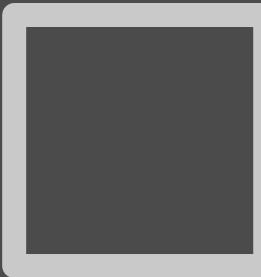
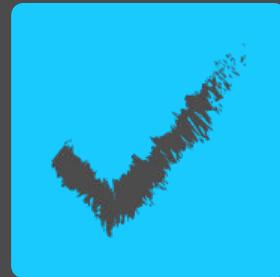
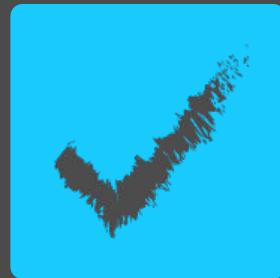
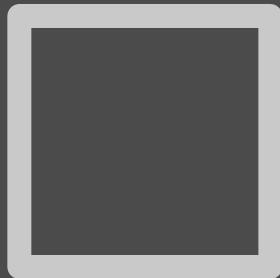


Designing for Inclusion with Media Queries

Boston CSS August 16, 2017





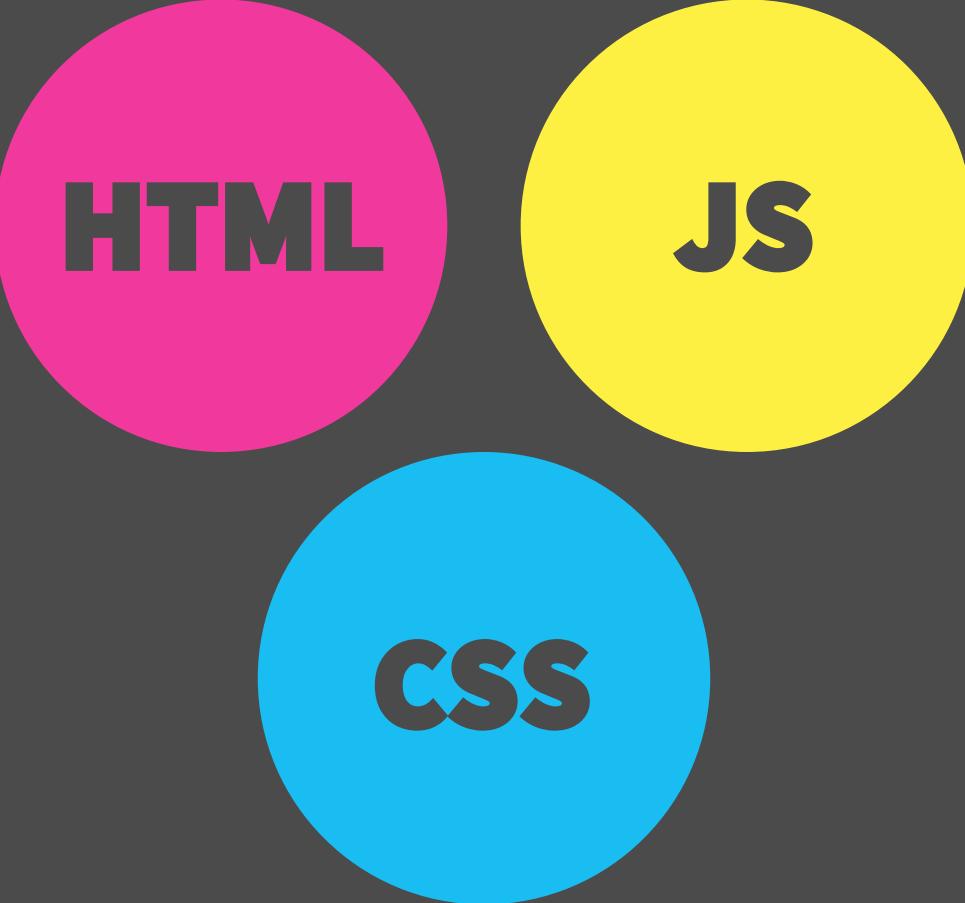


Level setting



What is the web?

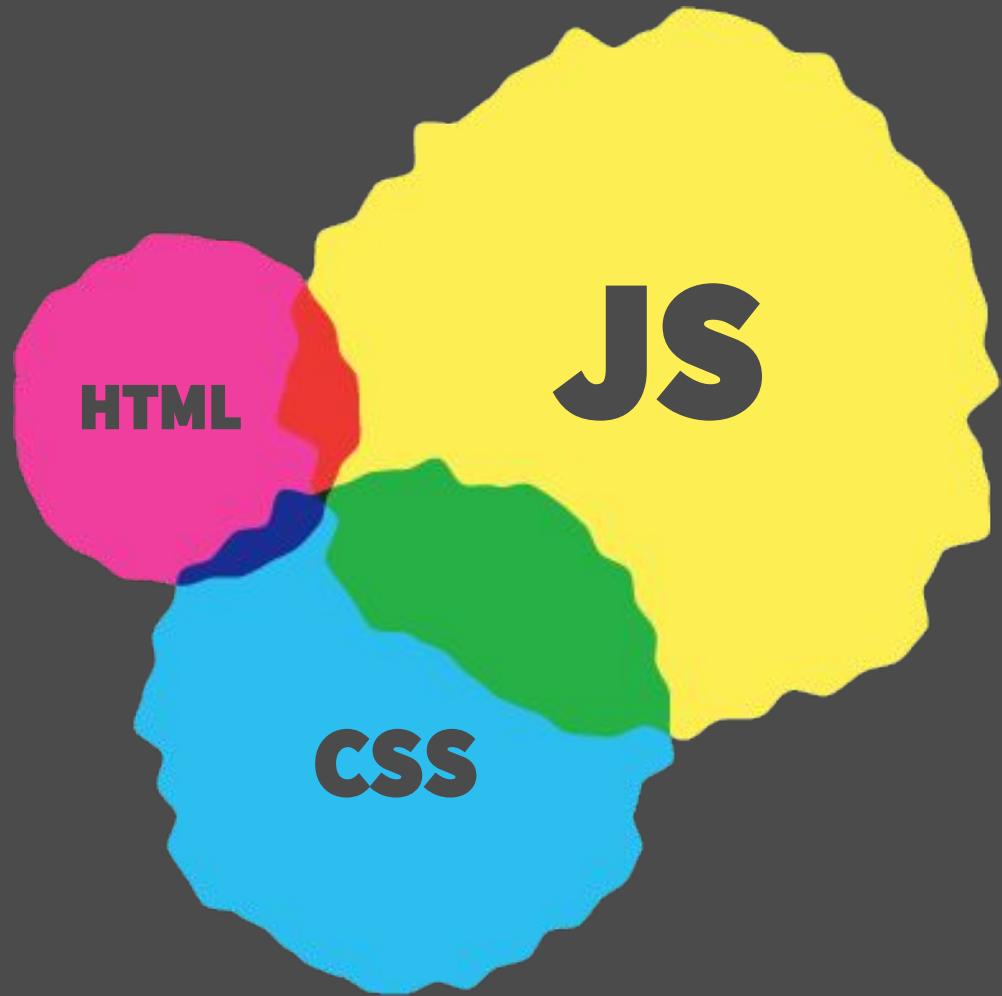




HTML

JS

CSS



HTML

describes meaning

JavaScript

adds behavior

A large, bold, dark gray logo of the letters "css" is centered on a bright blue background. The letters are slightly rounded and have a thick, sans-serif font. A thin, horizontal cyan line passes through the middle of the letters, intersecting the "c", "s", and "s".

css

creates priority

What is compliance?



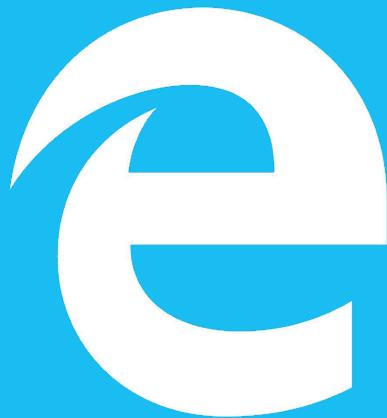
**Responsive Design is adapting
design to an unknown browser.**

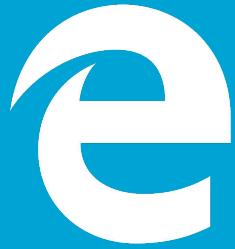
**You don't make an assumption
about where it will be accessed.**

**Inclusive Design is adapting
design to an unknown user.**

**You don't make an assumption
about who will use it.**

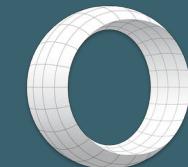
What is a browser?

