INLS 672
Web Development 2

CSS Refresher:
Presentation and Layout

UNC SCHOOL OF INFORMATION AND LIBRARY SCIENCE

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Part 1: CSS Presentation

Part 2: CSS Layout

CSS Overview

Cascading Style Sheets (CSS) define the properties that are used to paint, format, and layout web pages

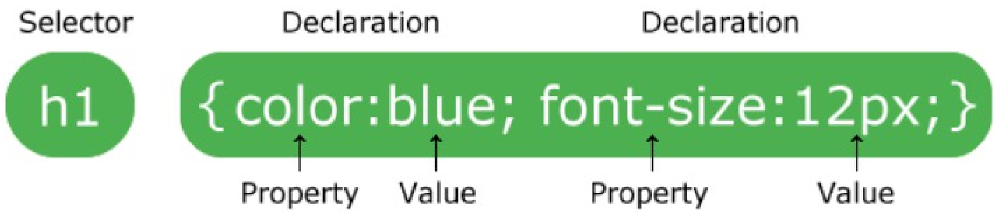
- Useful analogy: *"think of it as the language to paint the walls of the house; describing the size and position of windows and doors, as well as flourishing decorations such as wallpaper or plant life. A developer can adapt a house to a specific user's context"*

Source: Web Almanac by HTTP Archive

Resources

- MDN Web Docs: CSS first steps
- w3schools: CSS Tutorial
- Rachel Andrew: How to Learn CSS

CSS Basics: Rule Syntax

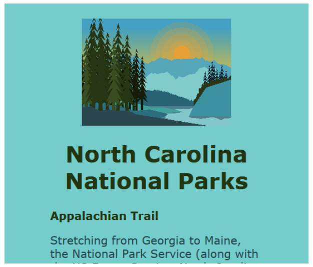


```
h1 {color:blue; font-size:12px;}
```

- Selector is the HTML element that the style rule is applied to
- Declaration defines a property name and value, separated by a colon

  Values are dependent on the property type
- Declaration block contains one or more declarations separated by semicolons, and the block is enclosed in curly brackets

```
body {
    font-family: Verdana, sans-serif;
    color: #22474f;
    background-color: #75cdcb;
    margin: 5% 15%;
}
h1 {
    font-weight: bold;
    color: #213510;
    text-align: center;
}
h2 {
    font-size: 1em;
    color: #213510;
}
.banner {
    display: block;
    margin-left: auto;
    margin-right: auto;
    max-width: 70%;
}
span {
    font-style: italic;
    font-weight: bold;
}
```



North Carolina National Parks

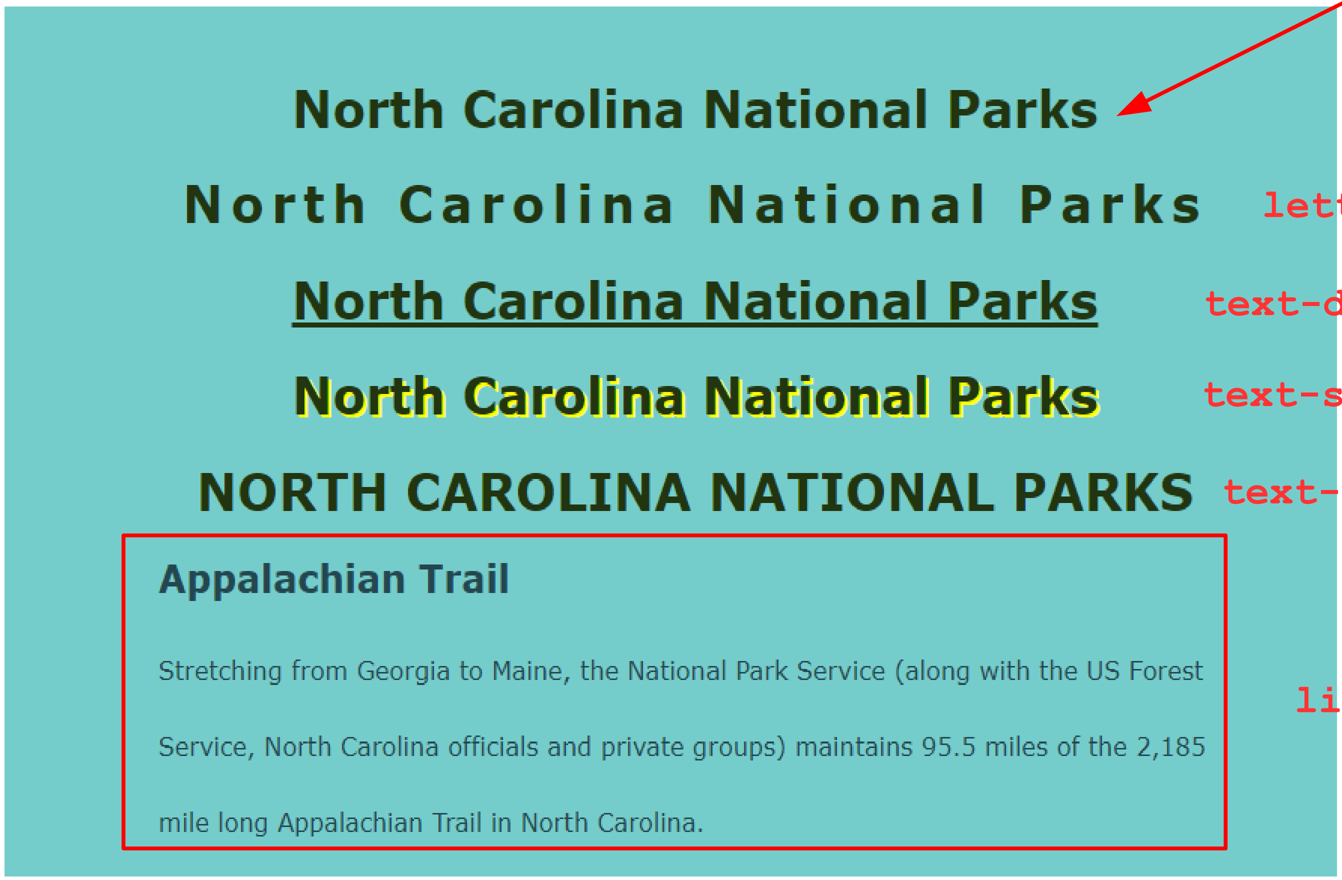
Appalachian Trail

Stretching from Georgia to Maine, the National Park Service (along with

w3schools: CSS Syntax

CSS Basics: Applying Text Properties

`h1 {font-weight: bold; color: #213510; text-align: center;}`



North Carolina National Parks

N o r t h C a r o l i n a N a t i o n a l P a r k s — `letter-spacing: 5px;`

North Carolina National Parks — `text-decoration: underline;`

North Carolina National Parks — `text-shadow: 2px 2px yellow;`

NORTH CAROLINA NATIONAL PARKS — `text-transform: uppercase;`

Appalachian Trail

Stretching from Georgia to Maine, the National Park Service (along with the US Forest Service, North Carolina officials and private groups) maintains 95.5 miles of the 2,185 mile long Appalachian Trail in North Carolina. — `line-height: 3em;`

CSS Basics: Font Sources

Web-safe fonts

- Pre-installed on most operating systems (Mac, Windows, Linux)
- Easy to use, no performance issues, but often “over-used” and you are limited to those fonts that are installed on a computer
- w3schools: Web Safe Fonts

Custom Web Fonts

- Hosted by a font provider, e.g., Google Fonts
  - Over 900 free fonts that you can embed in your web page
  - Use `<link>` or `@import` statements
- Or, hosted on your server; browser downloads with @font-face rule
  - w3schools: CSS @font-face rule
  - CSS-Tricks: Using @font-face
-

Font Sources and Guidelines

Many, many different fonts to choose from

- Embedding services: Google Fonts, Adobe Fonts
- FontSquirrel, Fonts.com, 1001fonts.com, …

Which fonts to use?

