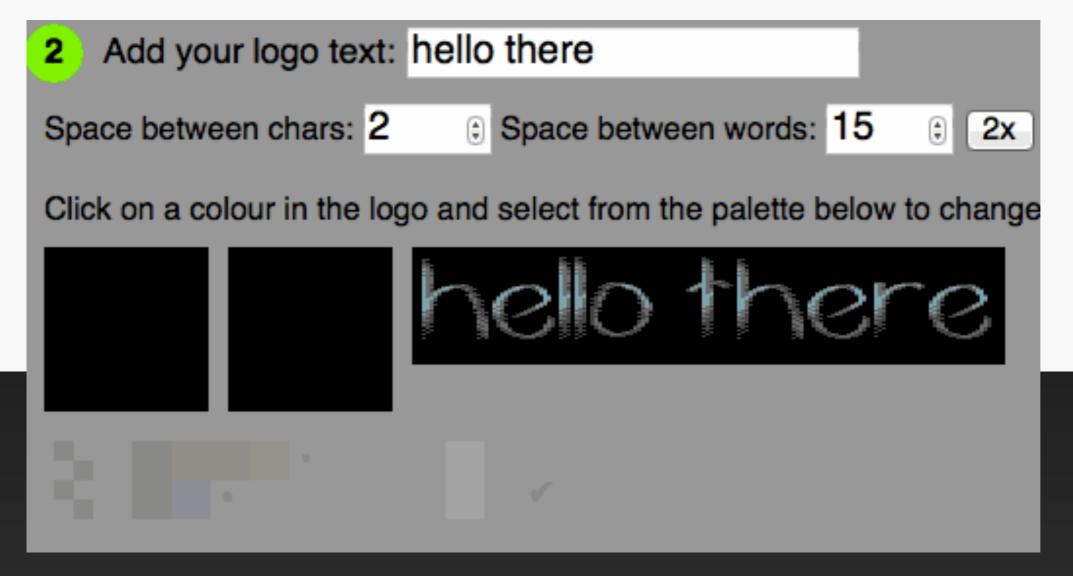


canvas and Mages and PIXELS

things I learned building an 8 bit logo generator

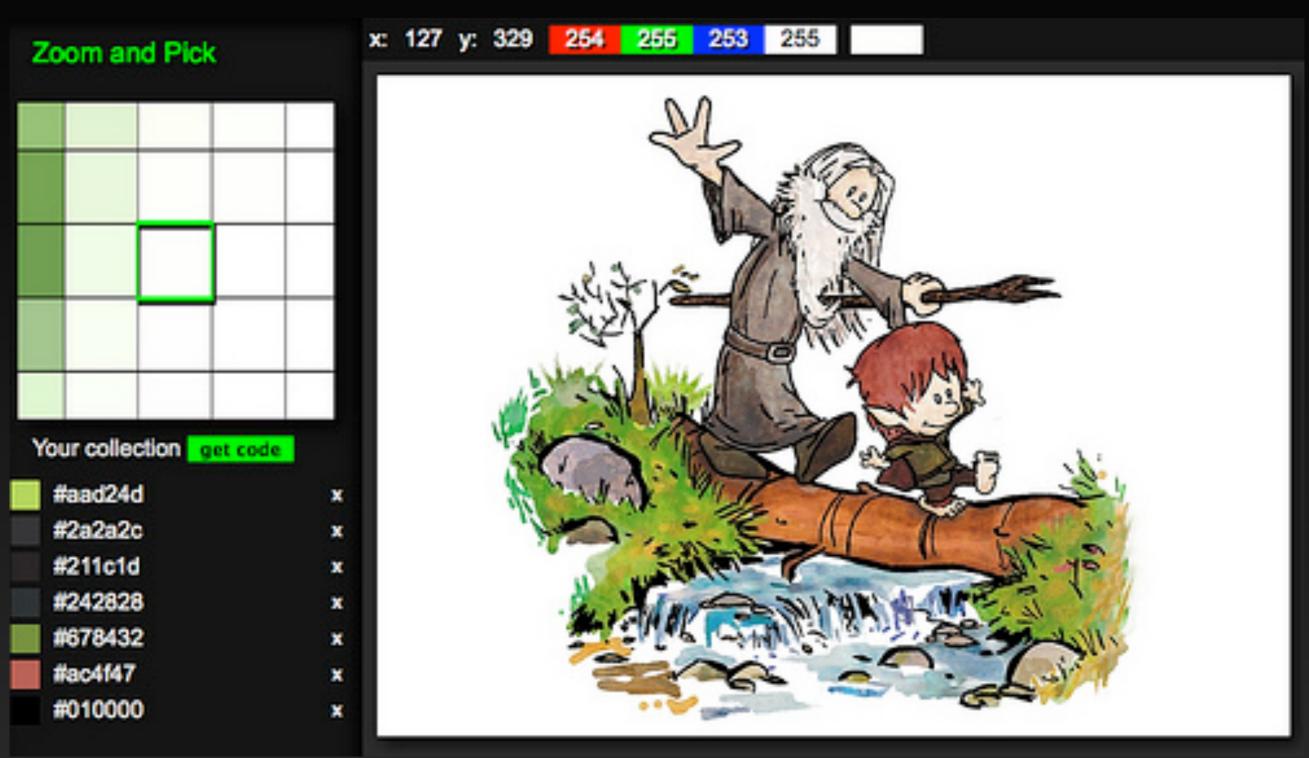
Back to pixels!