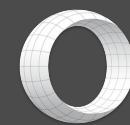


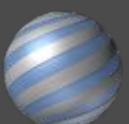
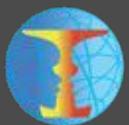


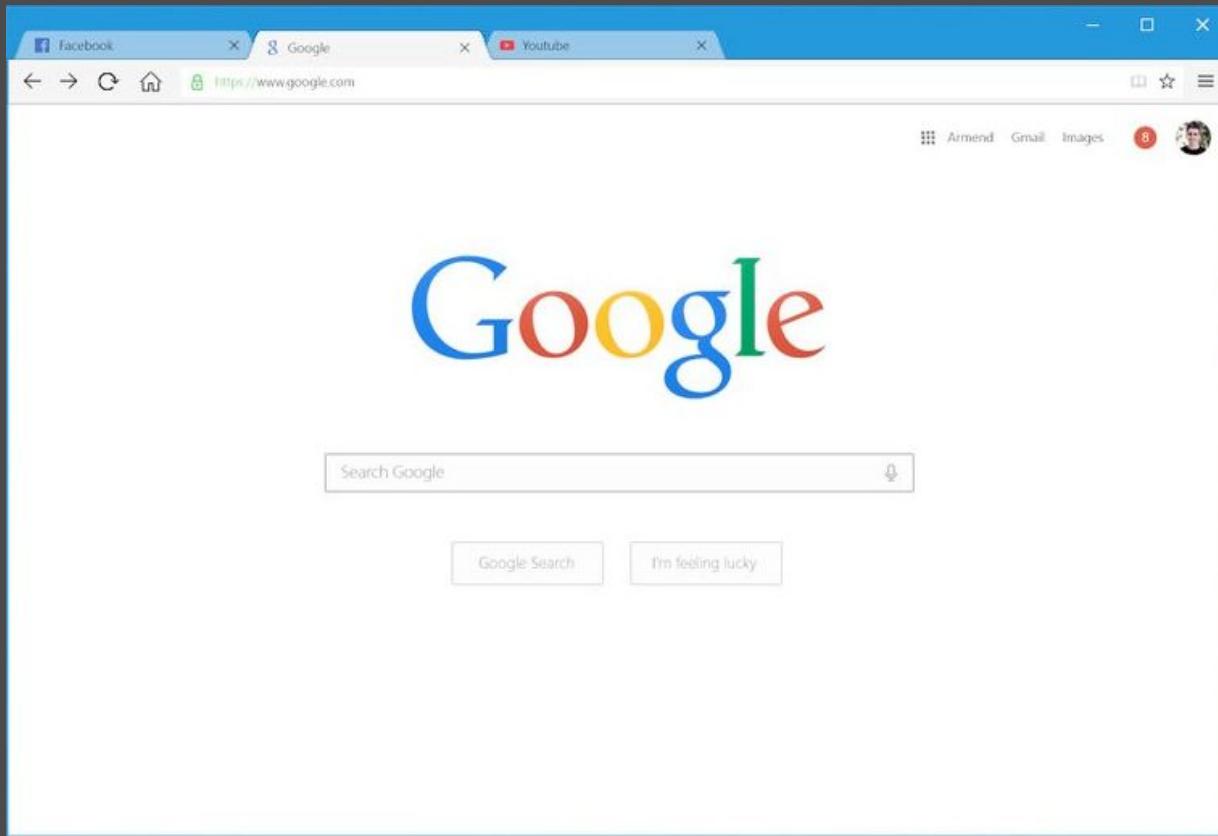


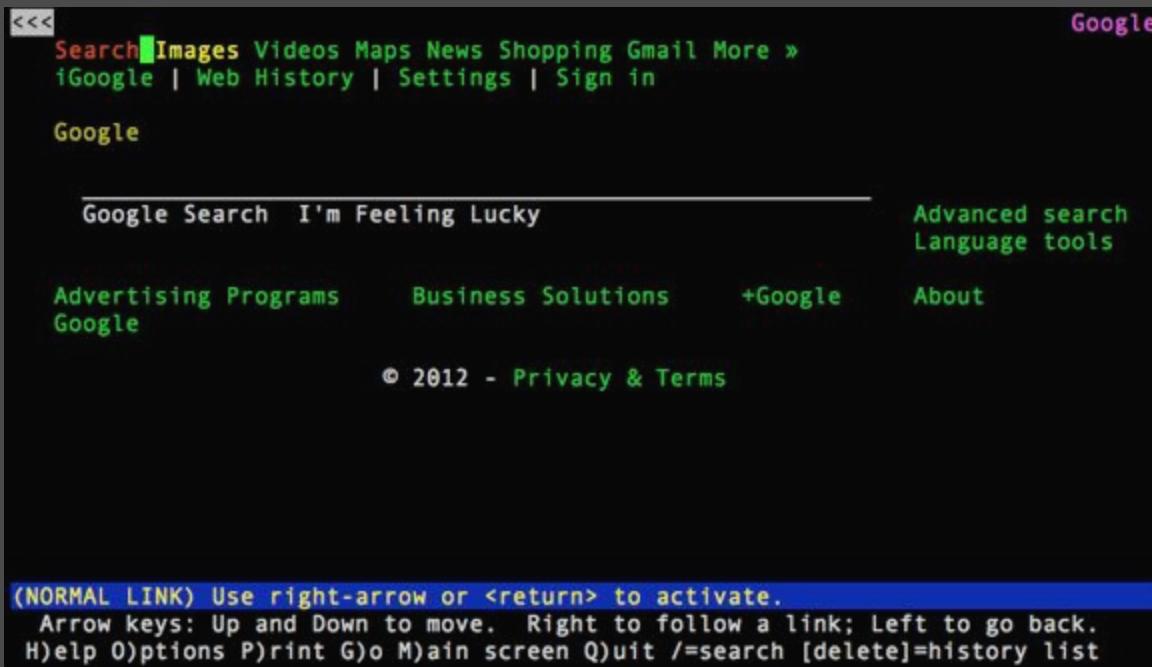


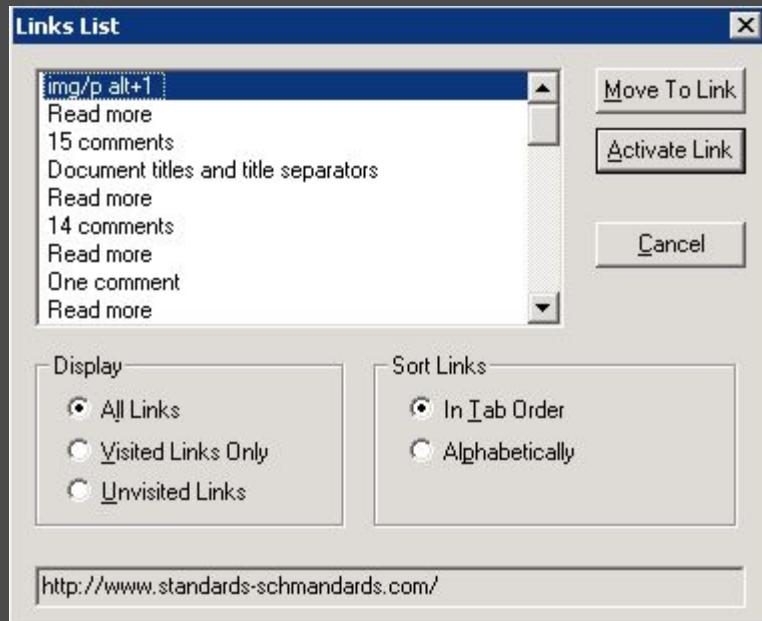


















kindle

Intercontinental ballistic missile - Wikipedia,... 10:20
http://en.wikipedia.org... C Menü

Intercontinental Ballistic Missile - Wikipedia, The Free Encyclopedia



An intercontinental ballistic missile (ICBM) is a [ballistic missile](#) with a long range (greater than 5,500 km or 3,500 miles) typically designed for nuclear weapons delivery (delivering one or more nuclear warheads). Most modern designs support multiple independently targetable reentry vehicles (MIRVs), allowing a single missile









How does CSS fit in?

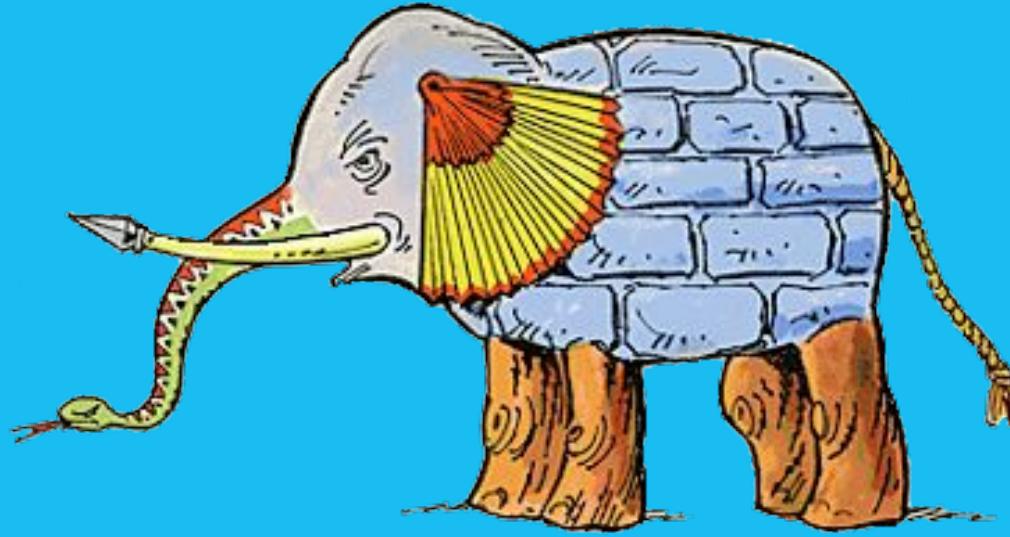


Micah Godbolt

@micahgodbolt

Writing the correct CSS once is pretty easy.
Making that CSS work in all situations, and for
all people is the hard part.

