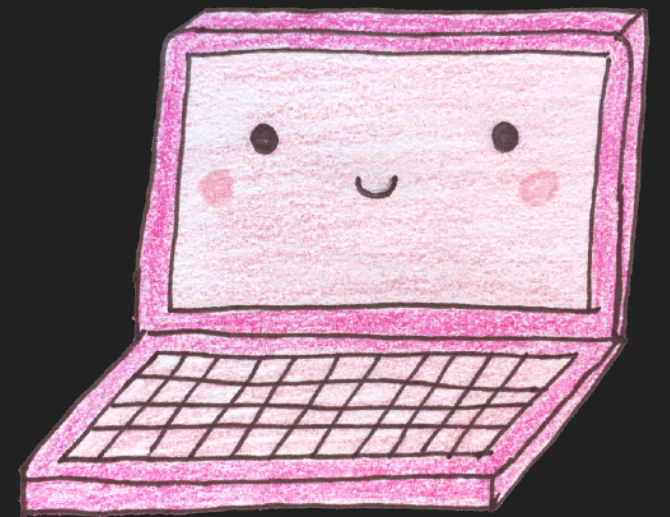


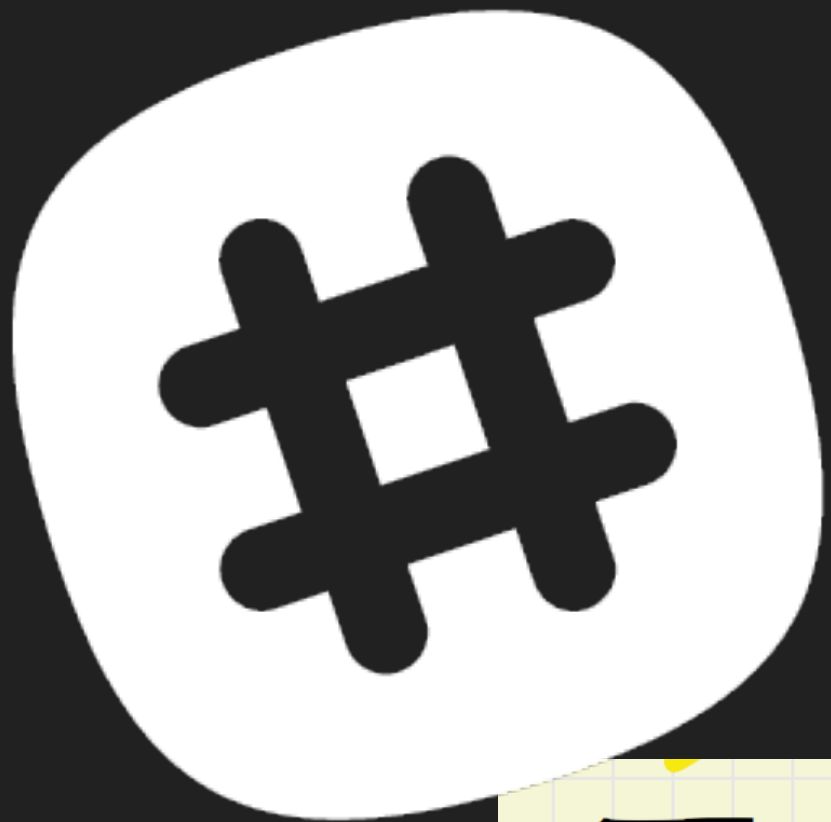
some *fantastic*
frontend
performance
tricks and
why we
do them

whee!



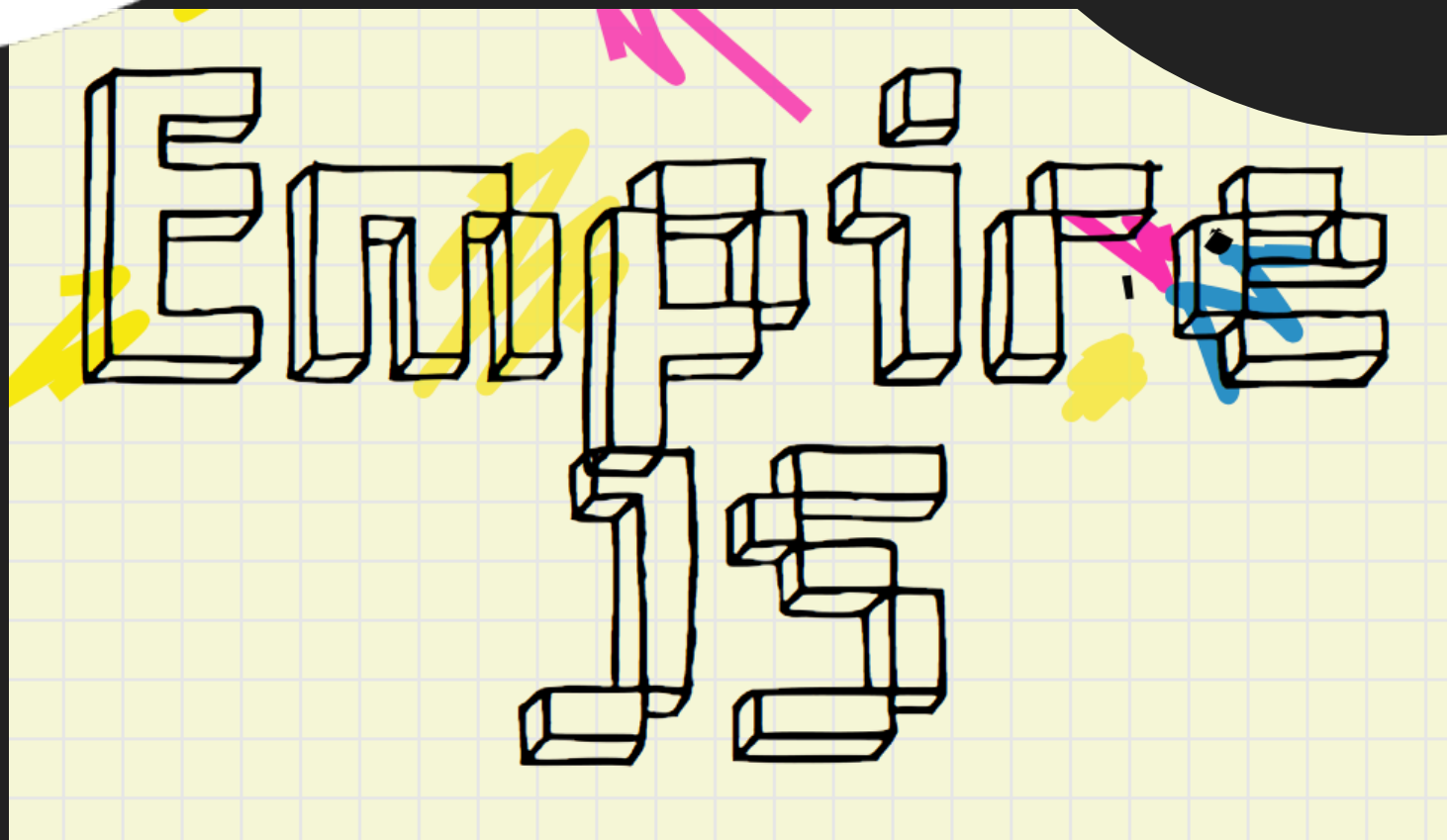
@zeigenvector

jenna.is/at-revconf-18



Brooklyn

J S



2018.empirejs.org



[object Object] @ RevConf

@zeigenvector



If you think frontend engineering is lesser or easier, I dare you to delve into the world that is frontend performance optimization.

1:22 AM - 16 May 2018

94 Retweets 408 Likes



loading

+

rendering

loading

(keep things small)

+

rendering

loading

+

(keep things small)

(keep things smart)

rendering

loading

+

(keep things small)

(keep things smart)

rendering

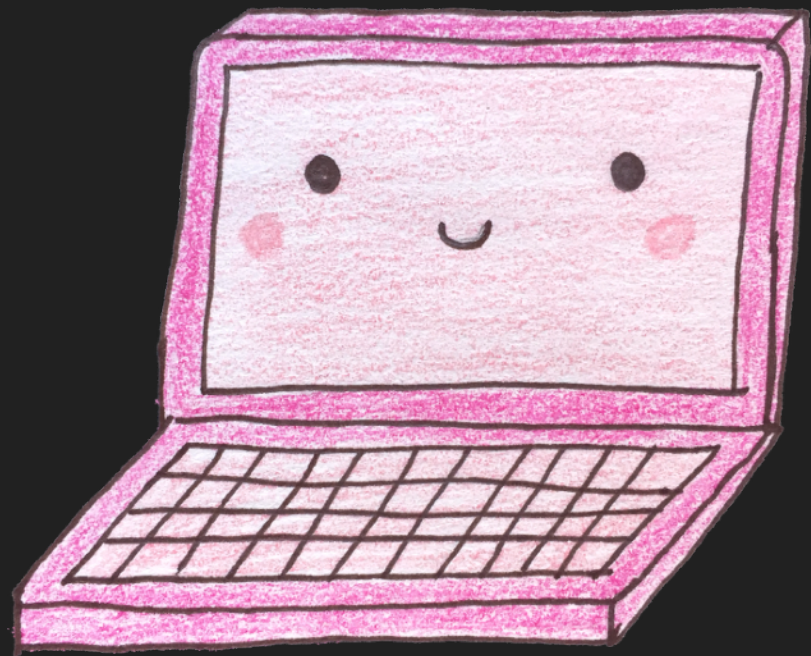
(keep things smooth)

but wait

how do

websites?

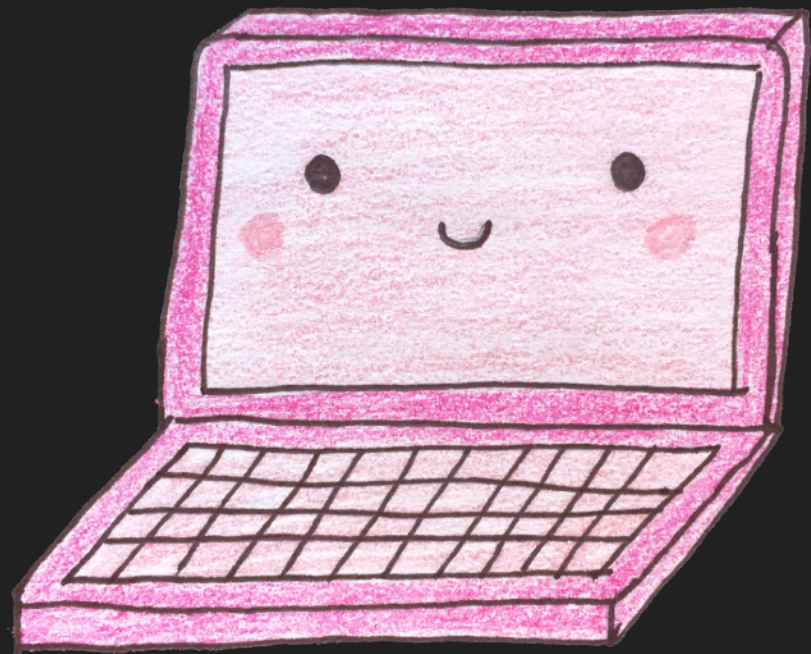
how do websites?



'Cause I'm on the network
getting packets
Server's sending me three-
hundred and five

♪ ♪ ♪

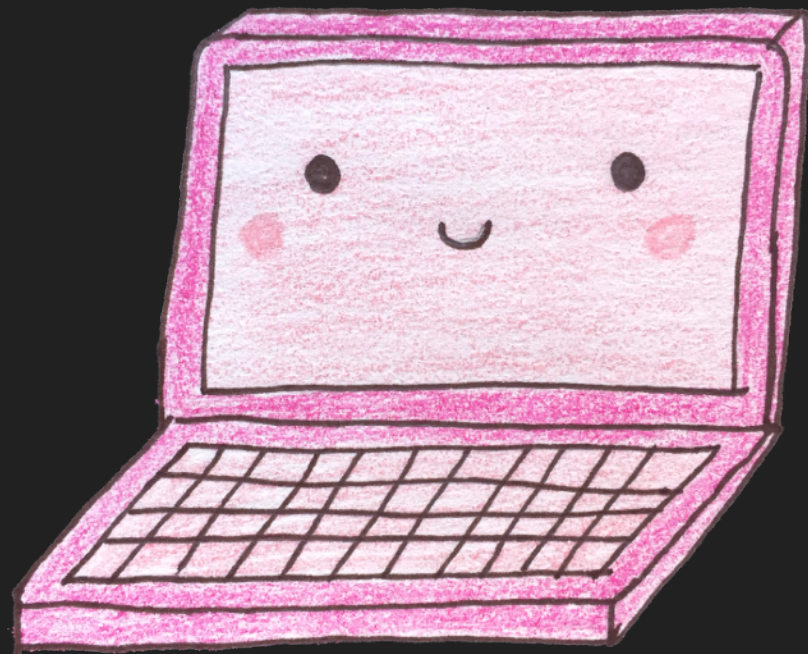
how do websites?



