# CSS

LET’S MAKE IT LIKE AN ARTIST

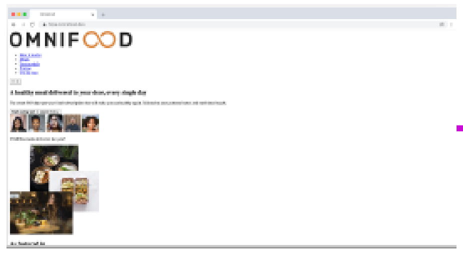
## INTRODUCTION TO CSS

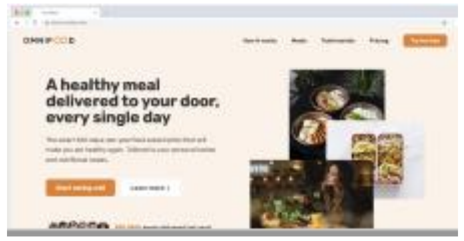
**Cascading Style Sheets**

CSS describes the visual style and presentation of the content written in HTML

CSS consists of countless properties that developers use to format the content: properties about font, text, spacing, layout, etc.

Web browsers understand HTML and render HTML code as websites

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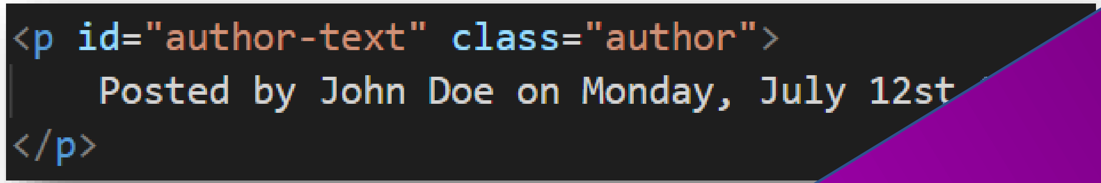
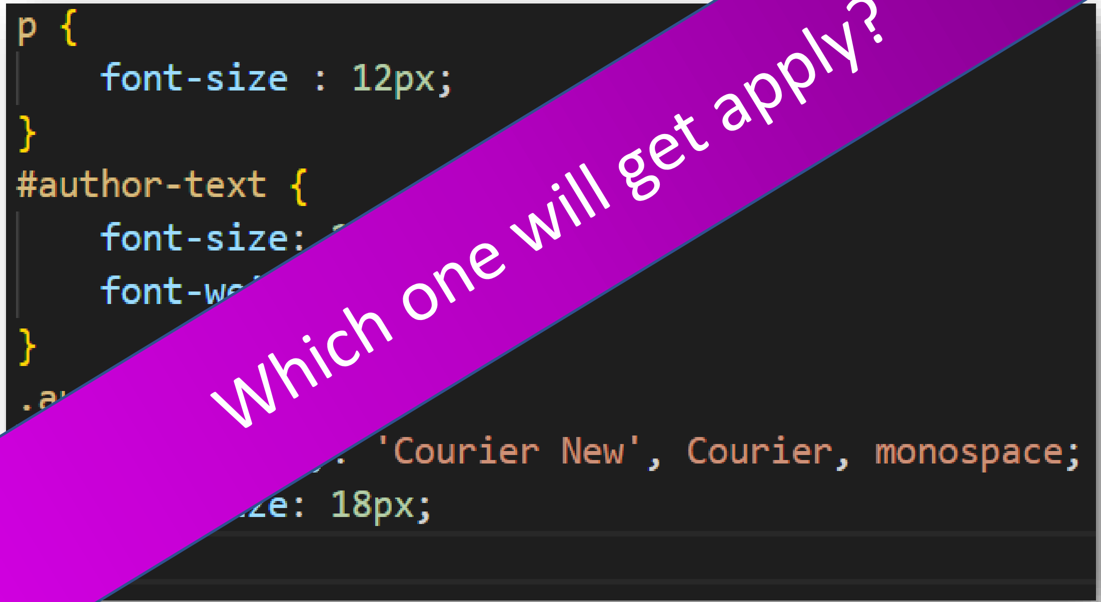
# CONFLICTING SELECTORS AND DECLARATIONS



```
<p id="author-text" class="author">
    Posted by John Doe on Monday, July 12st
</p>
```