7:27 PM - 15 May 2017



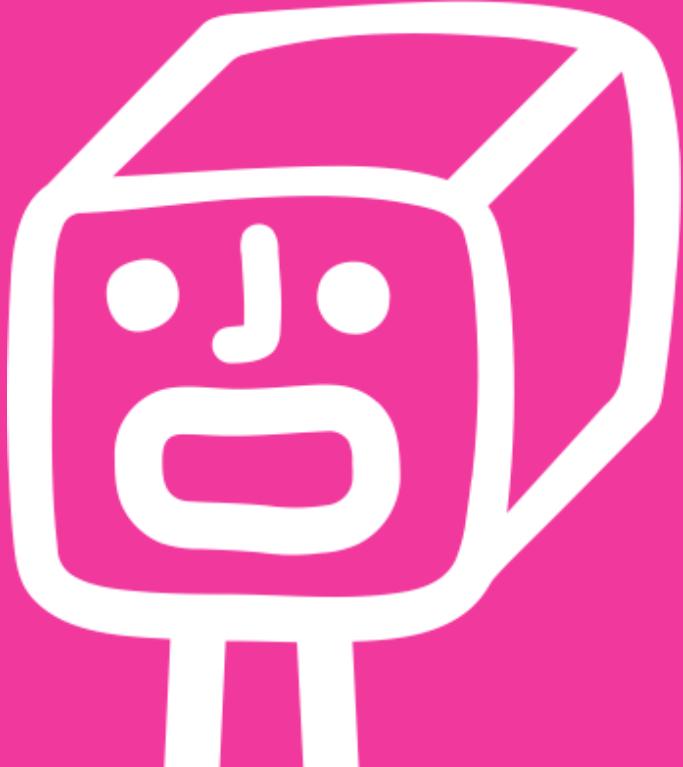
Media Queries describe meaning in context

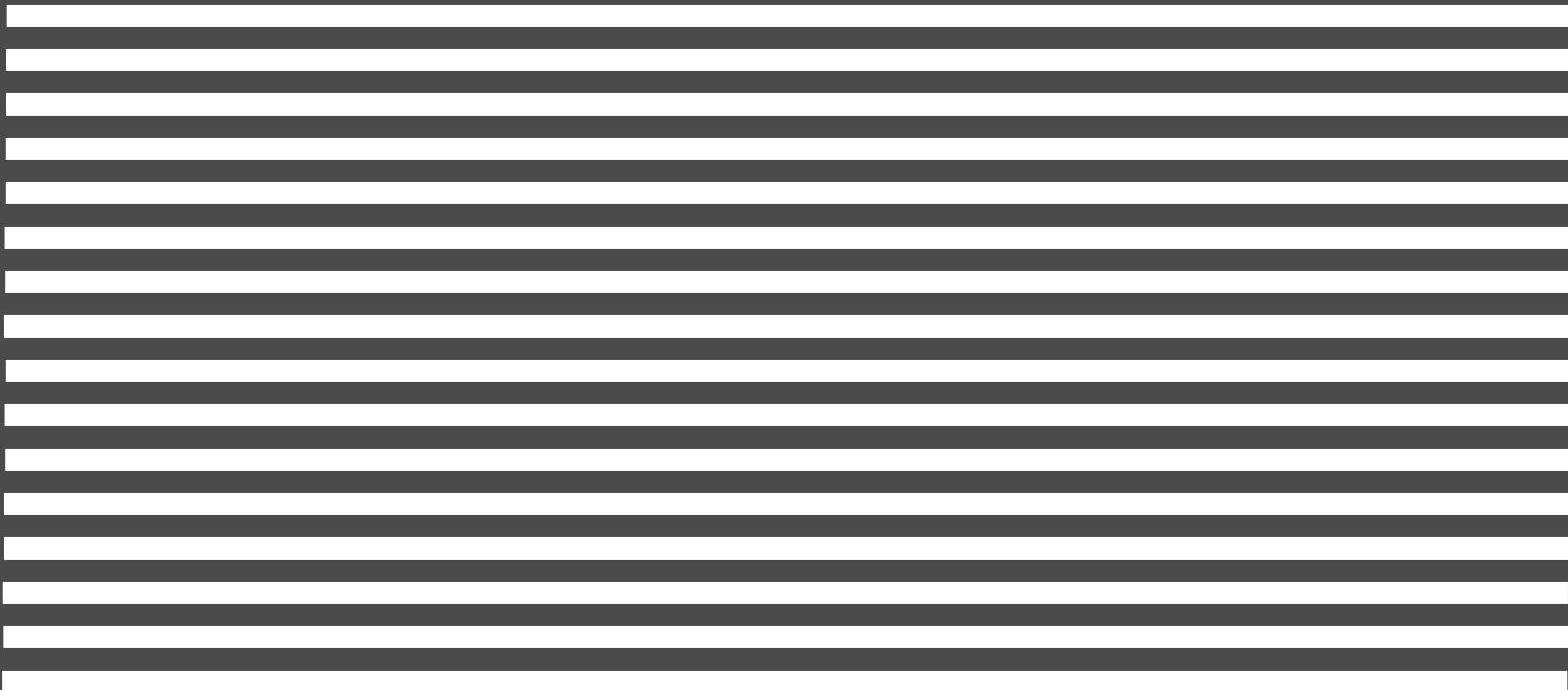
The basics



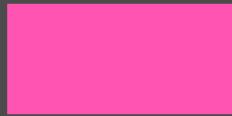
**The absence of
support for media
queries is in fact the
first media query.**

