INTRO APPWEB 2023

More CSS

Styling the Web

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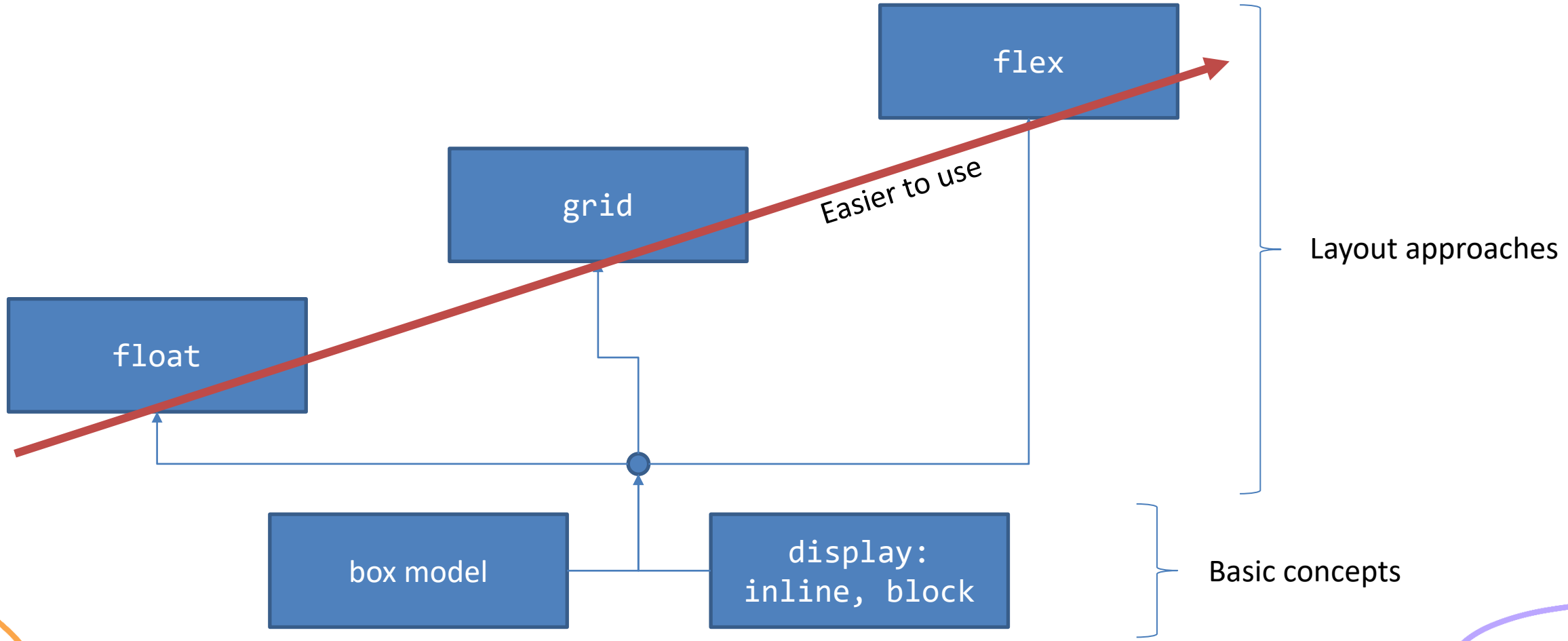
Goal

- Advanced layout in web pages
- Responsive layouts
- Libraries

Outline

- Page layout with
  - Grid
  - Flex
- Other flow layouts
- Responsive layout
- CSS Framework: Bootstrap

Page Layout Methods



Page Layout

GRIDS

Advanced Layout: Grid

Maki-zushi

The rice and seaweed rolls with fish and/or vegetables. There are also more specific terms for the rolls depending on the style.

Nigiri-zushi

The little fingers of rice topped with wasabi and a filet of raw or cooked fish or shellfish. Generally the most common form of sushi you will see.

Temaki-zushi

Also called a hand-roll. Cones of sushi rice, fish and vegetables wrapped in seaweed. It is very similar to maki.

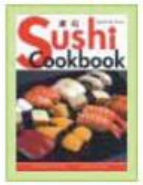
WHAT IS SUSHI?

Beginning as a method of preserving fish centuries ago, sushi has evolved into an artful, unique dining experience. In its earliest form, dried fish was placed between two pieces of vinegared rice as a way of making it last. The nori (seaweed) was added later as a way to keep one's fingers from getting sticky.

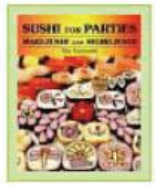
Technically, the word `sushi' refers to the rice, but colloquially, the term is used to describe a finger-size piece of raw fish or shellfish on a bed of vinegared rice or simply the consumption or raw fish in the Japanese style (while sushi is not solely a Japanese invention, these days, the Japanese style is considered the de facto serving standard).

Sashimi

Sashimi is raw fish served sliced, but as-is. That means no rice bed or roll, but it is often served alongside daikon and/or shiso. This is my favorite style as you really get the flavor of the fish..



QUICK & EASY SUSHI COOKBOOK
This book has great pictures, however it is not as complete as Sushi Made Easy.



SUSHI FOR PARTIES: MAKI-ZUSHI AND NIGIRI-ZUSHI
This book also has great pictures, with advanced maki (cut roll) making techniques.

SUSHI MADE EASY
A very decent all-around book for the money.