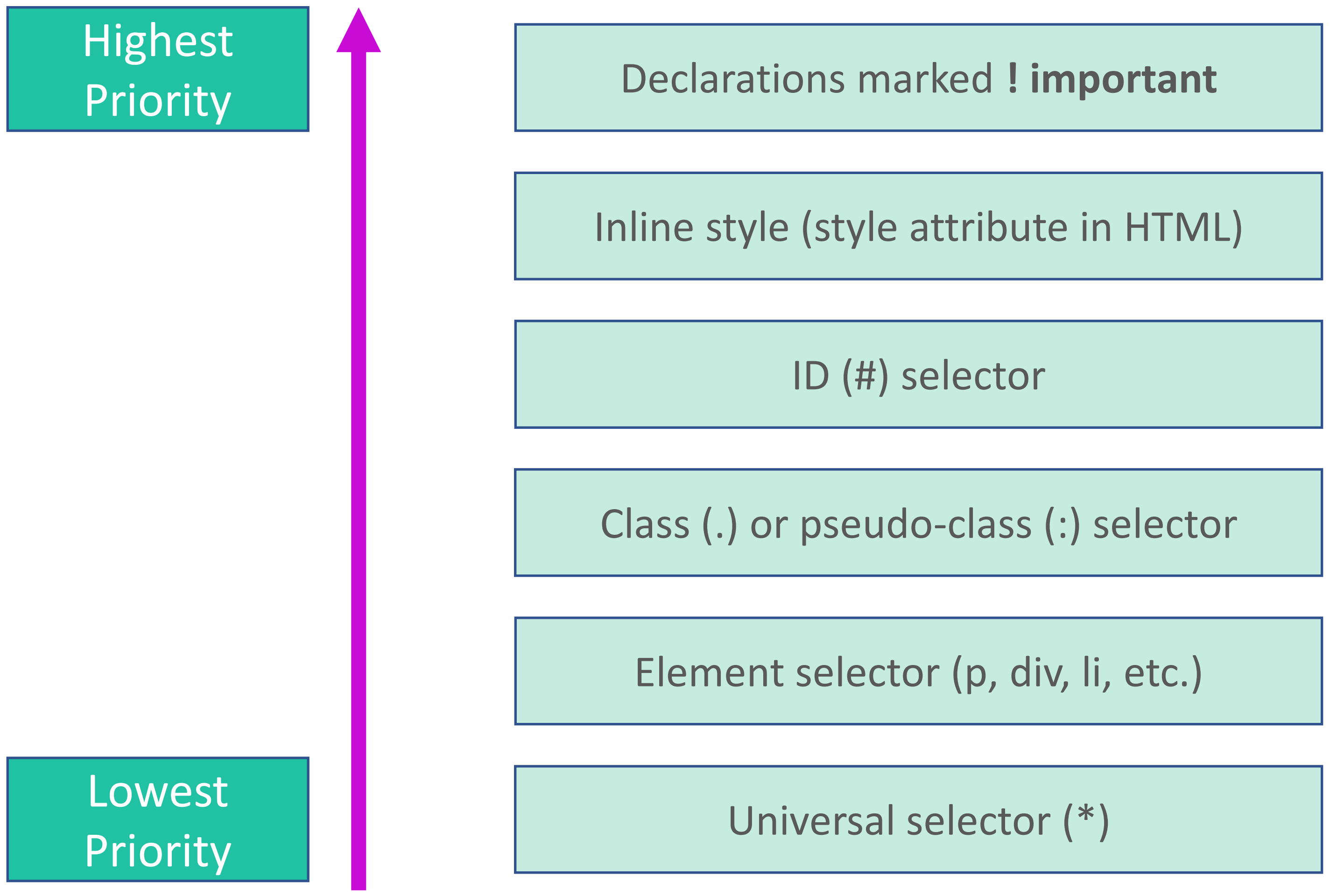
Multiple Selectors



```
p {
    font-size : 12px;
}
#author-text {
    font-size:
    font-we
}
.a
          : 'Courier New', Courier, monospace;
       ze: 18px;
```

Which one will get apply?