The bigger you send,
The harder you fall
Take it from me, girl,
You gotta start small

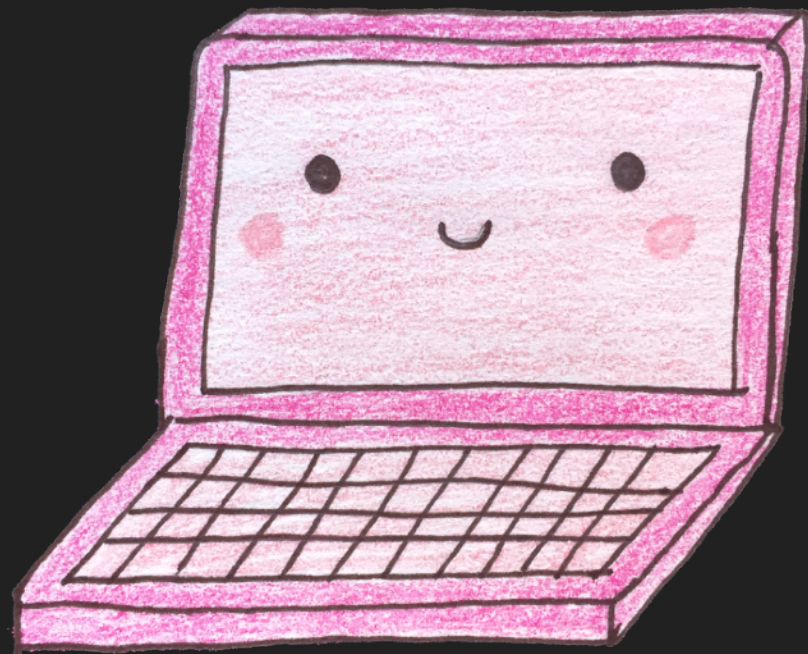
♪ ♪ ♪

how do websites?



We did everything right,
Bytes are on the client side
♪ ♪ ♪

how do websites?



Are you listening?

(Whoa-oh-oh-oh-oh)

Please come back.

(Whoa-oh-oh-oh-oh)

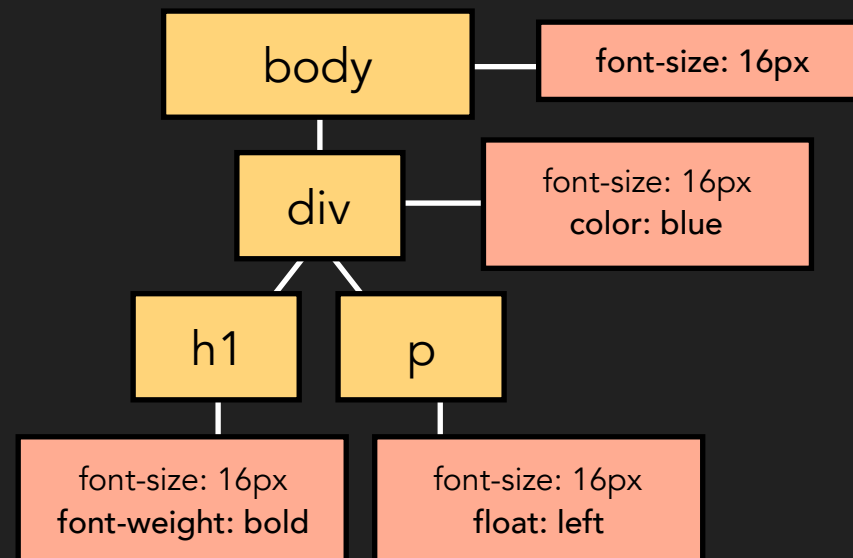
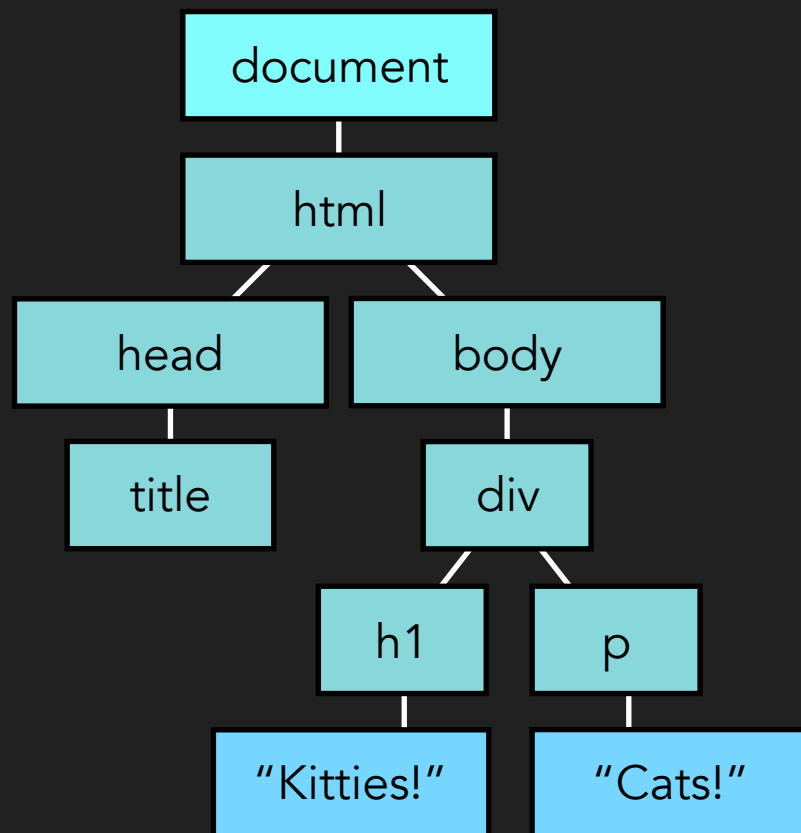
I'll tell you what do I need

I'll tell you what do I need

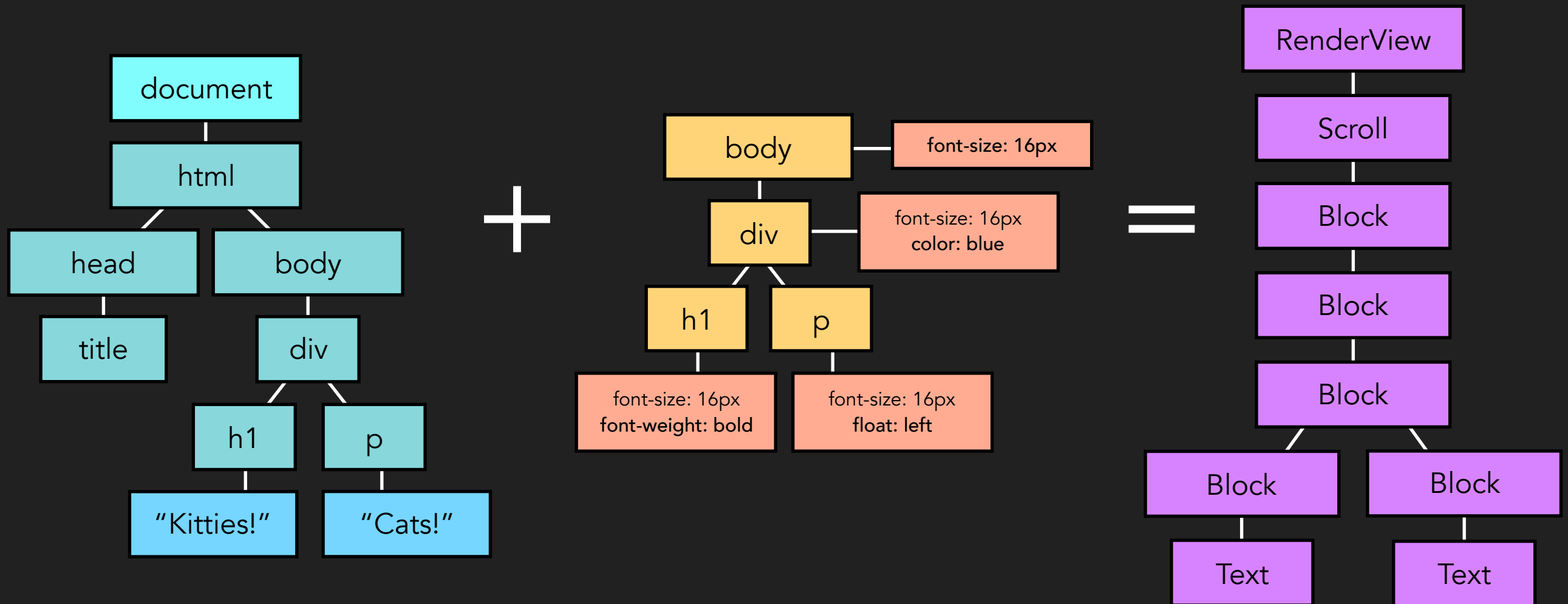
Whoa-oh, whoa-oh

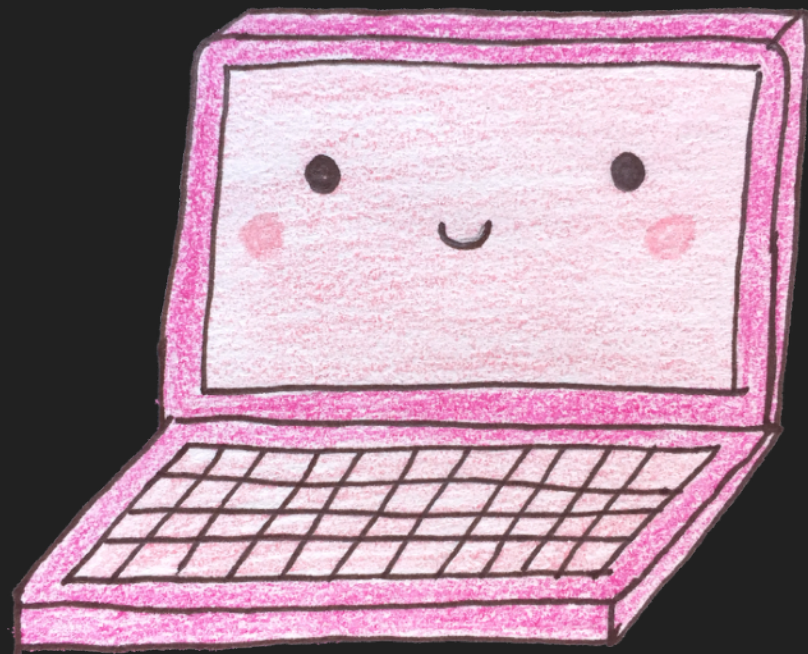
♪ ♪ ♪

how do websites?

