Overcoming Grid Reluctance

By Chen Hui Jing / @hj_chen

Surname First name

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shopify

Screens, screens, screens

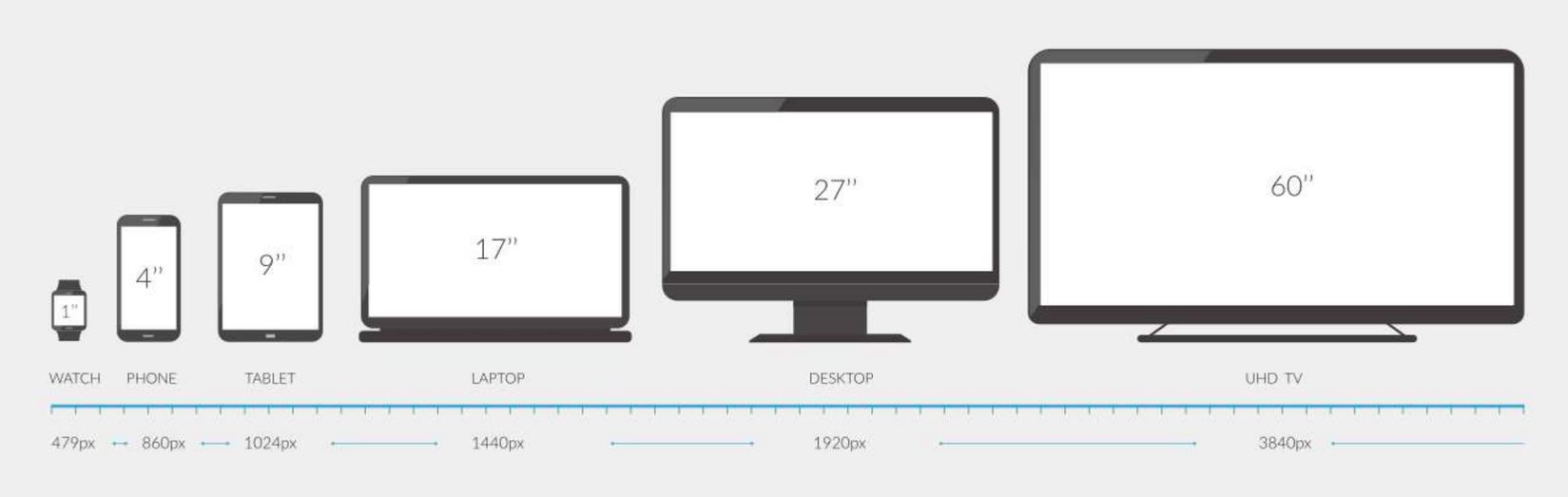


Image source: Inch Calculator

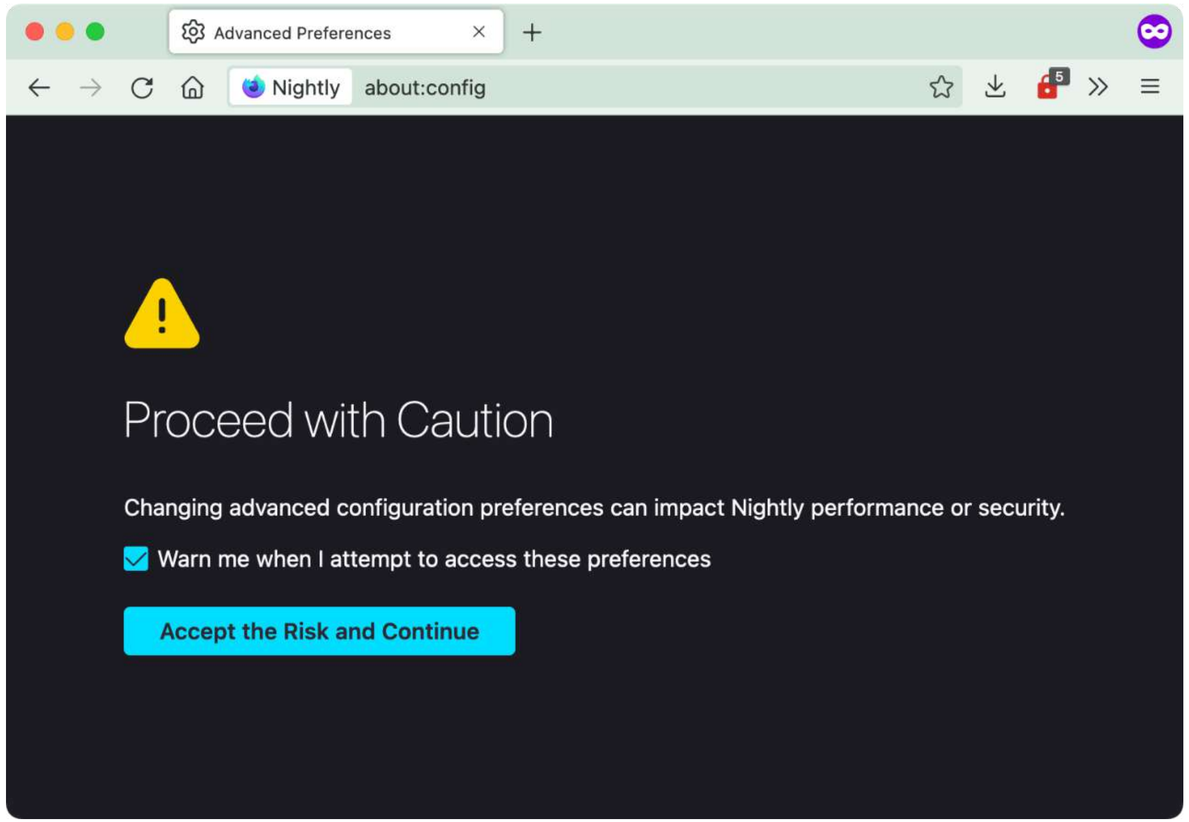
1.00

Image credit: Jyotika Sofia Lindqvist

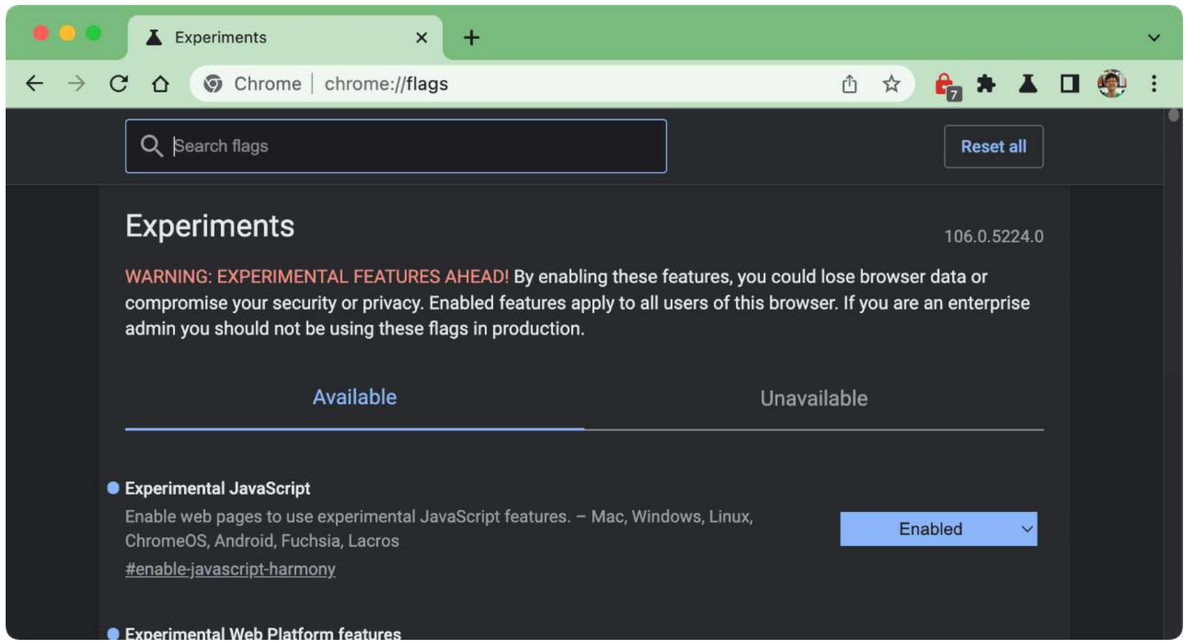
```
.wrapper {
  display: -webkit-box;
  display: -webkit-flex;
  display: -ms-flexbox;
  display: flex;
}
```

MDN: Backwards Compatibility of Flexbox

Browser configuration pages



about:config



chrome://flags

Grid release dates

March 2017

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6		8	9	10	11
12	13		15	16	17	18
19	20		22	23	24	25
26		28	29	30	31	

October 2017

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16		18	19	20	21
22	23	24	25	26	27	28
29	30					

CSS Flexible Box Layout Module

Method of positioning elements in horizontal or vertical stacks. Support includes all properties prefixed with `flex`, as well as `display: flex`, `display: inline-flex`, `align-content`, `align-items`, `align-self`, `justify-content` and `order`.