# RESOLVING CONFLICTING DECLARATIONS


Highest Priority
Lowest Priority
Declarations marked **! important**
Inline style (style attribute in HTML)
ID (#) selector
Class (.) or pseudo-class (:) selector
Element selector (p, div, li, etc.)
Universal selector (*)

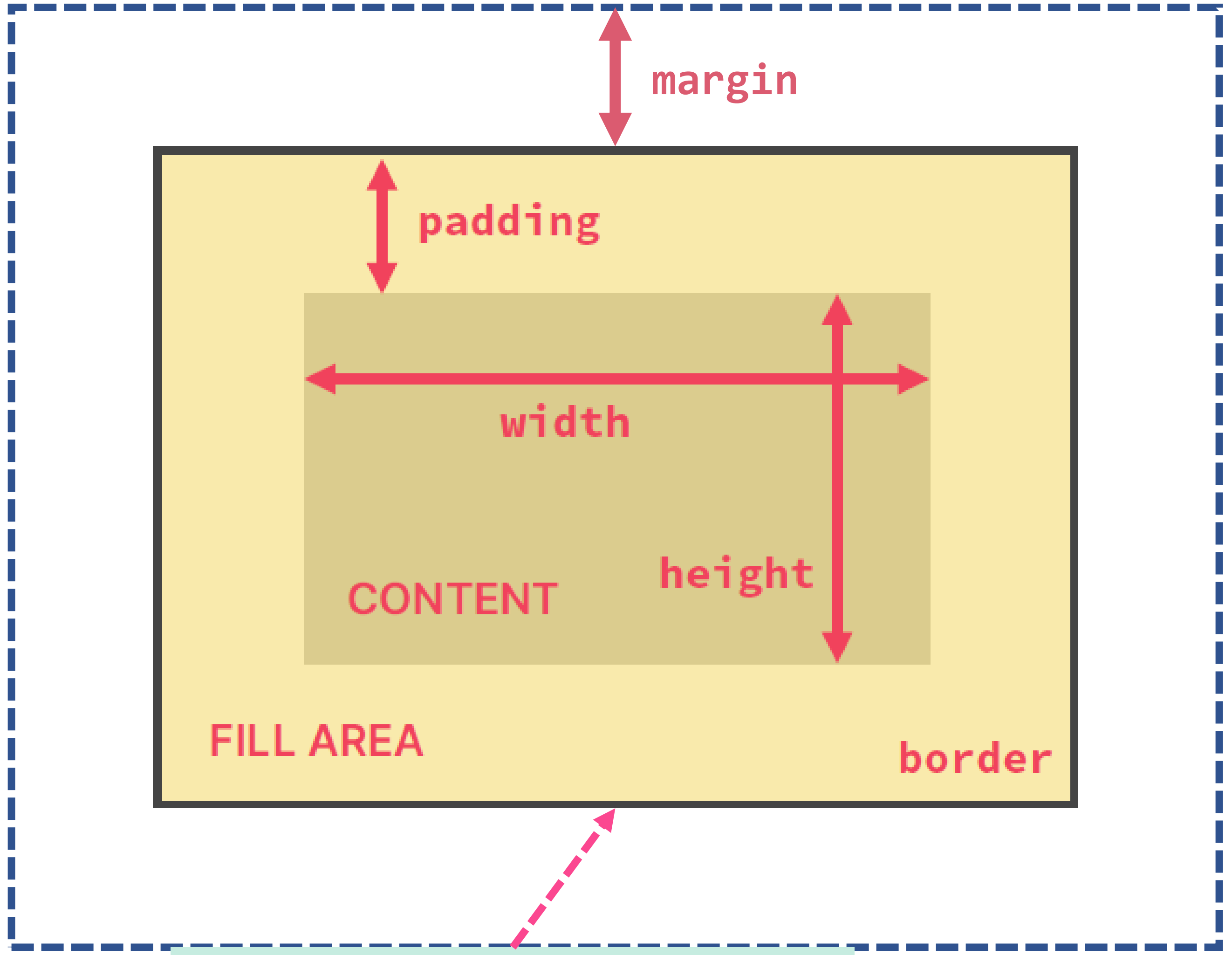
# CSS : Inheritance

**In CSS, inheritance** controls what happens when no value is specified for a property on an element.

CSS properties can be categorized in two types:

| Inherited properties | Non-inherited properties |
|---|---|
| By default, are set to the computed value of the parent element | By default, are set to initial value of the property |

