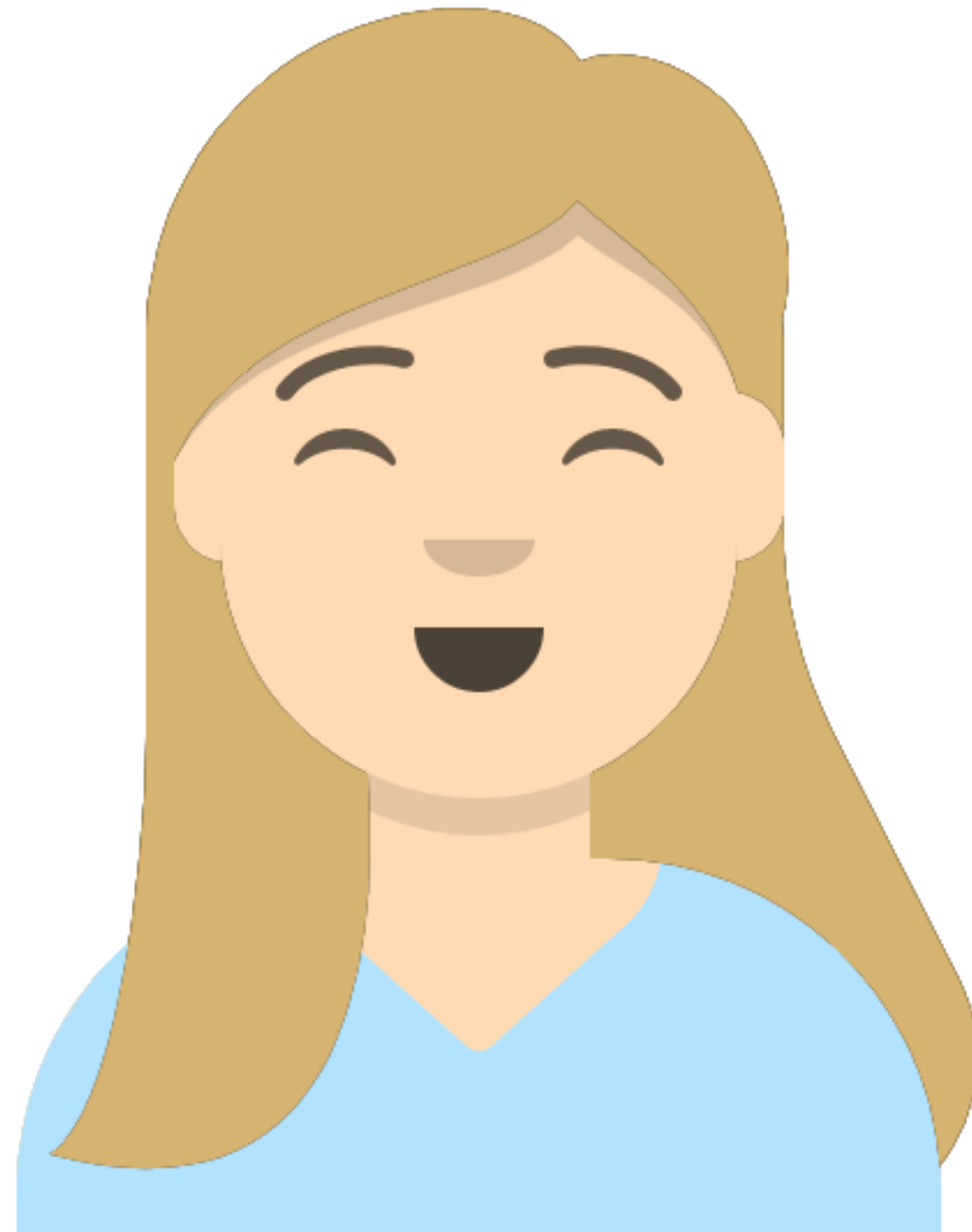




Responsive design

Web, Mobile and Security
Frédéric Vlummens



Yes it's still me 😊

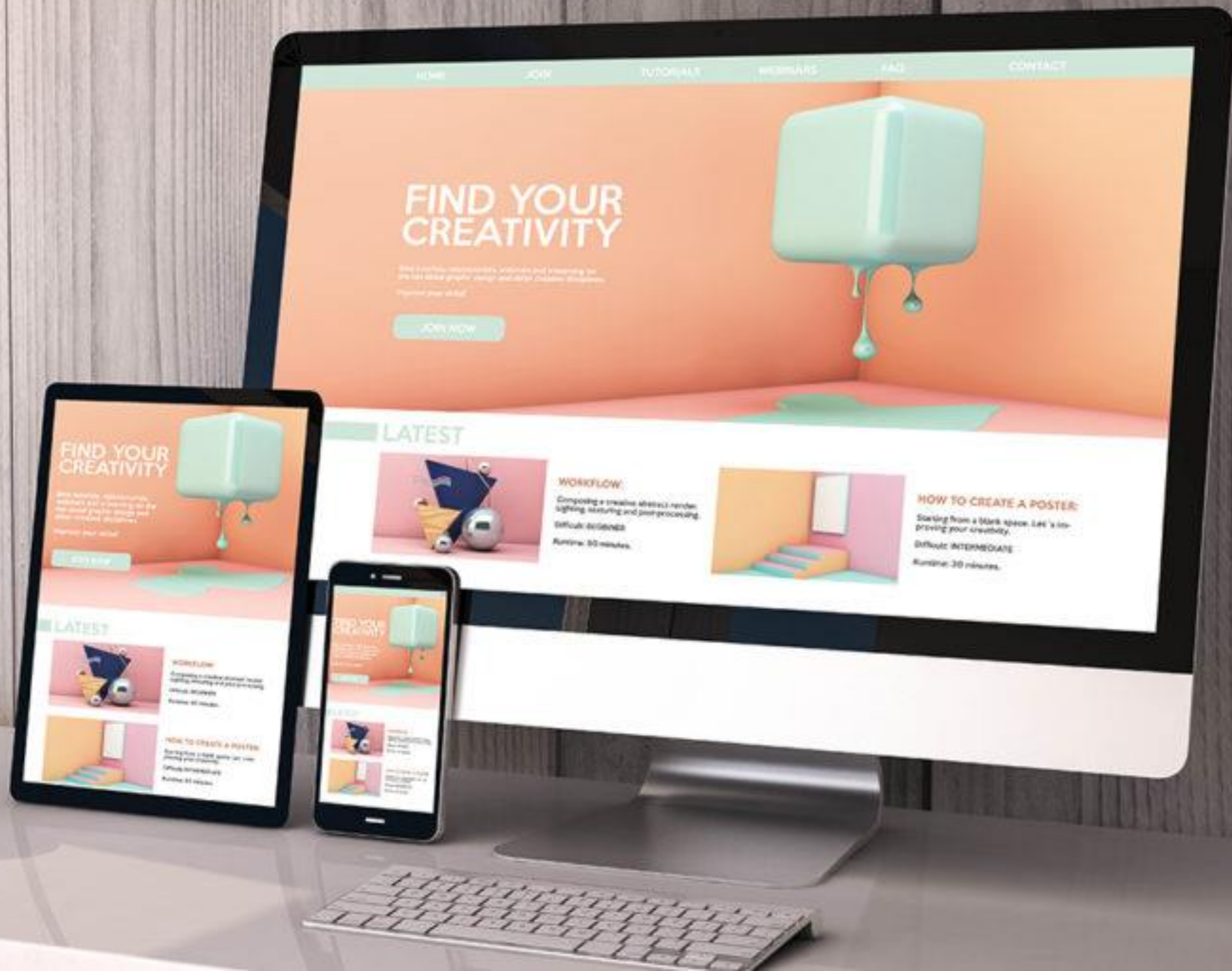
Overview

- CSS Positioning (different video)
- Responsive design techniques
- CSS Animation techniques (different video)

Overview

- CSS Positioning (different video)
- Responsive design techniques
 - What is responsive design?
 - What are media queries?
 - What techniques are responsive by design?
 - How does this all fit together?
- CSS Animation techniques (different video)

What is responsive design?



we need to serve all these devices and more
the same information

or perhaps not the **exact** same information,
but the information that is relevant for that
user on that type of device

= content prioritisation



Stays



Flights



Car Rentals



Attractions



Airport Taxis



Due to the current situation related to the coronavirus, we understand you may need to change your travel plans. To get the latest info, [contact the property](#) you booked to check if they can accommodate you. You can also visit our [Help Center](#) for support with making changes to your booking.