Advanced Layout: Grid

Maki-zushi

a

The rice and seaweed rolls with fish and/or vegetables. There are also more specific terms for the rolls depending on the style.

a

Nigiri-zushi

c

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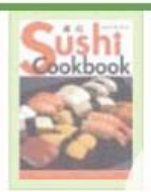

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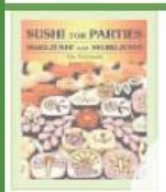

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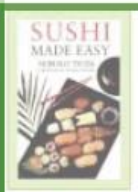

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SUSHI MADE EASY

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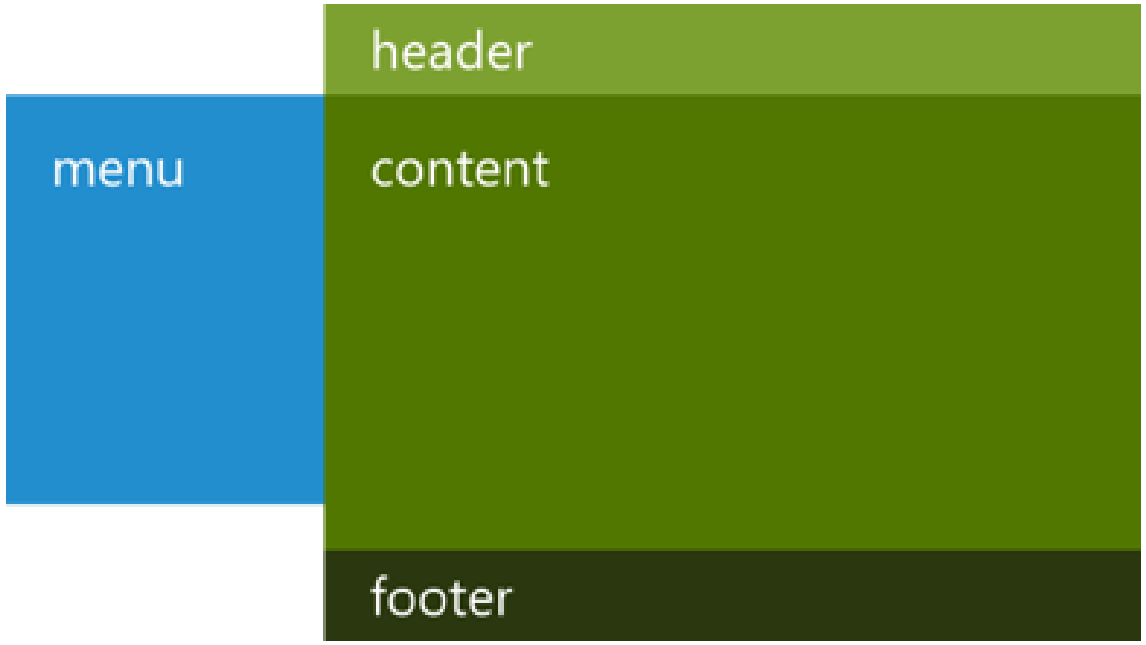
Advanced Layout: Grid

- It is possible to define a grid in which content can flow or be placed, or that remain empty
- There are 3 ways to define a grid
  - Explicit grid: defined with '`grid-template-columns`' and '`grid-template-rows`' properties
  - Natural grid: automatically created by elements with a natural grid structure (multi-column elements and tables)
  - Default grid: all other block elements define a single-cell grid

Example

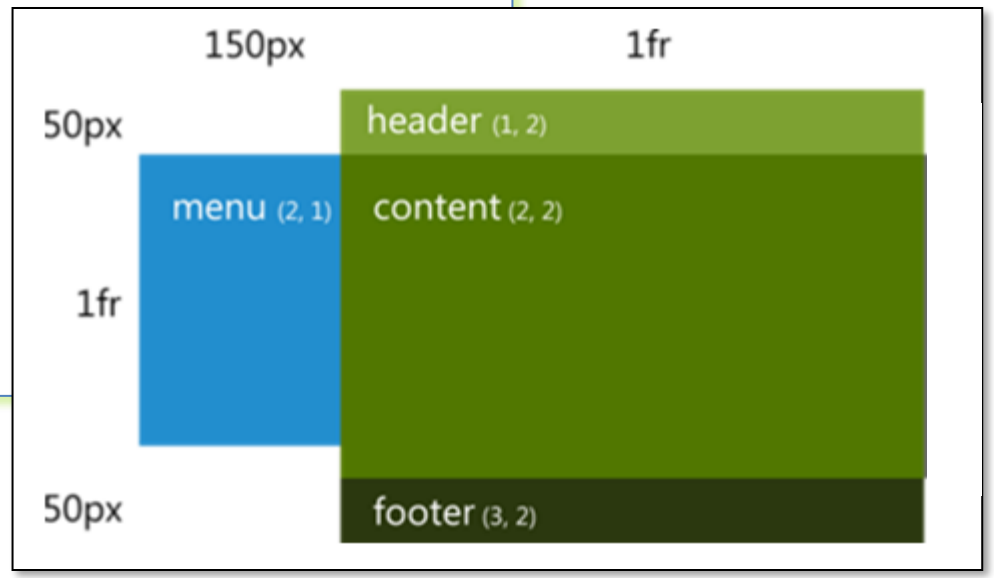
- Classic two-column layout

```
<section>
  <header>Title</header>
  <aside>Menu</aside>
  <article>Content</article>
  <footer>Footer</footer>
</section>
```



Example

```
section {
  display: grid;
  grid-template-columns: 150px 1fr;
  grid-template-rows: 50px 1fr 50px; }
section header {
  grid-column: 2;
  grid-row: 1; }
section aside {
  grid-column: 1;
  grid-row: 2; }
section article {
  grid-column: 2;
  grid-row: 2; }
section footer {
  grid-column: 2;
  grid-row: 3; }
```