# THE CSS BOX MODEL



Visible part of element on the page

**Content**: Text, images, etc.

**Border**: A line around the element, still **inside** of the element

**Padding**: Invisible space around the content, **inside** of the element

**Margin**: Space **outside** of the element, between elements

**Fill area**: Area that gets filled with **background color** or **background image**

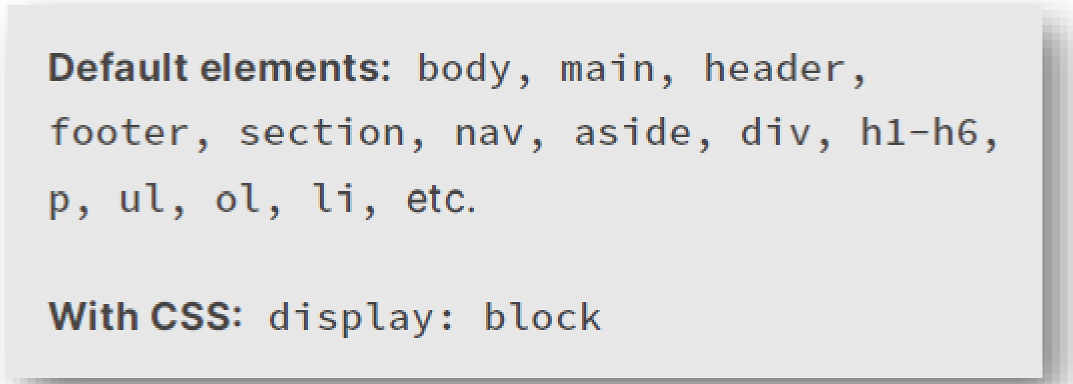
## BLOCK-LEVEL ELEMENTS

Elements are formatted visually as blocks

Elements occupy 100% of parent element's width, no matter the content

Elements are stacked vertically by default, one after another

The box-model applies as showed earlier



**Default elements:** `body, main, header, footer, section, nav, aside, div, h1-h6, p, ul, ol, li,` etc.

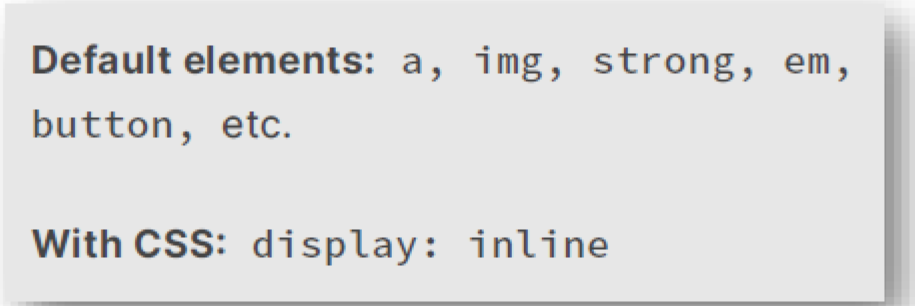
**With CSS:** `display: block`

# INLINE ELEMENTS

Occupies only the space necessary for its content

Causes no line-breaks after or before the element

Paddings and margins are applied only horizontally (left and right)



**Default elements:** `a, img, strong, em, button,` etc.

**With CSS:** `display: inline`

# ANIMATION

Animate transitions from one CSS style configuration to another

Animations consist of two components, a style describing the CSS animation and a set of keyframes that indicate the start and end states of the animation's style, as well as possible intermediate waypoints

@keyframes at-rule defines the appearance of the animation

keyframes use a <percentage> to indicate the time during the animation sequence at which they take place. 0% indicates the first moment of the animation sequence, while 100% indicates the final state of the animation

## ANIMATION PROPERTIES

| Property Name | Description |
|---|---|
| **animation-name** | Specifies the name of the @keyframes at-rule describing the animation's keyframes |
| **animation-duration** | Configures the length of time that an animation should take to complete one cycle |
| **animation-delay** | Configures the delay between the time the element is loaded and the beginning of the animation sequence |
| **animation-iteration-count** | Configures the number of times the animation should repeat; you can specify infinite to repeat the animation indefinitely |
| **animation-direction** | Configures whether or not the animation should alternate direction on each run through the sequence or reset to the start point and repeat itself |
| **animation-fill-mode** | Configures what values are applied by the animation before and after it is executing |