Due to the current circumstances, it may take us longer than usual to respond to any questions you send us. Thanks for your patience.

Find deals on hotels, homes, and much more...

From cozy country homes to funky city apartments



Where are you going?



Check-in — Check-out



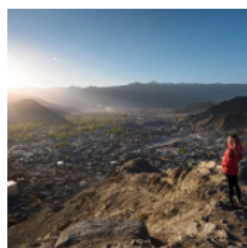
2 adults · 0 children · 1 room



Search



I'm traveling for work

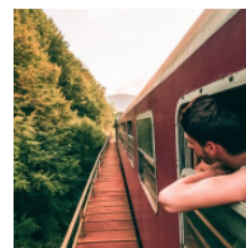


Early 2020 Deals



New Year's resolution to travel more? Start now with 20% off Jan. 1–Mar. 31

[View deals](#)

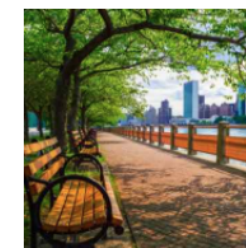


Break Away Deals



Need to travel? Make it easier with 20% off stays Apr. 1 – May 31

[View deals](#)



The Great Getaway Sale



Get away this season with at least 15% off stays Jun. 1–Aug. 31

[View deals](#)



Search

Destinations, properties, even an address

 Around current location 

Check-in Date

Fri, Jun 23, 2017

Check-out Date

Sat, Jun 24, 2017

Adults

2



Children

0



Are you traveling for work?



Yes



No

Search

[Search nearby for tonight >](#)



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Malcolm, Atlanta Lyft driver

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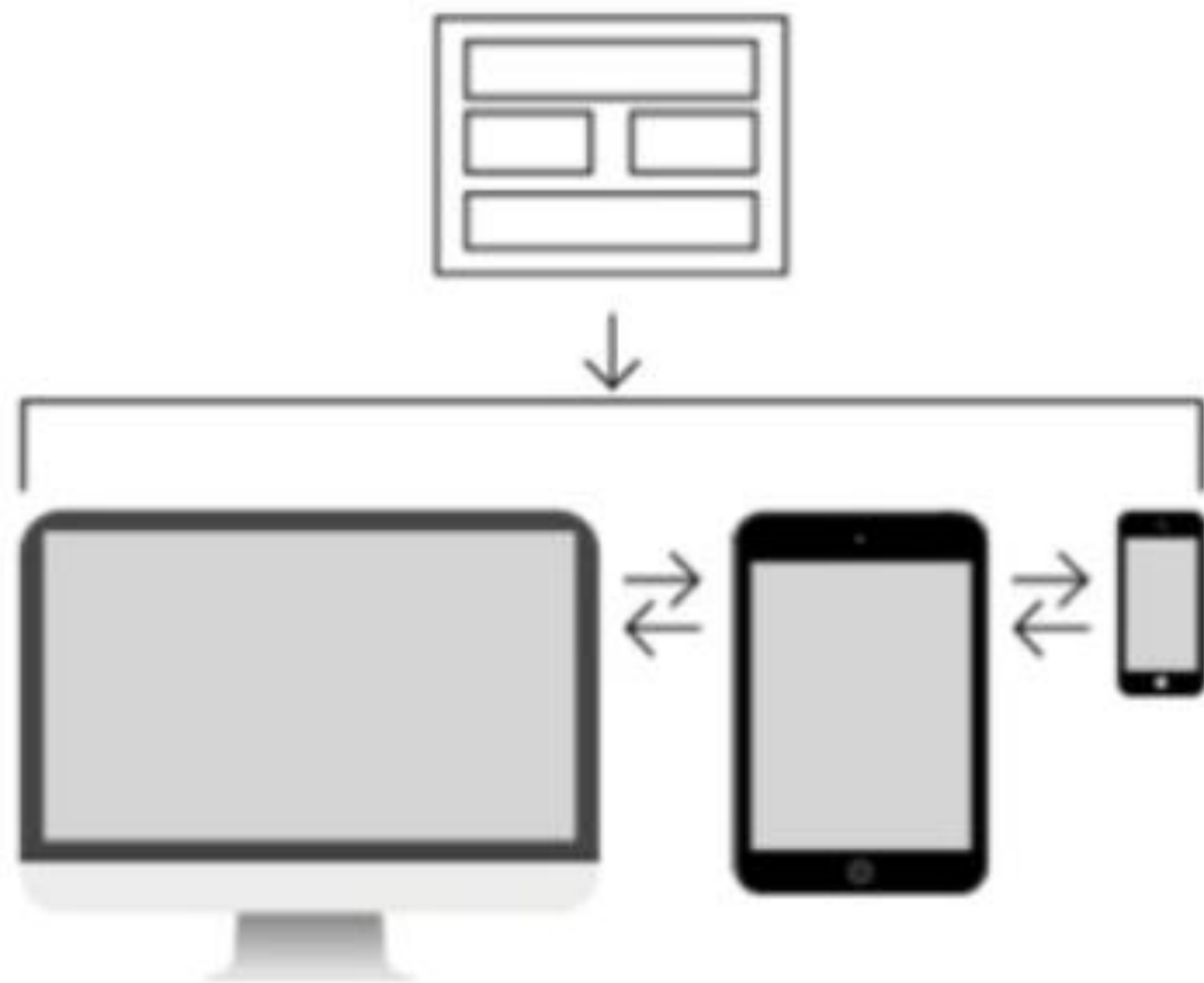
Malcolm, Atlanta Lyft driver