During my time off from work, I went back to one of my old passions: pixeling stuff on a Commodore 64. Many years ago (15, to be exact) I created a logo generator that allows you to put together a logo from a charset pixeled on a C64. I wrote this old version in PHP using GD and moved it to use canvas and work client-side some time ago. Now I thought it would be fun to brush this up and play with it. So I created a much more bells and whistles version. You can see the "Logo-O-Matic" online (and the source is of course available on GitHub).



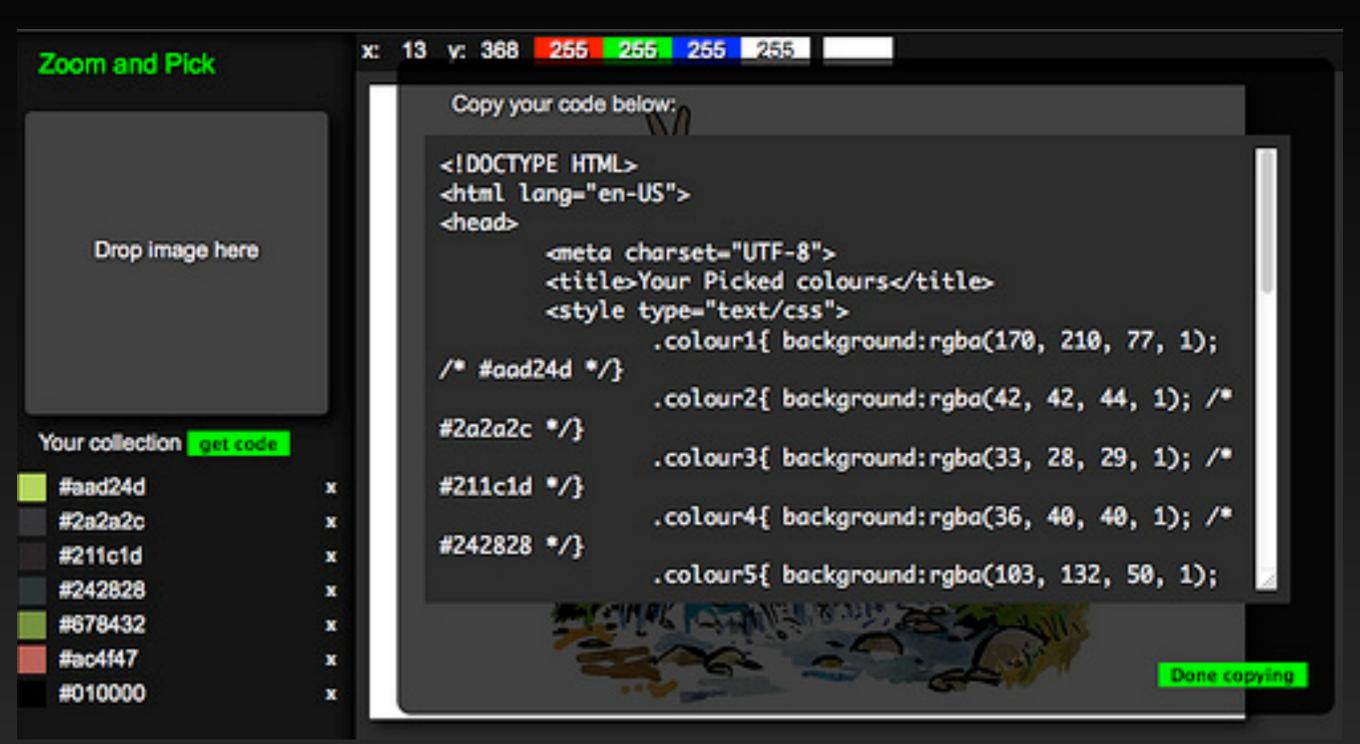
https://codepo8.github.io/canvas-images-and-pixels/