IE	Edge	Firefox	Chrome	Safari	iOS Safari	Opera Mini	Chrome for Android	Android Browser	Samsung Internet
9	105	104	105	15.6	15.6			4.4	16.0
10	106	105	106	16.0	16.0			4.4.4	17.0
11	107	106	107	16.1	16.1	all	107	107	18.0
		107	108	16.2					

✓ ✗ Partial Support Prefixed

Global: 98.7% + 0.97% = **99.67%**

Data from caniuse.com | Embed from caniuse.bitsofco.de

Disable accessible colours

CSS Grid Layout (level 1)

Method of using a grid concept to lay out content, providing a mechanism for authors to divide available space for layout into columns and rows using a set of predictable sizing behaviors. Includes support for all `grid-*` properties and the `fr` unit.

IE	Edge	Firefox	Chrome	Safari	iOS Safari	Opera Mini	Chrome for Android	Android Browser	Samsung Internet
9	105	104	105	15.6	15.6			4.4	16.0
10	106	105	106	16.0	16.0			4.4.4	17.0
11	107	106	107	16.1	16.1	all	107	107	18.0
		107	108	16.2					

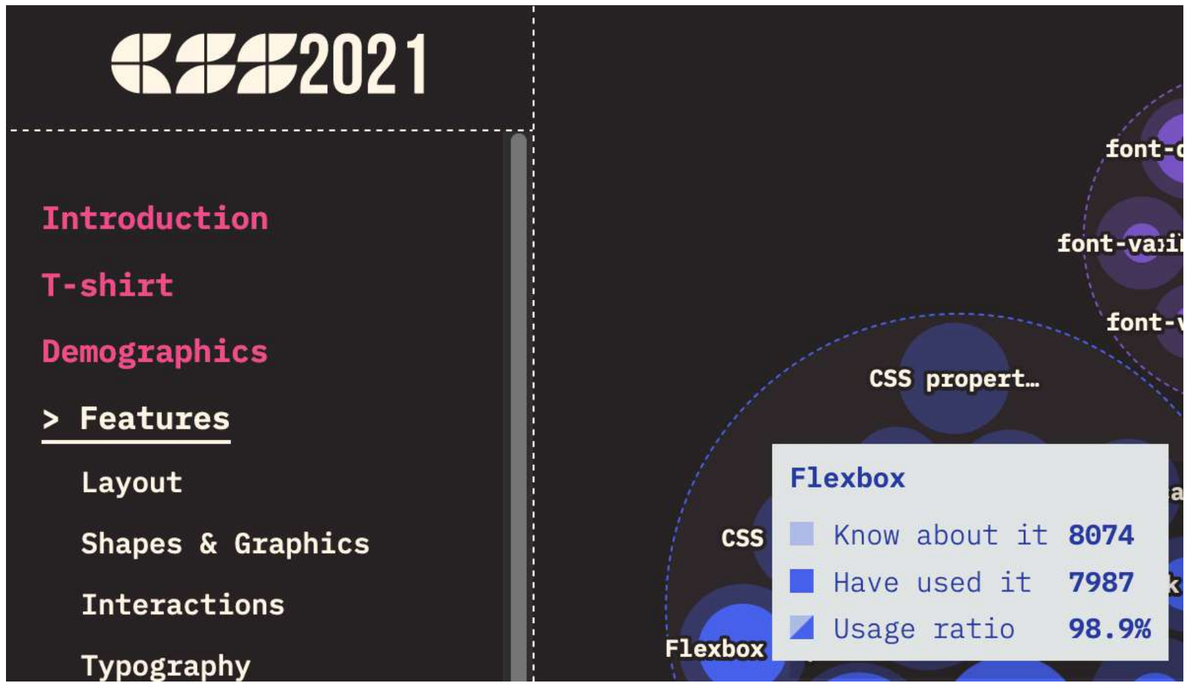
✓ ✗ Partial Support Prefixed

Global: 96.31% + 0.54% = **96.85%**

Data from caniuse.com | Embed from caniuse.bitsofco.de

Disable accessible colours

State of CSS 2021 survey



Flexbox: 98.9%

Grid: 83.5%

https://2021.stateofcss.com/en-US/

top-bar

Spotify

Home
Search
Your Library

Create Playlist
Liked Songs

Lee Young Ji
Be'o
Elaine
Tycho
Moon
Stella Jang
Seori
Jasmine Sokko
40 hours a day
Video Game Symphony
Red Panda Jam
Lazy Jazz Cat
Tones and I
Your Favorite Coffeehouse

Install App

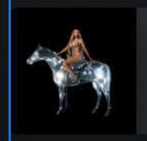
nav-bar

top-bar

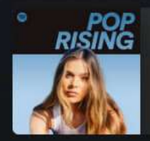
Upgrade
hj_chen

main-view

Good evening


RENAISSANCE

This Is CHVRCHES



Pop Rising

This Is girl in red

Today's Top Hits

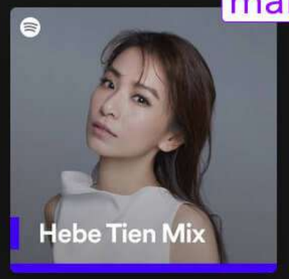

Tones and I

Your top mixes

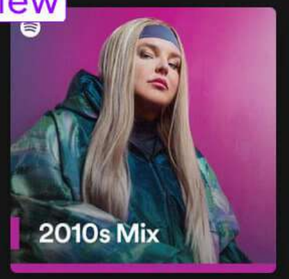
SEE ALL

Lizzo Mix
Beyoncé, Tinashe, Cardi B and more

Beyoncé Mix
Tems, Lizzo, City Girls and more



Hebe Tien Mix
Sam Lee, WeiBird, Jay Chou and more



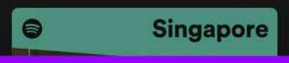
2010s Mix
Tones And I, Lizzo, Hayley Kiyoko and more

80s Mix
a-ha, James Ingram, CoCo Lee and more

2000s Mix
Rene Liu, Sam Lee and more

Today's biggest hits

SEE ALL



now-playing-bar

4:28
4:29

now-playing-bar

⚠️ Disclaimer ⚠️

The following theory may or may not oppose your view on the matter, and that is PERFECTLY FINE. I am not here to tell you what to think, merely here to share a theory based on my personal observations and experiences. You are absolutely free to agree, disagree or not care at all.

christina aguilera *stripped*

WHAT'S NEW

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:: Watch the new & hot video **"Dirrty"**! Choose your connection speed:
Real: LO | MED | HI
Windows: LO | MED | HI

CHRISTINA | THE MUSIC | PHOTOS | NEWS & TOUR | DOWNLOAD

CLICK HERE FOR MORE PHOTOS >

Enter your email address to sign-up for Christina's exclusive mailing list:

SUBMIT

TOP NEWS

:: DIRRTY #1 in the UK! Read on.

:: November 22, 8:00 PM ET- Performing Dirrty with Redman on the **MTV Europe Awards.**

:: December 2- Performing on **Jay Leno**

:: December 4- Performing on **MY VH1 Awards.**

:: from **MTV.com:**
"The first week we had the Christina video on the site it did almost double the number of streams than the 2nd most streamed video. She also had the #1 most trafficked artist page that week with over 15,000 more hits that #2 Eminem."

:: **VIBE TV** - Crew came to the video shoot of "Beautiful" for a Vibe Style segment, Air date: January 11th, 2003.

:: Get your Christina Aguilera Faceplate and Nextel Phone! Buy it here.

Home | Updates | Stories | Art | Sonic | Timelines | Quotes | About Me | Links

Chronos the Cat's Anime Addventure Episodes and Stories

My Storylines | Other Episodes

ry. Like a Round Robin, different authors can
e Round Robins, addventures branch, allowing
inclined) to take the story in different
to Anime fan fiction addventures (and

can be found here.

neopets.com

neopets

the high street

pet central
create a pet
neomail
world
explore
chat
games
shop
new
help
login!
logout!

Neopia Central

Click on the shop you wish to visit. You can buy food or toys for your pet, collect rare items and trading cards, and even buy clothes.

The shops restock roughly 7 times every hour!

To see the rest of the shops click the left of the main oval on the toolbar above!

search neopets
Go!
English
Go!

Dotcom bubble (1995-2002)

Source: The History of the Dotcom Bubble

Welcome to Michel's Video Games page!

Last update: 16 September 1994

These pages have been consulted 1088 times September 15th 1994!

Fast jumps to sections: What's New, 3DO, Doom, Jaguar, SNES, Pinball, Netrek, Game Boy, Shockwave (3do), Way Of The Warrior (3do), the Video Game FAQ Page

---

 **This page is updated daily!! Check the What's New page to see the recent additions.**

Introduction: Who am I?

I removed my digitized picture but if you really want to see my ugly face, check my ugly face page! Other pictures and info are availables in my personnal home page.

Well, I'm a poor french lost in the United States for a year. I had to leave my SNES in France so I bought a 3DO as soon as I could when I arrived in Pittsburgh. I don't regret it. See the 3DO and SNES related stuff further in this page. Check also The Atari Jaguar links. Netrek and Doom fans may find some interesting links too. Pinball players will find the best infos for their favorite pinballs too! Arcade Game players can't miss my Video Game FAQ Page.