—Bryan Rieger

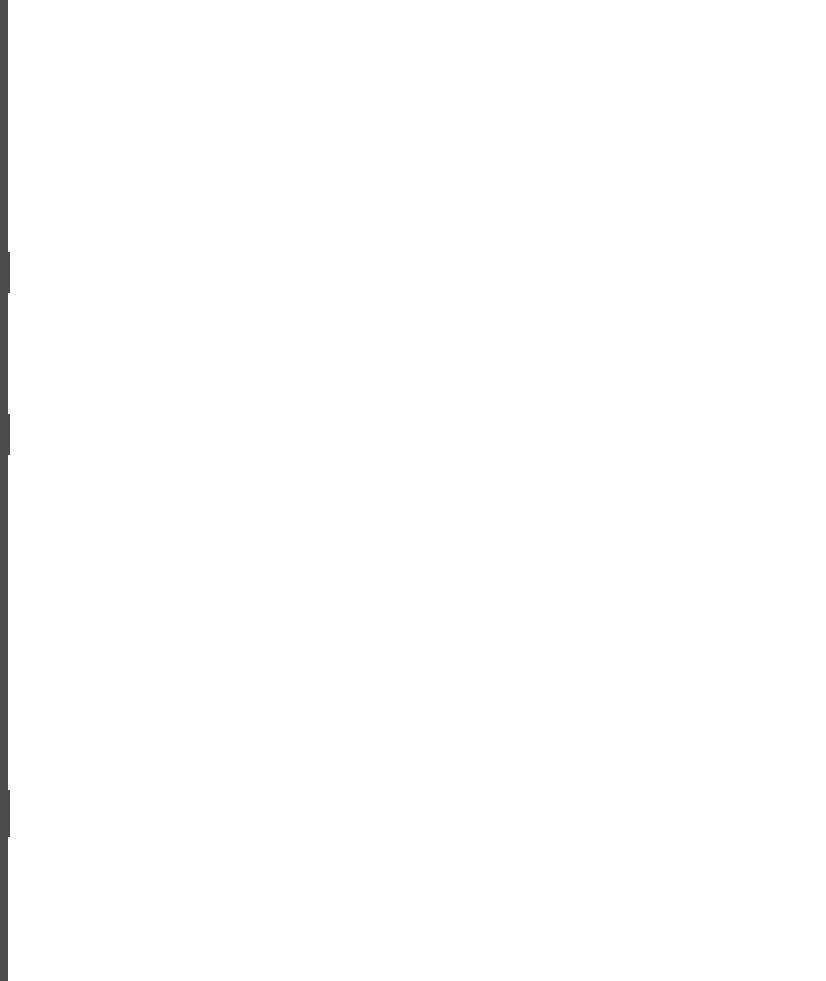


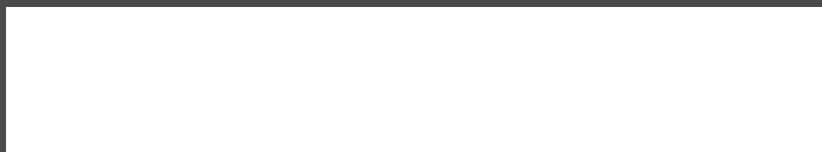
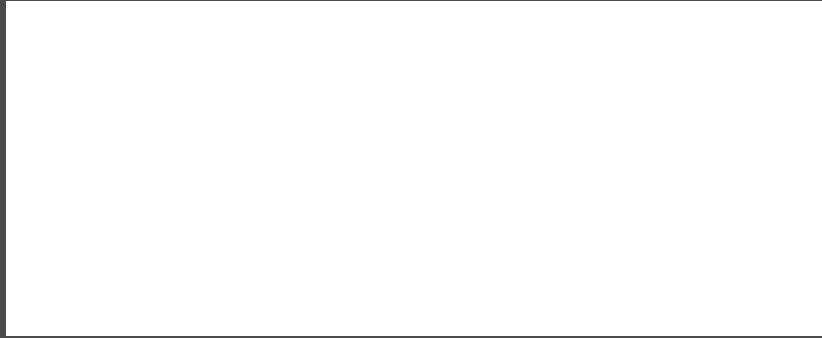








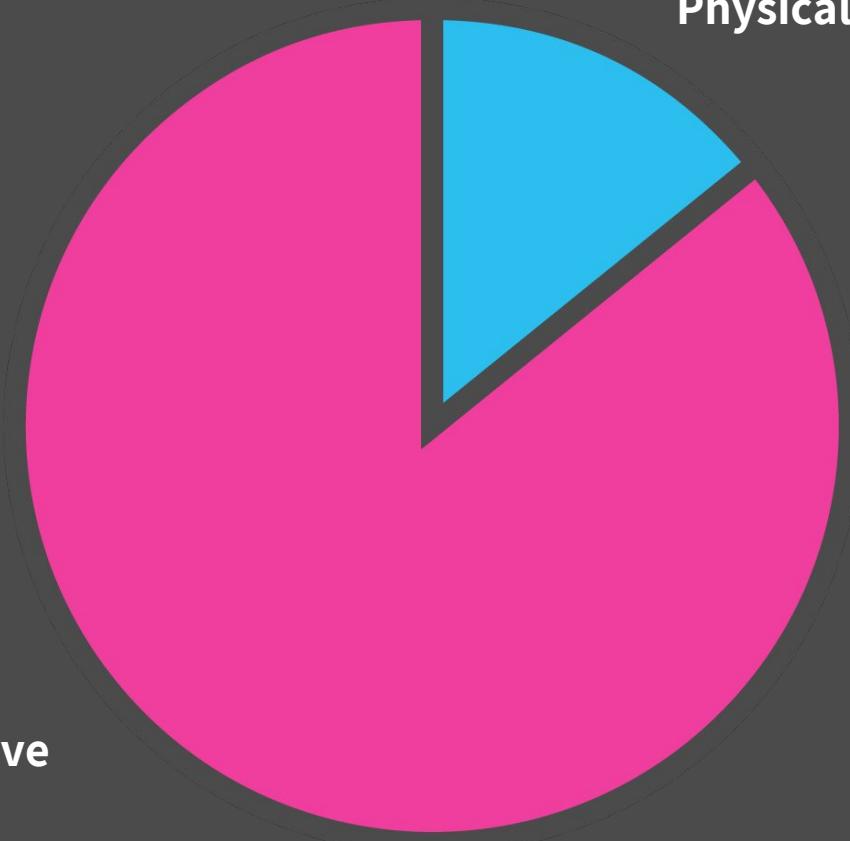




Disabilities

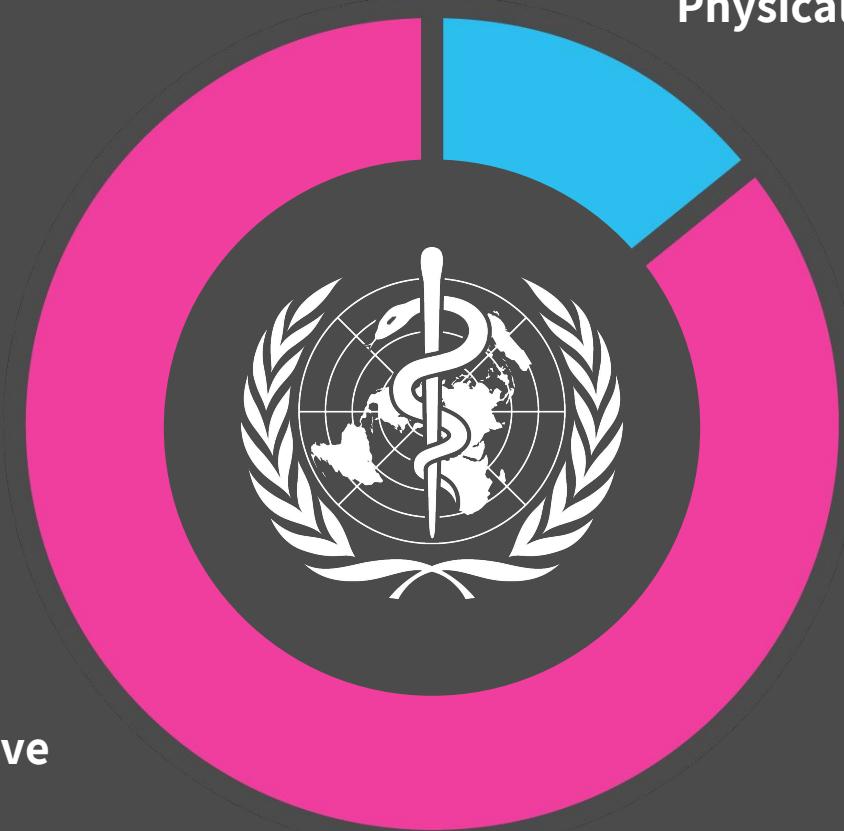
Physical

Cognitive



Physical

Cognitive



When any device's viewport reaches a minimum width of 30ems, do the following:

Media Rule keyword



```
@media (min-width: 30em) { ... }
```



Media Feature



Selectors and
declarations

Media Rule keyword



@media (min-width: 30em) { ... }



Media Feature

Why ems?



Selectors and
declarations

When a device with a
screen's viewport reaches a
minimum width of 30ems,
do the following:

Media Rule keyword



@media

Media Type



screen

and (min-width: 30em) { ... }



Media Feature



Selectors and
declarations

all	All media type devices
aural	Speech and sound synthesizers
braille	Braille tactile feedback devices
embossed	Paged braille printers
handheld	Small or handheld devices
print	Printers
projection	Projected presentations
screen	Computer screens
speech	Speech synthesizers
tty	Teletypes and terminals
tv	Television-type devices

- ✓ **all** All media type devices
- ✗ **aural** Speech and sound synthesizers
- ✗ **braille** Braille tactile feedback devices
- ✗ **embossed** Paged braille printers
- ✗ **handheld** Small or handheld devices
- ✓ **print** Printers
- ✗ **projection** Projected presentations
- ✓ **screen** Computer screens
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- ✗ **tty** Teletypes and terminals
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- speech** Speech synthesizers
- tty** Teletypes and terminals
- tv** Television-type devices

A close-up photograph of a woman with voluminous, wavy red hair. She is smiling warmly at the camera. She is wearing a light-colored, patterned jacket over a collared shirt. The background is a dimly lit bar or restaurant interior, with shelves of bottles and a neon sign that partially reads "JEWEL" in the upper right corner.

width and
height

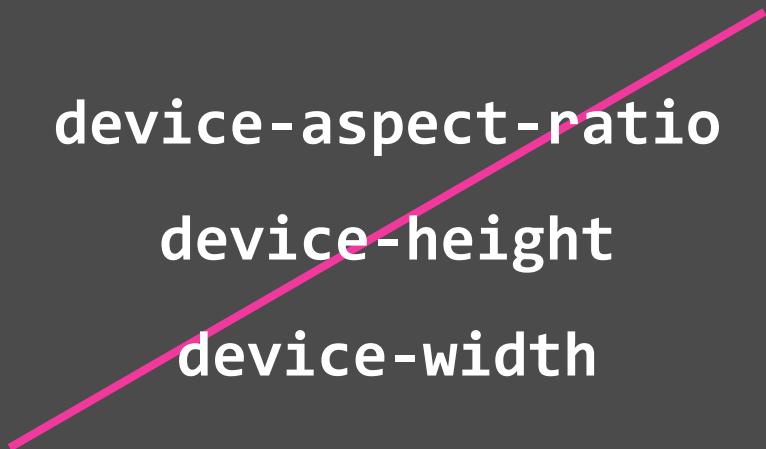
height	Height of the target media
width	Width of the target media
aspect-ratio	Ratio between the viewport's height and width
color	The presence of color
color-index	Number of entries in the color look-up table
grid	The device is a grid device (TTY terminal, etc.)
monochrome	Uses shades of a single color
orientation	Landscape or portrait
resolution	Display density (DPI, DPCM, etc.)
scan	Type of scanning process (ex: progressive)