Zoom and pick...



http://thewebrocks.com/demos/zoom-and-pick/

And generate...



https://github.com/codepo8/zoom-and-pick

Canvas + FileReader =





https://www.youtube.com/watch?v=gnbLLQwZxeA

Remove personal data from photos before sharing them on the internet

Before you upload photos to the web, you might want to check if you don't give out too much information. Cameras, smartphones and other hardware does not only store the image information but also the time and date, what camera was used and possibly even the location on the planet in every image in <u>EXIF</u> data.

Using this tool you can see this data, and download an image that has all of it removed to send out.

Your photo does not get uploaded anywhere, all of this happens on your device, in your browser. It even works offline.

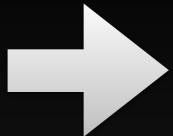
Simply browse for your photo here and you get all the information in it. Then click the "Download clean image" link to get the image with all this information stripped from it. If there is no extra data in the image, it will tell you so.

Browse... No file selected.

Written by Chris Heilmann as an add-on to my TEDx Talk about making social media more social again. Uses exif.js by Jacob Seidelin.

http://removephotodata.com





https://github.com/jseidelin/exif-js/

Make: LGE

Model: Nexus 5 XResolution: 72 YResolution: 72

ResolutionUnit: 2

YCbCrPositioning: 1 ExifIFDPointer: 134

GPSInfoIFDPointer: 462

ExposureTime: 0.009523809523809525

FNumber: 2.4

ISOSpeedRatings: 104

ExifVersion: 0220

DateTimeOriginal: 2014:10:19 17:28:22

DateTimeDigitized: 2014:10:19 17:28:22

ComponentsConfiguration: YCbCr

ShutterSpeedValue: 6.713

Aperture Value: 2.52

ExposureBias: 0

Flash: Flash did not fire

FocalLength: 3.97

FlashpixVersion: 0100

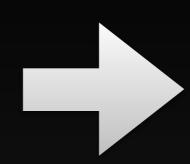
ColorSpace: 1

PixeIXDimension: 1944

PixelYDimension: 2592

InteroperabilityIFDPointer: 432







[EXIF]

```
c = document.querySelector('canvas');
cx = c.getContext('2d');
c.width = w = img.naturalHeight;
c.height = h = img.naturalWidth;
cx.drawImage(img, 0, 0, w, h);
```

<a href="' + c.toDataURL('image/jpeg', 0.9) + '" '+
 'download="' + dlname + '">Download clean image

Support = good

FileReader API ■ - WD Global 84.55%

Method of reading the contents of a File or Blob object into memory

Current aligned U	sage relative Show	v all						
IE	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
		31						
		33					2.3	
		34					4	
8		35	5.1				4.1	
9	31	36	6.1		7.1		4.3	
10	32	37	7	24	8		4.4	
11	33	38	7.1	25	8.1	8	4.4.4	38
	34	39	8	26			37	
	35	40		27				
	36	41						

Support = good

File API - wd Global 79.6% + 5.18% = 84.78%

Method of manipulating file objects in web applications client-side, as well as programmatically selecting them and accessing their data.