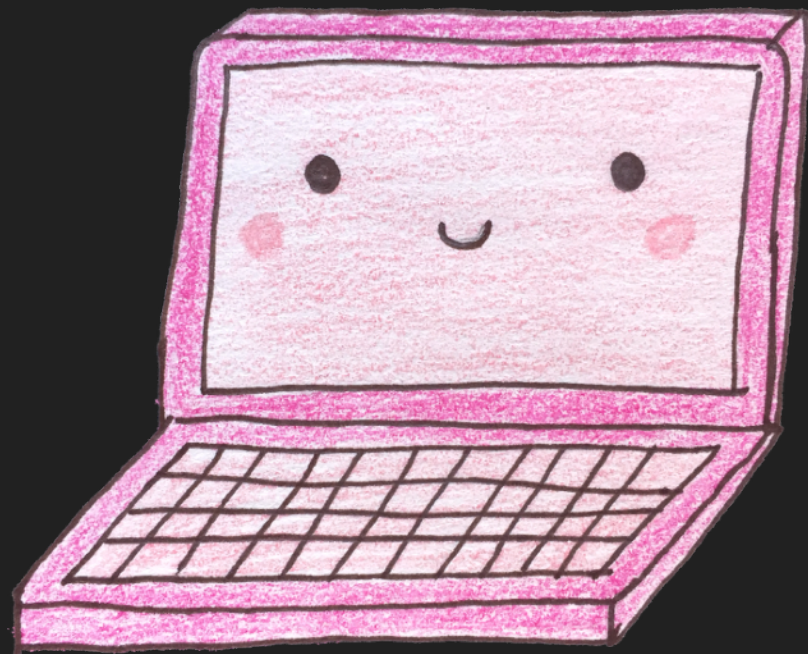


how do websites?





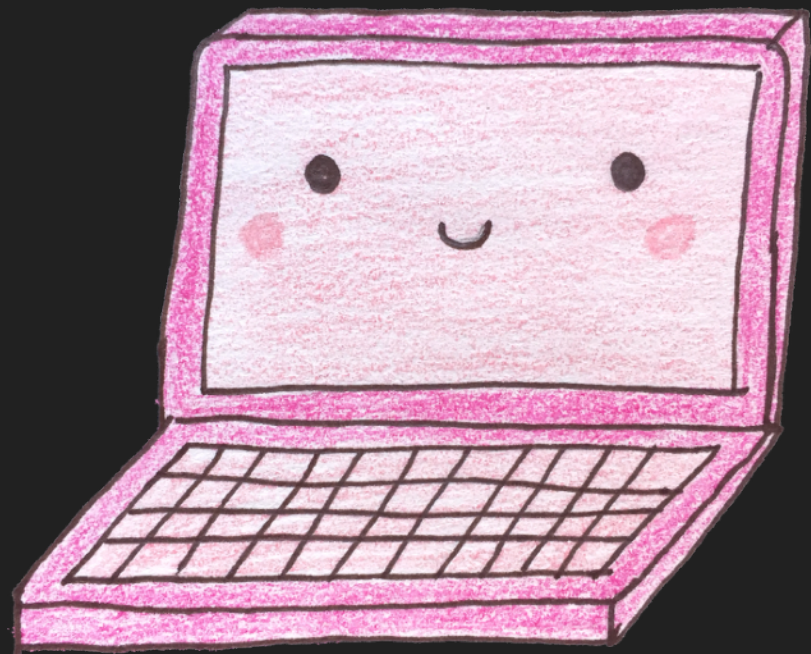
Well, I'm gonna paint my picture
Paint myself in blue and red and
green and.. a
All of the beautiful pixels
are very, very meaningful
♪♪♪



Whoa, oh, oh, oh, oh
Whoa, oh, oh, oh,
DOM's interactive
DOM's interactive
♪ ♪ ♪

keep
things
small

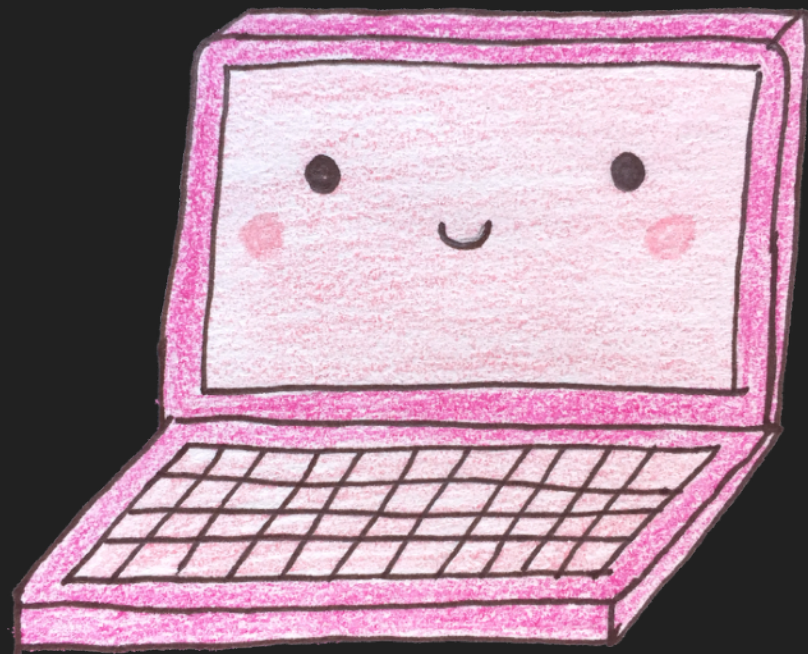
keep things small



Harder, Better,
Faster, Smaller
♪ ♪ ♪

keep things small

minify your html, css, and js



Got some files to send over
And their length's insane
Remove the whitespace, baby
It'll up your game

♪ ♪ ♪

keep things small

minify your html, css, and js

```
var array = [];  
  
for (var i = 0; i < 20; i++) {  
    array[i] = i;  
}
```

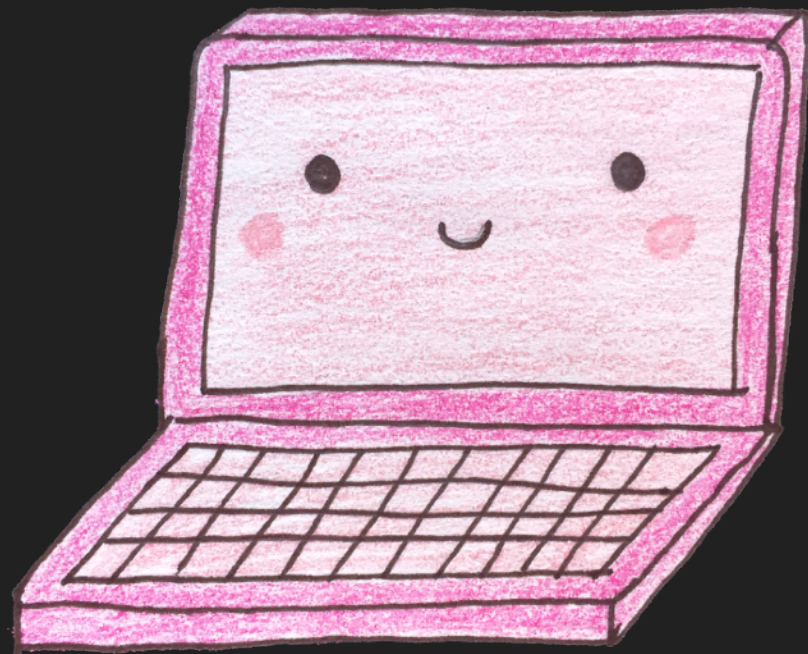
keep things small

minify your html, css, and js

```
for(var a=[i=0];++i<20;a[i]=i);
```


keep things small

compress your html, css, and js

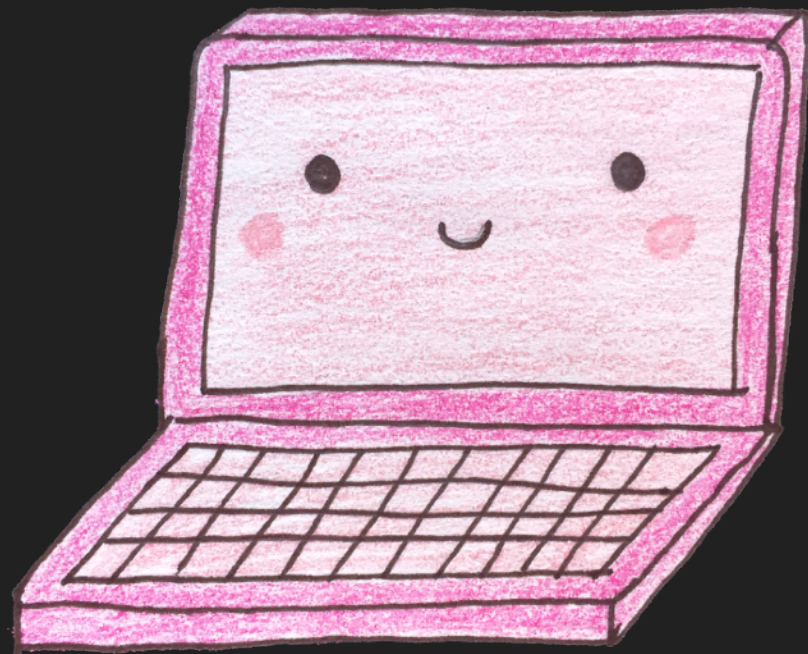


Shrink it down,
gzip it
(Don't reverse it...)

♪ ♪ ♪

keep things small

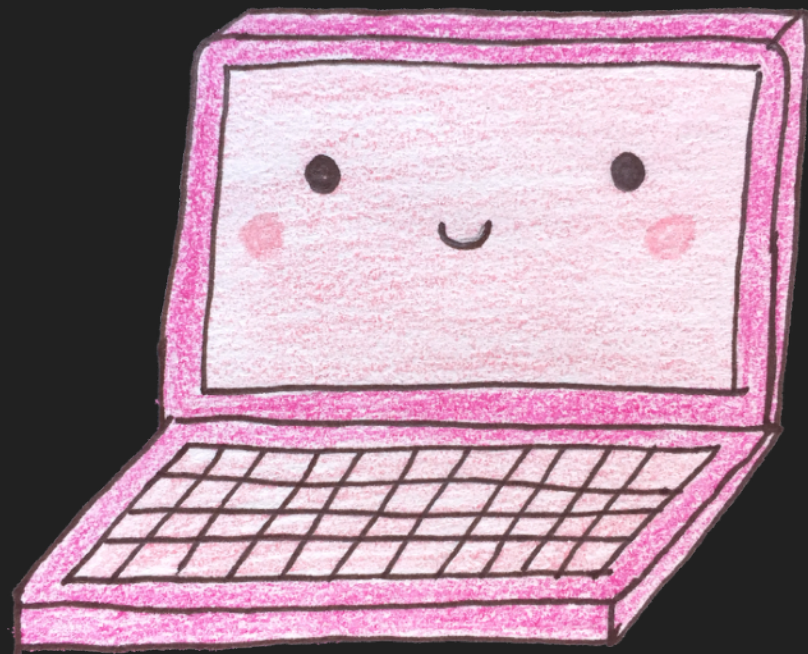
optimize your images



All the small things
What speed this brings!
♪ ♪ ♪

keep things small

optimize your images



The picture is far too
big to look at kid
Your screen's just not
wide enough

♪ ♪ ♪

keep things small

optimize your images

```

```

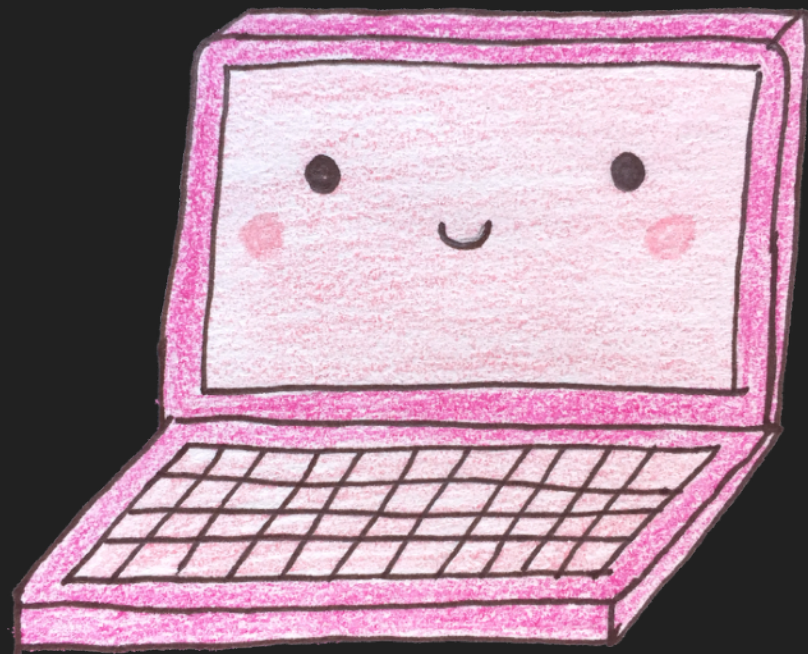
keep things small

optimize your images

```
<picture>
  <source
    media="(max-width: 799px)"
    srcset="miso-480w-close-portrait.jpg">
  <source
    media="(min-width: 800px)"
    srcset="miso-800w.jpg">
  
</picture>
```