Please send me suggestions and interesting links by email at:

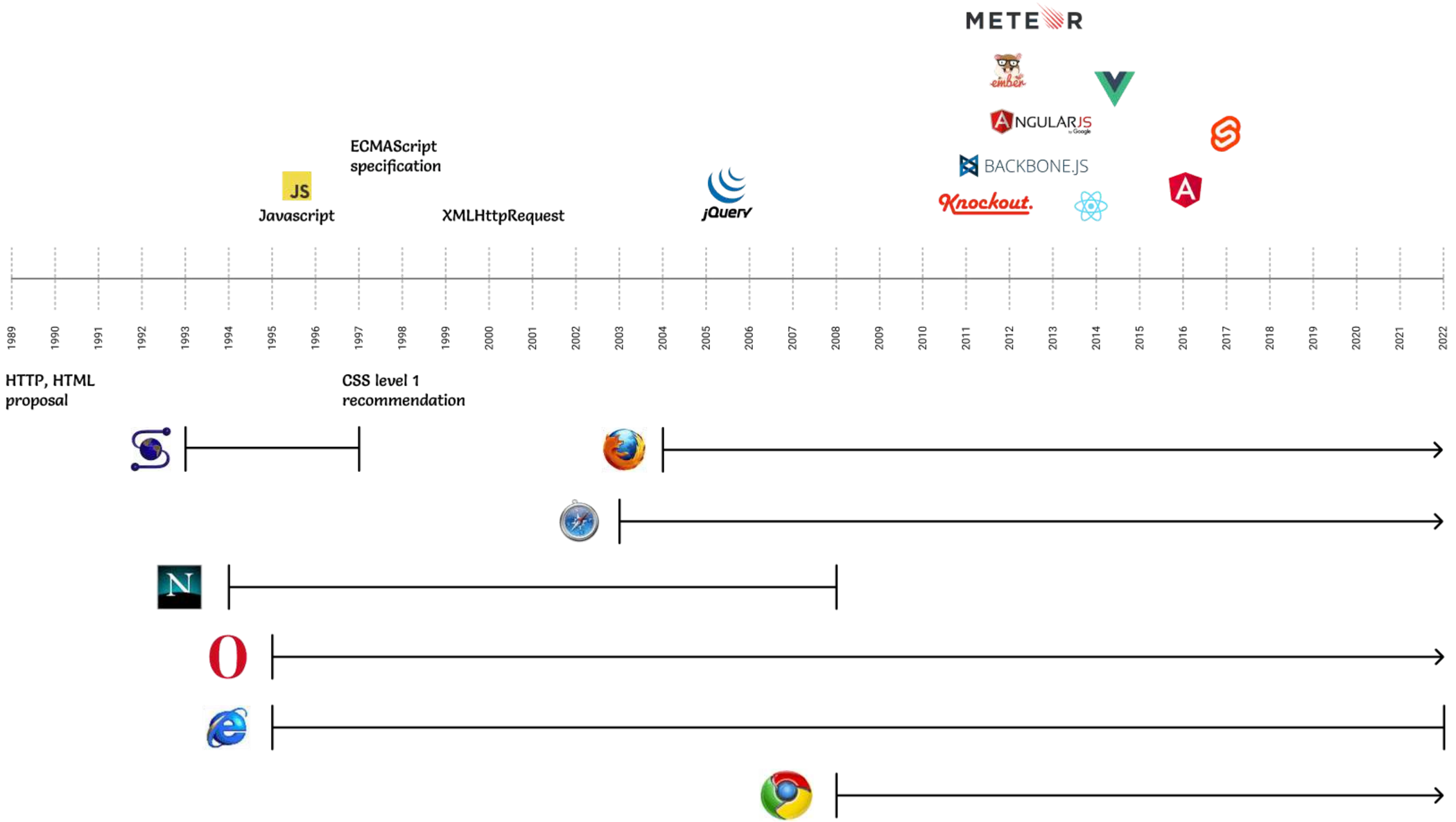
<*Michel.Buffa@cmu.edu*>

First, some interesting links for video game addicts:

Check these sites!

- The Games Domain home page (PC, X11 games, others...). Contains tons of FAQs in html format, lots of links to other games-related WWW pages. **Tons of links there!**
- The official Game Bytes WWW pages! Brand New on the WWW! Game Bytes is an electronic fanzine that talks mainly about the PC and computer games but also has columns for the consoles (SNES, Genesis, Sega CD, 3DO).
- Video Games FAQS ftp server: Mortal Kombat I and II, NBA Jam, Art of Fighting, lots of infos about real arcade games and console/computer games. Some of the files available there in ASCII have been translated by me in mosaic format. **Check my Video Game FAQ Page.**
- Check out the video game mosaic pages from Cardiff. This site contains lots of FAQs, pictures, info about video games for all type of machines.
- ftp.digex.net. Almost anything you can imagine for most platforms. New site.
- sunsite.unc.edu. Sega stuff only, including FAQs, electronic publications etc.
- ftp.ee.pdx.edu. 3DO material, mostly lots of game screenshots in JPEG format.
- busop.cit.wayne.edu. Miscellaneous material for CES, Turbo Duo, and Sega platforms. Very often Busy.
- rtfm.mit.edu. For video game newsgroup archives:

Source: Michel Buffa's Video Games Page in 1994


METEOR
ember
ANGULARJS
BACKBONE.JS
Knockout.
ECMAScript specification
JS
Javascript
XMLHttpRequest
jQuery
1989
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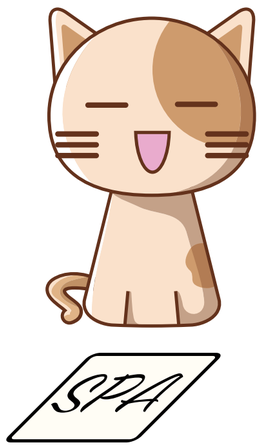
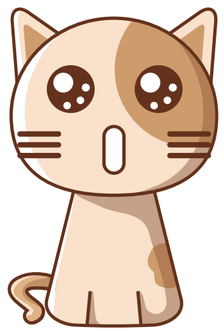
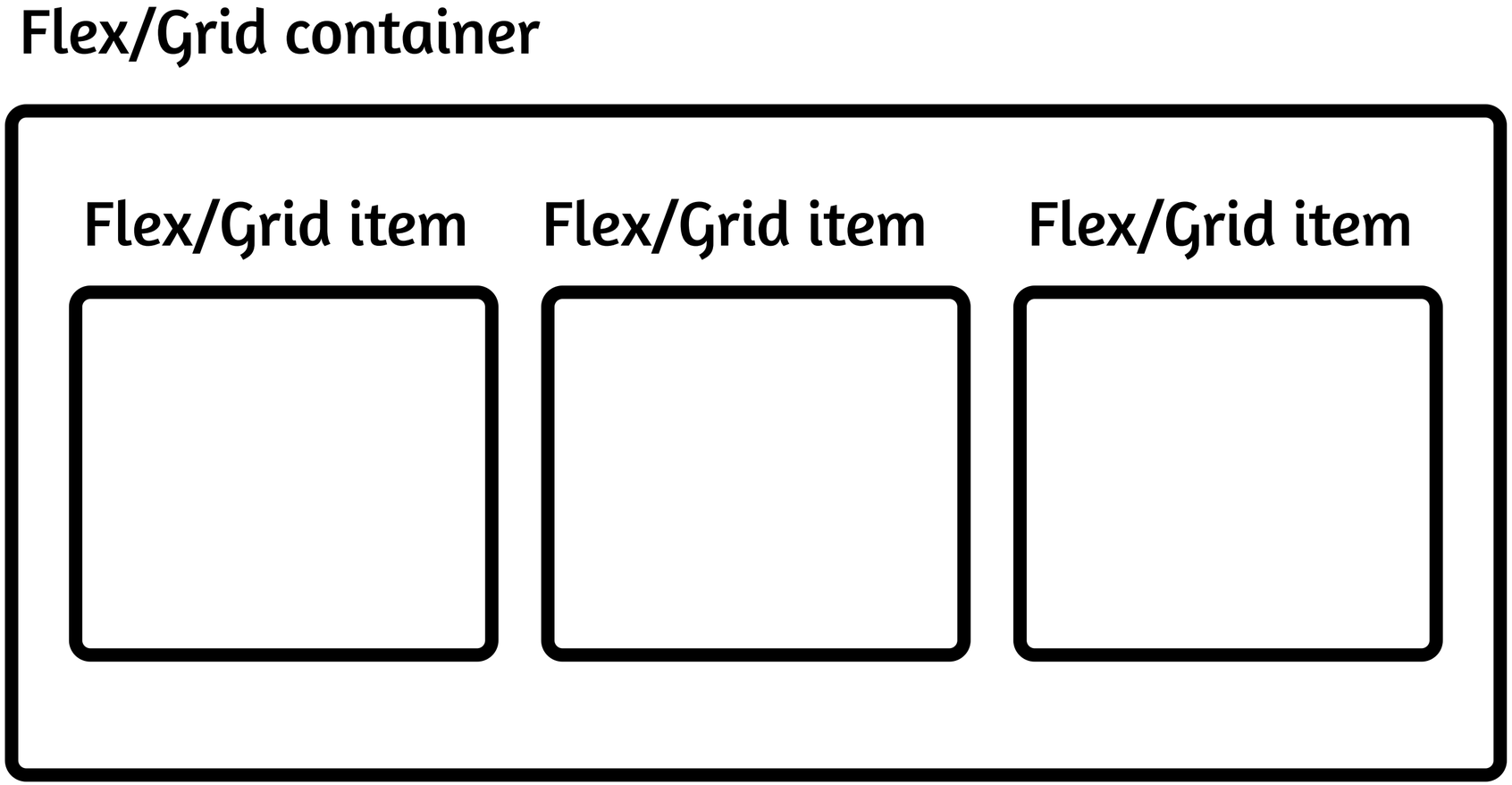
2021
2022
HTTP, HTML proposal
CSS level 1 recommendation