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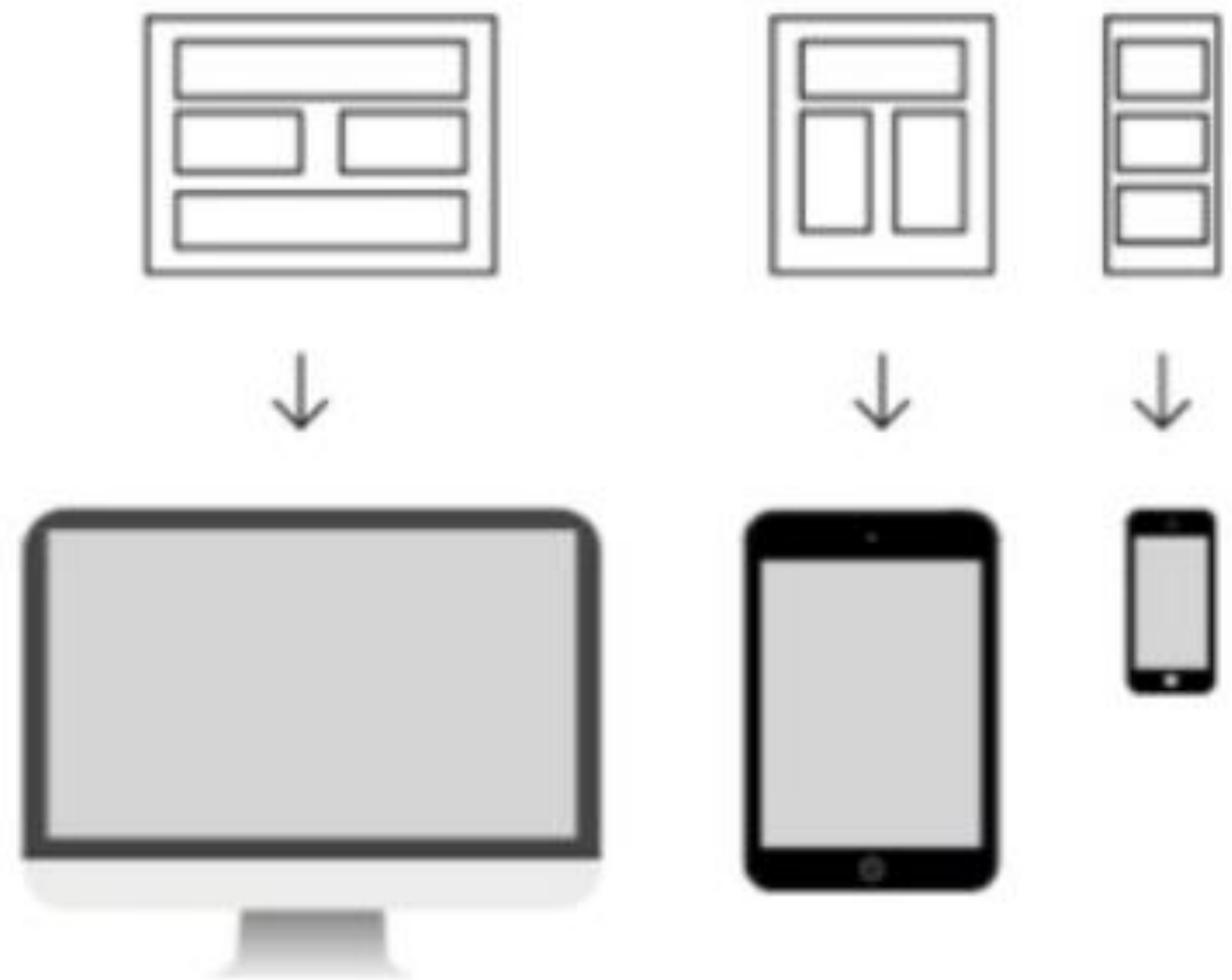
✓ ACCEPT ALL COOKIES