keep things small

caching



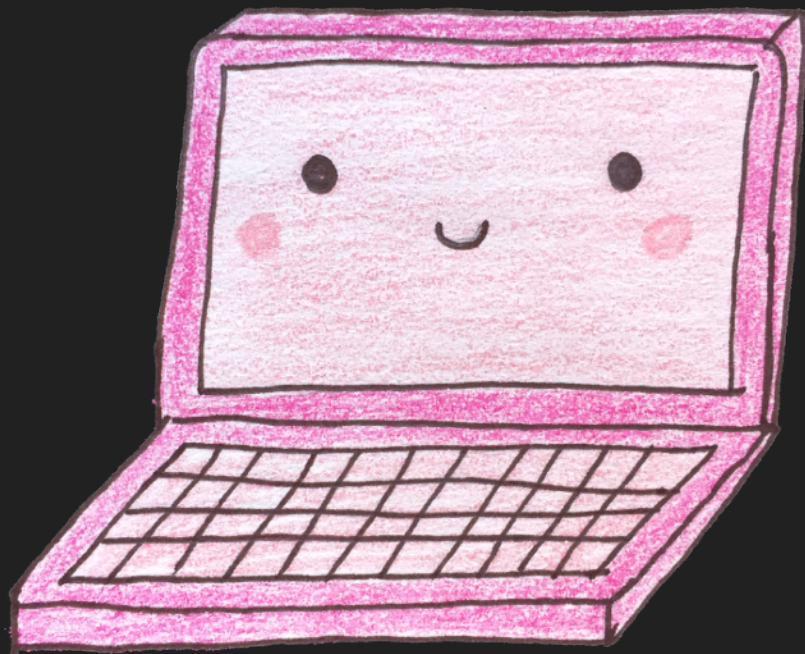
Guess they had to change that code
Updated that file
which then changed its number
So I need the new stuff though
Now it's just some page
that I used to know
♪♪♪

keep things small

caching

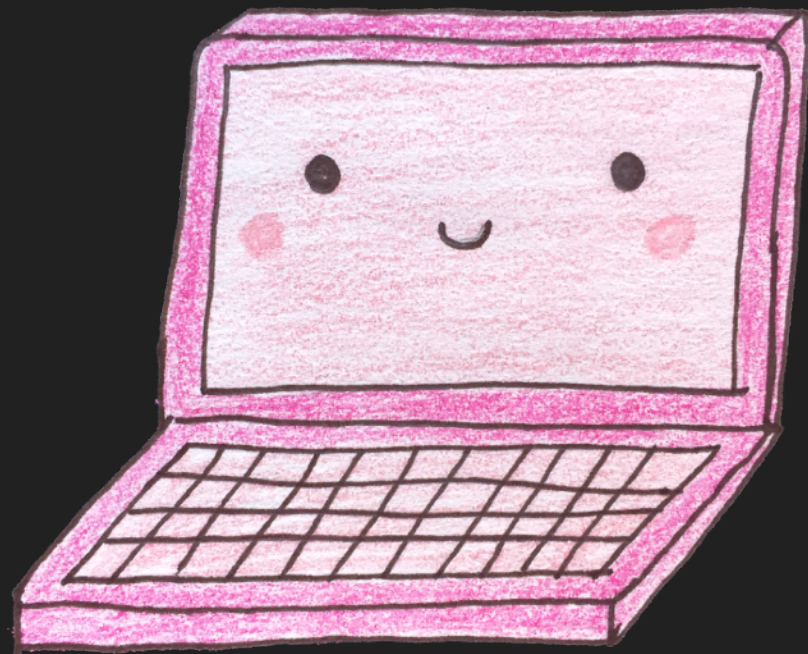
Pull it down, I'm yelling timber
Unless it moves or gets enhanced
This data, I'm told to remember
Until it tells me to forget

♪ ♪ ♪



keep things small

only include **necessary** files

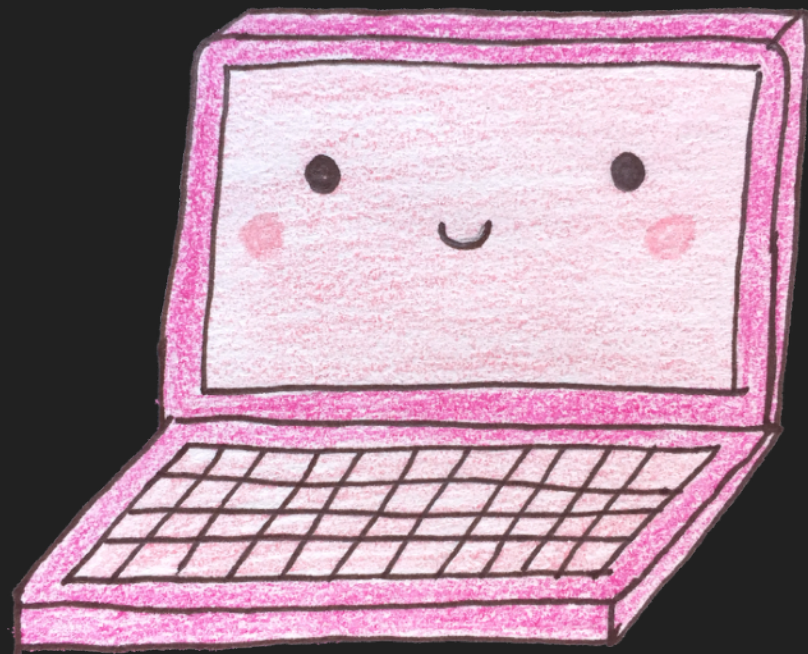


Well I know that
I'll get through this
'Cause I know that I am smart
I don't need you anymore
I don't need you anymore
I don't need you anymore
No I don't need you anymore...

♪ ♪ ♪

keep things small

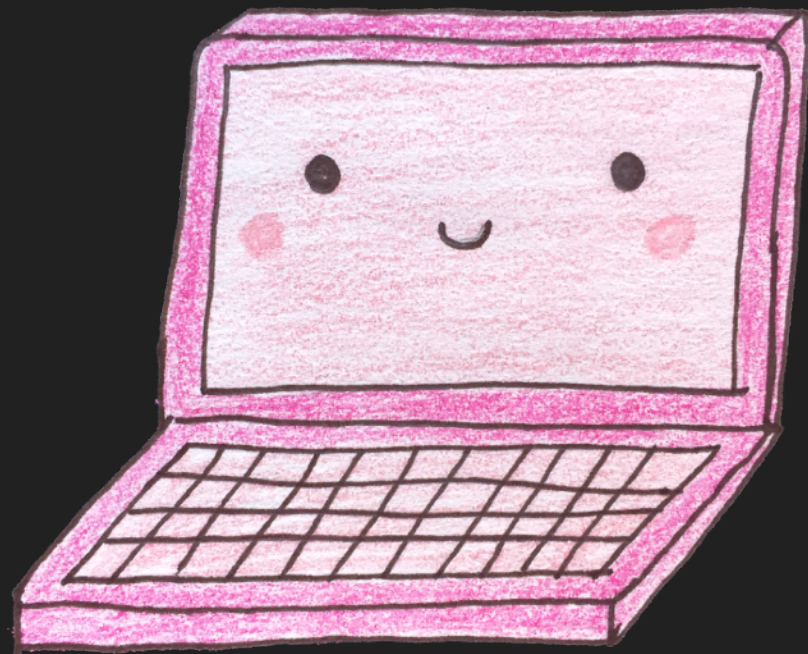
only include **necessary** files



Shake it, shake it, shake it,
Shake it, shake it, shake it,
Shake it, shake it, shake it
Shake it like a JavaScript bundle
Hey ya!
♪ ♪ ♪

keep things small

optimize fonts



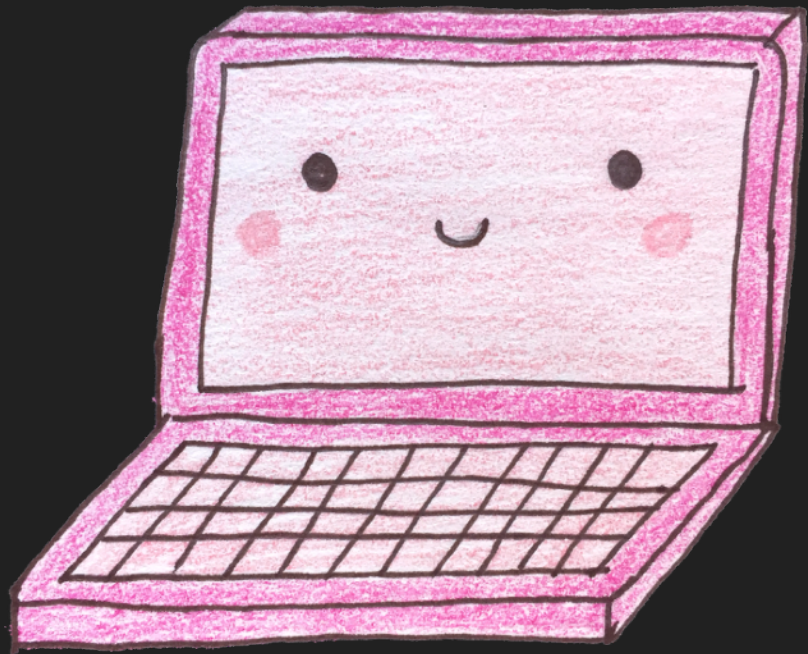
Baby I don't need fancy glyphs
To have a good site
(Yay system fonts!)