SPA

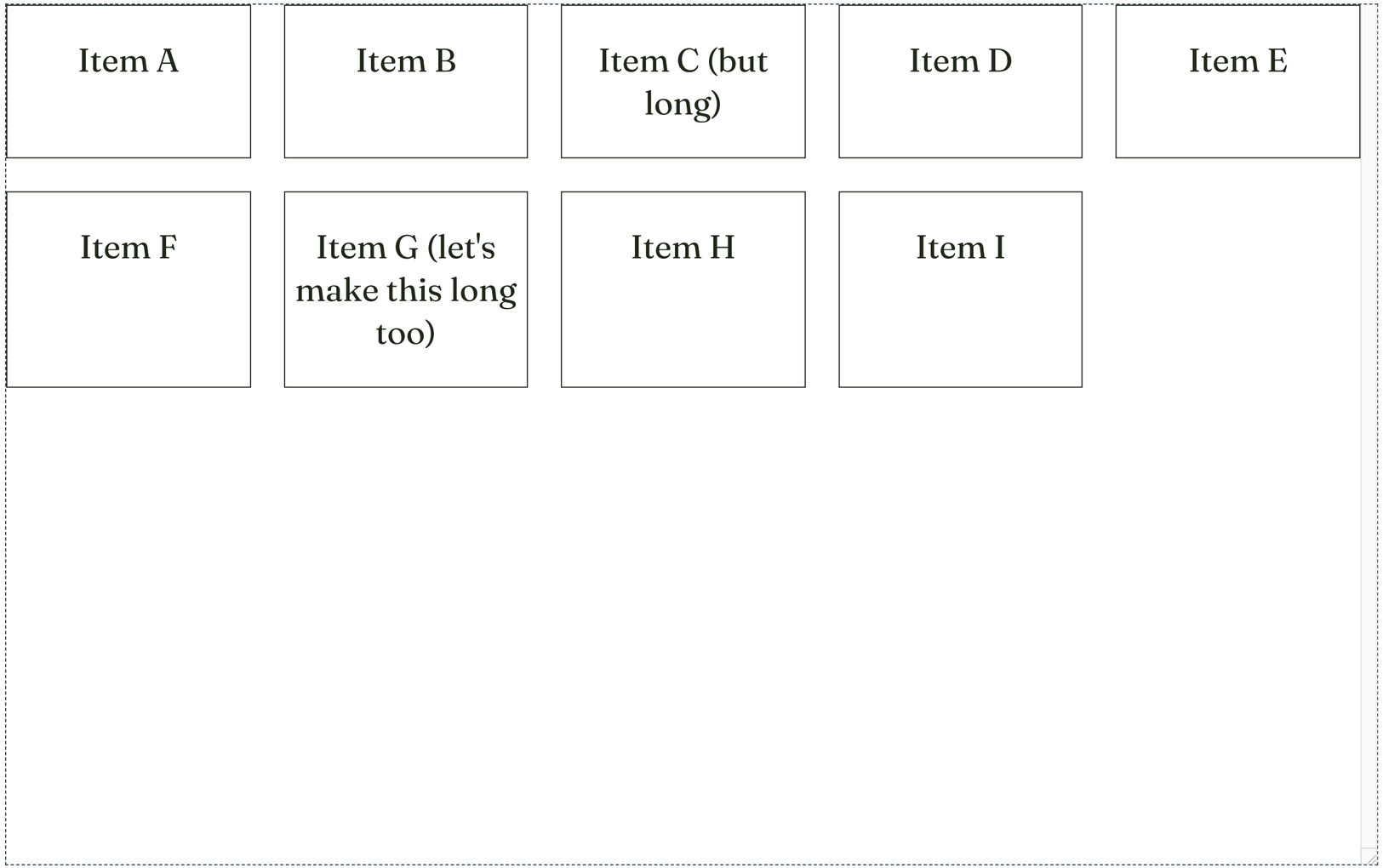




Parent-child relationship

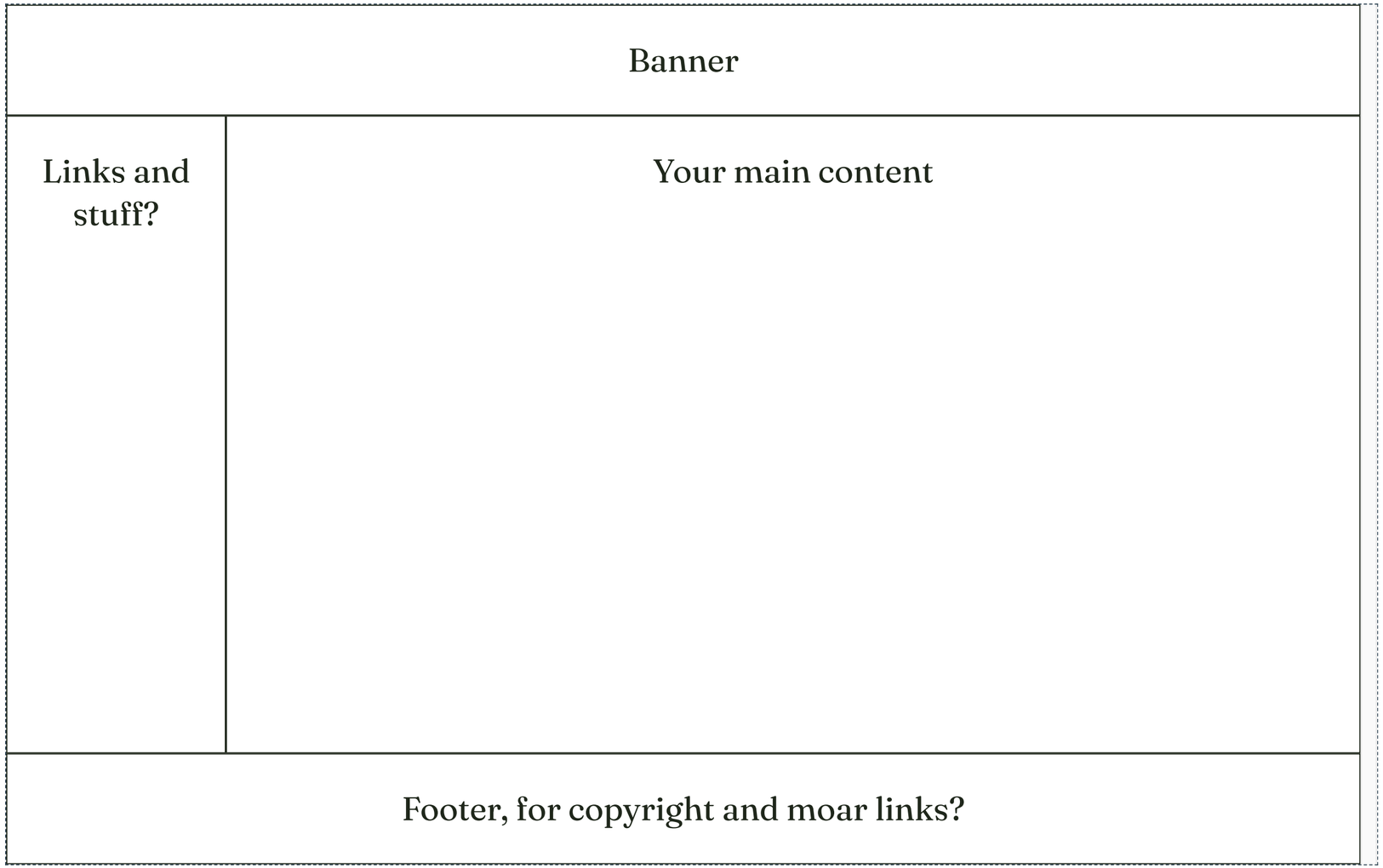


Basic grid syntax




```
.basic-grid {
  display: grid;
  grid-template-columns:
repeat(auto-fit, minmax(200px,
1fr));
  gap: 1em;
}
```

Named grid areas




```
.named-grid {
  display: grid;
  grid-template-columns: 200px 1fr;
  grid-template-rows: auto 1fr auto;
  grid-template-areas: 'header header'
                       'sidebar main'
                       'footer footer';
}

.h { grid-area: header }
.s { grid-area: sidebar }
.m { grid-area: main }
.f { grid-area: footer }
```