Deprecated

`device-aspect-ratio`

`device-height`

`device-width`



Logic



if



```
@media (min-width: 30em) { ... }
```

and

@media

screen

→ and (min-height: 20em)
and (min-width: 30em) { ... }

or

```
@media  
  (max-width: 10em), ↴  
  (min-width: 20em) { ... }
```

not

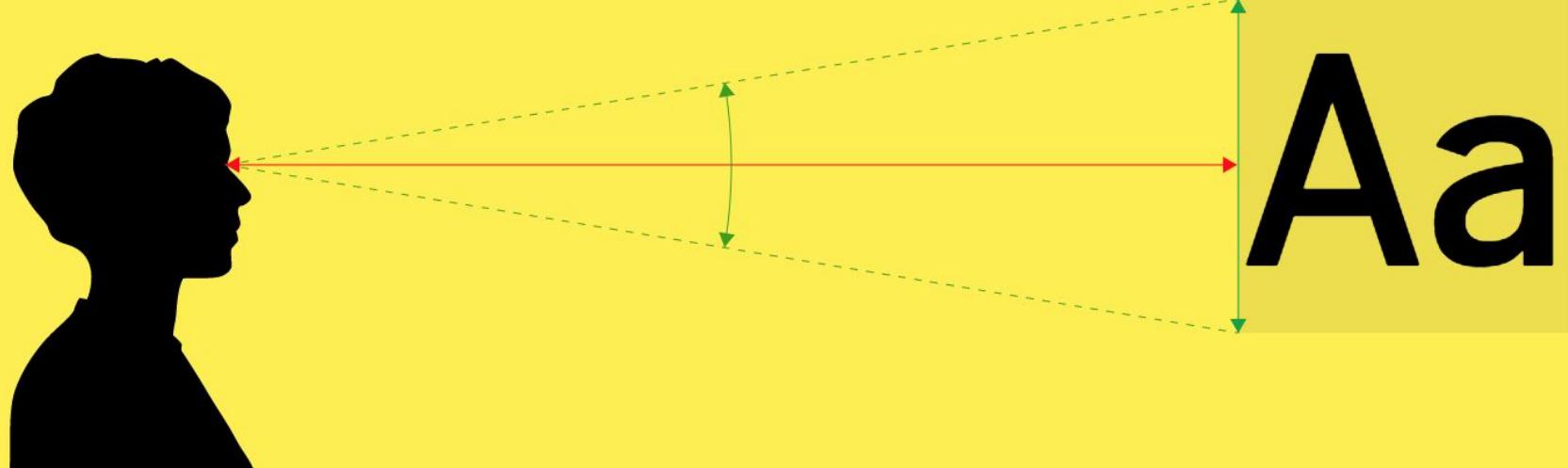
`@media`

→ `not monochrome`
`and (max-width: 10em) { ... }`

```
.theme-background {  
  background: linear-gradient(to bottom, #FF9900 0%, #FFFFFF 100%);  
}  
  
@media (grid) {  
  .theme-background {  
    img {  
      display: none;  
    }  
  }  
}
```

```
@media  
print,  
monochrome {  
  .theme-background {  
    background: transparent;  
  }  
}
```

Using them



Don't go overboard

Treat layout as an enhancement

Let content determine breakpoints



```
.c-component {  
  color: #000000;  
}  
}
```

```
@supports (background-blend-mode: multiply) {  
  .c-component {  
    color: #FFFFFF;  
  }  
}
```



2 0 1 5

Year in Music

Relive the moments and the music that made 2015 one to remember.

[GET YOUR YEAR IN MUSIC](#)

- OR -

[CONTINUE WITHOUT LOGGING IN](#)

USA

Legal

Cookies

© 2007 - 2015 Spotify AB



GET YOUR YEAR IN MUSIC

```
.c-component {  
  background: linear-gradient(to bottom, #FF9900 0%, #FFFFFF 100%);  
  display: block;  
  
  @supports (display: flex) {  
    display: flex;  
  }  
  
  @media (grid) {  
    img {  
      display: none;  
    }  
  }  
  
  @media  
    print, monochrome {  
    background: transparent;  
  }  
}
```

```
.c-component {  
background: linear-gradient(to b  
display: block;
```



SCSS

Sass



CSS



CSS

```
supports (display: flex) {  
display: flex;
```

```
@media (grid) {  
img {  
display: none;
```

SCSS

media

```
print, monochrome {  
background: transparent;
```

SCSS

J

The Obscure Stuff



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Member FDIC. For more information, visit [jdpower.com](#)

ROCKLAND
TRUST
BANK

Expand



PAT GREENHOUSE/GLOBE STAFF

DAVID EPSTEIN

Will Memorial Day weekend be a total washout this year?

Flight delays rise as Logan Airport rebuilds a runway

The number of delayed flights into and out of Logan airport increased substantially in the past week after one of the main runways was shut.



United States Drivers Born Between 1936 and 1966 Should Check This Out EVERQUOTE



Former Wayland athletic director files legal complaint

Confidential tips →

Menu

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Metro Sports Business & Tech Opinion Politics Lifestyle Arts Cars Real Estate



Shaun Finglas

@ShaunFinglas

Expand

Protip - max brightness and high contrast mode enabled allows you to use your laptop in the garden. Looks ugly but functional.

9:03 AM - 28 May 2017

DAVID EPSTEIN

Will Memorial Day weekend be a total washout this year?

PAT GREENHOUSE/GLOBE STAFF

out of Logan airport increased substantially in the past week after one of the main runways was shut.



Former Wayland athletic director files discrimination complaint

United States Drivers Born Between 1936 and 1966 Should Check This Out EVERQUOTE

Confidential tips →



```
button svg {  
    fill: #B8E986;  
}  
  
@media (-ms-high-contrast: active) {  
    button svg {  
        fill: buttonFace;  
    }  
}
```