Responsive



Adaptive



While the advantages and disadvantages of each approach are **a lesson in itself**, this is out of scope

we'll be focusing on the **responsive design techniques only**



So we need one codebase to do all this

Viewport directive


```
<meta name="viewport" content="width=device-width, initial-scale=1">
```

Media queries

A media query allows you to write CSS for a specific situation

```
@media print { ... }
```

all

Suitable for all devices.

print

Intended for paged material and documents viewed on a screen in print preview mode.
(Please see [paged media](#) for information about formatting issues that are specific to these formats.)

screen

Intended primarily for screens.

speech

Intended for speech synthesizers.

Within each type, we can specify even further,
this is called a media feature

```
@media (max-width: 12450px) { ... }
```

And we can use logical operators


```
@media speech and (aspect-ratio: 11/5) { ... }
```

Full list on

https://developer.mozilla.org/en-US/docs/Web/CSS/Media_Queries/Using_media_queries

You can choose: in **<link>** or in CSS file

```
<link rel="stylesheet" media="screen and (max-width: 640px)" href="smallscreen.css"  
type="text/css" />
```

HTML

You can choose: in `<link>` or in CSS file

```
@media screen and (max-width: 640px) {  
  .bloc {  
    display: block;  
    clear: both;  
  }  
}
```

CSS

Old techniques involved targeting specific devices by specifying a device width

We would start with something like this

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

```
}
```

And end up with a bunch of these

```
@media all and (max-width: 699px) and (min-width: 520px), (min-width: 1151px) {  
  body {  
    background: #ccc;  
  }  
}
```


For all common breakpoints...

Mobile, portrait	320px	iPhone SE
	375px	iPhone 6, 7, 8, X
	414px	iPhone 8 Plus
Mobile, landscape	568px	iPhone SE
	667px	iPhone 6, 7, 8
	736px	iPhone 8 Plus
	812px	iPhone X
Tablet, portrait	768px	iPad Air, iPad Mini, iPad Pro 9"
	834px	iPad Pro 10"
Tablet, landscape	1024px	iPad Air, iPad Mini, iPad Pro 9"
	1024px	iPad Pro 12" (portrait)
	1112px	iPad Pro 10"
Laptop displays	1366px	HD laptops (768p)
	1366px	iPad Pro 12" (landscape)
	1440px	13" MacBook Pro (2x scaling)
Desktop displays	1680px	13" MacBook Pro (1.5x scaling)