Placing grid items

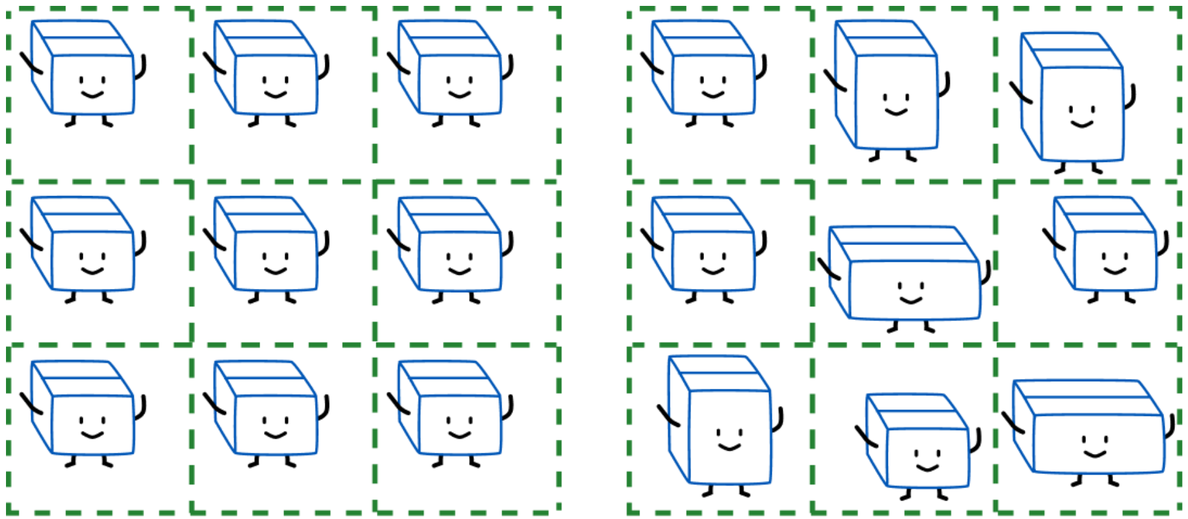
Not my cat

He just naps in my house sometimes. But isn't he super cute?

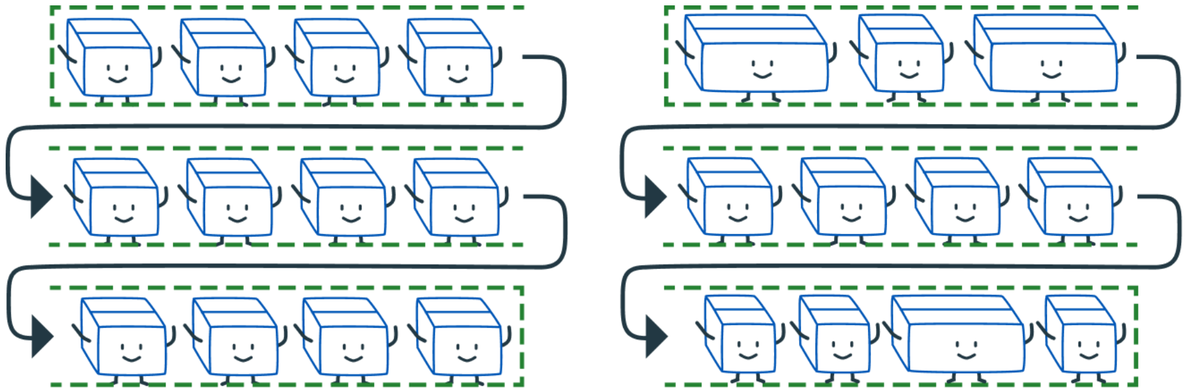
```
.overlap-grid {
  display: grid;
  grid-template-columns: 1fr 300px 1fr;
  grid-template-rows: 1fr auto 1fr;
}

.image {
  grid-column: 1 / span 2;
  grid-row: 1 / -1;
}
.headline {
  grid-column: 2 / 4;
  grid-row: 2;
}
.text {
  grid-column: 2 / 4;
  grid-row: 3;
}
```

Container-led sizing



Item-led sizing



Common example of grid system CSS

“Bootstrap’s grid system uses a series of containers, rows, and columns to layout and align content.”

```
.col-sm {
  flex: 1 0 0%;
}
.row-cols-sm-auto > * {
  flex: 0 0 auto;
  width: auto;
}
.row-cols-sm-1 > * {
  flex: 0 0 auto;
  width: 100%;
}
.row-cols-sm-2 > * {
  flex: 0 0 auto;
  width: 50%;
}
.row-cols-sm-3 > * {
```

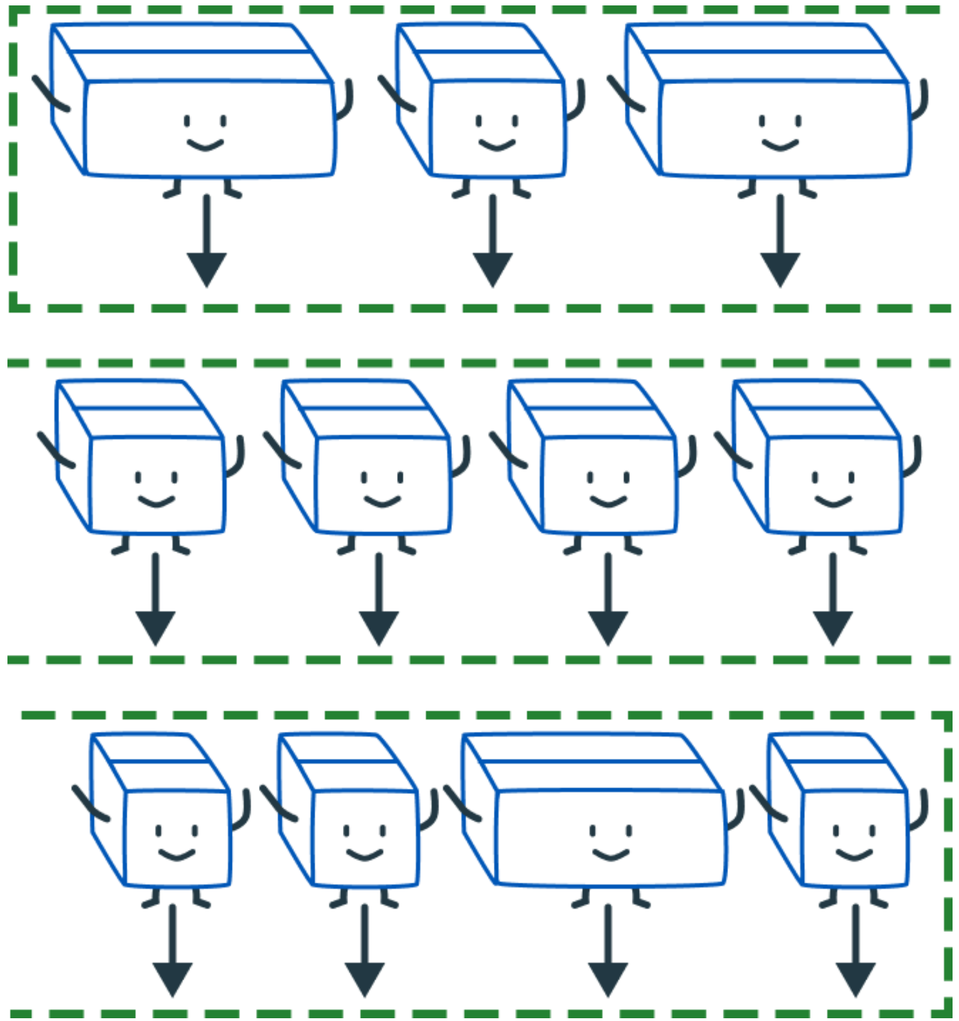
```
<div class="container">
  <div class="row">
    <div class="col-sm-4">
      One of three columns
    </div>
    <div class="col-sm-4">
      One of three columns
    </div>
    <div class="col-sm-4">
      One of three columns
    </div>
  </div>
</div>
```

🌶️ Yet another spicy opinion 🌶️

¯_(ツ)_/¯

> *It uses CSS Flexbox (rather than CSS Grid) for high flexibility.*
>
> – *Material UI (Grid version 2)*

Alignment only along cross-axis



Extra row wrapper required

```
<div class="row">
  <div class="columns small-2 large-4">4</div>
  <div class="columns small-4 large-4">4</div>
  <div class="columns small-6 large-4">4</div>
</div>
<div class="row">
  <div class="columns large-3">3</div>
  <div class="columns large-6">6</div>
  <div class="columns large-3">3</div>
</div>
```