- How to Pick the Perfect Font Style Design for your Website
    - Matches your message or brand identity
    - Matches the type of audience or customer you want to attract
    - Readable?
    - Versatile?
- Best and Worst Fonts To Use On Your Resume
- Typewolf: Font Recommendation Lists

Web Design: Using Color

Color theory and trends

- How to Choose a Good Color Scheme for Your Website
- Website Color Schemes
- Color Palettes
- Color palette generator from images
- Are There Colors You Should Avoid?

UX topics

- NN/g: Low-Contrast Text Is Not the Answer
- NN/g: Ensure High Contrast for Text Over Images

CSS Basics: Colors

- Can specify the foreground and background color for any HTML element using `color` and `background-color` properties
- Several ways to specify color
  - by <u>name</u> `color: seagreen;`
  - by <u>RGB value</u> (hex code, decimal, percentage, opacity)

```
color: #2E8B57;
color: rgb(46, 139, 87);
color: rgb(18%, 55%, 34%);
color: rgba(46, 139, 87, .3);
```

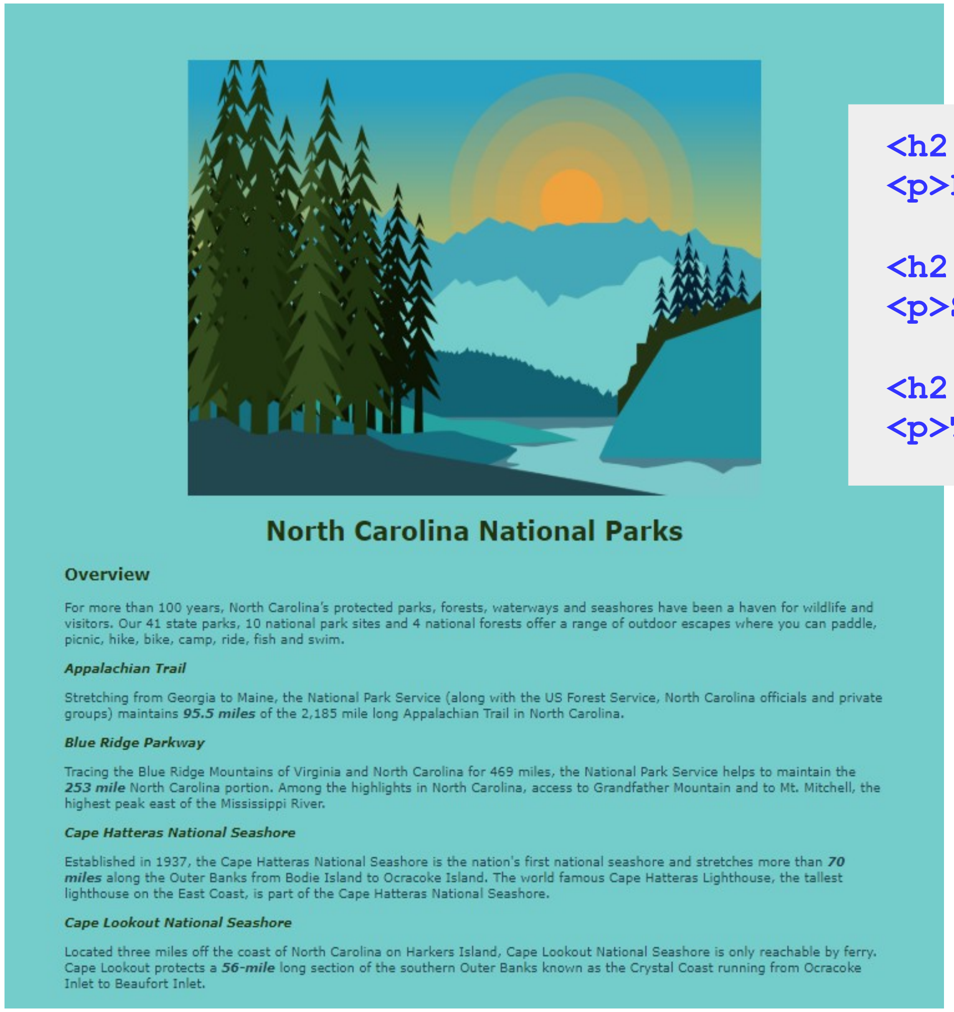
  - by <u>HSL/HSB value</u> (hue, saturation, lightness/brightness)

```
color: hsl(146, 67%, 55%);
```

- w3schools: Color Names, Color Picker

CSS ID and Class Selectors

ID and Class selectors are attributes of HTML elements that can be used to associate CSS rules with specific elements. ID selectors must be unique within a document; Class selectors can be shared by multiple elements.



North Carolina National Parks

Overview

For more than 100 years, North Carolina's protected parks, forests, waterways and seashores have been a haven for wildlife and visitors. Our 41 state parks, 10 national park sites and 4 national forests offer a range of outdoor escapes where you can paddle, picnic, hike, bike, camp, ride, fish and swim.

Appalachian Trail

Stretching from Georgia to Maine, the National Park Service (along with the US Forest Service, North Carolina officials and private groups) maintains ***95.5 miles*** of the 2,185 mile long Appalachian Trail in North Carolina.

Blue Ridge Parkway

Tracing the Blue Ridge Mountains of Virginia and North Carolina for 469 miles, the National Park Service helps to maintain the ***253 mile*** North Carolina portion. Among the highlights in North Carolina, access to Grandfather Mountain and to Mt. Mitchell, the highest peak east of the Mississippi River.

Cape Hatteras National Seashore

Established in 1937, the Cape Hatteras National Seashore is the nation's first national seashore and stretches more than ***70 miles*** along the Outer Banks from Bodie Island to Ocracoke Island. The world famous Cape Hatteras Lighthouse, the tallest lighthouse on the East Coast, is part of the Cape Hatteras National Seashore.

Cape Lookout National Seashore

Located three miles off the coast of North Carolina on Harkers Island, Cape Lookout National Seashore is only reachable by ferry. Cape Lookout protects a ***56-mile*** long section of the southern Outer Banks known as the Crystal Coast running from Ocracoke Inlet to Beaufort Inlet.

HTML

```html
<h2 id="overview">Overview</h2>
<p>For more than 100 years, ...</p>

<h2 class="park">Appalachian Trail</h2>
<p>Stretching from Georgia to ...</p>

<h2 class="park">Blue Ridge Parkway</h2>
<p>Tracing the Blue Ridge Mountains ...</p>
```

CSS

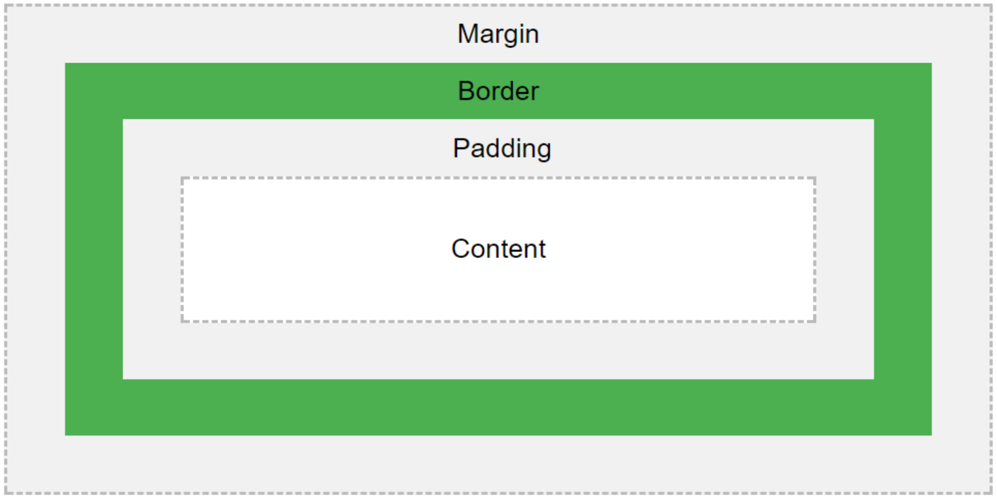
```css
h2 {
   font-size: 1em;
   color: #213510;  }

#overview { font-size: 1.3em; }

.park { font-style: italic; }
```