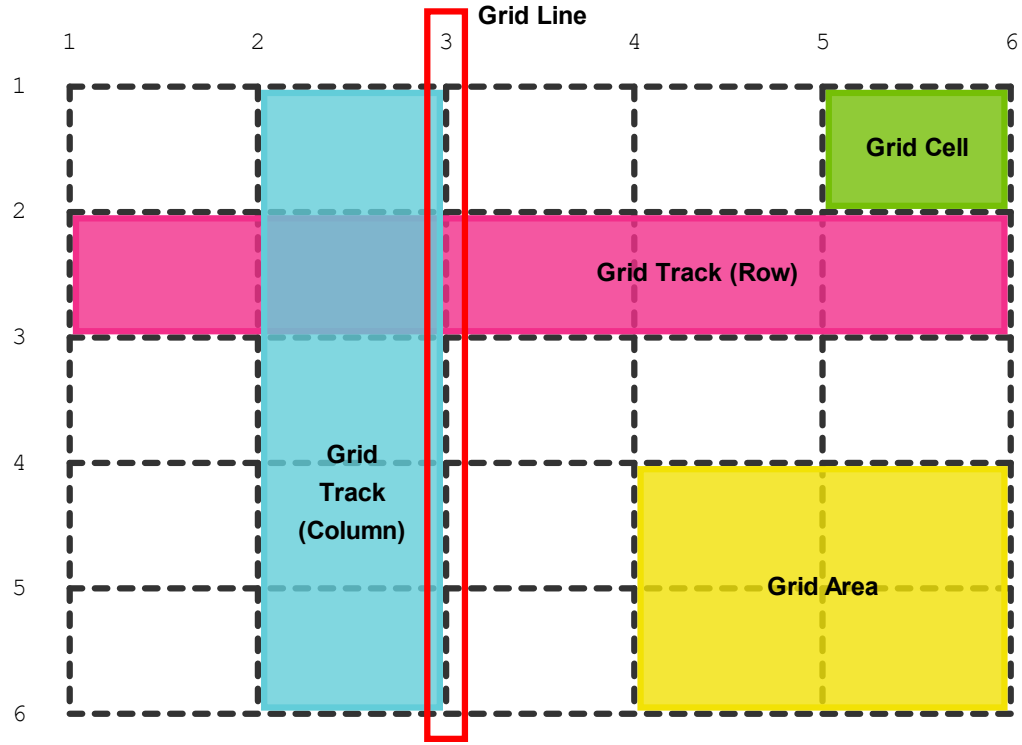


fr = fraction values

- new unit applicable to grid-template-rows and grid-template-columns properties

Suggested Reference for Grid Layout

- https://webkit.org/blog/7434/css-grid-layout-a-new-layout-module-for-the-web/



Page Layout

FLEX

Flexbox

- Alternative to floats/grids for defining the overall appearance of a web page
- Flexbox gives complete control over the alignment, direction, order, and size of boxes

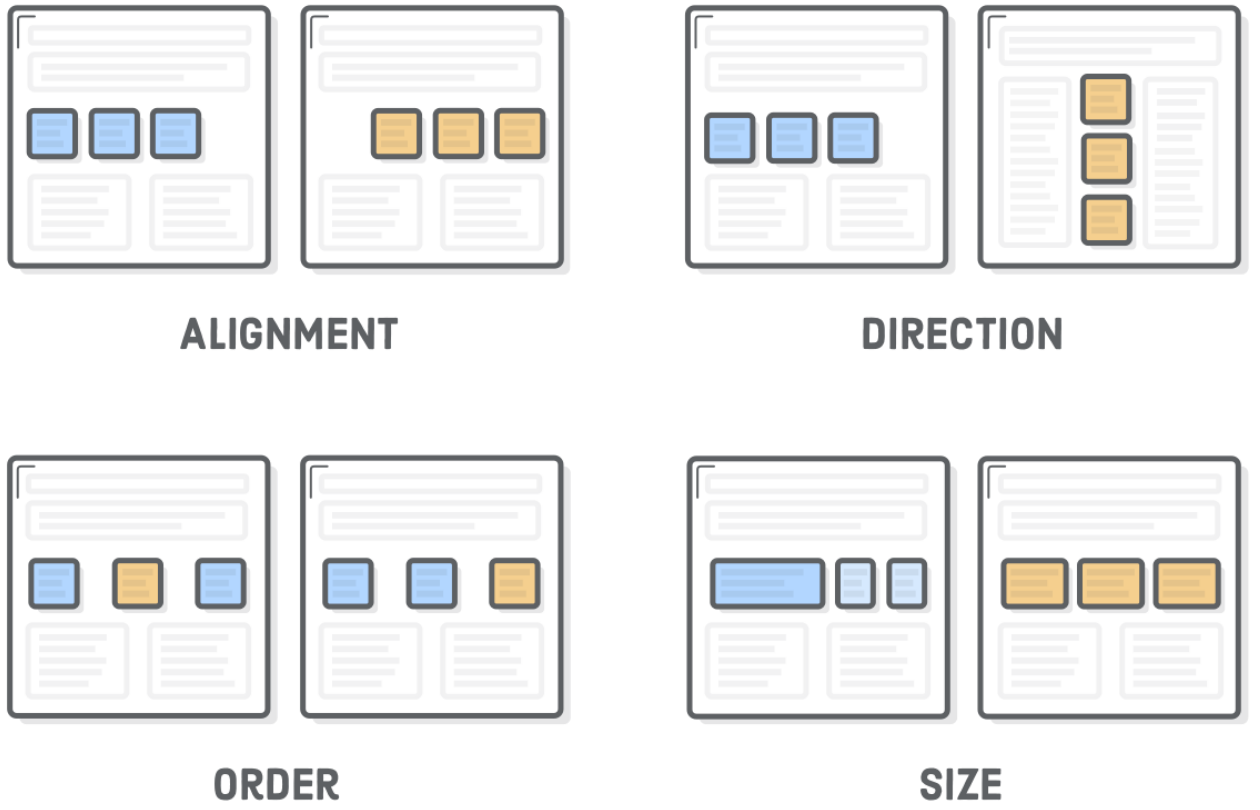
FLOATS

(MAGAZINE-STYLE LAYOUTS)

FLEXBOX

(OVERALL PAGE STRUCTURE)

Flexbox



https://internetingishard.com/html-and-css/flexbox/

https://developer.mozilla.org/en-US/docs/Web/CSS/CSS_Flexible_Box_Layout/Basic_Concepts_of_Flexbox

Flexbox

- Flexbox uses two types of boxes
  - Flex containers: group a set of flex items and define how they're positioned
  - Flex items
- Every HTML element that is a direct child of a flex container is an item