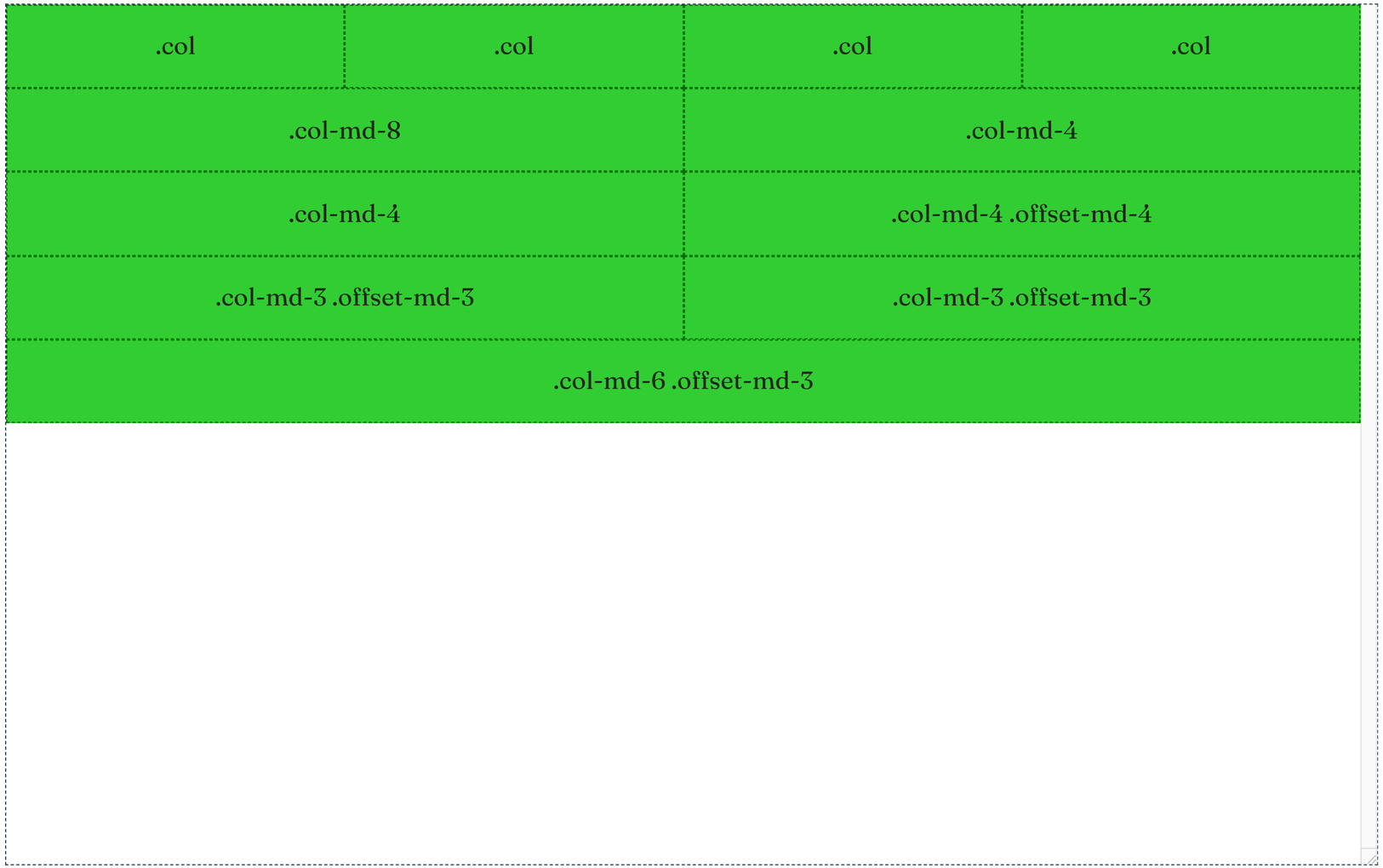
```
<div class="container text-center">
  <div class="row">
    <div class="col align-self-start">
      One of three columns
    </div>
    <div class="col align-self-center">
      One of three columns
    </div>
    <div class="col align-self-end">
      One of three columns
    </div>
  </div>
</div>
```

```
<grid container="" spacing="{2}">
  <grid xs="{8}">
    <item>xs=8</item>
  </grid>
  <grid xs="{4}">
    <item>xs=4</item>
  </grid>
  <grid xs="{4}">
    <item>xs=4</item>
  </grid>
  <grid xs="{8}">
    <item>xs=8</item>
  </grid>
</grid>
```

Flexbox-powered grid markup

```
<div class="flex-grid">
  <div class="row">
    <div class="col">.col</div>
    <div class="col">.col</div>
    <div class="col">.col</div>
    <div class="col">.col</div>
  </div>
  <div class="row">
    <div class="col col-md-8">.col-md-8</div>
    <div class="col col-md-4">.col-md-4</div>
  </div>
  <div class="row">
    <div class="col col-md-4">.col-md-4</div>
    <div class="col col-md-4 offset-md-4">.col-md-4 .offset-md-4</div>
  </div>
  <div class="row">
```

Flexbox-powered grid



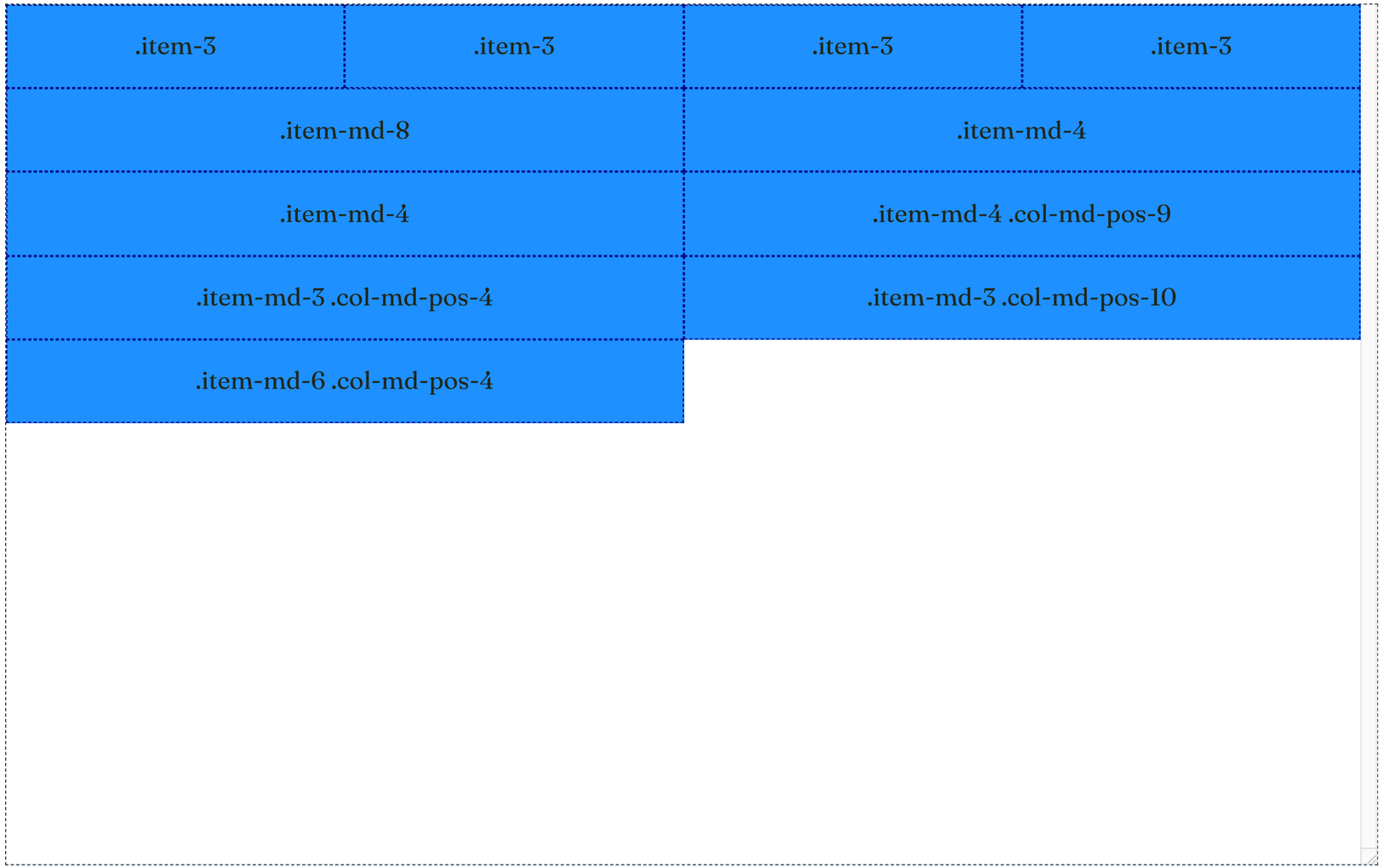

```
.row {
  display: flex;
  flex-wrap: wrap;
}

.col {
  flex: 1 0 0%;
}

@media screen and (min-width:
768px) {
  .col-md-8 {
    flex: 0 0 auto;
    width: 66.66666667%;
  }

  .col-md-6 {
    flex: 0 0 auto;
    width: 50%;
  }
```

Grid-powered grid




```
.grid {
  display: grid;
  grid-template-columns: repeat(12,
1fr);
}

[class*='item'] {
  grid-column-end: span 6;
}

.item-3 {
  grid-column-end: span 3;
}

@media screen and (min-width:
768px) {
  .item-md-8 {
    grid-column-end: span 8;
  }
```

Column breaks

Breaking columns to a new line in flexbox requires a small hack: add an element with `width: 100%` wherever you want to wrap your columns to a new line. Normally this is accomplished with multiple `.row`s, but not every implementation method can account for this.