nc-national-parks-selectors.html

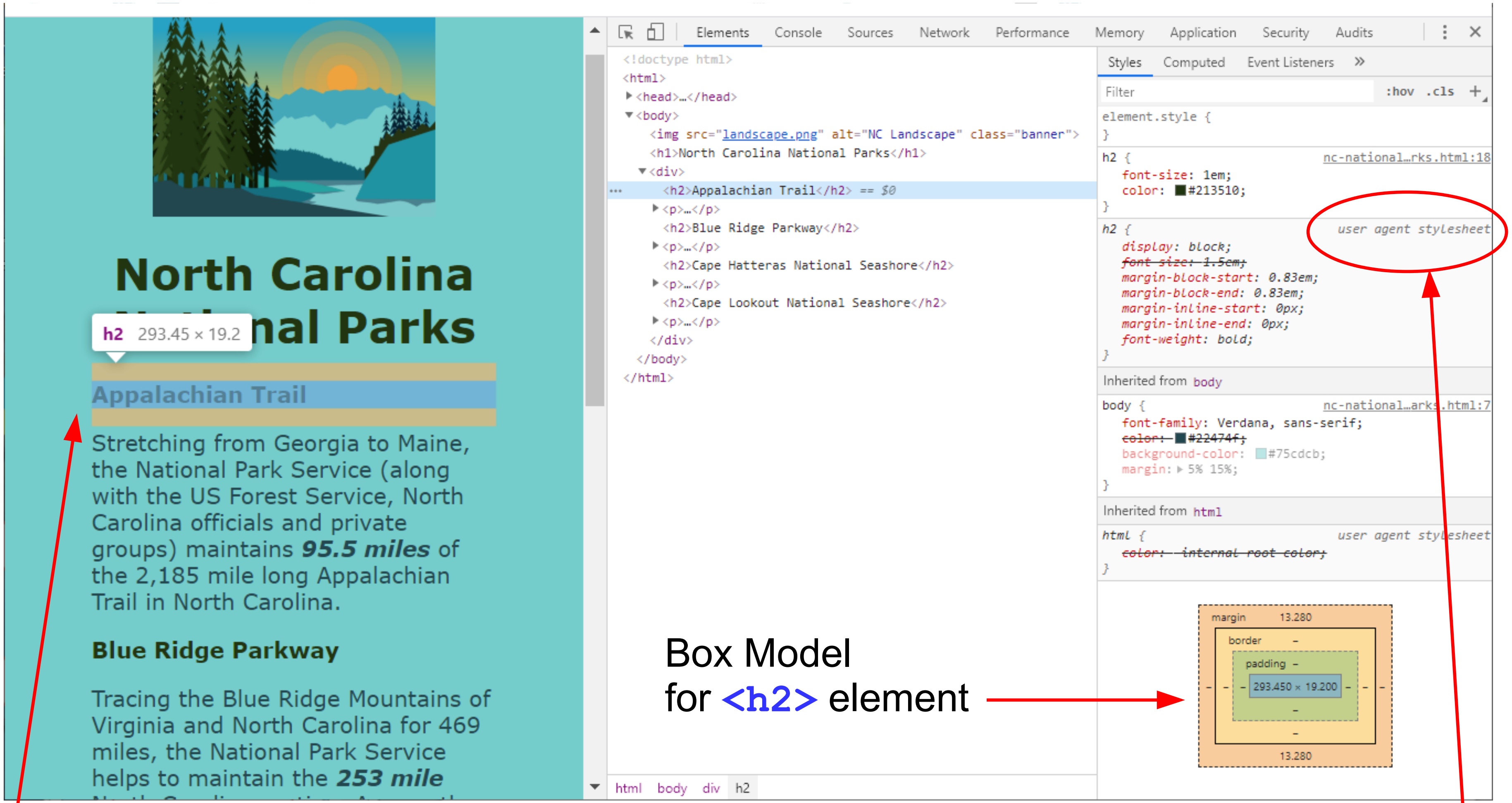
CSS Box Model



- Every element in a web document is represented as a rectangular box. Each box has 4 parts: content, padding, border, and margin that can be styled with CSS properties.
- Content area contains the real content of the element.
- Padding area adds space around the content.
- Border area surrounds the padding and content. Borders have width, style, and color attributes.
- Margin area adds space outside the border to separate the element from its neighbors

References: w3schools CSS Box Model MDN Intro to CSS basic box Model

Box Model in Chrome DevTools



North Carolina National Parks

Appalachian Trail

Stretching from Georgia to Maine, the National Park Service (along with the US Forest Service, North Carolina officials and private groups) maintains ***95.5 miles*** of the 2,185 mile long Appalachian Trail in North Carolina.

Blue Ridge Parkway

Tracing the Blue Ridge Mountains of Virginia and North Carolina for 469 miles, the National Park Service helps to maintain the ***253 mile***

```
<!doctype html>
<html>
 ▶<head>…</head>
 ▼<body>
    <img src="landscape.png" alt="NC Landscape" class="banner">
    <h1>North Carolina National Parks</h1>
   ▼<div>
      <h2>Appalachian Trail</h2> == $0
     ▶<p>…</p>
      <h2>Blue Ridge Parkway</h2>
     ▶<p>…</p>
      <h2>Cape Hatteras National Seashore</h2>
     ▶<p>…</p>
      <h2>Cape Lookout National Seashore</h2>
     ▶<p>…</p>
    </div>
  </body>
</html>
```

```
element.style {
}
h2 {                                    nc-national…rks.html:18
   font-size: 1em;
   color: ■#213510;
}
h2 {                                    user agent stylesheet
   display: block;
   ~~font-size: 1.5em;~~
   margin-block-start: 0.83em;
   margin-block-end: 0.83em;
   margin-inline-start: 0px;
   margin-inline-end: 0px;
   font-weight: bold;
}
Inherited from body
body {                                  nc-national…arks.html:7
   font-family: Verdana, sans-serif;
   ~~color: ■#22474f;~~
   background-color: □#75cdcb;
   margin: ▶ 5% 15%;
}
Inherited from html
html {                                  user agent stylesheet
   ~~color: -internal-root-color;~~
}
```