"FLEX CONTAINER"

"FLEX ITEMS"

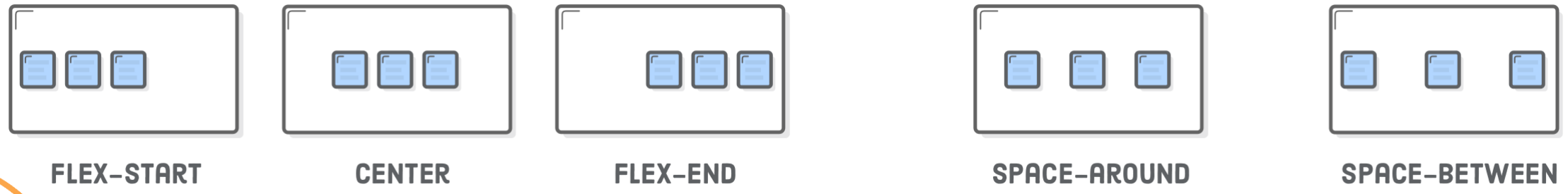
Horizontal Alignment

```
.menu-container {
  /* ... */
  display: flex;
  justify-content: center;
}
```

- To turn one HTML elements into a flex container:

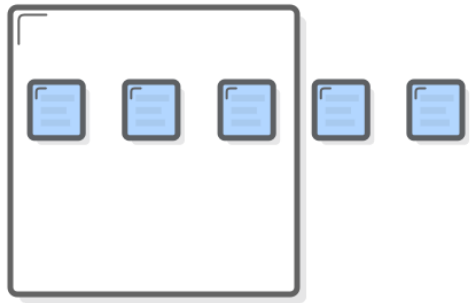
  `{ display:flex ; }`

- "`justify-content`" property defines the horizontal alignment of its items
  - center, flex-start, flex-end
  - space-around, space-between



Wrapping

- The `flex-wrap` property creates a grid
  - Then, you can change alignment, direction, order, and size of items



NO WRAPPING

FLEX-WRAP: NOWRAP;

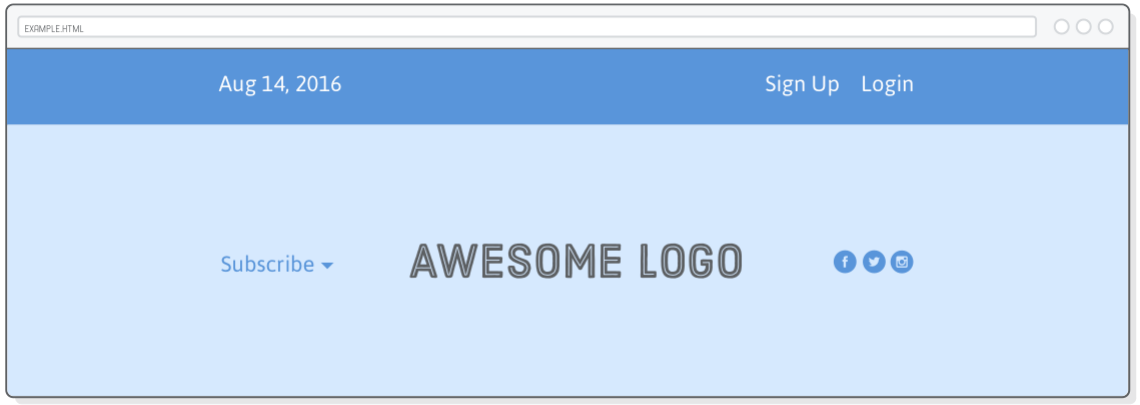
WITH WRAPPING

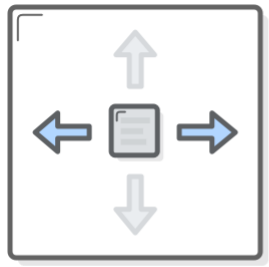
FLEX-WRAP: WRAP;

```
.photo-grid {
  width: 900px;
  display: flex;
  justify-content: center;
  flex-wrap: wrap;
}
```

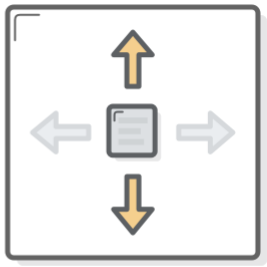
Vertical Alignment

- Flex containers can also define the vertical alignment of their items





JUSTIFY-CONTENT



ALIGN-ITEMS

```
.header {
  width: 900px;
  height: 300px;
  display: flex;
  justify-content: space-between;
  align-items: center;
}
```

Direction

Refers to whether a container renders its items horizontally or vertically

ROW

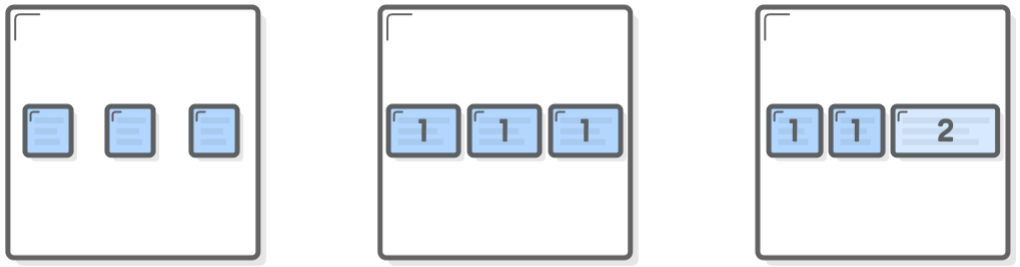
FLEX-DIRECTION: ROW;

COLUMN

FLEX-DIRECTION: COLUMN;