Even CSS frameworks make a choice

Framework	Small	Medium	Large	Extra large
Bulma	-	min: 769px ("mobile")	min: 1024px ("desktop")	min: 1216px ("fullhd")
Bootstrap 3	-	min: 768px	min: 992px	min: 1200px
Bootstrap 4	min: 576px	min: 768px	min: 992px	min: 1200px
Tailwind	min: 576px	min: 768px	min: 992px	min: 1200px
Zurb Foundation	-	min: 640px	min: 1024px	min: 1200px

Modern Responsive Design Rule #1

You shall not use pixel-based breakpoints

Modern Responsive Design Rule #1

You shall not use pixel-based breakpoints

Use relative units instead (e.g. **em**)

Modern Responsive Design Rule #2

You shall not match devices

Modern Responsive Design Rule #2

You shall not match devices

Instead, look for when your design falls apart /
fails to work properly and target **that**

Modern Responsive Design Rule #3

Only use media queries to tweak where
necessary

Modern Responsive Design Rule #3

Only use media queries to tweak where
necessary

Use as many **default** responsive behaviours
as you can

Techniques that are responsive by design

Intrinsic dimension values

Extrinsic values:

When we tell the element how large it should be

Intrinsic values:

When the element's contents determines its size

min-content | max-content | fit-content

min-content

The inline size that would fit around its contents if all soft wrap opportunities within the box were taken.



Normal Width

A title for an awesome article

Intrinsic Width (min-content)

A title for
an
awesome
article

86px

It's equal to the width of "awesome"

max-content

A box's “ideal” size in a given axis when given infinite available space. Usually this is the smallest size the box could take in that axis while still fitting around its contents, i.e. minimizing unfilled space while avoiding overflow.