Box Model
for `<h2>` element

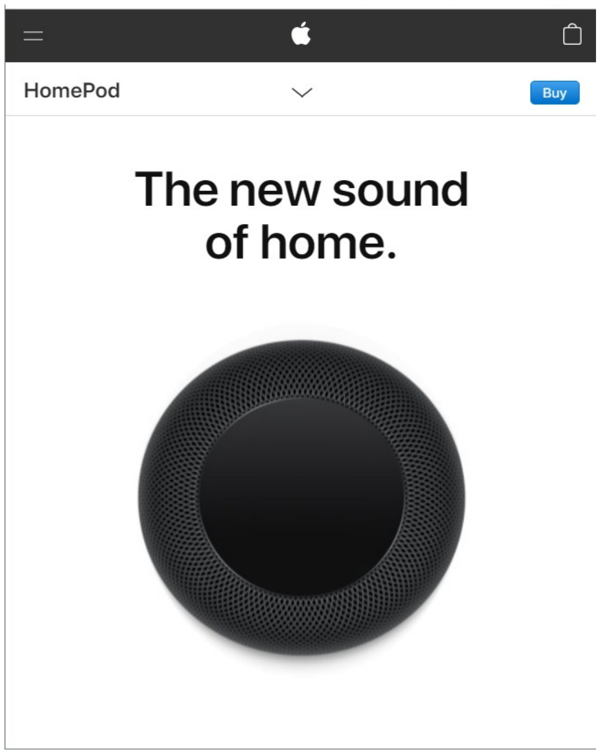
Selected element: `<h2>`

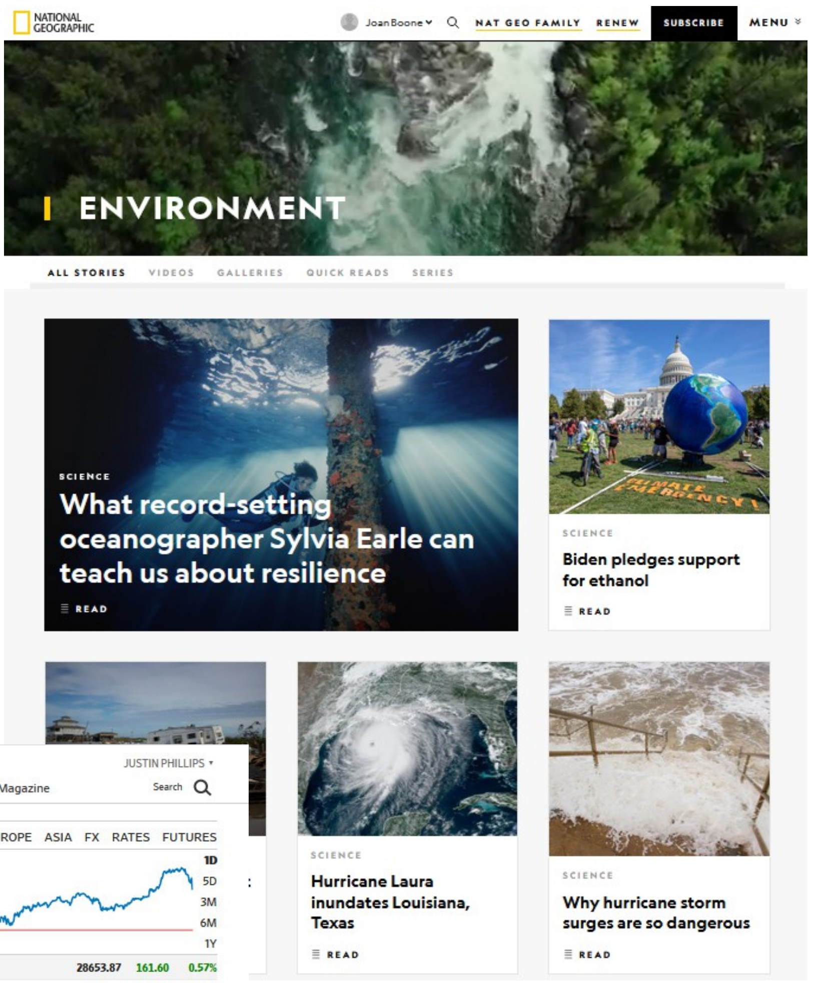
CSS rules from the user agent style sheet – these are the default rules applied by the browser.

Part 1: CSS Presentation

Part 2: CSS Layout

Layout Design





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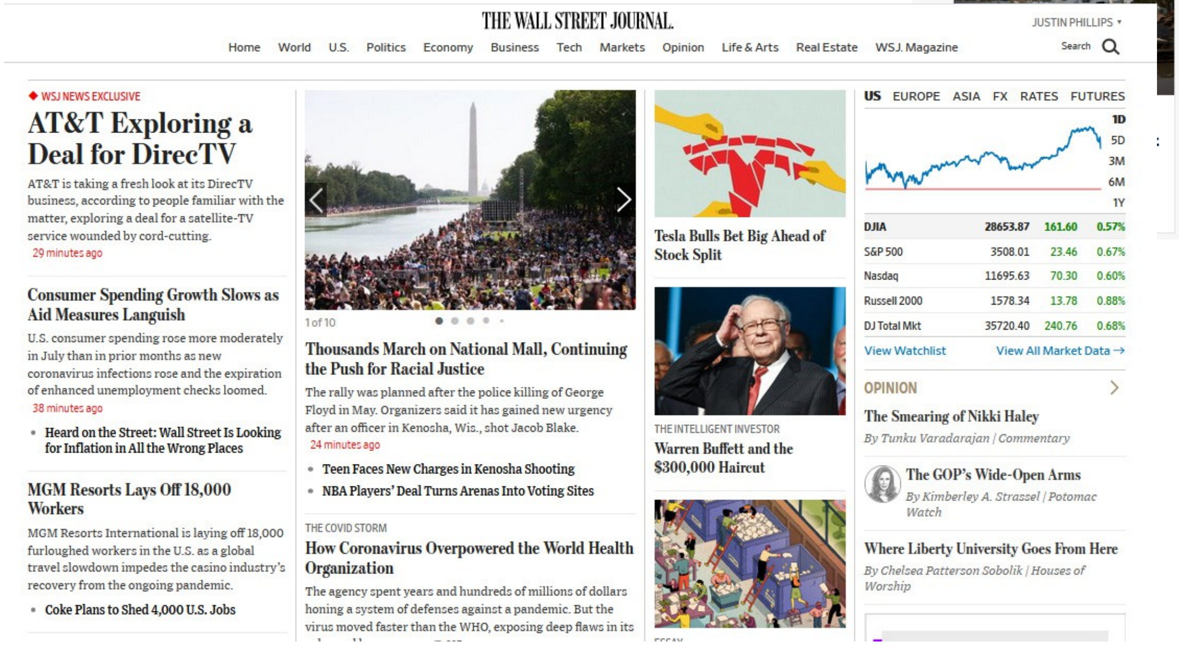

WSJ NEWS EXCLUSIVE
AT&T Exploring a Deal for DirecTV
AT&T is taking a fresh look at its DirecTV business, according to people familiar with the matter, exploring a deal for a satellite-TV service wounded by cord-cutting.
29 minutes ago

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U.S. consumer spending rose more moderately in July than in prior months as new coronavirus infections rose and the expiration of enhanced unemployment checks loomed.
38 minutes ago

- Heard on the Street: Wall Street Is Looking for Inflation in All the Wrong Places

MGM Resorts Lays Off 18,000 Workers
MGM Resorts International is laying off 18,000 furloughed workers in the U.S. as a global travel slowdown impedes the casino industry's recovery from the ongoing pandemic.

- Coke Plans to Shed 4,000 U.S. Jobs

Thousands March on National Mall, Continuing the Push for Racial Justice
The rally was planned after the police killing of George Floyd in May. Organizers said it has gained new urgency after an officer in Kenosha, Wis., shot Jacob Blake.
24 minutes ago

- Teen Faces New Charges in Kenosha Shooting
- NBA Players' Deal Turns Arenas Into Voting Sites

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The agency spent years and hundreds of millions of dollars honing a system of defenses against a pandemic. But the virus moved faster than the WHO, exposing deep flaws in its

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DJIA	28653.87	161.60	0.57%
S&P 500	3508.01	23.46	0.67%
Nasdaq	11695.63	70.30	0.60%
Russell 2000	1578.34	13.78	0.88%
DJ Total Mkt	35720.40	240.76	0.68%

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By Chelsea Patterson Sobolik | Houses of Worship

Slide 14

Using CSS for Layout

Very brief history....