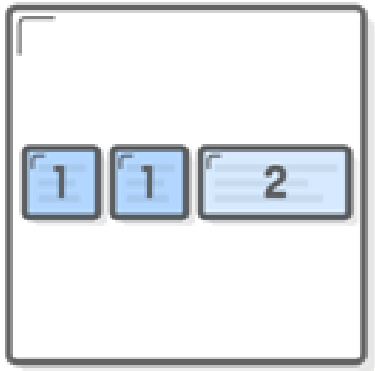
Flexible Items

- Flex items are flexible: they can shrink and stretch to match the width of their containers
- The `flex` property defines the width of individual items in a flex container
  - a *weight* that tells the flex container how to distribute extra space to each item
  - E.g., an item with a flex value of 2 will grow twice as fast as items with the default value of 1



Flexible Items: Example

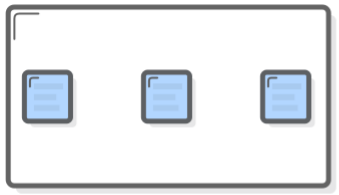
```
.footer {
  display: flex;
  justify-content: space-between;
}

.footer-item {
  border: 1px solid #fff;
  background-color: #D6E9FE;
  height: 200px;
  flex: 1; }

.footer-three { flex: 2; }
```




```
<div class='footer'>
  <div class='footer-item footer-one'></div>
  <div class='footer-item footer-two'></div>
  <div class='footer-item footer-three'></div>
</div>
```

Grouping

- Flex containers only know how to position elements that are one level deep (i.e., their child elements)
  - You can group flex items using



NO GROUPING
(3 FLEX ITEMS)

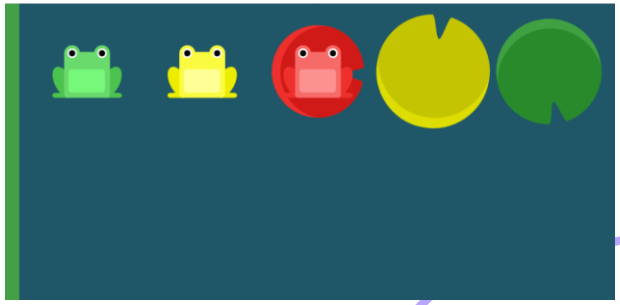
GROUPED ITEMS
(2 FLEX ITEMS)

Summary of Flexbox

- `display: flex` to create a flex container
- `justify-content` to define the horizontal alignment of items
- `align-items` to define the vertical alignment of items
- `flex-direction` if you need columns instead of rows
- `row-reverse` or `column-reverse` values to flip item order
- `order` to customize the order of individual elements
- `align-self` to vertically align individual items
- `flex` to create flexible boxes that can stretch and shrink

References for Flexbox

- Interneting is hard flexbox tutorial
  - https://internetingishard.com/html-and-css/flexbox/
- A complete guide to flexbox
  - https://css-tricks.com/snippets/css/a-guide-to-flexbox/
- W3schools
  - https://www.w3schools.com/css/css3_flexbox.asp
- Flexbox, guida pratica
  - http://www.html.it/guide/flexbox-guida-pratica/
- Flexbox Froggy (a game-like tutorial)
  - http://flexboxfroggy.com/

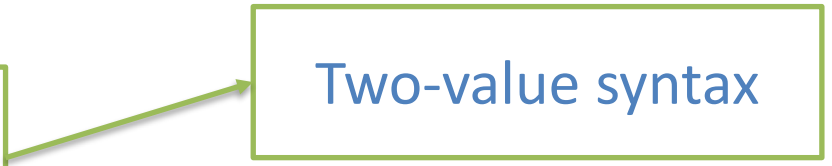


Advanced “display”

OTHER LAYOUTS

Property Keywords

- `flex`, `grid`, and `table` are inside keywords of the `display` property
- They specify the element's inner display type
  - The type of formatting context that its contents are laid out in
- `block` and `inline` are, instead, outside keywords
  - The element role in the flow layout
- The default inside keyword is `flow`
  - `display: block` == `display: block flow`
  - `display: flex` == `display: block flex`



Property Keyworks

- Browsers that support the two-value syntax, on finding the inner value only, will set their outer value to block

- Browsers that support the two-value syntax, on finding the outer value only, will set the inner value to flow

`flow-root`

- Another inside keyword for the display property
  - not experimental
- The element with this property generates a `block` element box that establishes a new block formatting context (BFC)
- BFC defines *where* the formatting root lies (typically: `<html>` and `floats`)
  - The region in which the layout of block boxes occurs and in which floats interact with other elements

`flow-root`

- Two-value syntax
  - `display: block flow-root`
  - `display: inline flow-root`

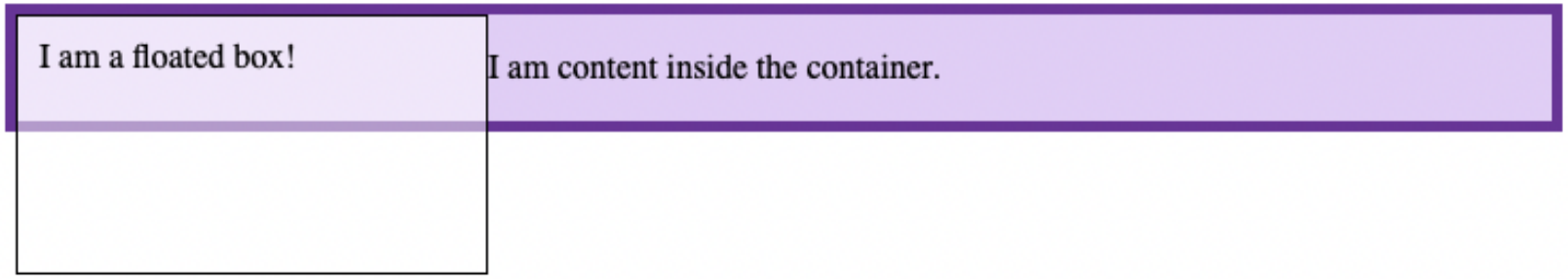
- Single-value syntax
  - `display: flow-root`
  - `display: inline-block`