## NORMAL FLOW & ABSOLUTE POSITIONING

| NORMAL FLOW | ABSOLUTE POSITIONING |
|---|---|
| Default positioning | Element is removed from the normal flow: “out of flow” |
| Element is “in flow” | No impact on surrounding elements, might overlap them |
| Elements are simply laid out according to their order in the HTML code | We use top, bottom, left, or right to offset the element from its relatively positioned container |

position: relative;

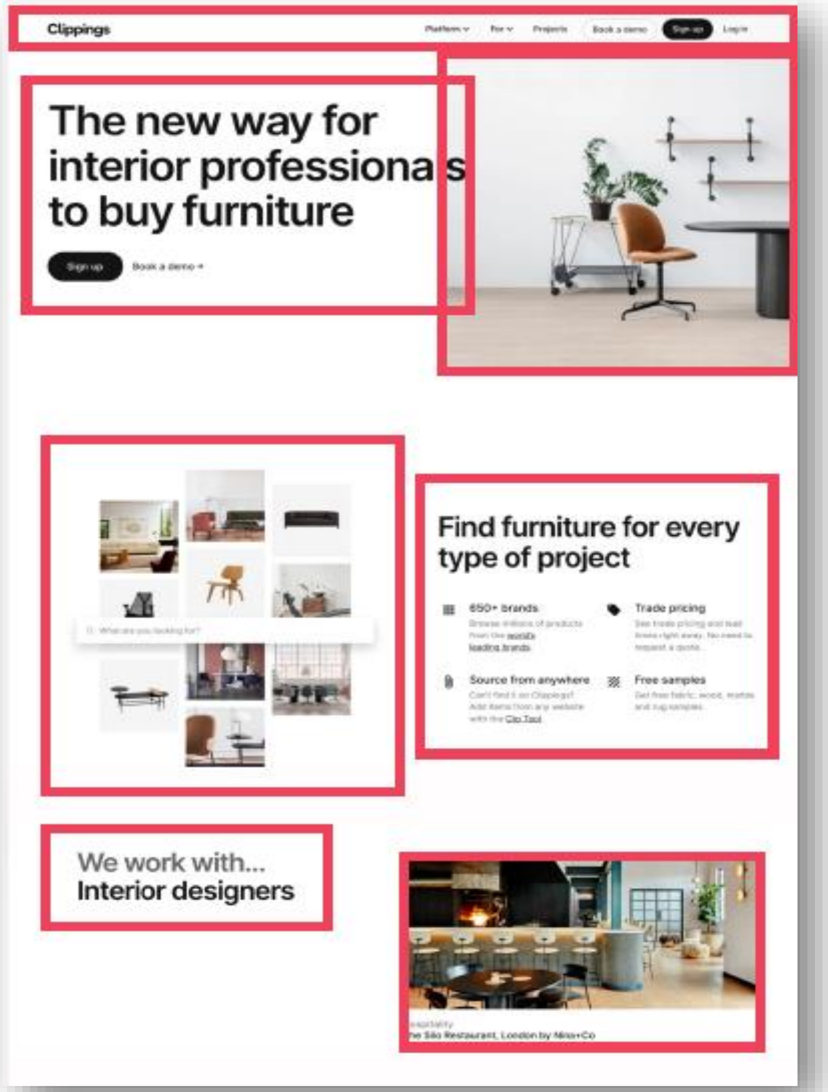
position: absolute;

# WHAT DOES “LAYOUT” MEAN?

Layout is the way text, images and other content is placed and arranged on a webpage

Layout gives the page a visual structure, into which we place our content

**Building a layout:** arranging page elements into a visual structure, instead of simply having them placed one after another (normal flow)



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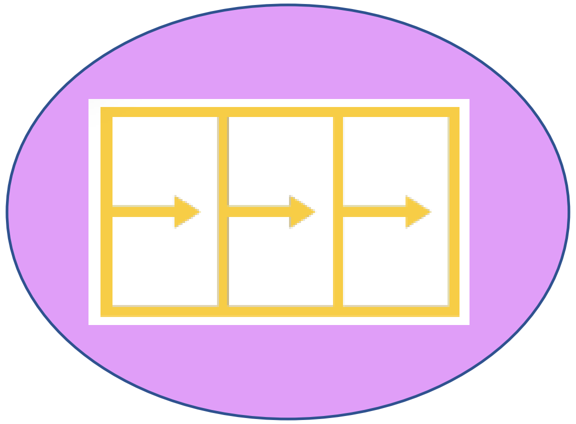
## THE 3 WAYS OF BUILDING LAYOUTS WITH CSS