Text **windowText**

Links **<a>**

Selected text **highlightText & highlight**

Button label **buttonFace**

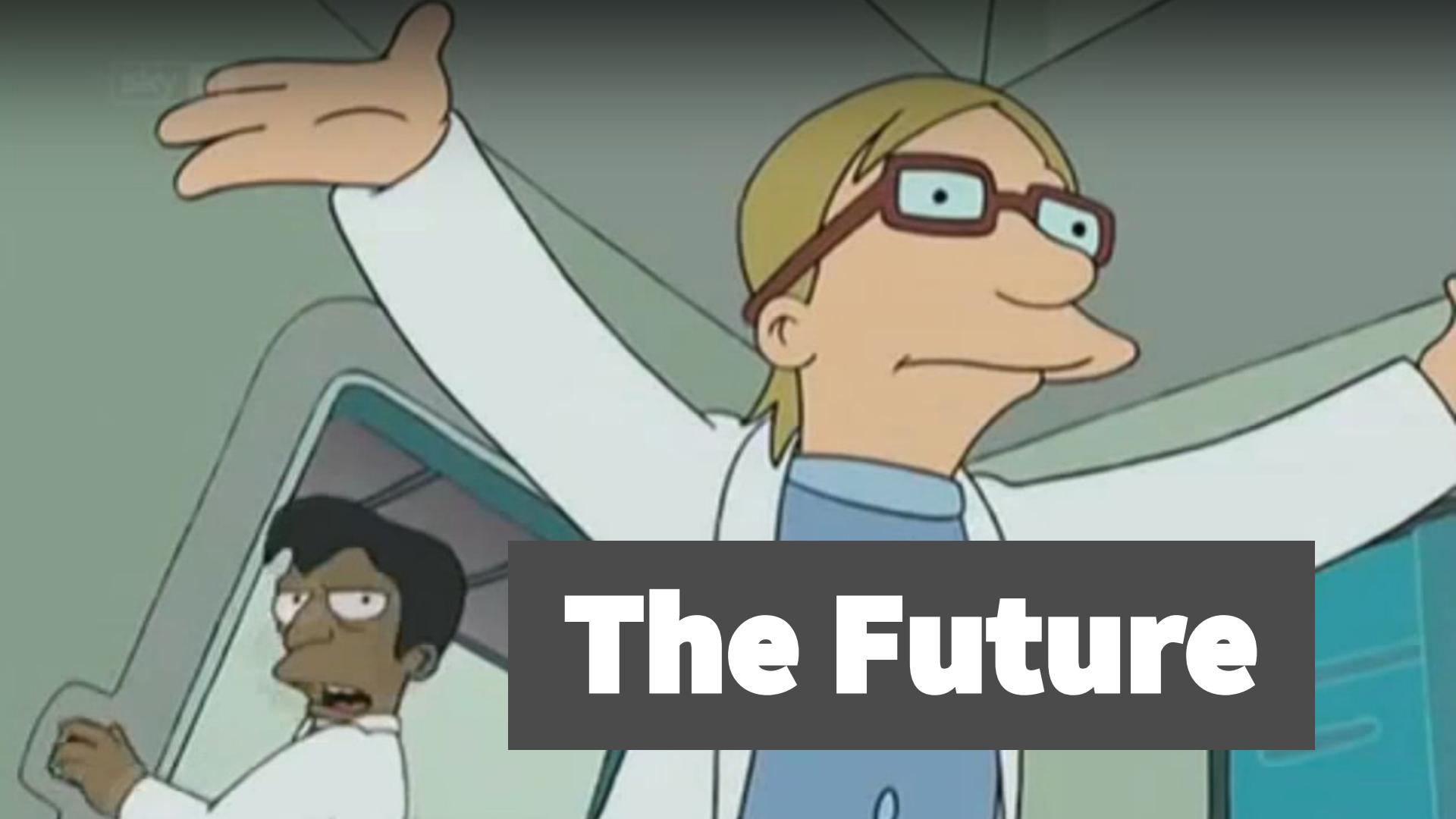
Background **window**

**Reduced
Motion**



```
.background {  
    animation-name: zoom-and-pan;  
}  
  
@media (prefers-reduced-motion) {  
    .background {  
        animation: none;  
    }  
}
```



A cartoon scene from the TV show Futurama. In the foreground, a dark-skinned man with a mustache, wearing a white lab coat, looks shocked or worried. Behind him, a man with blonde hair and glasses, also in a white lab coat, has his arms raised in a gesture of excitement or triumph. They appear to be inside a futuristic flying vehicle with large green wings.

The Future

Color Gamut

A composite image. On the left, a close-up view of a robotic hand with fingers and a thumb, wearing a tan protective glove. The glove has a white label with the letters 'S' and 'NADATEC' printed on it. The hand is interacting with a small, white, rectangular object, possibly a component or a tool. On the right, a medium shot of a young man with dark hair, wearing a dark suit jacket over a white shirt. He is looking towards the camera with a neutral expression.

interaction

```
/* A pointing device with limited accuracy */  
@media (pointer: coarse) { ... }
```

```
/* An accurate pointing device */  
@media (pointer: fine) { ... }
```

```
/* No pointing device */  
@media (pointer: none) { ... }
```

/* A pointing device
@media (pointer:

*/

/* An accurate pointer
@media (pointer:

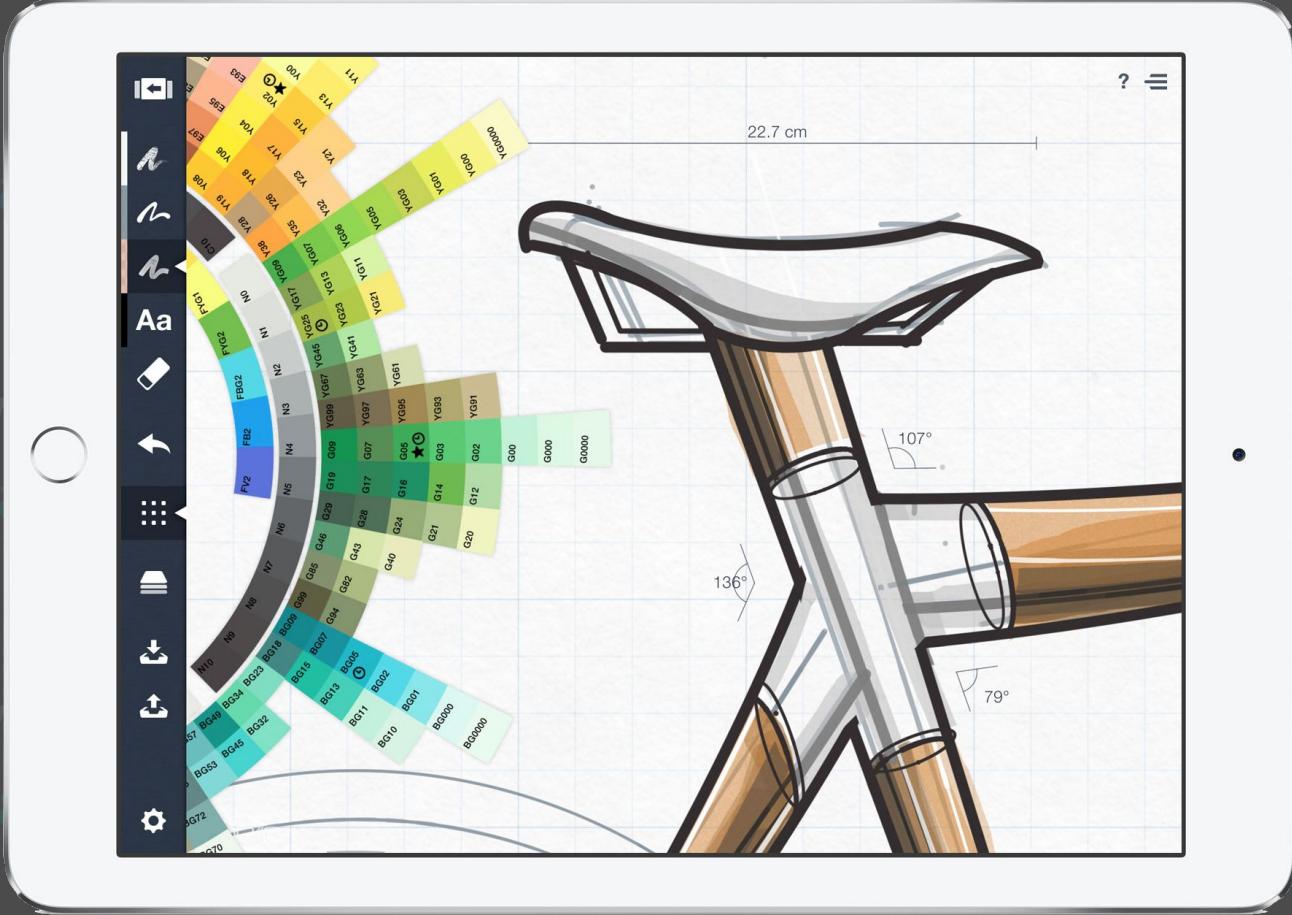
/* No pointer
@media (pointer: none) {



```
/* No hover support */  
@media (hover: none) { ... }
```

```
/* Device supports hovering */  
@media (hover: hover) { ... }
```

```
/* Device can emulate hover (i.e. long press) */  
@media (hover: on-demand) { ... }
```





display

```
/* Normal browser appearance (tabs and other UI chrome) */  
@media (display-mode: browser) { ... }  
  
/* Browser viewport uses all available space, no UI chrome */  
@media (display-mode: fullscreen) { ... }  
  
/* Browser will behave like a native app */  
@media (display-mode: minimal-ui) { ... }  
  
/* Will behave like a native app, with some minor exceptions */  
@media (display-mode: standalone) { ... }
```

```
/* Display updates infrequently */  
@media (update: slow) { ... }
```

```
/* Display updates frequently */  
@media (update: fast) { ... }
```

```
/* No update frequency info transmitted */  
@media (update: none) { ... }
```

Mobile First

Small, Portrait, Slow,
Interlace, Monochrome,
Coarse, Non-Hover



Andres Galante

light-level



```
@media (light-level: normal) { ... }
```

dim

washed

normal

The device is used in a environment with a light level in the ideal range for the screen, and which does not necessitate any particular adjustment.

dim

The device is used in a dim environment, where excessive contrast and brightness would be distracting or uncomfortable to the reader. For example: night time, or a dimly illuminated indoor environment.

washed

The device is used in an exceptionally bright environment, causing the screen to be washed out and difficult to read. For example: bright daylight.

scripting



```
@media (scripting: enabled) { ... }
```

none

initial-only

initial-only

“ Indicates that scripting is enabled during the initial page load, but is not supported afterwards. Examples are printed pages, or pre-rendering network proxies that render a page on a server and send a nearly-static version of the page to the user.”