♪ ♪ ♪

keep things small

put your assets in a cdn

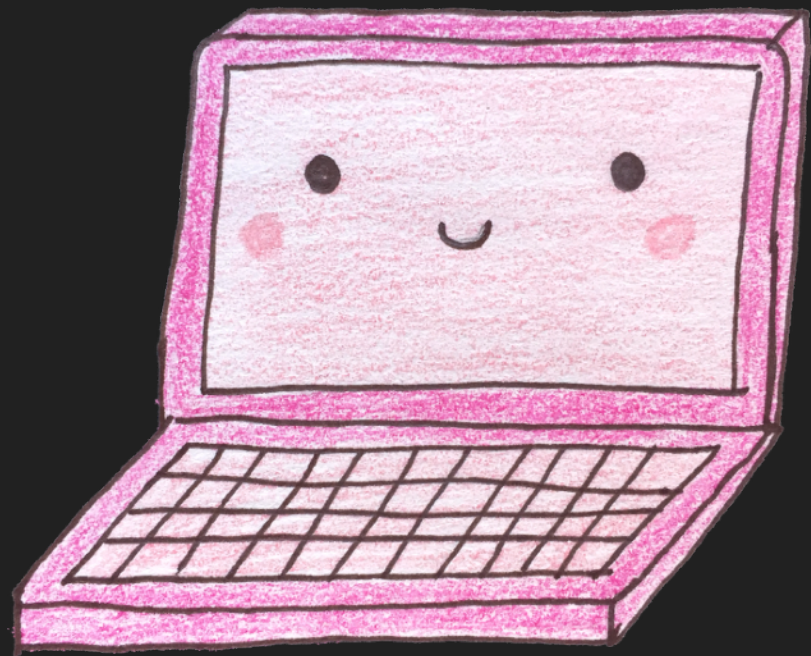
I feel so close to you right now
♪ ♪ ♪



keep
things
smart

keep things smart

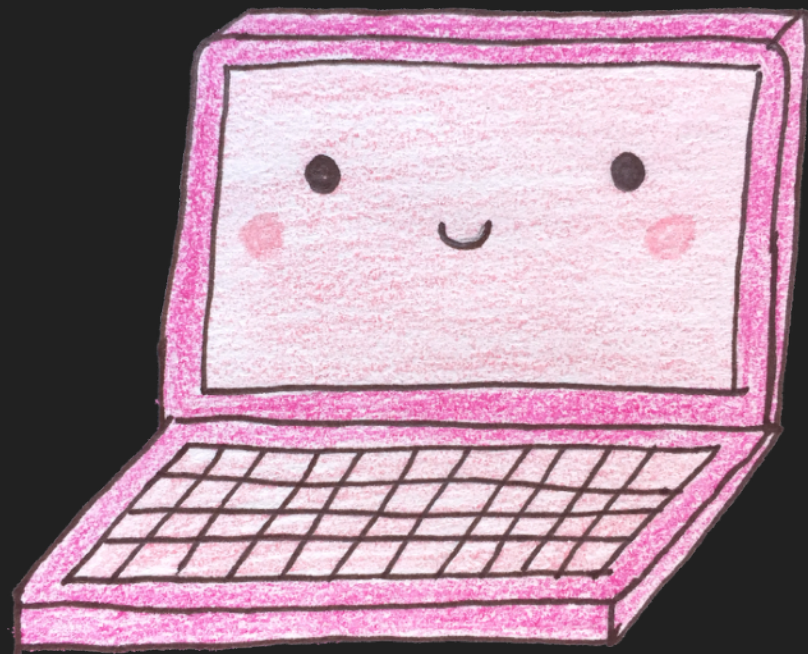
concatenate your css and js



Come together, right now
Up the speed
♪ ♪ ♪

keep things smart

use image sprites and icon fonts

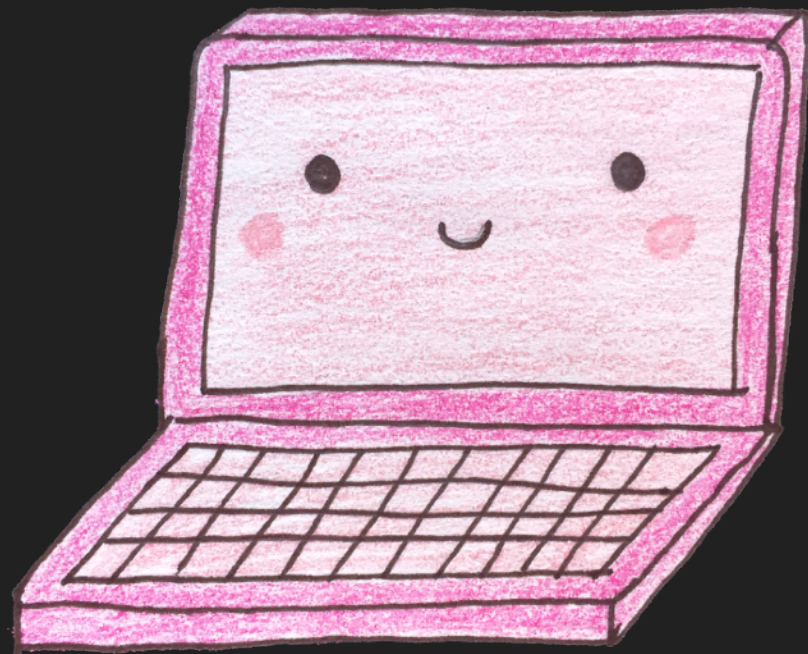


Yeah, it's always better
when they're together

♪ ♪ ♪

keep things smart

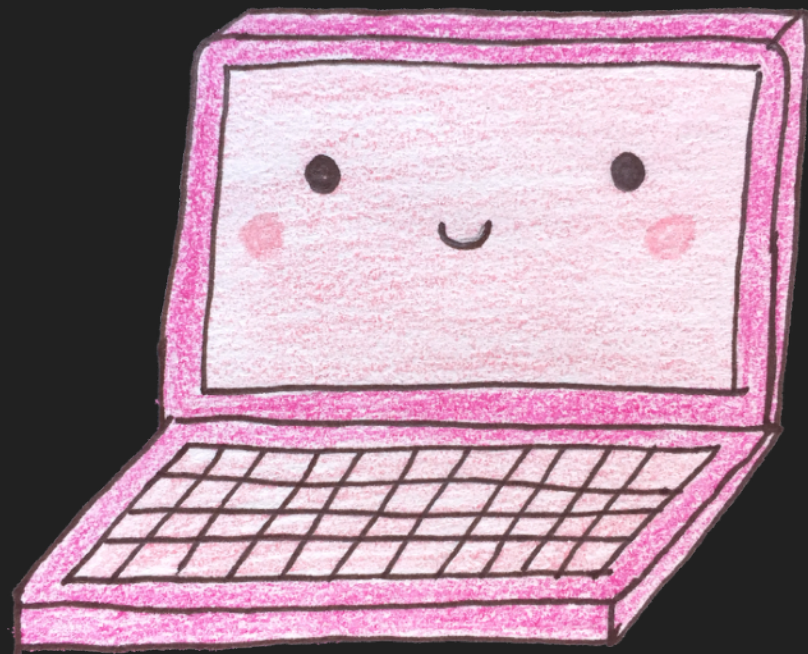
make js non-blocking



Scripts go at the bottom
Not up here
Scripts go at the bottom
So the whole page freakin' here
♪ ♪ ♪

keep things smart

make js non-blocking

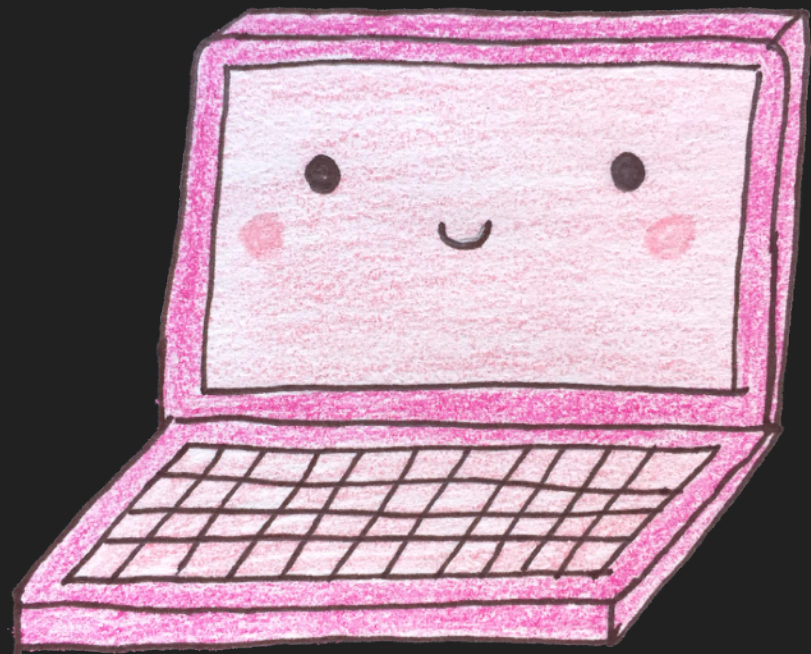


So I don't take the fall
Of a document.write call
When I see you, everything stops
Never put JS on top

♪ ♪ ♪

keep things smart

make js non-blocking

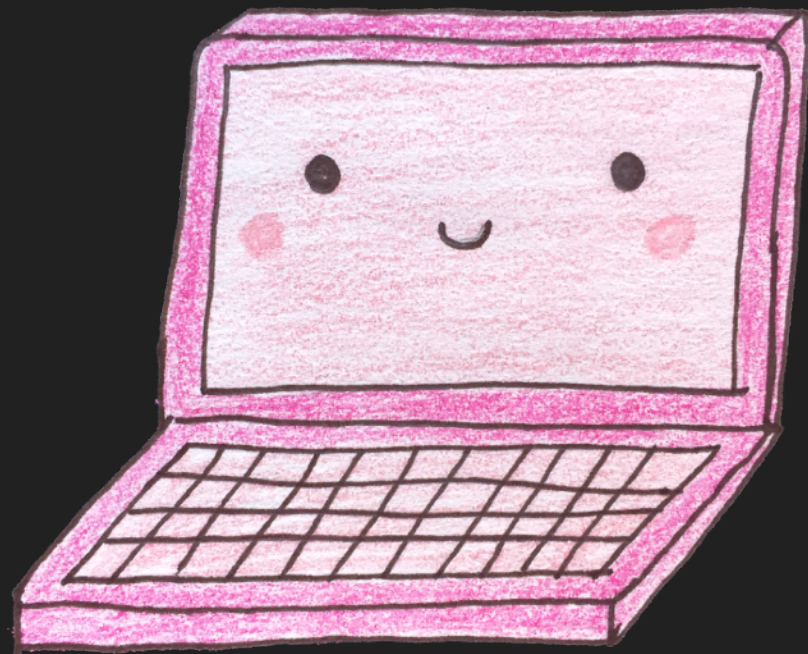


We can't stop...



keep things smart

make js non-blocking

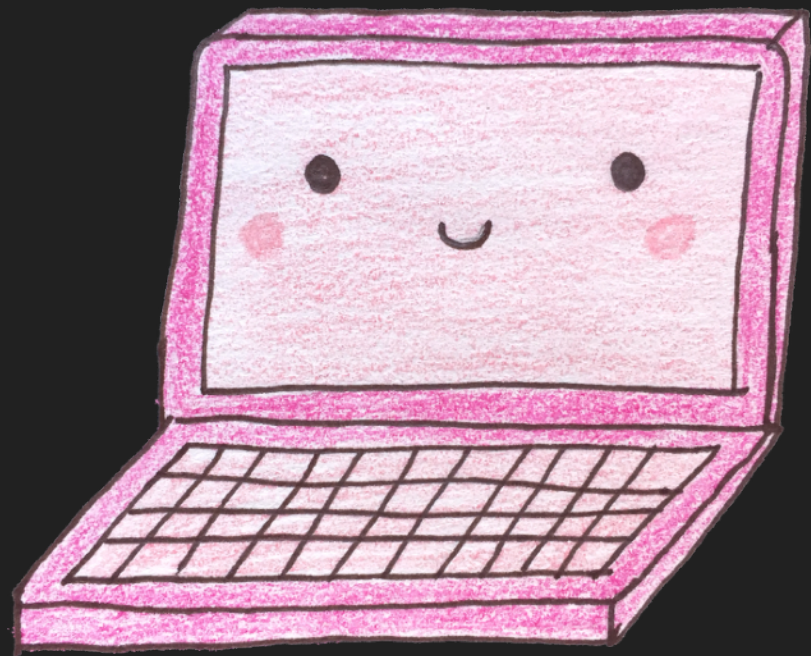


And we won't stop...



keep things smart

make js non-blocking

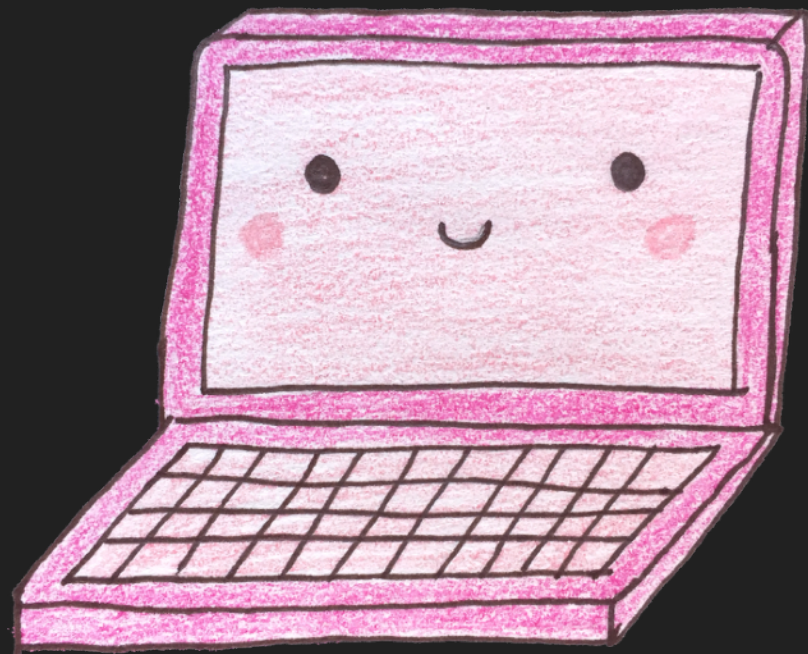


But yeah does it feel so good
'Cause I get scripts when
I want them now
And if you could
then you know you would
'Cause yeah it just feels so
It just feels so good