.col-6 .col-sm-3	.col-6 .col-sm-3
.col-6 .col-sm-3	.col-6 .col-sm-3

HTML

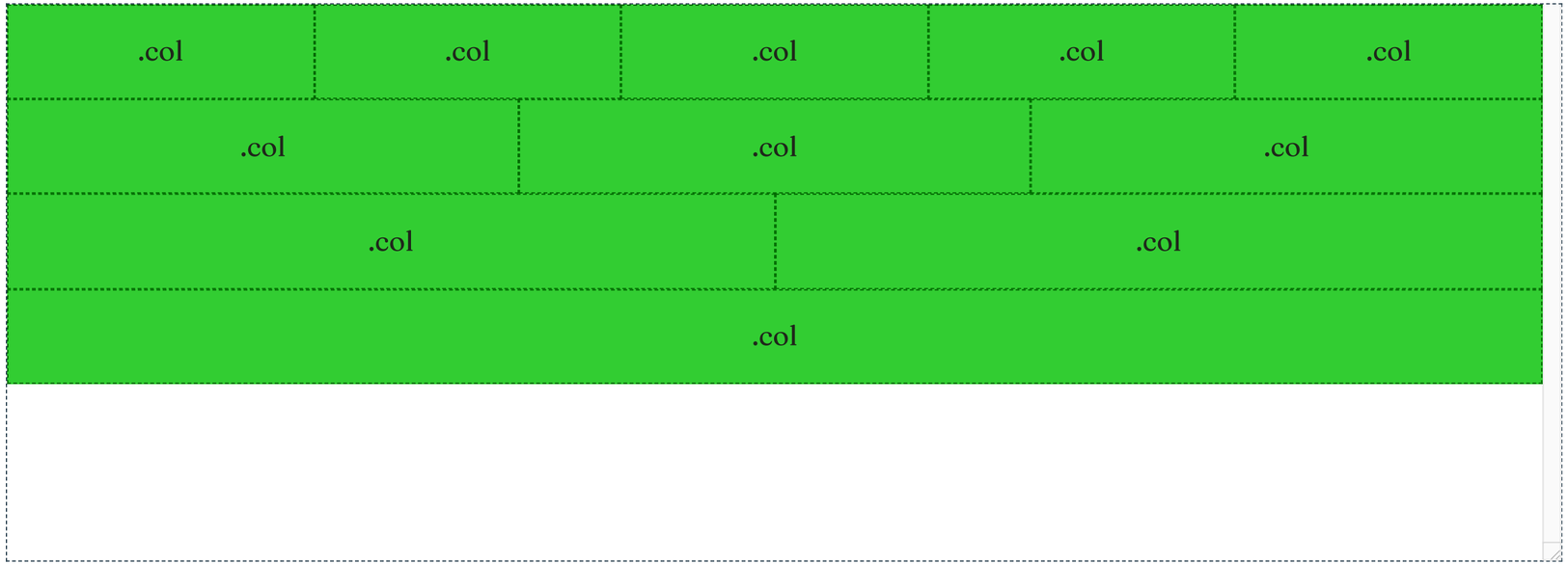
```
<div class="container text-center">
  <div class="row">
    <div class="col-6 col-sm-3">.col-6 .col-sm-3</div>
    <div class="col-6 col-sm-3">.col-6 .col-sm-3</div>

    <!-- Force next columns to break to new line -->
    <div class="w-100"></div>

    <div class="col-6 col-sm-3">.col-6 .col-sm-3</div>
    <div class="col-6 col-sm-3">.col-6 .col-sm-3</div>
  </div>
</div>
```

Source: Bootstrap v5.2 documentation

But is it a grid? 🤔




```
.row {
  display: flex;
  flex-wrap: wrap;
}

.col {
  flex: 1 0 0%;
}
```

> *a network of lines that cross each other to form a series of squares or rectangles.*

Google's dictionary provided by Oxford languages

Designers after repeatedly being told their design cannot be built

This seems fine.

The system works fine.

Bootstrap uses this “separate grid system” approach.

How it works

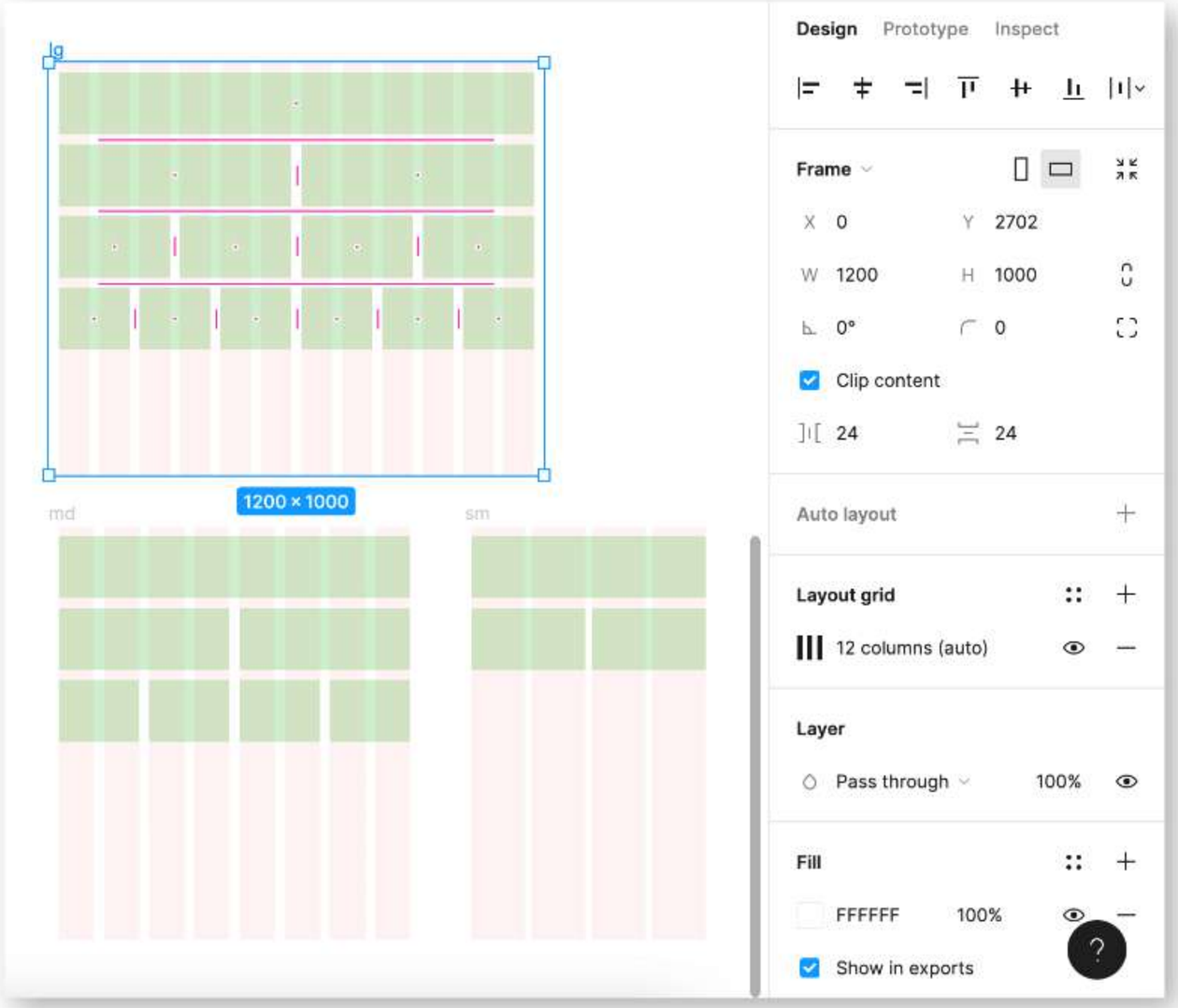
With Bootstrap 5, we’ve added the option to enable a separate grid system that’s built on CSS Grid, but with a Bootstrap twist. You still get classes you can apply on a whim to build responsive layouts, but with a different approach under the hood.

- **CSS Grid is opt-in.** Disable the default grid system by setting `$enable-grid-classes: false` and enable the CSS Grid by setting `$enable-cssgrid: true`. Then, recompile your Sass.
- **Replace instances of `.row` with `.grid`.** The `.grid` class sets `display: grid` and creates a `grid-template` that you build on with your HTML.
- **Replace `.col-*` classes with `.g-col-*` classes.** This is because our CSS Grid columns use the `grid-column` property instead of `width`.
- **Columns and gutter sizes are set via CSS variables.** Set these on the parent `.grid` and customize however you want, inline or in a stylesheet, with `--bs-columns` and `--bs-gap`.

In the future, Bootstrap will likely shift to a hybrid solution as the `gap` property has achieved nearly full browser support for flexbox.