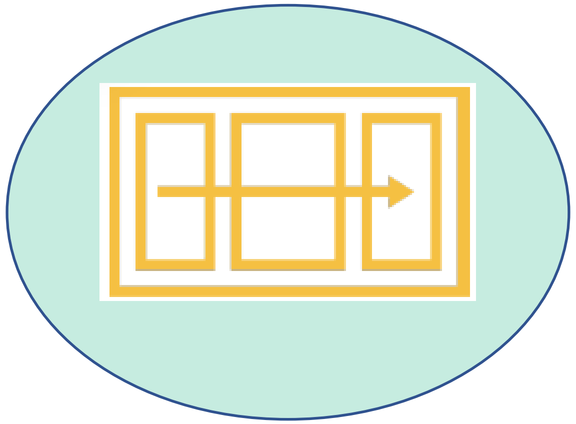
**FLOAT LAYOUTS**

The **old way of building layouts** of all sizes, using the float CSS property. Still used, but getting outdated fast.



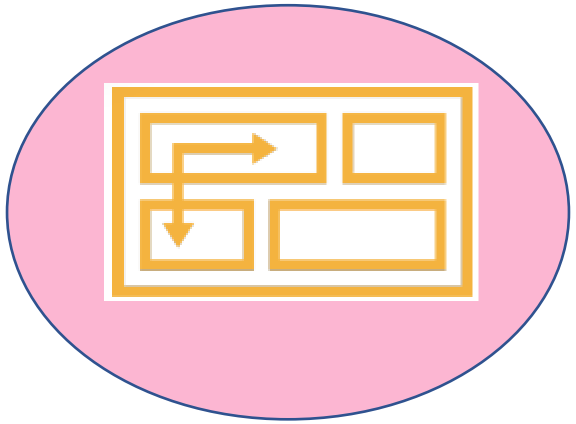
**FLEXBOX**

Modern way of laying out elements in a **1-dimensional row** without using floats. Perfect for **component layouts**.



**CSS GRID**

For laying out element in a fully-fledged **2-dimensional grid**. Perfect for **page layouts and complex components**.



## WHAT IS FLEXBOX?

Flexbox is a set of related CSS properties for building 1-dimensional layouts

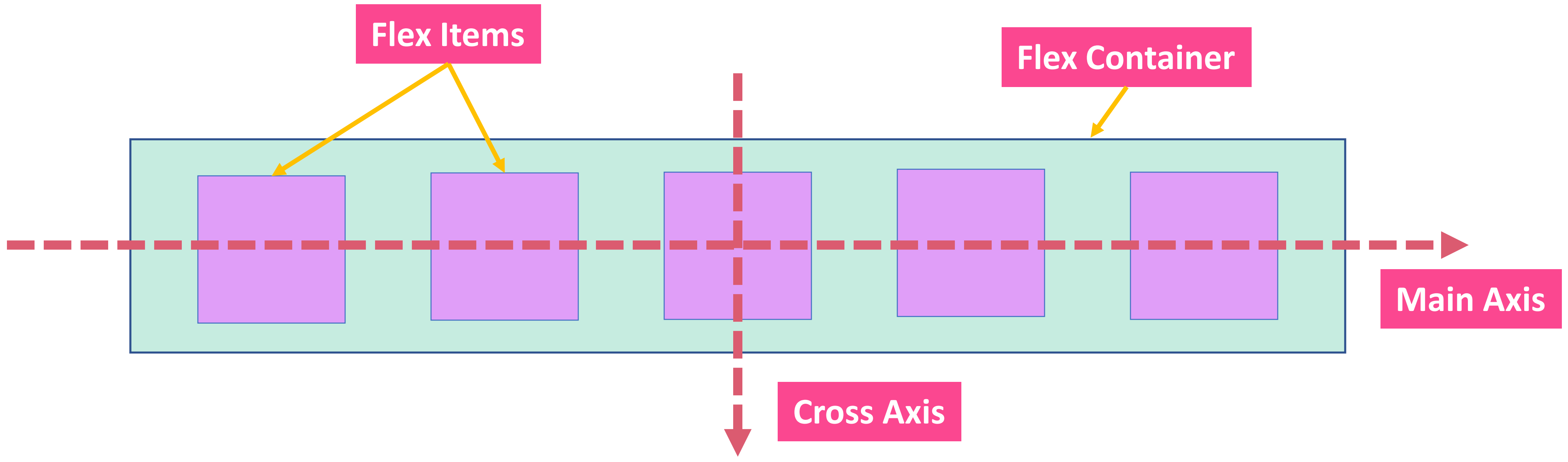
The main idea behind flexbox is that empty space inside a container element can be automatically divided by its child elements