♪ ♪ ♪

keep things smart

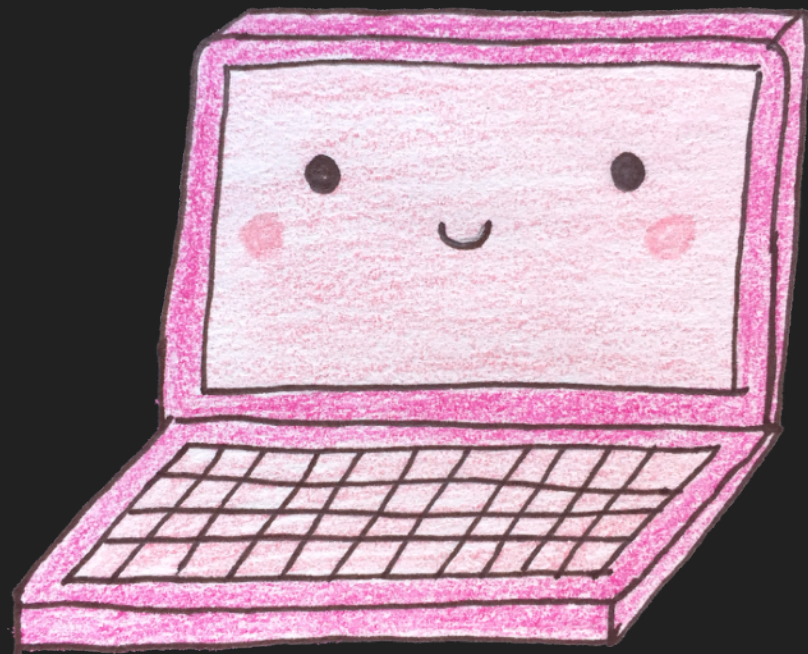
put css at the top



```
In your <head>  
In your <head>  
Stylesheet, stylesheet,  
eet, eet, eet  
♪♪♪
```

keep things smart

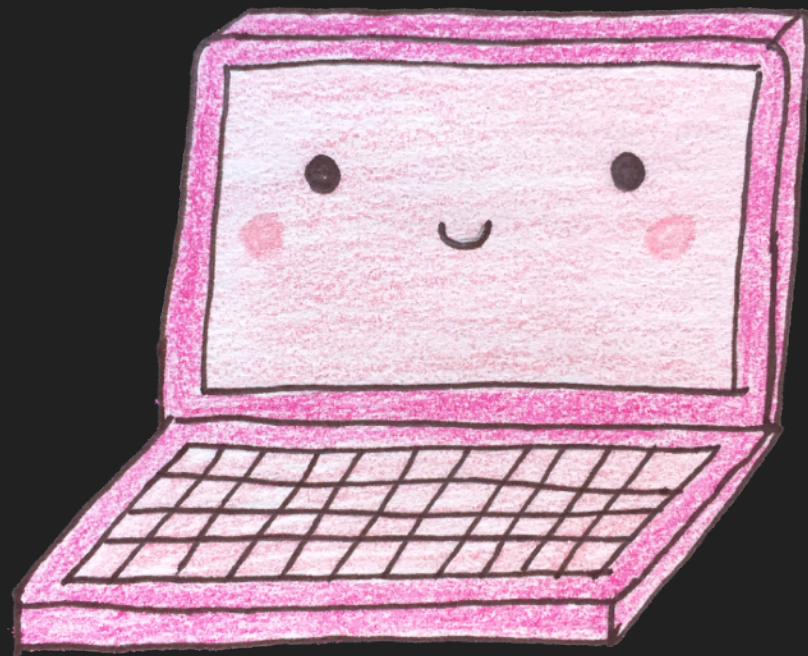
put css at the top



Critical styles inlined
To make this page load streamlined
♪ ♪ ♪

keep things smart

use http/2

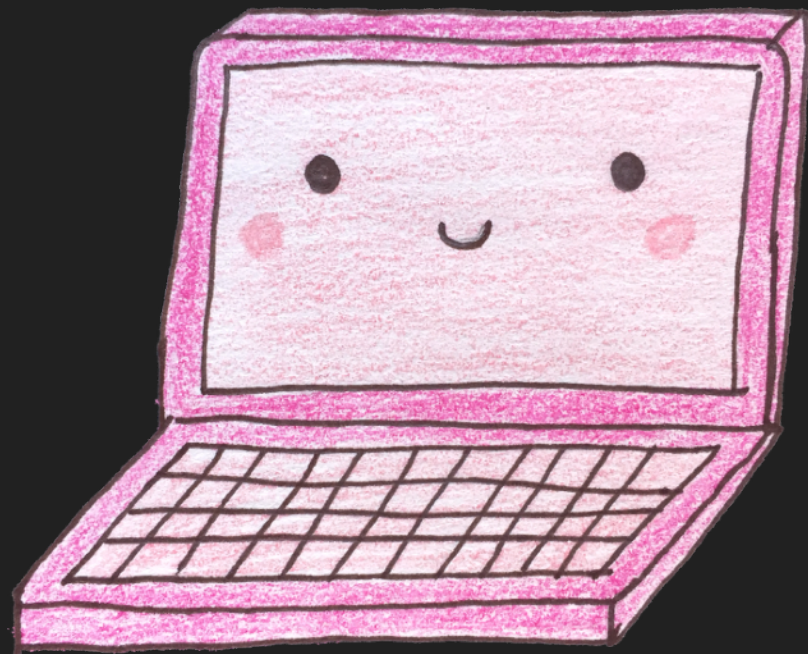


How you gonna upgrade me?
What's higher than one
point one?

♪ ♪ ♪

keep
things
smooth

keep things smooth



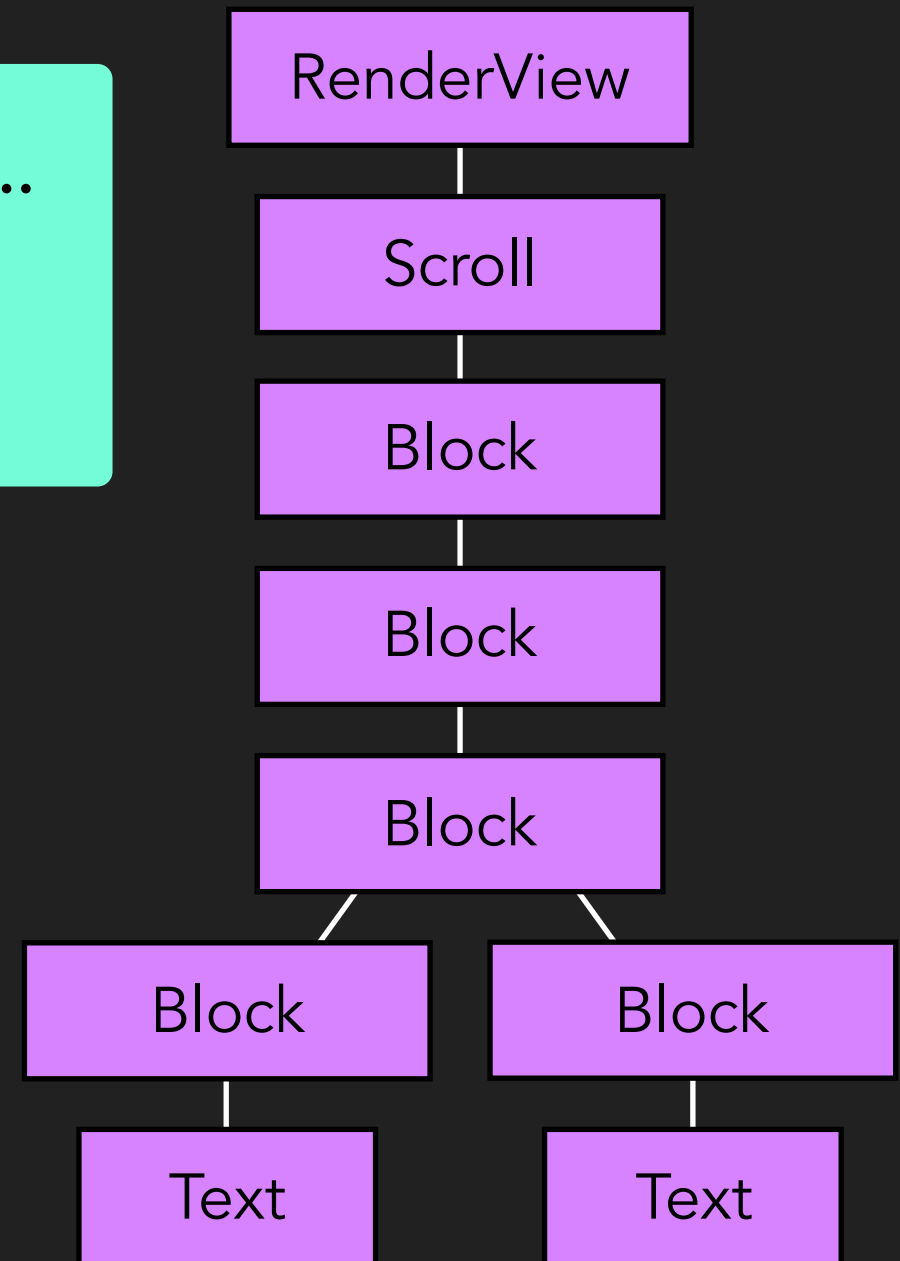
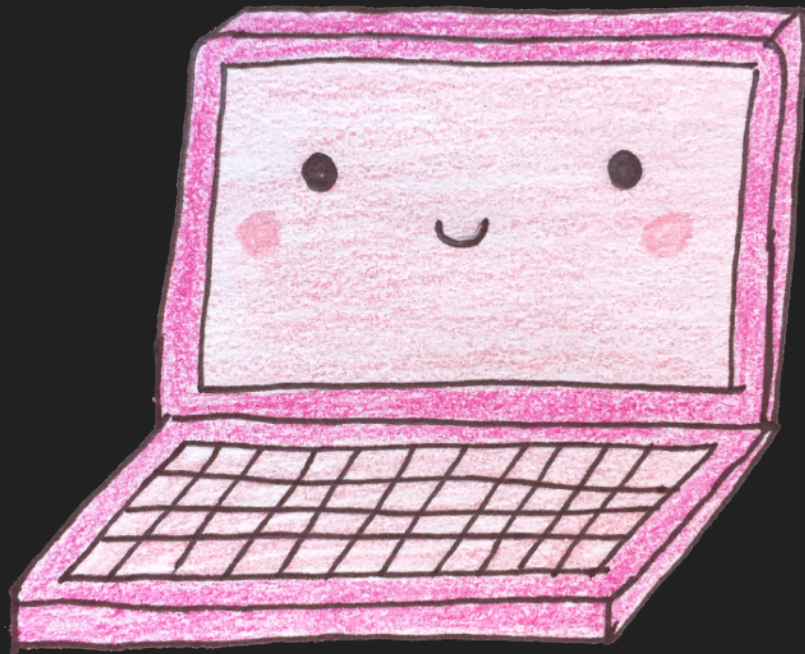
You got the kind of scrollin'
That can be so ~smooth~, yeah
Get rid of junk, make it real
Or else forget about it

♪ ♪ ♪

how do websites, pt 2

Cause the render's gonna...
rend, rend, rend?