- Originally, the `<table>` element was used for layout (no longer!)
- Then `float`, then Flexbox, then Grid

W3C Specifications

- CSS Flexible Box Layout Module
  - Candidate Recommendation, November 2018; Browser support
  - In this model, the children of a flex container can be laid out in a row or column direction, and can "flex" their sizes, either growing to fill unused space or shrinking to avoid overflowing the parent.
- CSS Grid Layout Module
  - Candidate Recommendation, August 2020; Browser support
  - Content can be organized in a two-dimensional grid container
  - Children of a grid container can be positioned into arbitrary slots in a flexible or fixed predefined layout grid
- CSS Multi-column Layout Module
  - Working Draft, October 2019; Browser support
  - Content can be flowed into multiple columns with a gap and a rule between them

Which layout to use?

It depends...much has been written and debated about when to use Flexbox vs. Grid, and occasionally Multi-column.

In Use Cases For Flexbox Rachel Andrew concludes

- Remove the idea from your brain that Grid is somehow only meant for main page layout, and Flexbox for components. You can have a tiny component that requires two-dimensional layout, and main page structures which better suit one-dimensional layout.
- Remember that there is very often not a clear right or wrong answer. Sometimes the only thing you can do is *try different ways and see what suits the component best*.

Flexbox Resources

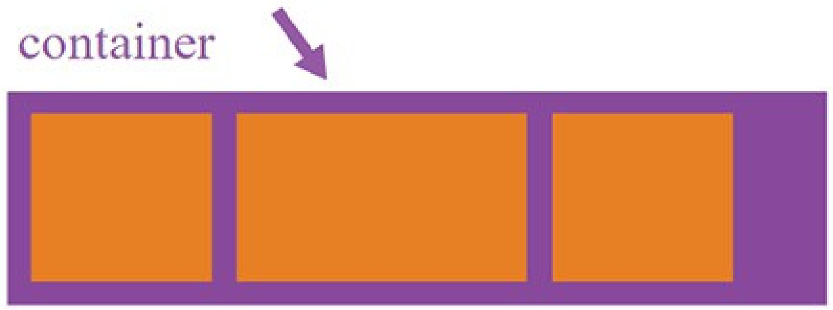
Articles, Tutorials

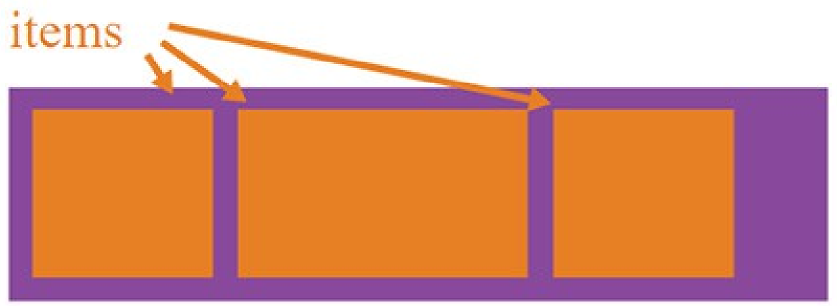
- A Complete Guide to Flexbox by Chris Coyier
- MDN Web Docs: Flexbox
- MDN Web Docs: Typical use cases of Flexbox
- Smashing: Use Cases for Flexbox by Rachel Andrew
- Codepen: Flexbox playground

Specification: CSS Flexible Box Layout Module

Caniuse: Browser support

Flexbox Layout: Basic Model





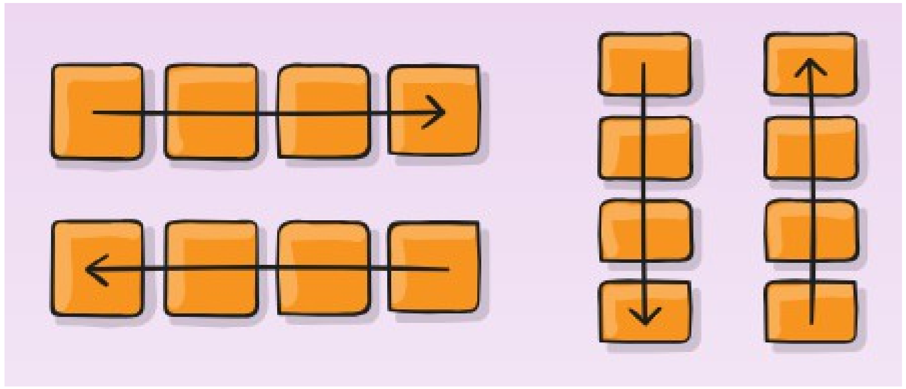
CSS Flexbox is a model where you can lay out elements in a row or column. The elements “flex” their sizes, either by growing to fill unused space or shrinking to avoid overflowing the parent container

- Flex Container is the element on which `display:flex` is applied
- Flex Items are the children, or direct descendants, of the Flex Container

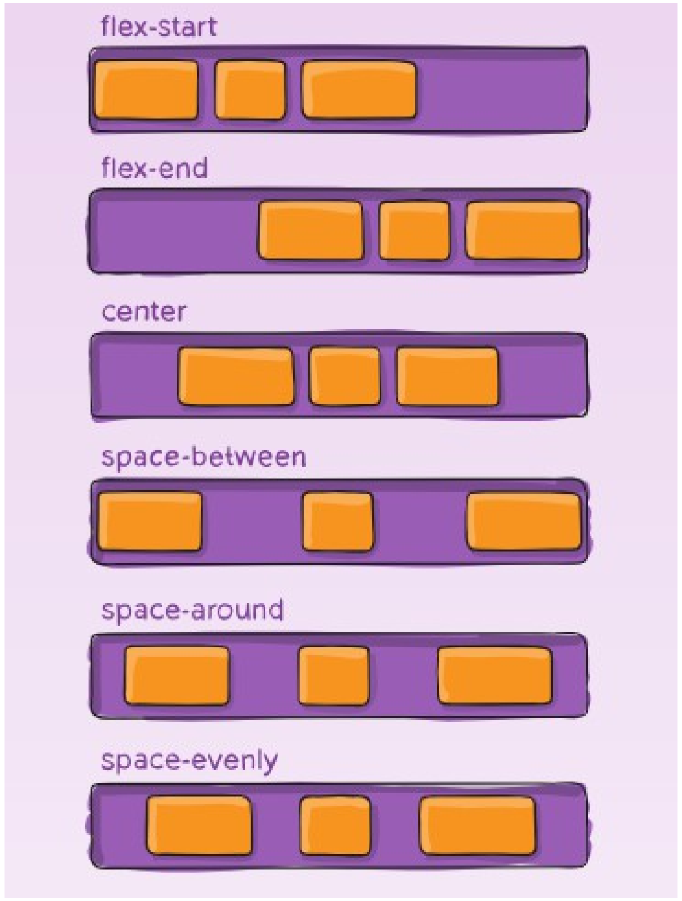
Source: CSS Tricks – A Complete Guide to Flexbox