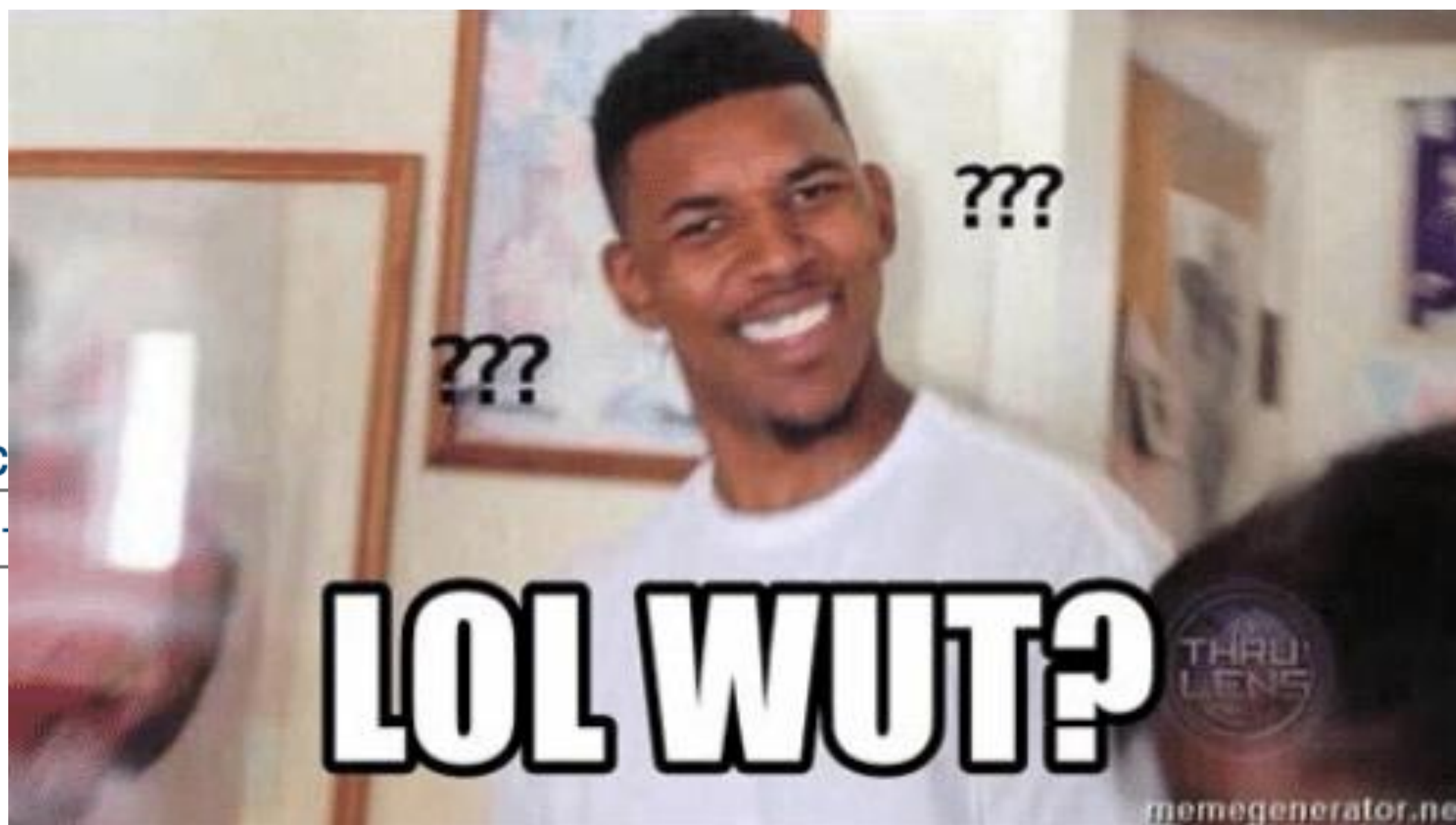


Notice that the element remains display: block, yet the background only goes as far as the text

fit-content

If the available space in a given axis is definite, equal to $\min(\text{max-content size}, \max(\text{min-content size}, \text{stretch-fit size}))$. Otherwise, equal to the max-content size in that axis.

If the available space
size, stretch-fi



max(min-content
s.

fit-content uses max-content, unless available < max-content, then it uses available.
Unless available < min-content, then it uses min-content.

fit-content uses max
Unless available < n



it uses available.

A title for an awesome article

max-content

Multi-column layout

Multicol

The first ascent, made in June from the Paris Observatory, though a lofty one, was attended with so much danger and confusion as to be barren of results. The departure, owing to stormy weather, was hurried and illordered, so that the velocity in rising was excessive, the net constricted the rapidly-swelling globe, and the volumes of out-rushing gas half-suffocated the

voyagers. Then a large rent occurred, which caused an alarmingly rapid fall, and the two philosophers were reduced to the necessity of flinging away all they possessed, their instruments only excepted. The landing, in a vineyard, was happily not attended with disaster, and within a month the same two colleagues attempted a second aerial excursion, again in wet weather.