Example

```
<section>
  <div class="box">
    <div class="float">I am a floated box!</div>
    <p>I am content inside the container.</p>
  </div>
</section>
<section>
  <div class="box" id="flow-root">
    <div class="float">I am a floated box!</div>
    <p>I am content inside the <code>display:flow-root</code>
container.</p>
  </div>
</section>
```

```
section {
  height: 150px;
}
.box {
  background-color: rgb(224, 206, 247);
  border: 5px solid rebeccapurple;
}
#flow-root {
  display: flow-root;
  background-color: aliceblue;
  border: 5px solid steelblue;
}
.float {
  float: left;
  width: 200px;
  height: 100px;
  background-color: rgba(255, 255, 255, 0.5);
  border: 1px solid black;
  padding: 10px;
}
```

Example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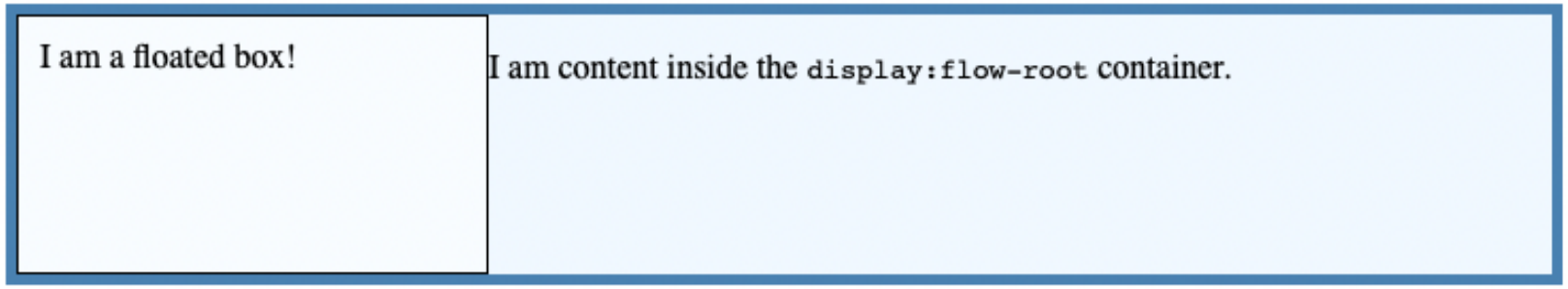

I am a floated box!
I am content inside the display:flow-root container.

Remember This?

With `inline-block`

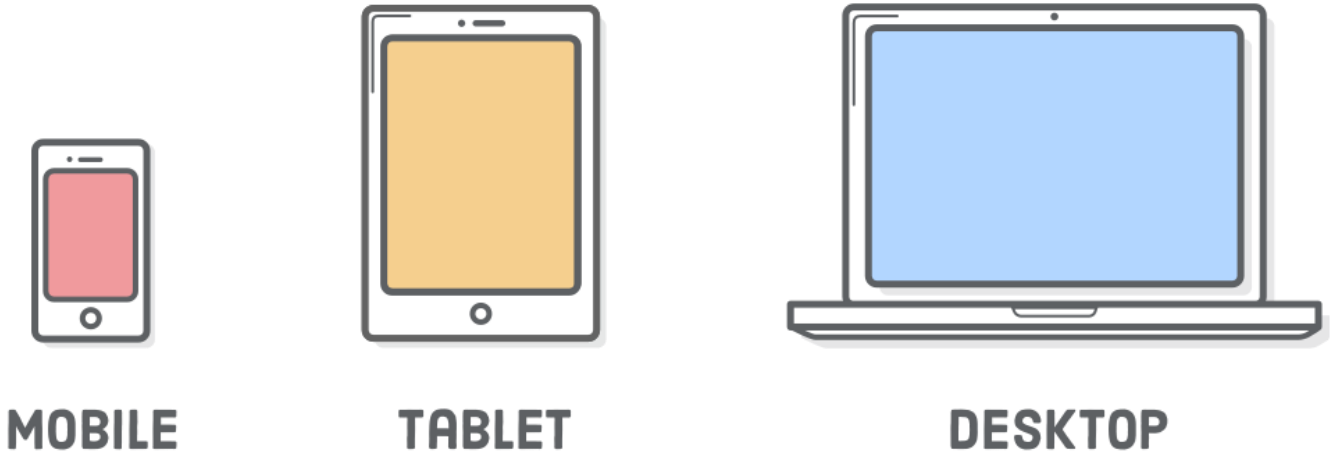
```
header > div {
  display: inline-block;
}

header > nav {
  display: inline-block;
}
```

```
<header>
  <div>
    <h1>IAW Blog</h1>
    <h2>Tutto su Introduzione alle Applicazioni Web</h2>
  </div>
  <nav>
    <ul>
      <li><a href="home.html" title="Homepage">Home</a></li>
      <li><a href="presentazione.html" title="Di cosa si
parla">Presentazione</a></li>
      <li><a href="contatti.html" title="Chi sono">Contatti</a></li>
    </ul>
    <a href="login.html" title="Entra nel sito">Login</a>
  </nav>
</header>
```

RESPONSIVE LAYOUT

Responsive Design

- Display well in everything from widescreen monitors to mobile phones
- Approach to web design to eliminate the distinction between the mobile-friendly version of your website and its desktop counterpart