A pretty standard grid

Size	Min	Max	Cols	Margin	Gutter
xs	320px	639px	4	16px	16px
sm	640px	899px	8	30px	16px
md	900px	1199px	12	50px	16px
lg	1200px	1599px	12	90px	24px
xl	1600px	-	12	>180px	24px




```tsx
import { ReactNode, createElement } from "react";
import styles from "./Grid.module.scss";

interface GridProps extends React.HTMLProps<HTMLElement> {
  className?: string;
  children: ReactNode;
  tag?: keyof JSX.IntrinsicElements;
}

export default function Grid({
  className = "",
  children,
  tag = "div",
  ...props
}: GridProps) {
  const Wrapper = tag;
  return createElement(
    Wrapper,
    {
      className: `${styles.grid} ${className}`,
      ...props
    },
    children
  );
}
```

Option 1: vanilla CSS (or SCSS)

Size	Min	Max	Cols	Margin	Gutter
xs	320px	639px	4	16px	16px
sm	640px	899px	8	30px	16px
md	900px	1199px	12	50px	16px
lg	1200px	1599px	12	90px	24px
xl	1600px	-	12	>180px	24px

```css
.grid {
  min-width: 320px;
  max-width: 1600px;
  display: grid;
  grid-template-columns: repeat(4, 1fr);
  gap: 1em;
  margin-left: 16px;
  margin-right: 16px;
}

@media screen and (min-width: 640px) {
  .grid {
    grid-template-columns: repeat(8, 1fr);
    margin-left: 30px;
    margin-right: 30px;
  }
```

Option 1: vanilla CSS (or SCSS)

```
.grid__item--full,
.grid__item--half,
.grid__item--third,
.grid__item--quarter {
  grid-column: 1 / -1;
}

@media screen and (min-width: 640px) {
  .grid__item--quarter {
    grid-column: span 4;
  }
}

@media screen and (min-width: 900px) {
  .grid__item--half {
    grid-column: span 6;
```

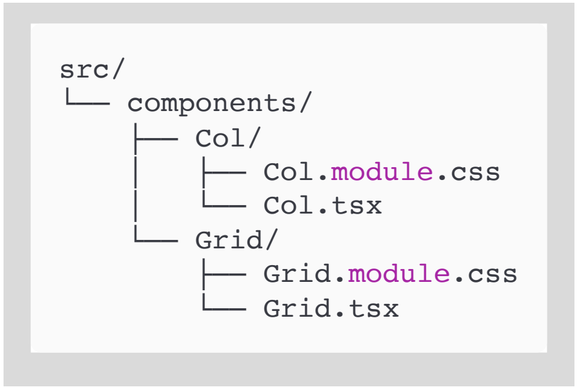
Option 1: vanilla CSS (or SCSS)

```
.custom-thingy {
  grid-column: 1 / -1;
  font-size: var(--step-1);
}

@media screen and (min-width: 640px) {
  .custom-thingy {
    grid-column: 1 / 6;
    padding-top: 2em;
    padding-bottom: 1em;
  }
}

@media screen and (min-width: 900px) {
  .custom-thingy {
    grid-column: 1 / 7;
```

Option 2: Container and Item components



Grid.tsx

```tsx
import { ReactNode, createElement } from "react";
import styles from "./Grid.module.scss";

interface GridProps extends React.HTMLProps<htmlelemer
  className?: string;
  children: ReactNode;
  tag?: keyof JSX.IntrinsicElements;
}

export default function Grid({
  className = "",
  children,
  tag = "div",
  ...props
}: GridProps) {
  const Wrapper = tag;
```

Col.tsx

```tsx
import { ReactNode, createElement } from "react";
import cn from "classnames";
import styles from "./Col.module.scss";

interface ColProps extends React.HTMLProps<htmlelement> {
  className?: string;
  children: ReactNode;
  colWidth?: "full" | "half" | "third" | "quarter";
  tag?: keyof JSX.IntrinsicElements;
}

export default function Col({
  className = "",
  children,
  colWidth,
  tag = "div",
```

Col.module.css

```css
.full,
.half,
.third,
.quarter {
  grid-column: 1 / -1;
}

@media screen and (min-width: 640px) {
  .quarter {
    grid-column: span 4;
  }
}

@media screen and (min-width: 900px) {
  .half {
    grid-column: span 6;
```

CustomThingy.module.scss

```scss
p.customThingy {
  grid-column: 1 / -1;
  font-size: var( --step-1);
}

@media screen and (min-width: 640px) {
  p.customThingy {
    grid-column: 1 / 6;
    padding-top: 2em;
    padding-bottom: 1em;
  }
}

@media screen and (min-width: 900px) {
  p.customThingy {
    grid-column: 1 / 7;
```

Option 3: Using Tailwind classes

⚠️ Yet Another Disclaimer 🌶️

The following opinion may or may not oppose your view on the matter, and that is PERFECTLY FINE. You are absolutely free to agree, disagree or not care at all.

tailwind.config.js

```
module.exports = {
  theme: {
    screens: {
      xs: "320px",
      sm: "640px",
      md: "900px",
      lg: "1200px",
      xl: "1600px",
      maxSm: { max: "639px" },
      maxMd: { max: "899px" },
      btwSmMd: { min: "640px", max: "899px" }
    },
  },
  prefix: "tw-"
};
```

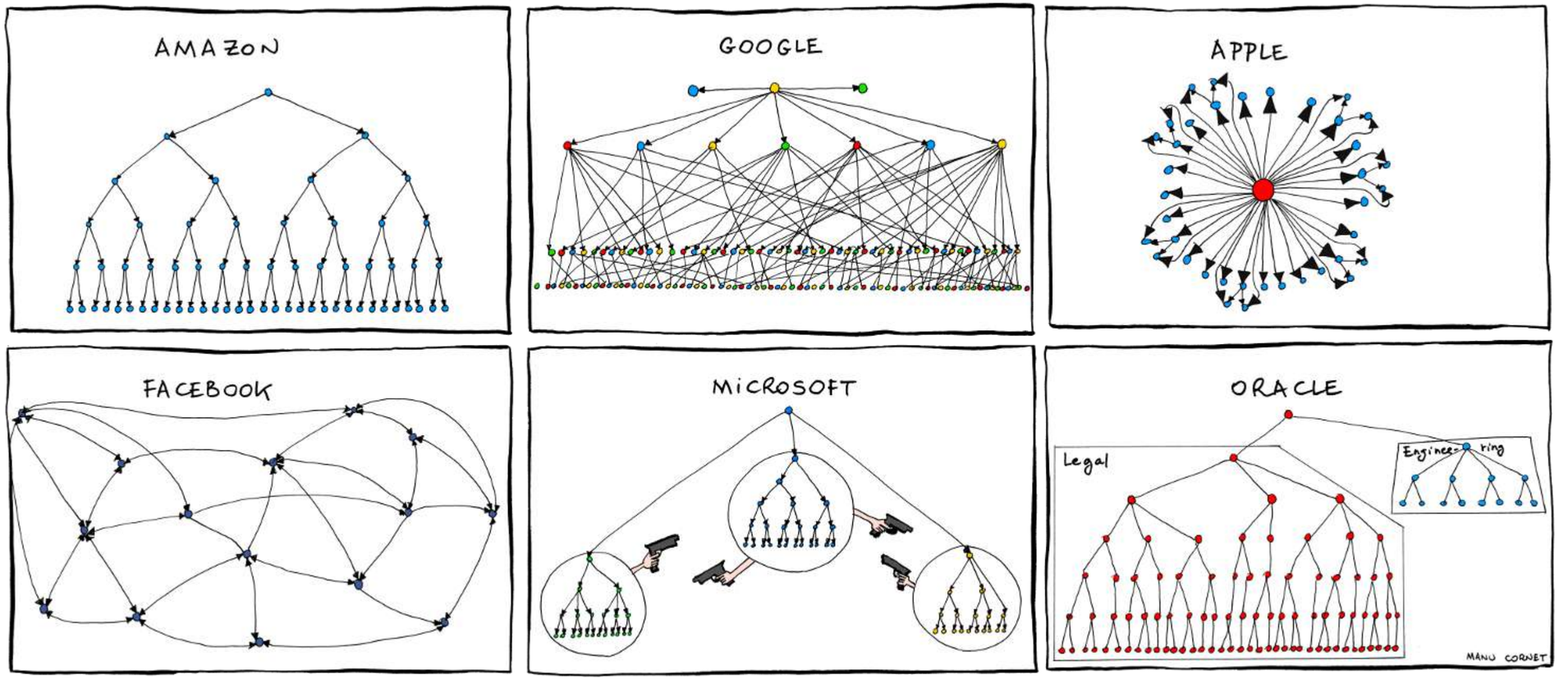
TailwindThingy.tsx

```
export default function TailwindThingy {
  return (
    <section classname="tw-grid xs:tw-grid-cols-4 sm:tw-grid-cols-8 md:tw-grid-cols-12 xs:tw-gap-3 lg:tw-gap-4 xs:tw-mx-3
sm:tw-mx-[30px] md:tw-mx-[50px] lg:tw-mx-[90px] xl:tw-mx-[180px]">
      <p classname="tw-col-span-full">Option 3: Use Tailwind classes</p>
      <p classname="tw-col-span-full md:tw-col-span-6">Well, this is spicy</p>
      <p classname="tw-col-span-full md:tw-col-span-6">
        FWIW, Tailwind has managed to support grid fairly well in this latest
        version
      </p>
      <p classname="tw-col-span-full md:tw-col-span-4">
        You will have to learn the tailwind classes to use them correctly
      </p>
      <p classname="tw-col-span-full md:tw-col-span-4">
        This basic example is able to match the previous 2 options
      </p>
```

But does it work?

CodeSandbox demo


1.00
SO MANY CHOICES...



Source: Manu Cornet, 2011-06-27 edition of Bonkers World (modified to fit slide)

So you want to introduce Grid to your application?

- Are there preferred technologies used within the organisation?
- How is big is your application and how is it structured?
- How flexible does the design system need to be?
- Are there cases where code is contributed by new developers often?
- What is the documentation culture like in your organisation?

So you want to introduce Grid to your application?

- Who is responsible for the maintenance and development of new components or pages on the application?
  - Is it a small team of full-time developers overseeing the entire project?
  - Is it numerous teams responsible for their own respective set of components and pages?
  - What is the overall CSS skill level of the developers contributing to the codebase?
  - Are the contributing developers very familiar with the frameworks and libraries used in the codebase?

Document the “Why”

“One size does not fit all”

–Frank Zappa

Thank you

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Font is Fraunces by Undercase Type.