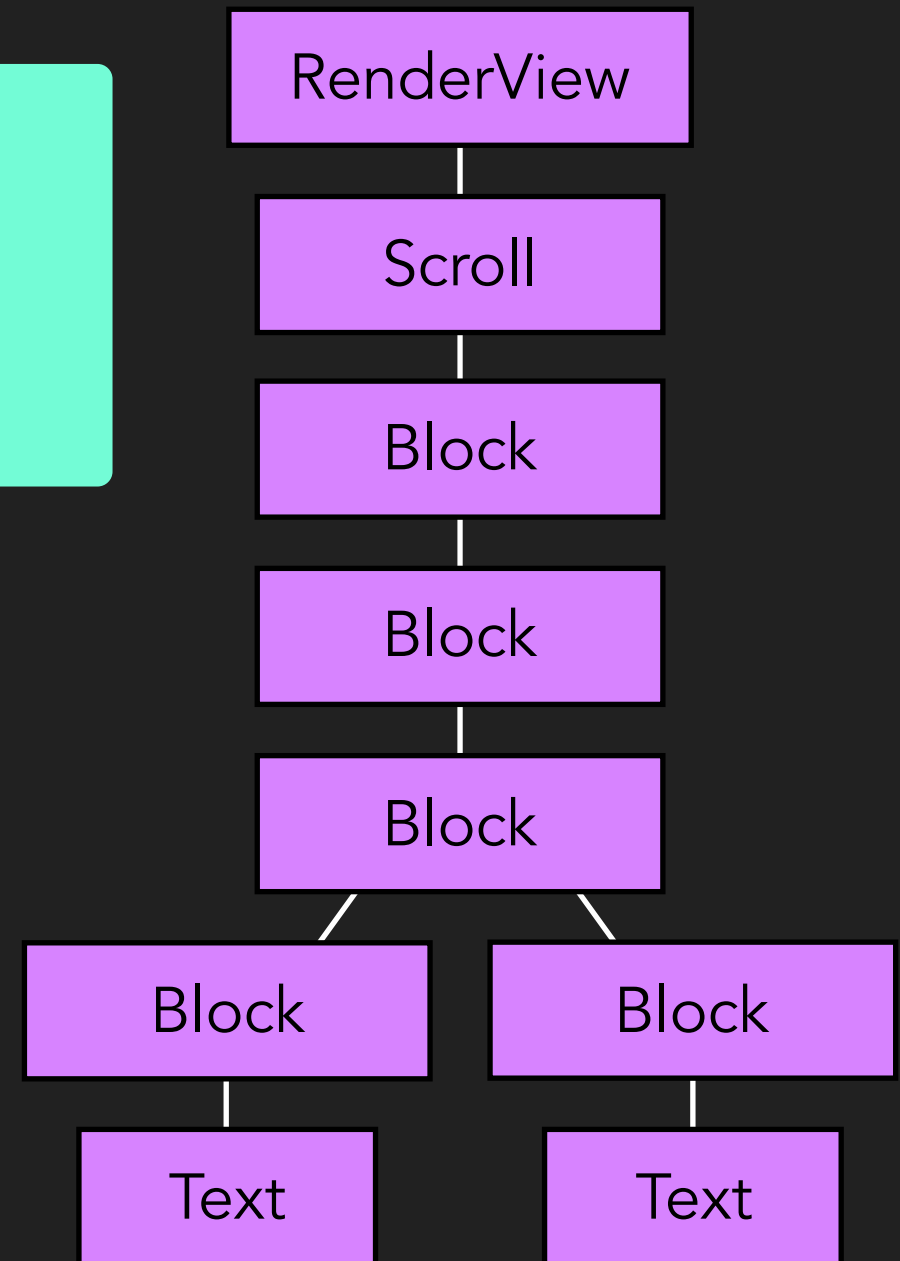
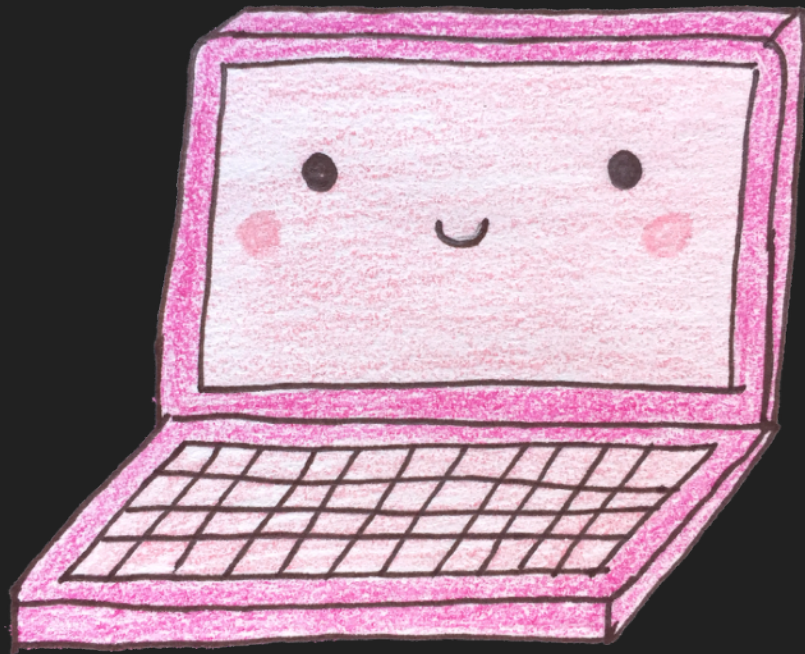
♪ ♪ ♪



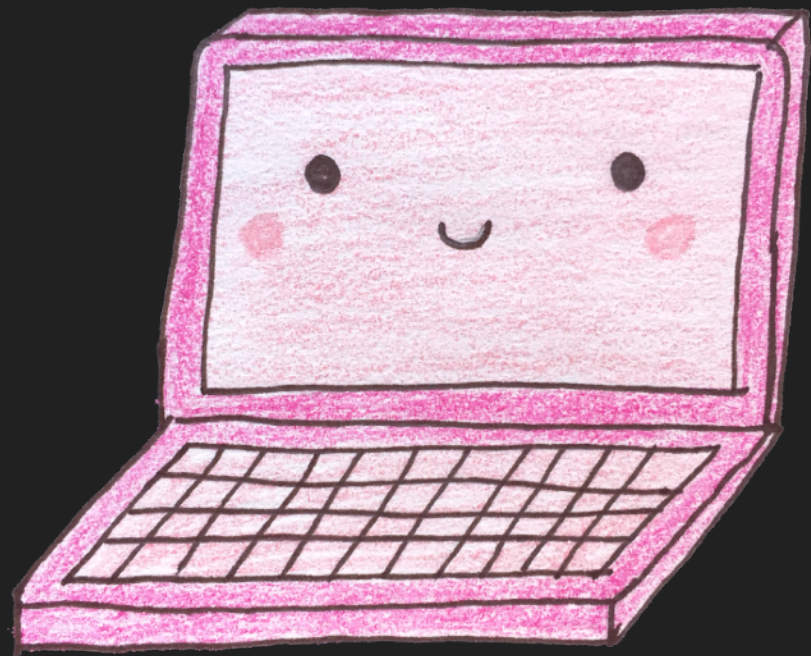
how do websites, pt 2

And the painter's gonna
paint, paint, paint...

♪ ♪ ♪

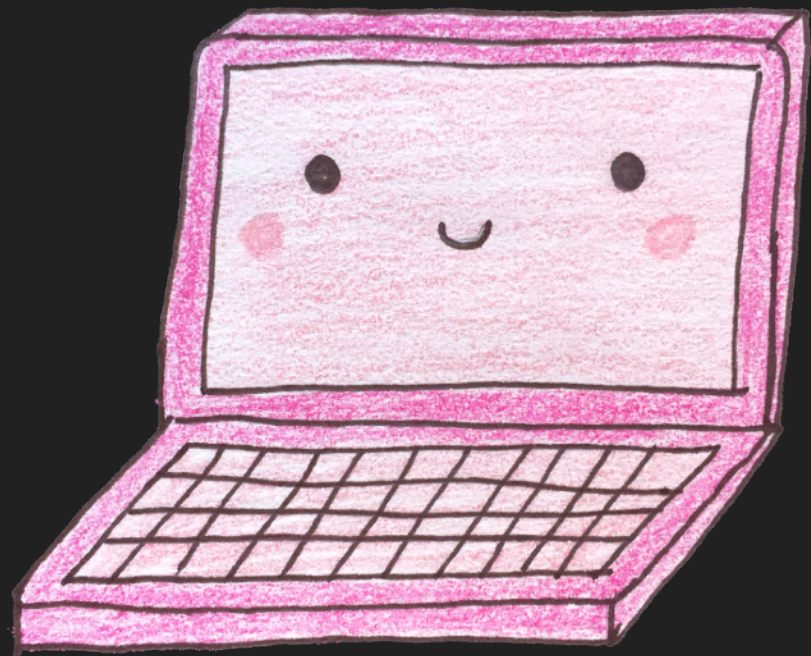


how do websites, pt 2



Loop loop ba-doop loop ba-doop
Loop ba-doop ba-doop
Ba-doop loop ba-doop loop
Ba-doop loop ba-doop, ba-doop,
ba-doop
♪ ♪ ♪

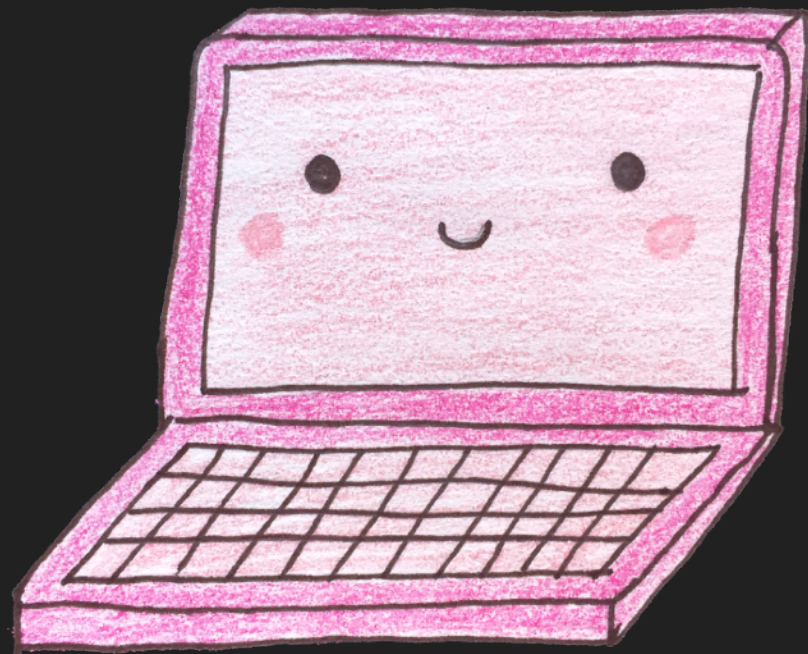
how do websites, pt 2



Here's to never ending circles
And building them on top of me
And here's to another no, man
You won't get a render
You won't get a render
♪ ♪ ♪

keep things smooth

use requestAnimationFrame



Debounce bounce bounce
bounce bounce bounce
bounce bounce bounce
bounce



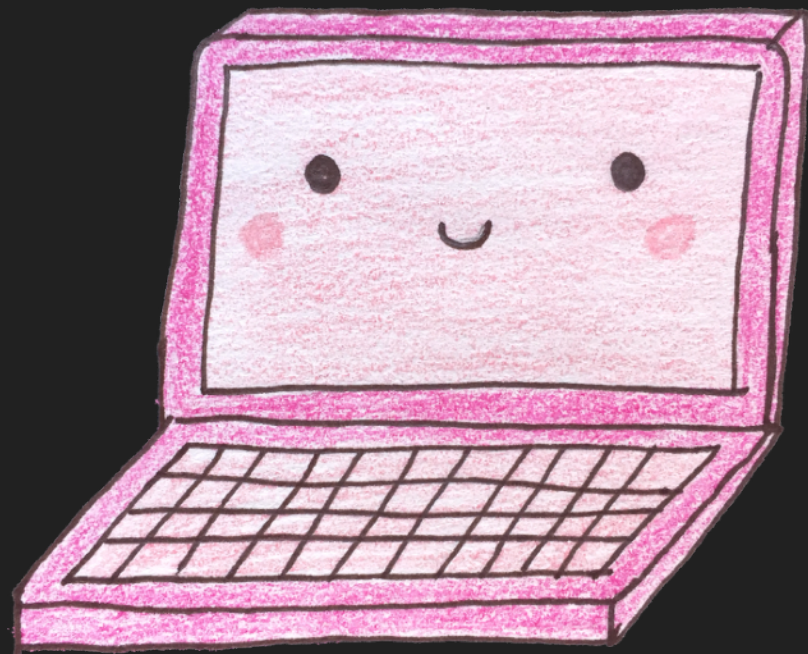
keep things smooth

use requestAnimationFrame

```
· window.addEventListener('resize', (e) => {  
·   · if (this.bottomTriangleSpan < window.innerWidth) {  
·     · window.requestAnimationFrame(this.drawTrianglesFromIndex.bind(this));  
·     · this.bottomTriangleSpan = window.innerWidth;  
·   · }  
· });
```