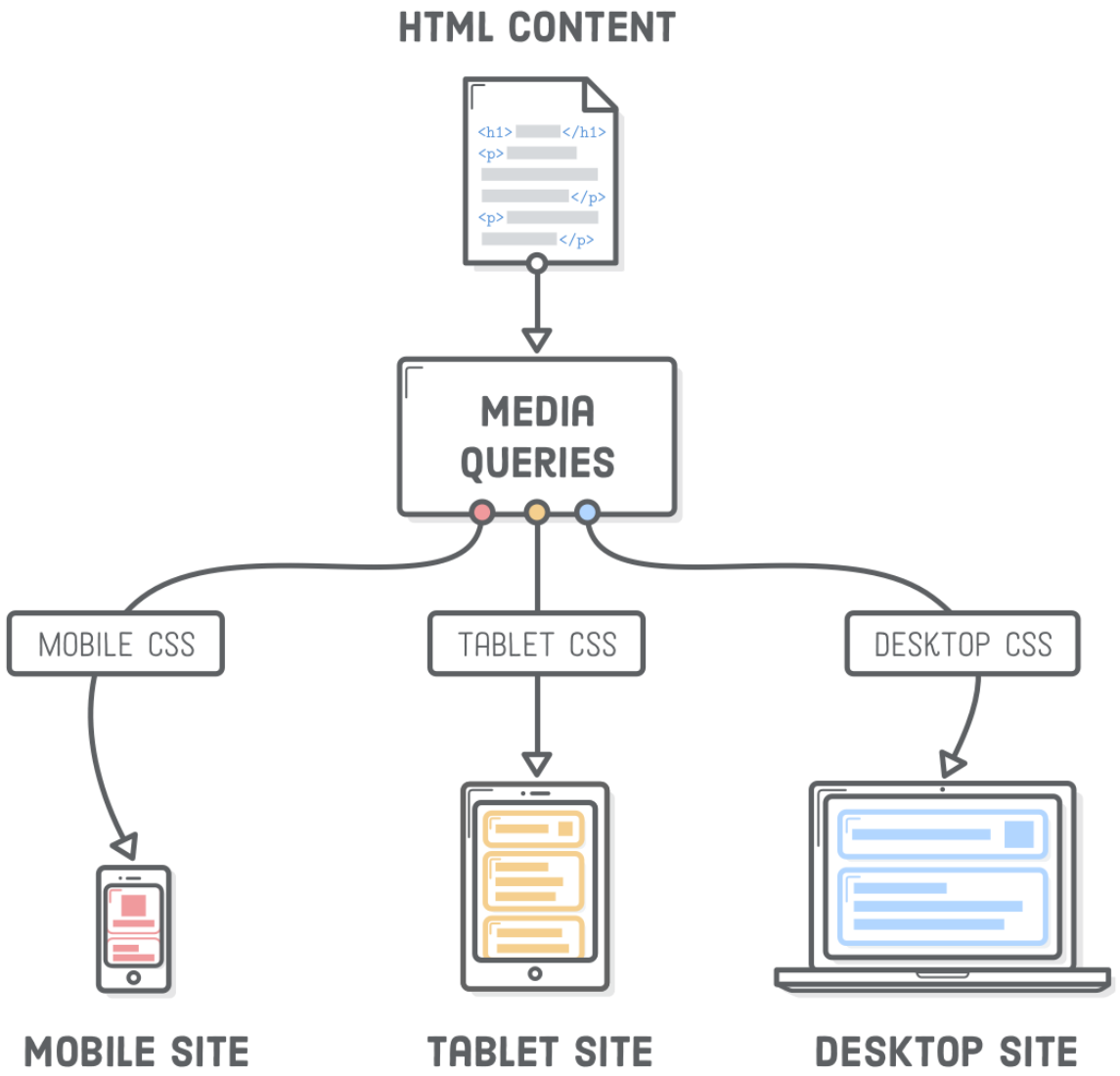
https://internetingishard.com/html-and-css/responsive-design/

Responsive Design

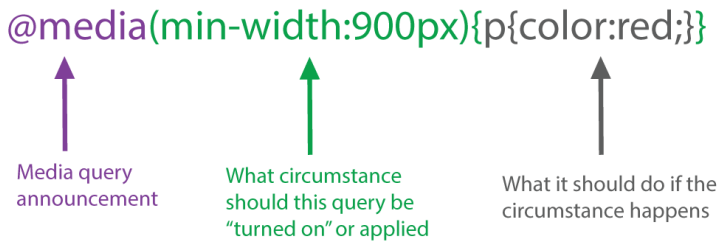
- Responsive design is accomplished through CSS “media queries”
- A way to *conditionally* apply CSS rules

```
@media(min-width:900px){p{color:red;}}
```

- Media query announcement
- What circumstance should this query be “turned on” or applied
- What it should do if the circumstance happens



Media Queries



- Composed of an (optional) media type and any number of media feature expressions
- Media type
  - category of device for which the query applies
  - `all` (default), `print`, `screen`
- Media feature
  - specific characteristic of the user agent or output device
  - height, width, orientation, aspect ratio, …

Combining Media Queries

Mostly use Boolean operators

```
@media (min-width: 30em) and (orientation: landscape) {
  /* Restrict styles to landscape-oriented devices with
a width of at least 30 ems  */
}
```

```
@media (min-height: 680px), screen and (orientation: portrait) {
 /* Apply the style if the user's device has either a minimum
height of 680px or is a screen device in portrait mode  */
}
```

```
@media not screen and (color), print and (color) {
  /* Apply the style if it’s not a colored screen nor a colored printer */
}
```

Range Syntax for Media Queries (NEW)