Current aligned	Usage relative Si	how all						
IE	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
		31						
		33					2.3	
		34					4	
8		35	5.1				4.1	
9	31	36	6.1		7.1		4.3	
10	32	37	7	24	8		4.4	
11	33	38	7.1	25	8.1	8	4.4.4	38
	34	39	8	26			37	
	35	40		27				
	36	41						

Support = eek

Download attribute - wd Global 55.59% When used on an anchor, this attribute signifies that the resource it points to should be downloaded by the browser rather than navigate to it. Usage relative Show all Chrome for ΙE Firefox Opera Mini * Android Browser * Safari Opera iOS Safari * Chrome Android 31 2.3 33 34 4 35 5.1 8 4.1 9 31 6.1 36 7.1 4.3 32 37 24 10 4.4 11 25 38 33 38 7.1 8.1 8 4.4.4

https://github.com/eligrey/FileSaver.js

26

27

37

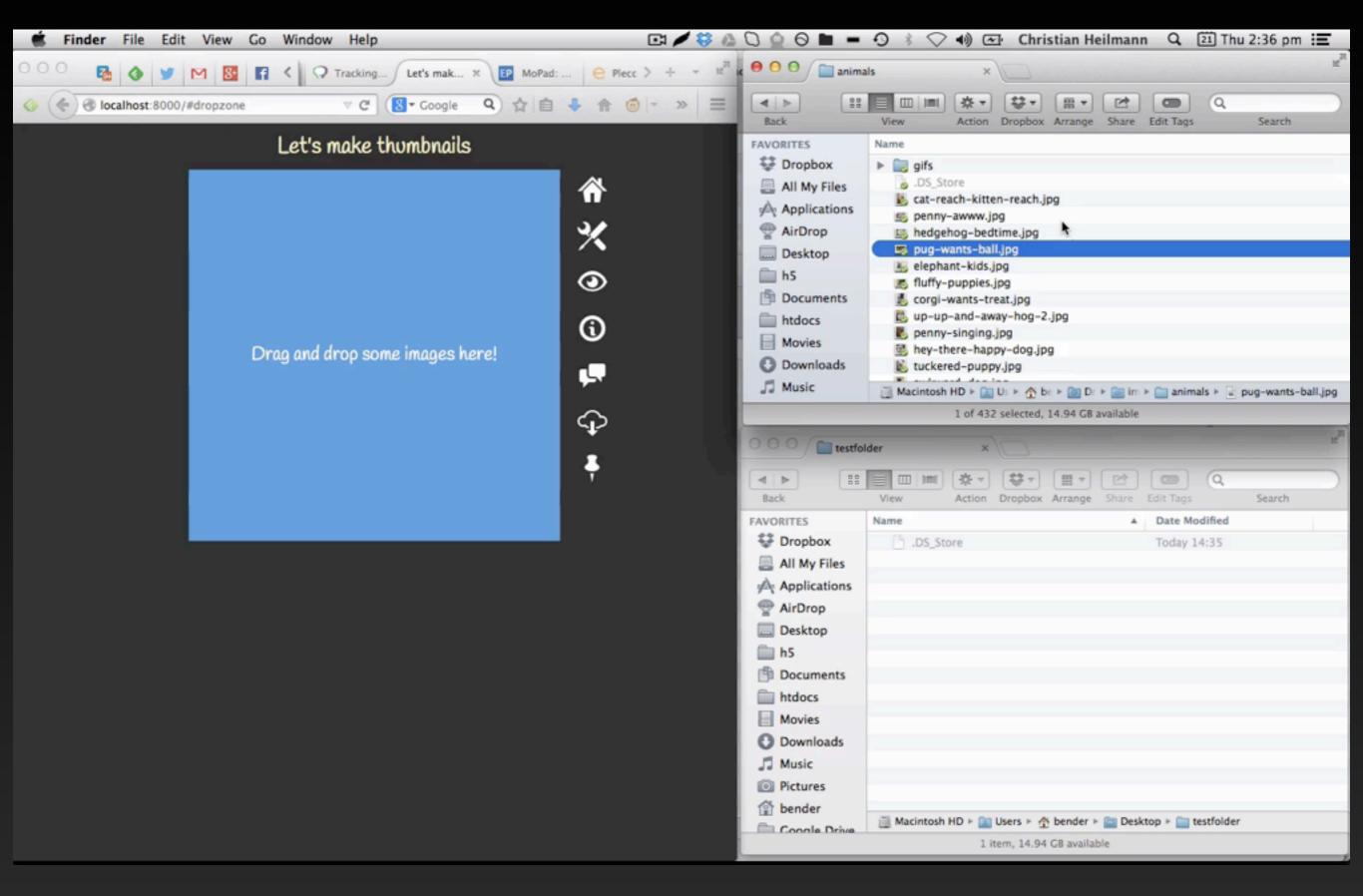
8

34

35

39

40



http://makethumbnails.com

http://stuk.github.io/jszip/

JavaScript evolution...

Fun with arrays...

COLIN BLOG

5 Array Methods That You Should Be Using Now

Array "Extras" no more

October 1, 2014

٠

When ECMAScript 5 was published in 3rd Dec' 2009, it brought in additional new set of Array methods that seeks to improve upon the existing one. However, these newfangled array methods did not really catch on as the lack of browser support for ES5 at that time kept developers away.

http://colintoh.com/blog/5-array-methods-that-you-should-use-today

Fun with arrays...

- index0f() returns the first index at which a given element can be found in the array, or -1 if it is not present.
- filter() creates a new array with all elements that pass the test of a provided function
- forEach() executes a provided function once per array element.

Fun with arrays...

map() creates a new array with the results of calling a function on every element in this array.

reduce() applies a function against an accumulator and each value of the array (from left-to-right) has to reduce it to a single value.

Template strings

HOME TUTORIALS UPDATES CONTRIBUTE SLIDES RESOURCES



Getting Literal With ES6 Template Strings



By Addy Osmani