Flexbox makes it easy to automatically align items to one another inside a parent container, both horizontally and vertically

Flexbox solves common problems such as vertical centering and creating equal-height columns

Flexbox is perfect for replacing floats, allowing us to write fewer and cleaner HTML and CSS code

# FLEXBOX TERMINOLOGY



```
display: flex;
```

# FLEX CONTAINER PROPERTIES

| Property Name | Description | Possible Values |
|---|---|---|
| **gap** | To create **space between items**, without using margin | **0** \| <length> |
| **justify-content** | To align items along main axis (**horizontally**, by default) | flex-start \| flex-end \| center \| space-between \| space-around \| space-evenly |
| **align-items** | To align items along cross axis (**vertically**, by default) | stretch \| flex-start \| flex-end \| center \| baseline |
| **flex-direction** | To define which is the **main axis** | row \| row-reverse \| column \| column-reverse |
| **flex-wrap** | To allow items to **wrap into a new line** if they are too large | nowrap \| wrap \| wrap-reverse |
| **align-content** | Only applies when there are **multiple lines** (flex-wrap: wrap) | stretch \| flex-start \| flex-end \| center \| space-between \| space-around |

# FLEX ITEM PROPERTIES

| Property Name | Description | Possible Values |
|---|---|---|
| **align-self** | To **overwrite** align-items for individual flex items | **auto** \| stretch \| flex-start \| flex-end \| center \| baseline |
| **flex-grow** | To allow an element **to grow** (0 means no, 1+ means yes) | **0** \| <integer> |
| **flex-shrink** | To allow an element **to shrink** (0 means no, 1+ means yes) | **1** \| <integer> |
| **flex-basis** | To define an item's width, **instead of the width** property | **auto** \| <length> |
| **flex** | **Recommended** shorthand for flex-grow, -shrink, -basis. | **0 1 auto** \| <int> <int> <len> |
| **order** | Controls order of items. -1 makes item **first**, 1 makes it **last** | **0** \| <integer> |

## WHAT IS CSS GRID?

CSS Grid is a set of CSS properties for building 2-dimensional layouts

The main idea behind CSS Grid is that we divide a container element into rows and columns that can be filled with its child elements