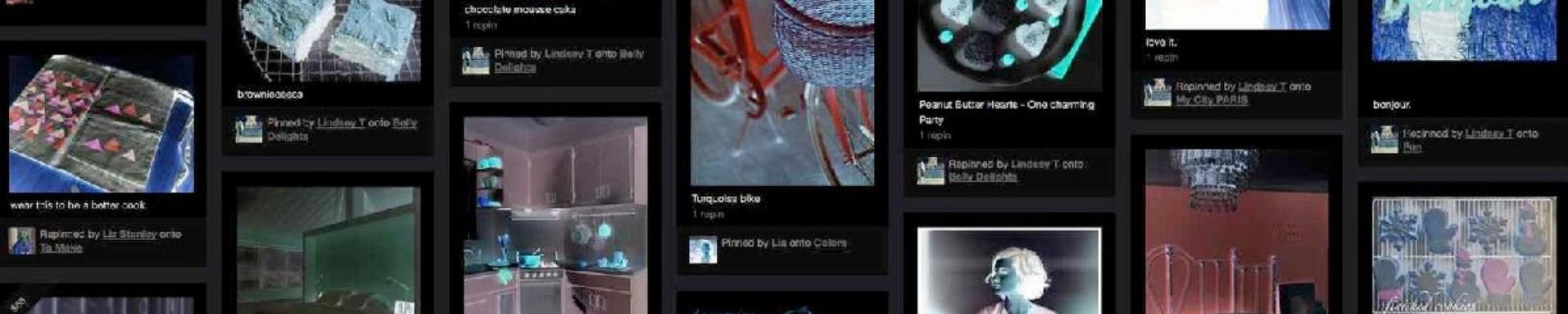
initial-only

“ Indicates that scripting is
the initial -

HOT DRAMA!

...ages, or
proxies that render
a server and send a nearly-static
version of the page to the user.”

inverted-colors



```
@media (inverted-colors) {  
    img,  
    video {  
        filter: invert(100%);  
    }  
}
```



```
@media (inverted-colors) {  
    img,  
    video {  
        filter: invert(100%);  
    }  
}
```



```
@media (prefers-reduced-motion) { ... }
```

Custom

```
:root {  
}  
}
```



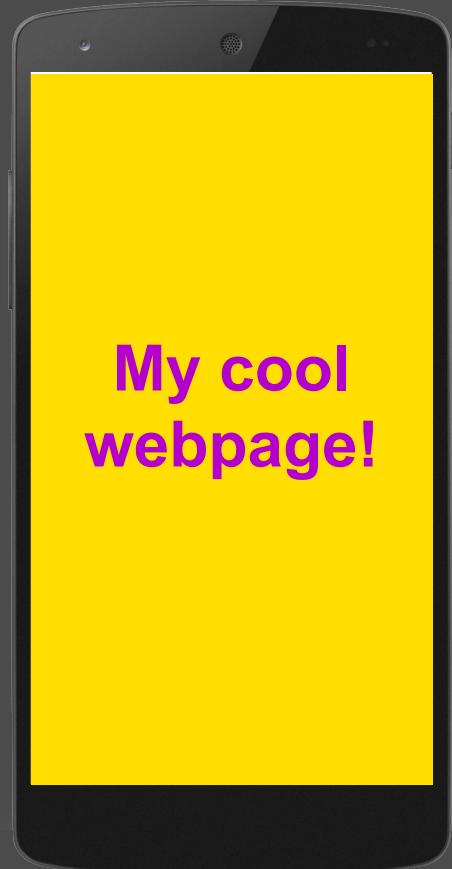
My cool
webpage!

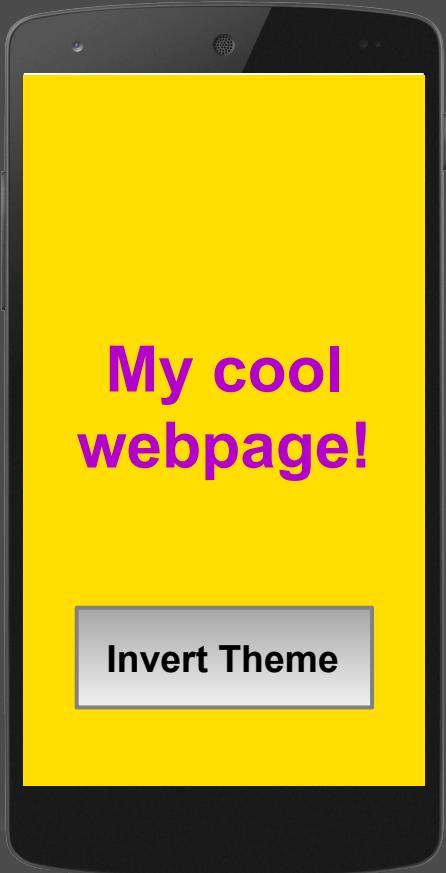
```
:root {  
  --brand-primary: #B300CC ;  
  --brand-secondary: #FFDE00 ;  
}
```



My cool
webpage!

```
:root {  
  --brand-primary: #B300CC ;  
  --brand-secondary: #FFDE00 ;  
}  
  
body {  
  background-color: var(--brand-secondary);  
  color: var(--brand-primary);  
}
```

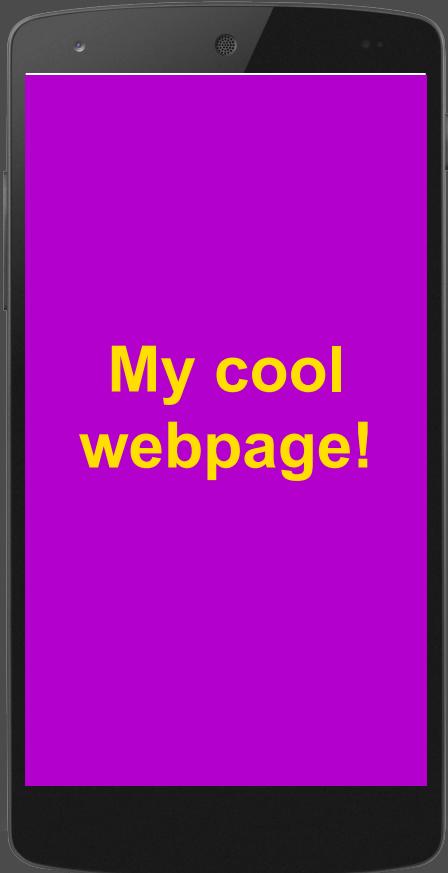




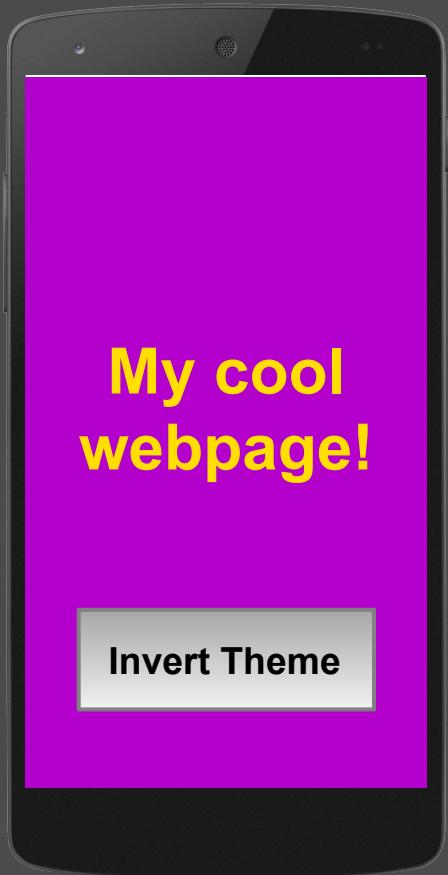
```
var themeStyles = document.body.style;
```



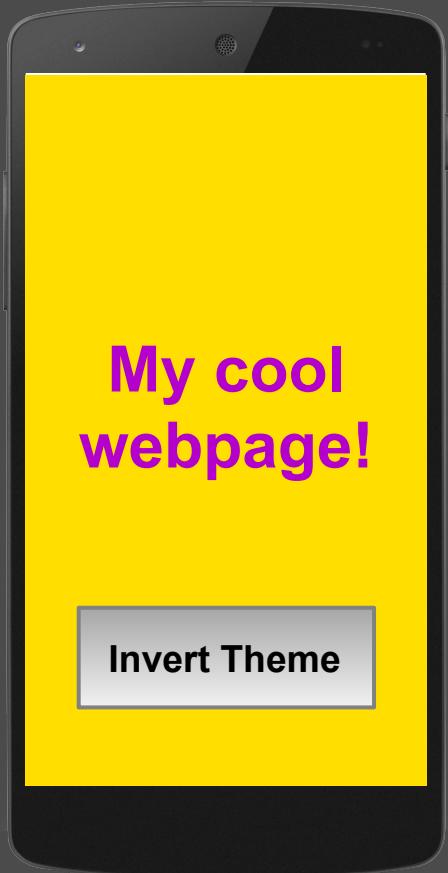
```
var themeStyles = document.body.style;  
  
themeStyles.setProperty(  
  '--brand-primary', '#FFDE00'  
);
```