Published: January 20, 2015 Updated: January 20, 2015

Comments: 7

Strings in JavaScript have been historically limited, lacking the capabilities one might expect coming from languages like Python or Ruby. ES6 <u>Template Strings</u> (available in Chrome 41+), fundamentally change that. They introduce a way to define strings with domain-specific languages (DSLs), bringing better:

http://updates.html5rocks.com/2015/01/ES6-Template-Strings

String substitution...

```
var a = 10;
var b = 10;
console.log(`JavaScript first appeared
${a+b} years ago. Crazy!`);
//=> JavaScript first appeared 20 years
ago. Crazy!
console.log(`The number of JS MVC
frameworks is \{2 * (a + b)\} and not
\{10 * (a + b)\}.`);
//=> The number of JS frameworks is 40
and not 2000.
```

Function and data access...

```
function fn() {
  return 42;
console.log(`Meaning of life: ${fn()}`);
//=> Meaning of life: 42
var author = {name: 'Douglas Adams'};
console.log(`I really enjoy,
${user.name.toUpperCase()}.`);
```

Multiline strings!

```
var greeting = "Hello \
World";
var greeting = "Hello" +
"World";
console.log(`you just
made the first step
into a larger
World!`);
```

More tomorrow!

Jfokus

SPEAKERS TALKS SCHEDULE TRAINING VM SUMMIT

Schedule Wednesday

11.10-12.00

Presentation: What's next for JavaScript? - ECMAScript6 and beyond Florian Scholz, Mozilla

The modern web needs a better programming language and at the same time, there is no way the current one could break existing code on the web. The ECMAScript 6 / harmony project solves this problem and specifies compatible, major updates to JavaScript -- the language of the web. A ratified standard of the already feature-frozen ES6 will be published in mid 2015. All modern engines are working on implementing it. This talk looks at what features are coming for JavaScript with ES6 and what is in the makes after that.

Room C1

What's next for
JavaScript? ECMAScript6 and
beyond
Florian Scholz,
Mozilla

<tag>You're it!



Share, find, re-use...







Thank you!

Chris Heilmann

christianheilmann.com @codepo8