You can now use <, <=, >, and >= to specify width and height

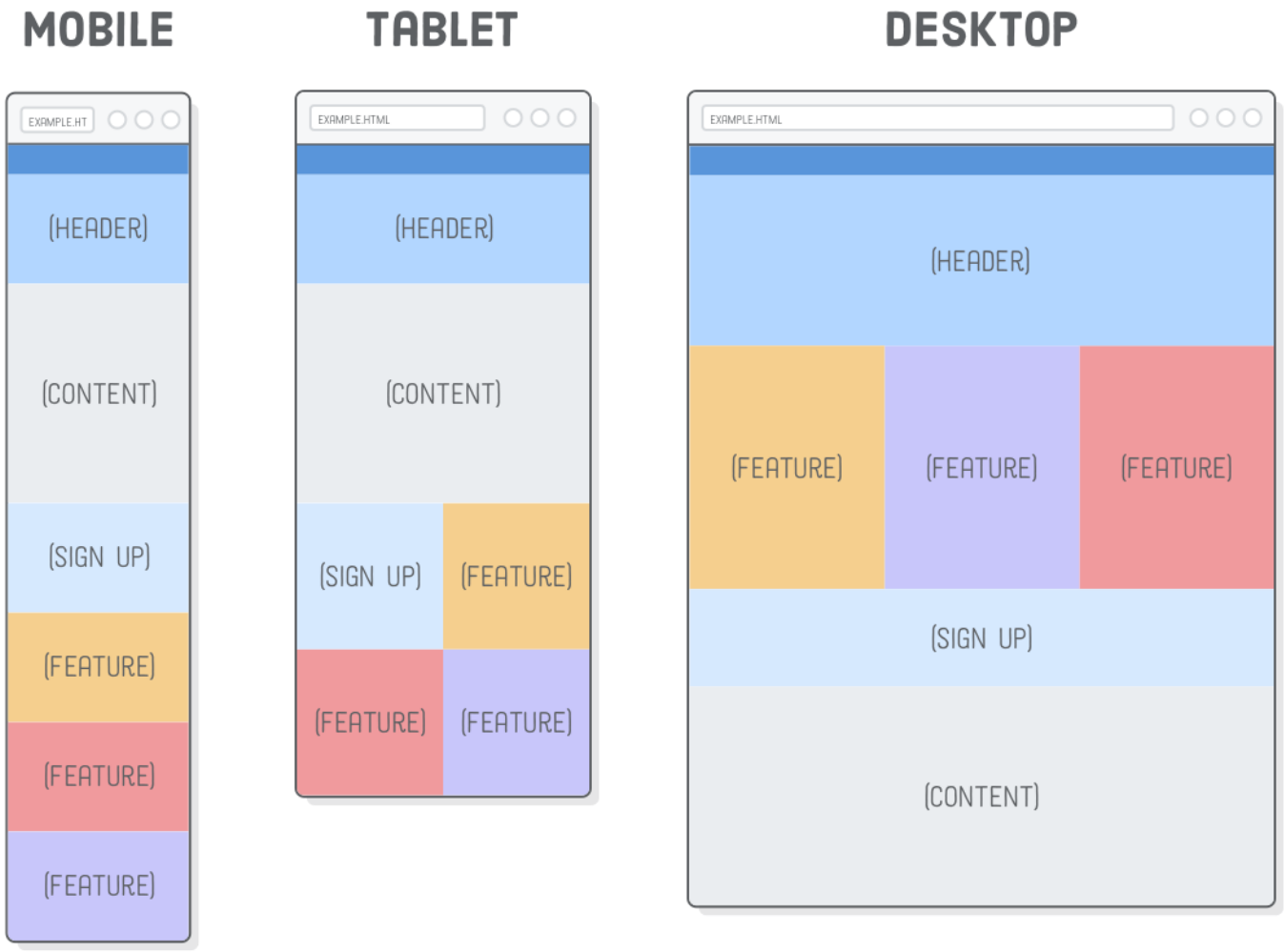
```
@media (min-width: 30em) and (max-width: 50em) {
  /* … */
}
```

```
@media (30em <= width <= 50em) {
  /* … */
}
```

Beware: compatibility! https://caniuse.com/

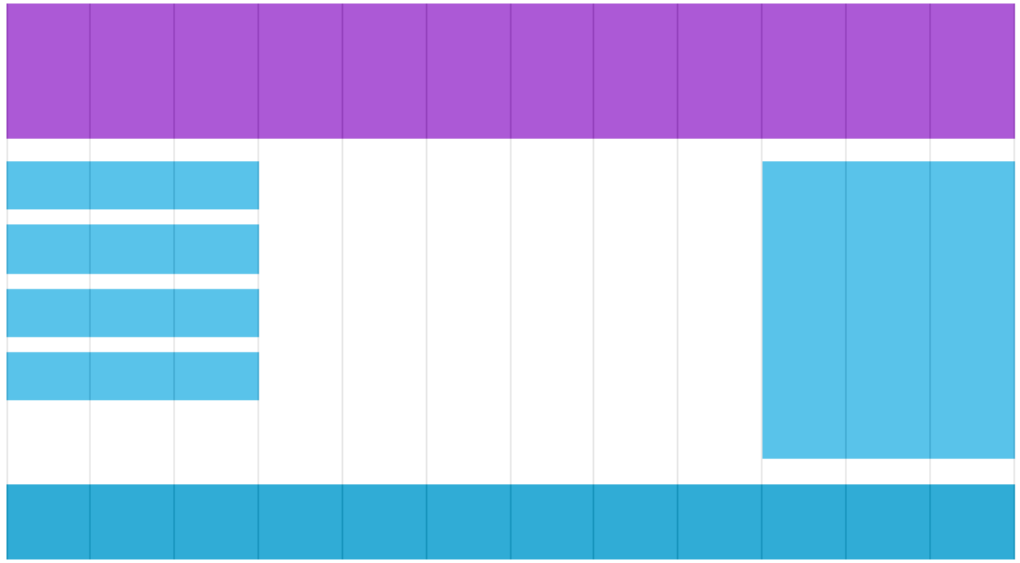
Chrome	Edge *	Safari	Firefox	Opera	IE
4-103	12-103		2-62		
104-105	104-105	3.1-15.6	63-104	10-90	6-10
106	106	16.0	105	91	11
107-109		16.1-TP	106-107		

Layout for Responsive Design



Grid-view

- Many web pages are based on a grid-view, i.e., the page is divided into columns
- A responsive grid-view often has 12 columns, a total width of 100%, and will shrink and expand as you resize the browser window



CSS Frameworks

- Set of templates to simplify web development
- Example: Bootstrap
  - Open-Source CSS (and JavaScript) framework
  - Allows applying “modern” styles with sensible and nice-looking defaults
    - Many ready-to-use UI elements (e.g., buttons, menus, tabs, collapsible items, etc.)
  - Takes care of cross-browser issues
  - Simplified layout model
  - Developed by Twitter
    - https://getbootstrap.com

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