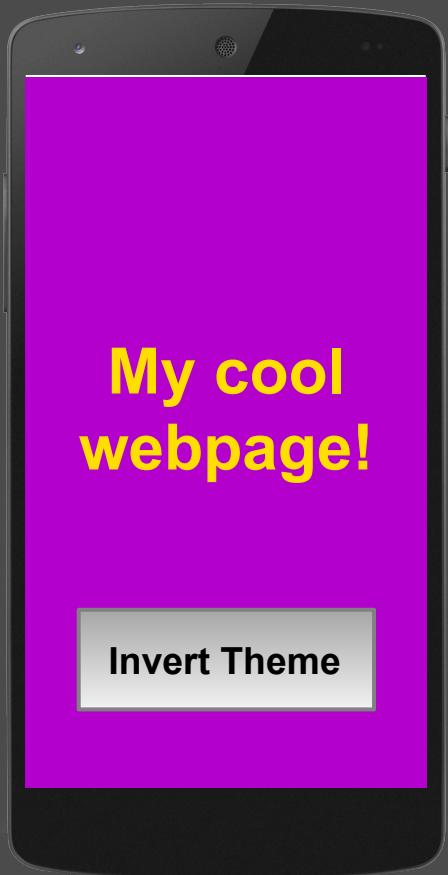
```
var themeStyles = document.body.style;  
  
themeStyles.setProperty(  
  '--brand-primary', '#FFDE00'  
);  
  
themeStyles.setProperty(  
  '--brand-secondary', '#B300CC'  
);
```



```
var themeStyles = document.body.style;  
  
themeStyles.setProperty(  
  '--brand-primary', '#FFDE00'  
);  
  
themeStyles.setProperty(  
  '--brand-secondary', '#B300CC'  
);
```



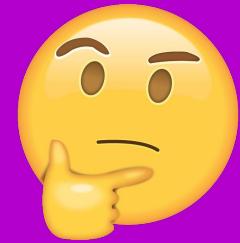
```
var themeStyles = document.body.style;  
  
themeStyles.setProperty(  
  '--brand-primary', '#FFDE00'  
);  
  
themeStyles.setProperty(  
  '--brand-secondary', '#B300CC'  
);
```



```
var themeStyles = document.body.style;  
  
themeStyles.setProperty(  
  '--brand-primary', '#FFDE00'  
);  
  
themeStyles.setProperty(  
  '--brand-secondary', '#B300CC'  
);
```

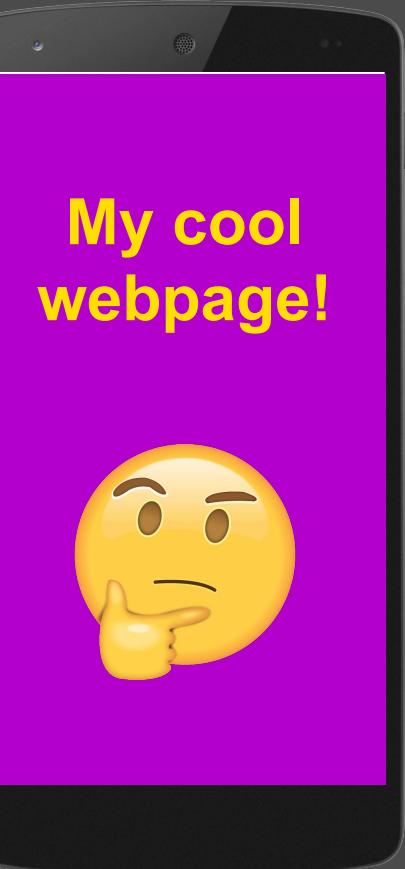
```
@custom-media --custom-bp (property: value);
```

My cool
webpage!



```
@custom-media --custom-bp (property: value);
```

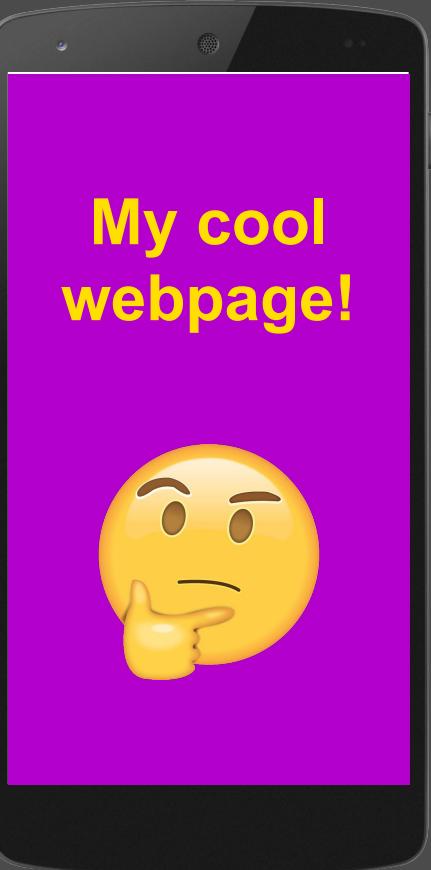
```
@media (--custom-bp) { ... }
```



```
@custom-media --custom-bp (property: value);
```

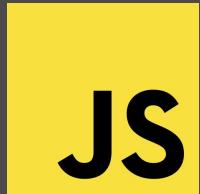
```
@media (--custom-bp) { ... }
```

JS

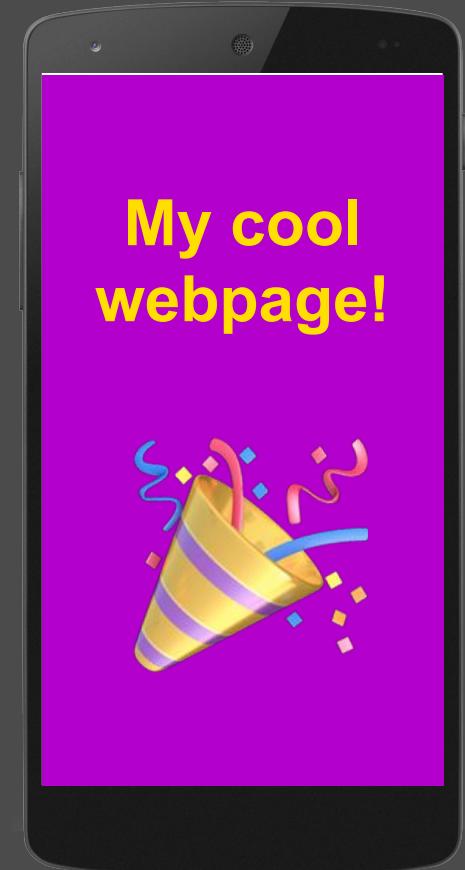


```
@custom-media --custom-bp (property: value);
```

```
@media (--custom-bp) { ... }
```



```
@media (--custom-bp) { ... }
```



@custom-media -



Steve Gardner
@steveg3003

CSS variables (custom properties) makes supporting reduced motion settings super easy. There is little excuse to not too.

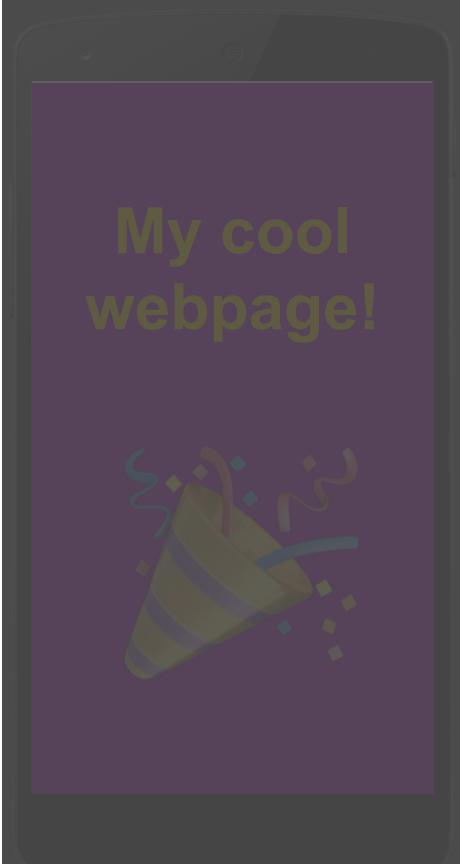
```
:root
{
    --duration: 0.5;

    @media (prefers-reduced-motion: reduce)
    {
        --duration: 0;
    }
}

.element
{
    transition: width calc(var(--duration) * 1s) ease-in-out;
}

.another-element
{
    // half --duration
    transition: width calc(var(--duration) * 0.5s) ease-in-out;
}
```

4:45 PM - 21 Jul 2017



A smartphone is shown from a top-down perspective, displaying a purple screen with the text "My cool webpage!" in green. A cartoon-style party hat with streamers and confetti is overlaid on the bottom right of the screen.

My cool
webpage!

Thanks!

A cartoon illustration of a man with dark brown hair, wearing orange-rimmed glasses, a beard, and a mustache. He is wearing a brown jacket over a white collared shirt. He is looking slightly to his left with a neutral expression.

ericwbailey.design

ericwbailey
most places (but mostly Twitter)

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