Flex Container Properties

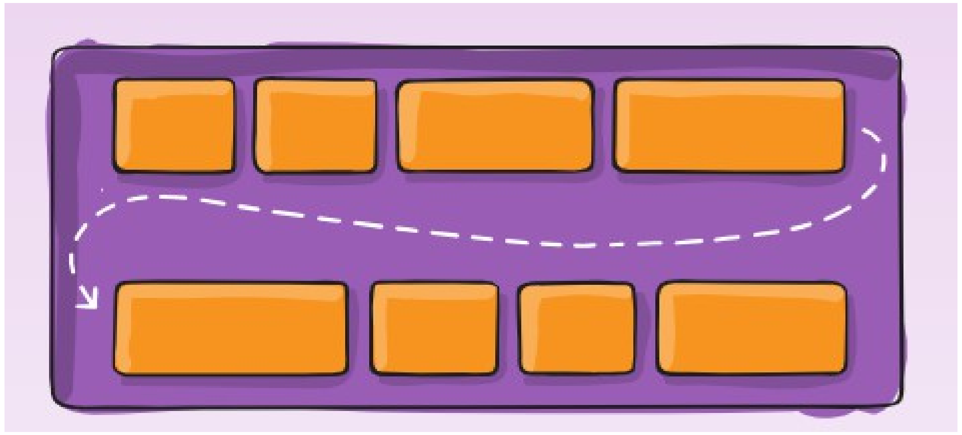
`flex-direction`



`justify-content`

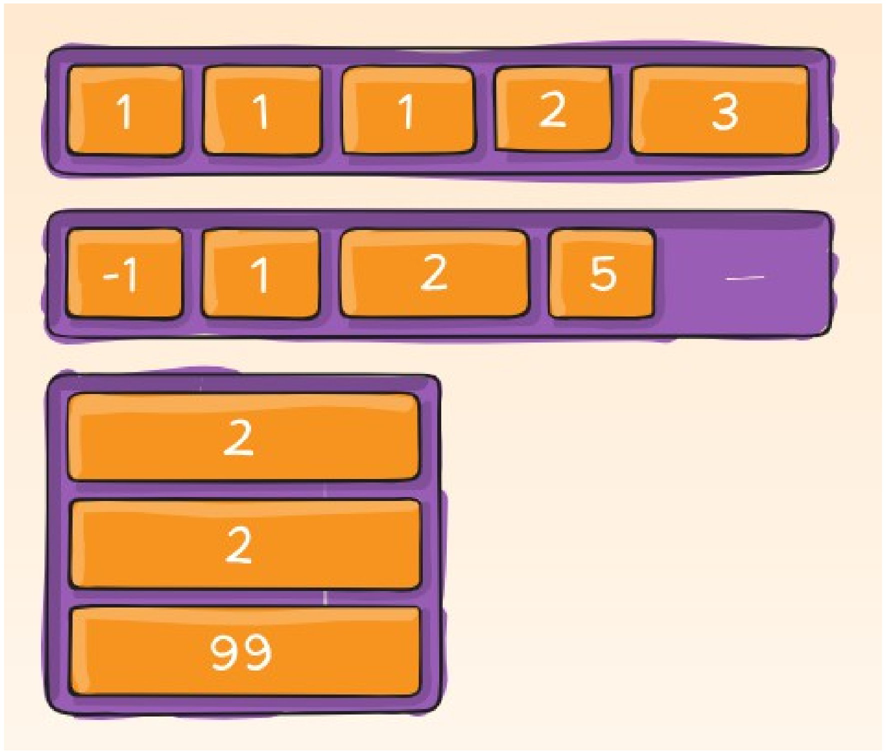


`flex-wrap`

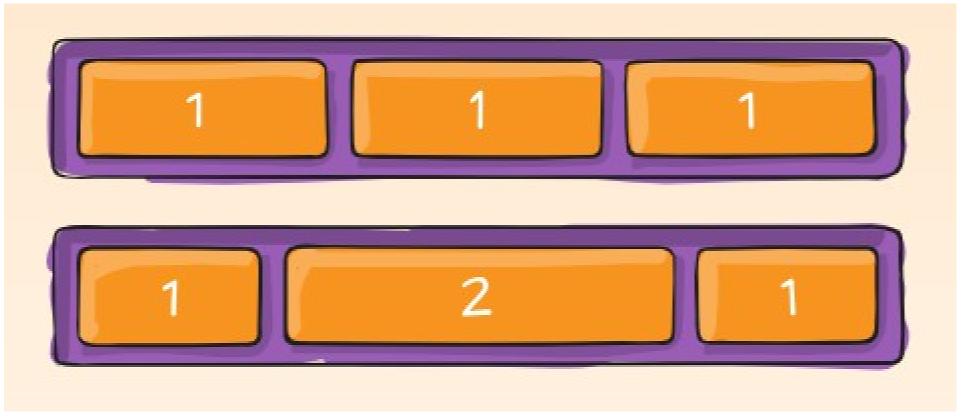


Flex Item Properties

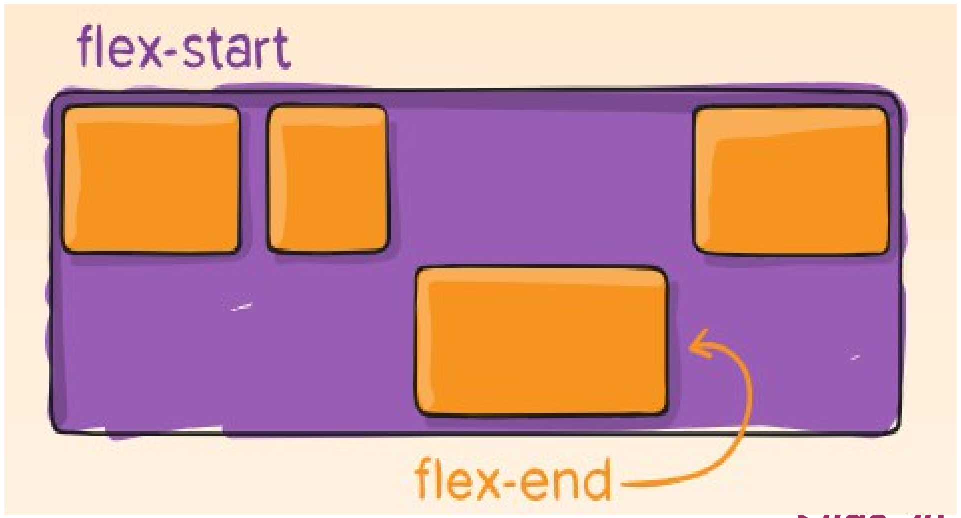
`order`



`flex-grow`

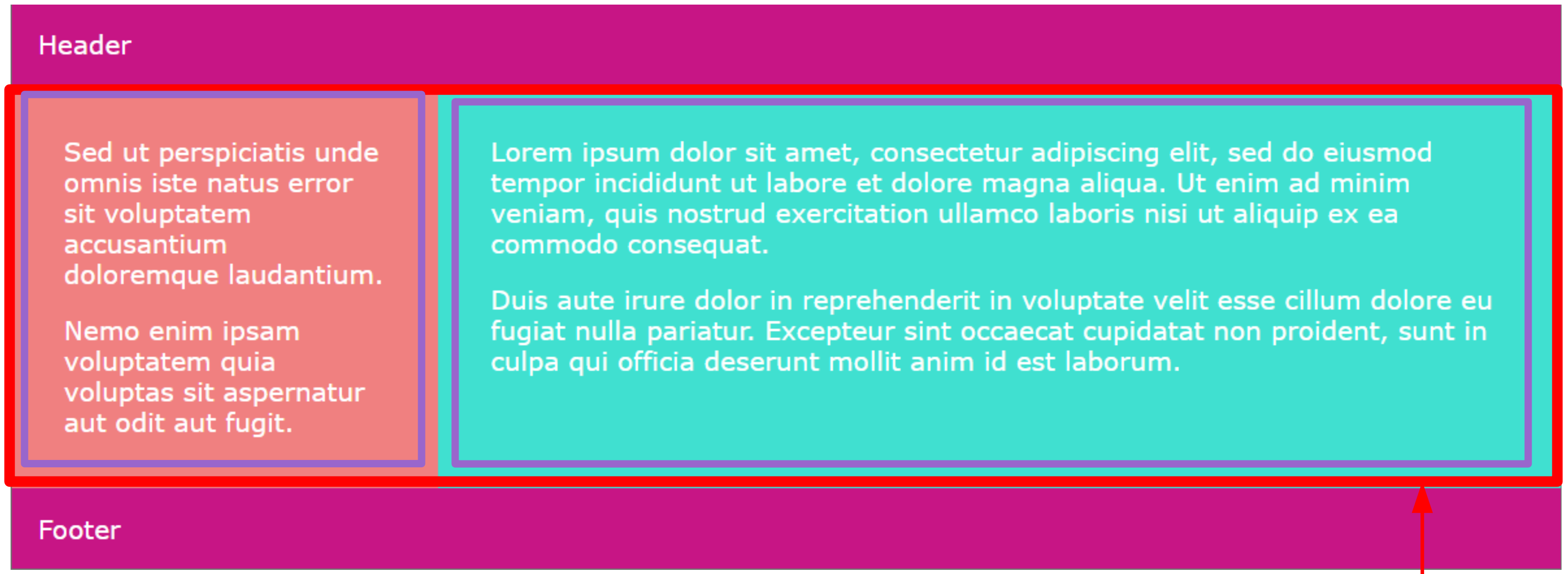


`align-self`



CSS Tricks – A Complete Guide to Flexbox

Basic Flexbox Layout: 2 column



Header

Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium.

Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Footer

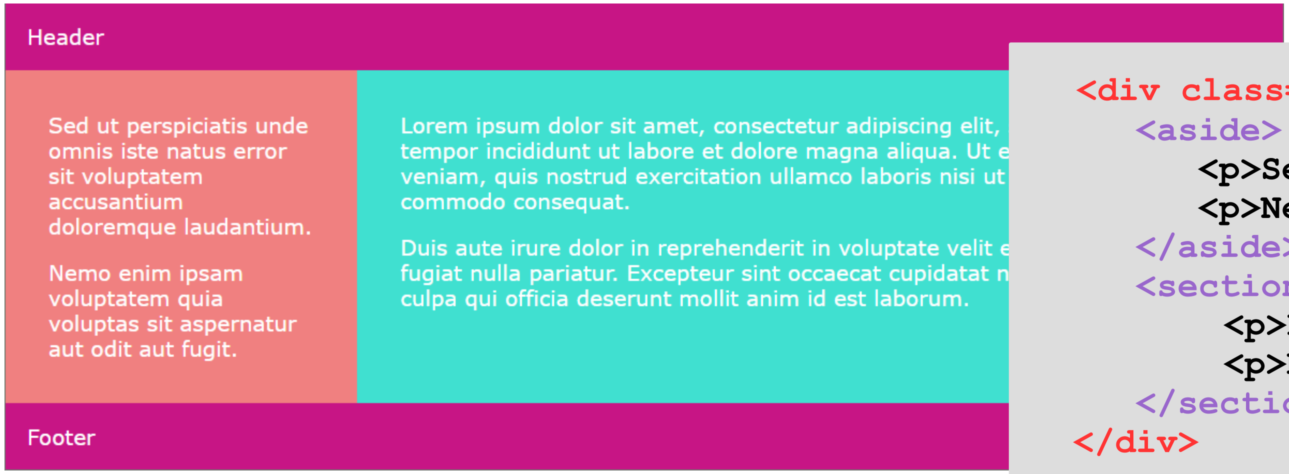
```
<div class="content-flex-container">
   <aside>
      <p>Sed ut ...</p>
      <p>Nemo enim ...</p>
   </aside>
   <section>
       <p>Lorem ipsum ...</p>
       <p>Duis aute irure ...</p>
   </section>
</div>
```

Flex Container

Flex Items
(direct descendants of Flex Container)

flex-2column.html

Basic Flexbox Layout: 2 column


Header

Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium.

Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, tempor incididunt ut labore et dolore magna aliqua. Ut e veniam, quis nostrud exercitation ullamco laboris nisi ut commodo consequat.

Duis aute irure dolor in reprehenderit in voluptate velit e fugiat nulla pariatur. Excepteur sint occaecat cupidatat n culpa qui officia deserunt mollit anim id est laborum.

Footer

```
<div class="content-flex-container">
   <aside>
      <p>Sed ut ...</p>
      <p>Nemo enim ...</p>
   </aside>
   <section>
       <p>Lorem ipsum ...</p>
       <p>Duis aute irure ...</p>
   </section>
</div>
```

```
.content-flex-container {
    display: flex; }
aside   {
    background-color: lightcoral;
    flex: 1; }
section {
    background-color: turquoise;
    flex: 3; }
```

You can use the shorthand `flex` property to specify proportions.

`flex` is shorthand for `flex-grow`, `flex-shrink`, and `flex-basis` properties (the last two are optional).

If you only specify one parameter, it defines the `flex-grow` property. `flex-grow` defines the amount of available space in the container that the item should take up.

If all items have `flex-grow` set to 1, the remaining space in the container is distributed equally. In this case, section takes up 3 times as much space as the other items.

The default `flex-direction` for a flex container is row, so the flex items are laid out side by side in this example.

flex-2column.html

Grid Layout Resources

Specification: CSS Grid Layout Module, Browser support

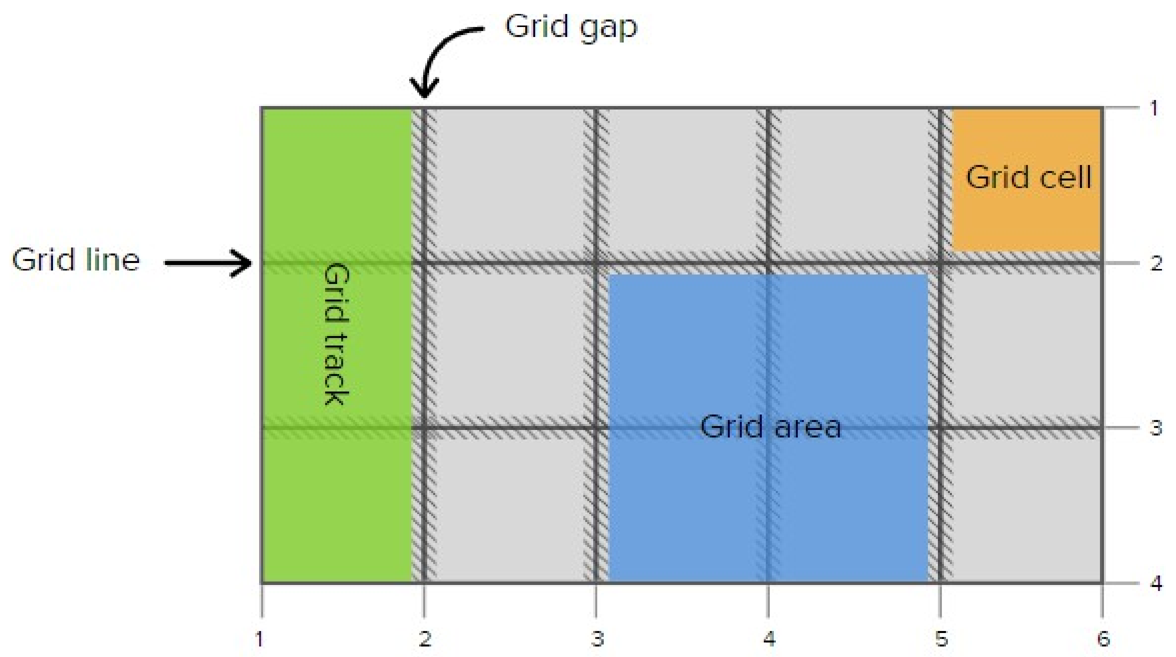
Rachel Andrew

- Get Started with Grid Layout
- Grid by Example

Articles, Tutorials, Examples

- CSS Tricks: A Complete Guide to Grid
- w3schools: CSS Grid Layout
- MDN Web Docs: CSS Grid Layout
- Codrops: CSS Grid