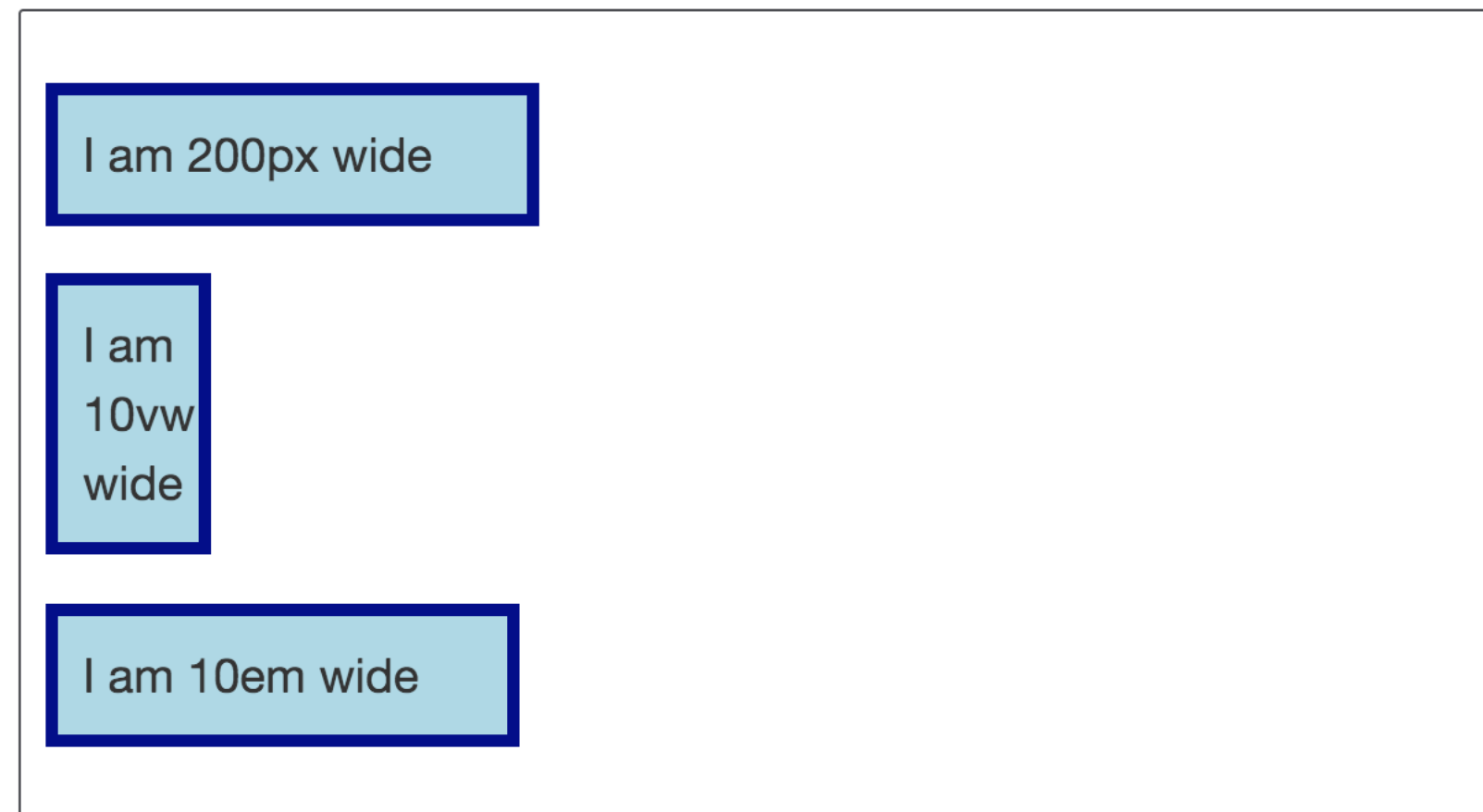
column-count: 2;

column-width: 20rem;

demonstration

Viewport units

Scale elements relative to a percentage of the viewport



- **Viewport Width** (`vw`) – A percentage of the full viewport width. `10vw` will resolve to 10% of the current viewport width, or `48px` on a phone that is `480px` wide. The difference between `%` and `vw` is most similar to the difference between `em` and `rem`. A `%` length is relative to local context (containing element) width, while a `vw` length is relative to the full width of the browser window.
- **Viewport Height** (`vh`) – A percentage of the full viewport height. `10vh` will resolve to `10%` of the current viewport height.
- **Viewport Minimum** (`vmin`) – A percentage of the viewport width or height, *whichever is smaller*. `10vmin` will resolve to `10%` of the current viewport width in portrait orientations, and `10%` of the viewport height on landscape orientations.
- **Viewport Maximum** (`vmax`) – A percentage of the viewport width or height, *whichever is larger*. `10vmax` will resolve to `10%` of the current viewport height in portrait orientations, and `10%` of the viewport width on landscape orientations. Sadly, and strangely, `vmax` units are not yet available on Internet Explorer or Edge.

demonstration

Flexbox flex basis

Determine width of an element by allowing to
grow, shrink and have a basis

```
flex: 1 1 40rem;
```

demonstration

grid

Leverage several features already included in
grid

Demonstration: 3 different use cases

Tying it together

Adhere to the rules

- Use as many **default** responsive behaviours as you can
- When you **do** use media queries, Use **relative units** instead (e.g. **em**)
- Do not match for devices, **match for appropriate design**