keep things smooth

use `requestAnimationFrame`

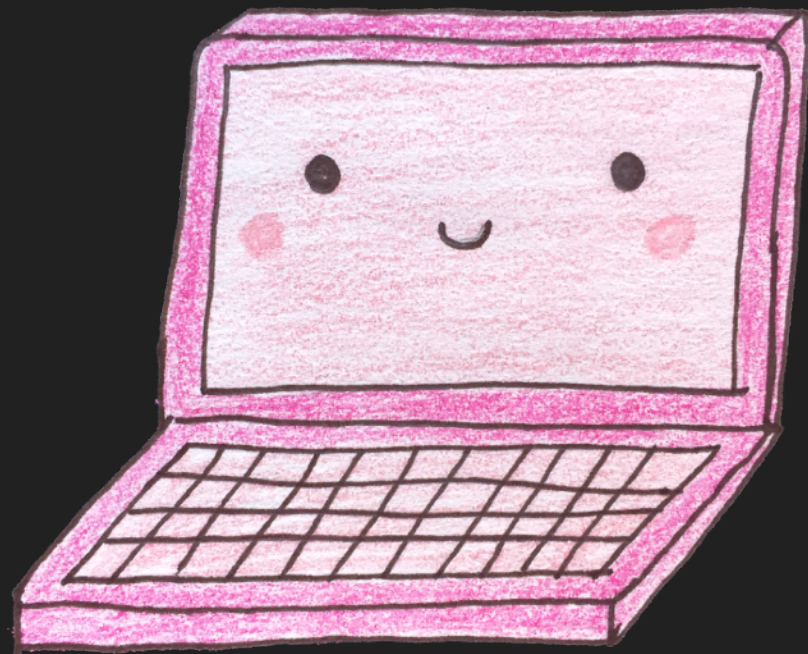


Baby, I'm not always
There when you call,
But I'm always on time
And I gave you my all,
Now baby, be mine

♪ ♪ ♪

keep things smooth

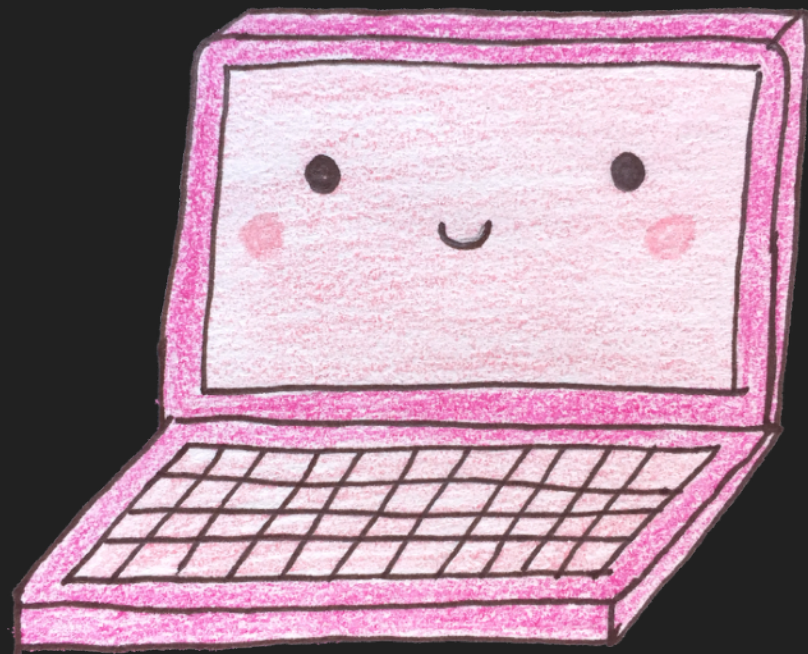
use web workers



Give it away
Give it away
Give it away
Give it away now
♪ ♪ ♪

keep things smooth

use web workers

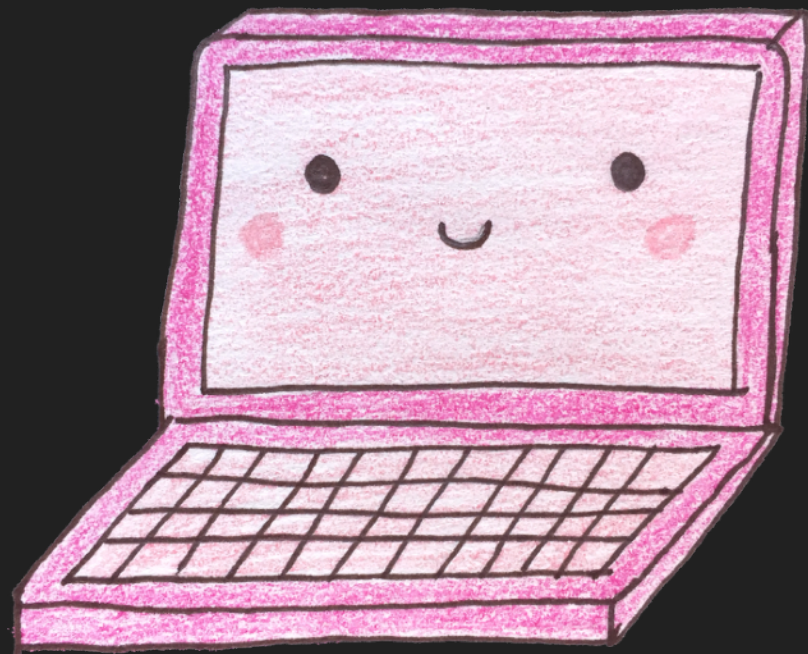


When what you have
Will take too long
Move along, move along
Like I know you do

♪ ♪ ♪

keep things smooth

animate with transform + opacity



I, I, I, I, I, I
Know how to transform
I transform, I transform
I'm a transformer
I, I, I, I, I, I
Know how to transform
I transform (I can do it!)
I'll transform (I can do it!)
I'm a transformer
♪ ♪ ♪

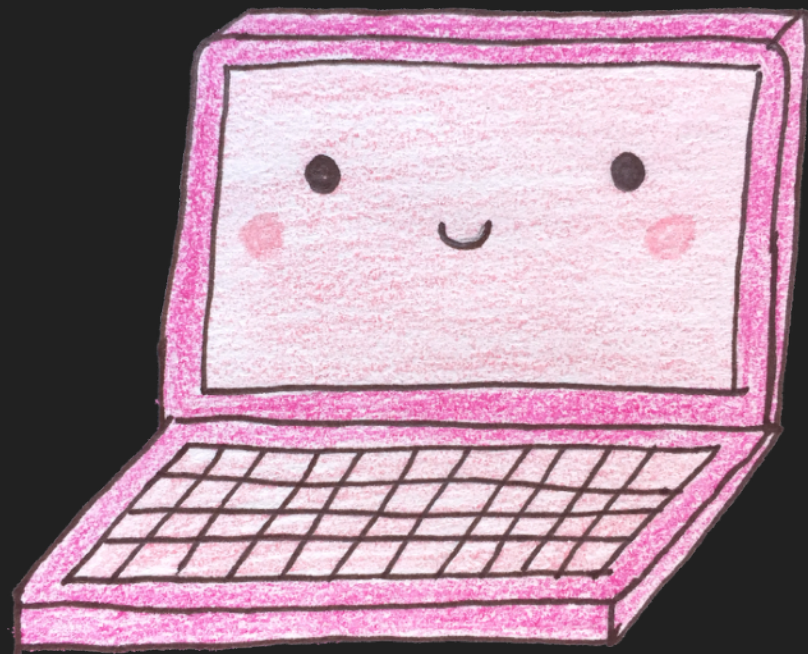
keep things smooth

animate with transform + opacity

```
.moving-element {  
    will-change: transform;  
}
```

keep things smooth

use a css methodology



CSS, take it easy
For there is something
that we can do.
CSS, take it easy
BEM it on me
Or BEM it on you.
♪ ♪ ♪

keep things smooth

use a css methodology

```
.box:nth-last-child(-n+1) .title {  
  /* styles */  
}
```

<https://developers.google.com/web/fundamentals/performance/rendering/reduce-the-scope-and-complexity-of-style-calculations>

keep things smooth

use a css methodology

```
.Box_title--special {  
  /* styles */  
}
```

<https://developers.google.com/web/fundamentals/performance/rendering/reduce-the-scope-and-complexity-of-style-calculations>

always

measure

first

keep things

small, keep

things smart,

keep things

smooth

Resources

- [Front-End Performance Checklist 2018](#)
- [Optimizing the Critical Rendering Path](#)
- [Rendering Performance](#)
- [Philip Roberts: What the heck is the event loop anyway?](#)
- [window.requestAnimationFrame\(\)](#)
- [Using Web Workers](#)
- [Server Farm to Table, Annotated](#)

Complete Tracklist

Alanis Morissette - Hand in My Pocket

The Supremes & The Four Tops - The Bigger You Love, The Harder You Fall

Calvin Harris ft. Ellie Goulding - Outside

Jimmy Eat World - Sweetness

Counting Crows - Mr. Jones

Imagine Dragons - Radioactive

Daft Punk - Harder, Better, Faster, Stronger

Taylor Swift - Blank Space

Missy Elliot - Work It

Blink 182 - All The Small Things

Bright Eyes - The Big Picture

Gotye - Somebody That I Used To Know

Pitbull ft. Ke\$ha - Timber

Cher - Believe

OutKast - Hey Ya

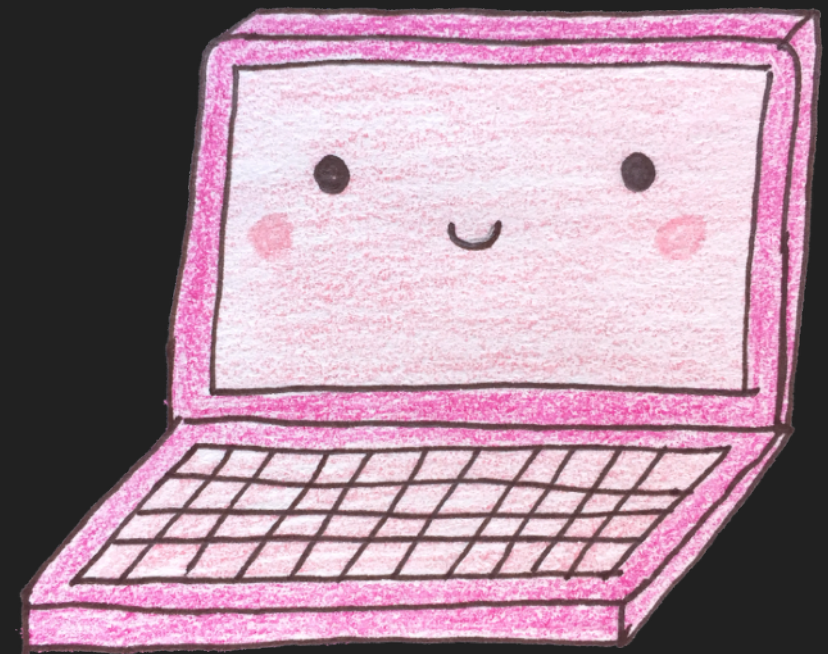
Sia - Cheap Thrills

Calvin Harris - Feel So Close

Complete Tracklist

The Beatles - Come Together
Jack Johnson - Better Together
Drake - Started from the Bottom
Beyoncé - Love on Top
Miley Cyrus - We Can't Stop
Paramore - Misery Business
The Cranberries - Zombie
Taking Back Sunday - Cute Without the E
Beyoncé - Upgrade U
Santana ft. Rob Thomas - Smooth
Taylor Swift - Shake it Off
Salt-N-Pepa - Shoop
CHVRCHES - Never Ending Circles
R. Kelly - Ignition
Ja Rule ft. Ashanti - On Time
Red Hot Chili Peppers - Give it Away
The All-American Rejects - Move Along
Gnarls Barkley - Transformer
Mika - Relax, Take it Easy

*something witty
about a POP
server...*





Thanks!



jenna.is/at-revconf-18



@zeigenvector