Grid Layout: Model and Terminology

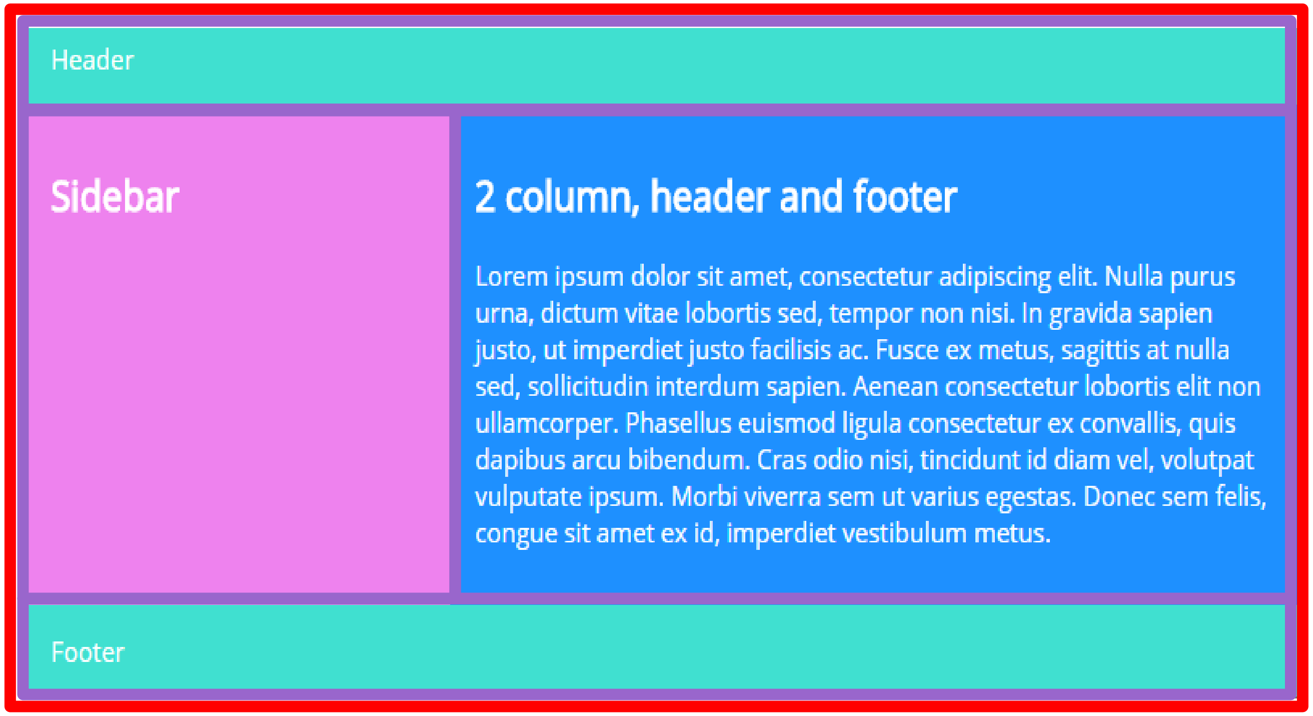


CSS Grid is a two-dimensional layout system that can handle both rows and columns. You apply CSS rules to a parent element (Grid Container) and its child elements (Grid Items).

- Grid Container is the element on which `display:grid` is applied
- Grid Items are the children, or direct descendants, of the Grid Container

Codrops: CSS Grid

Basic Grid Layout


Header

Sidebar

2 column, header and footer

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nulla purus urna, dictum vitae lobortis sed, tempor non nisi. In gravida sapien justo, ut imperdiet justo facilisis ac. Fusce ex metus, sagittis at nulla sed, sollicitudin interdum sapien. Aenean consectetur lobortis elit non ullamcorper. Phasellus euismod ligula consectetur ex convallis, quis dapibus arcu bibendum. Cras odio nisi, tincidunt id diam vel, volutpat vulputate ipsum. Morbi viverra sem ut varius egestas. Donec sem felis, congue sit amet ex id, imperdiet vestibulum metus.

Footer

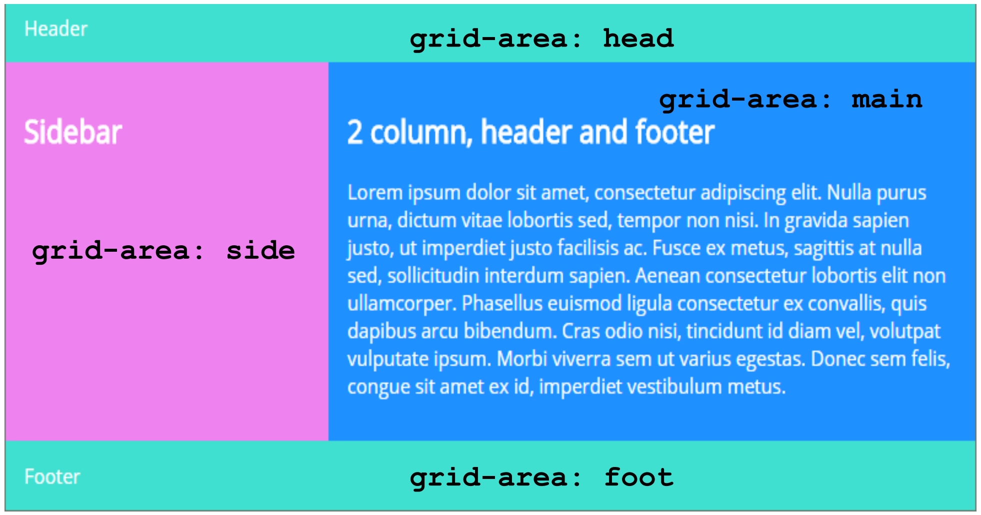
```
<body>
   <div class="wrapper">
      <header>Header</header>
      <aside><h2>Sidebar</h2></aside>
      <article>
         <h1>2 column, header and footer</h1>
         <p> Lorem ipsum dolor....</p>
      </article>
      <footer>Footer</footer>
   </div>
</body>
```

Grid Container

Grid Items
(direct descendants of Grid Container)

2col-header-footer.html

Basic Grid Layout



2 column, header and footer

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nulla purus urna, dictum vitae lobortis sed, tempor non nisi. In gravida sapien justo, ut imperdiet justo facilisis ac. Fusce ex metus, sagittis at nulla sed, sollicitudin interdum sapien. Aenean consectetur lobortis elit non ullamcorper. Phasellus euismod ligula consectetur ex convallis, quis dapibus arcu bibendum. Cras odio nisi, tincidunt id diam vel, volutpat vulputate ipsum. Morbi viverra sem ut varius egestas. Donec sem felis, congue sit amet ex id, imperdiet vestibulum metus.

HTML

```
<body>
  <div class="wrapper">
    <header>Header</header>
    <aside><h2>Sidebar</h2></aside>
    <article>
      <h1>2 column, header and footer</h1>
      <p> Lorem ipsum dolor....</p>
    </article>
    <footer>Footer</footer>
  </div>
</body>
```

CSS

```
header  { grid-area: head; }
footer  { grid-area: foot; }
article { grid-area: main; }
aside   { grid-area: side; }

.wrapper {
  display: grid;
  grid-template-columns: repeat(9, 1fr);
  grid-template-areas:
    "head head head head head head head head head"
    "side side side main main main main main main"
    "foot foot foot foot foot foot foot foot foot";
  margin: 0; }

.wrapper > * {
  padding: 1em;
  color: white;
  font-size: 150%;
  margin: 0;  }
```

Each grid item is associated with a **grid-area**

Define the grid container with 9 columns, each with a size of **1fr**, a "fraction" unit.

Defines how to layout the **grid-area**s

All (*) elements that are direct descendants of an element with the **wrapper** class have these style rules applied to them

Learning CSS

How To Learn CSS by Rachel Andrew (January 2019)

Useful summary with good links to related resources

- Language Fundamentals
  - Selectors, more than just class
  - Inheritance and cascade
  - The Box Model
  - Normal Flow
  - Formatting Contexts
  - Being in and out of flow
- Layout
- Responsive Design
- Fonts and Typography
- Transforms and Animation