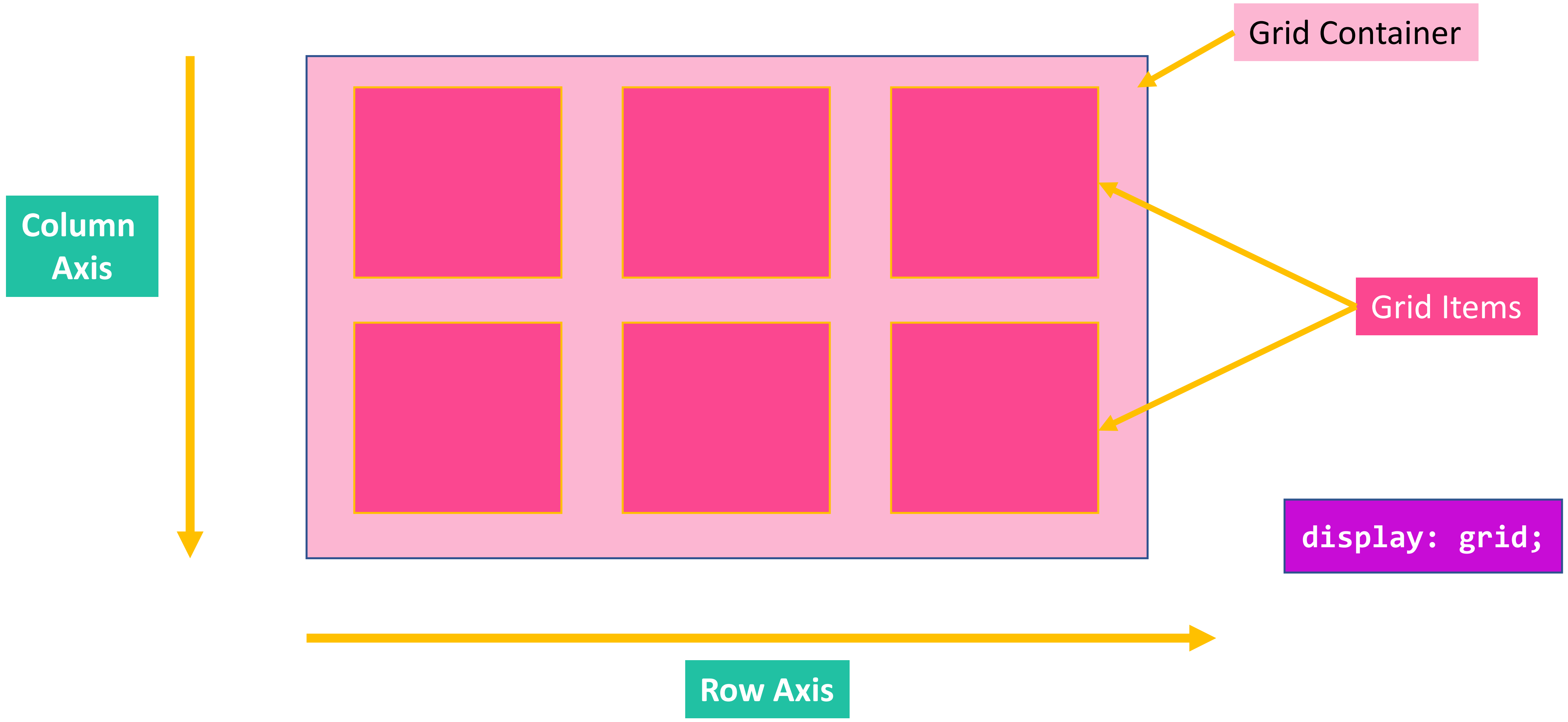
In two-dimensional contexts, CSS Grid allows us to write less nested HTML and easier-to-read CSS

CSS Grid is not meant to replace flexbox! Instead, they work perfectly together.

Need a 1D layout? Use *flexbox*.

Need a 2D layout? Use *CSS Grid*.

# BASIC CSS GRID TERMINOLOGY



# GRID CONTAINER PROPERTIES

| Property Name | Description | Possible Values |
|---|---|---|
| **grid-template-rows**<br>**grid-template-columns** | To establish the grid row and column tracks. One length unit for each track. Any unit can be used, new **fr** fills unused space | <track size>* |
| **row-gap**<br>**column-gap** | To create empty space between tracks | **0** \| <length> |
| **justify-items**<br>**align-items** | To align items inside rows / columns (horizontally / vertically) | stretch \| start \| center \| end |
| **justify-content**<br>**align-content** | To align entire grid inside grid container. Only applies if container is larger than the grid | start \| center \| end |

## GRID ITEM PROPERTIES

| Property Name | Description | Possible Values |
|---|---|---|
| **grid-column**<br>**grid-row** | To place a grid item into a specific cell, based on line numbers. span keyword can be used to span an item across more cells | <start line> / <end line> \| span <number> |
| **justify-self**<br>**align-self** | To overwrite justify-items / align-items for single items | stretch \| start \| center \| end |

*This list of CSS Grid properties is not exhaustive, but enough to get started*

## WHAT IS RESPONSIVE DESIGN?

Design technique to make a webpage adjust its layout and visual style to **any possible screen size** (window or viewport size)

In practice, this means that responsive design makes websites usable on all devices, such as **desktop computers, tablets, and mobile phones**.

It’s a set of practices, **not a separate technology**. It’s all just CSS!

# RESPONSIVE DESIGN INGREDIENTS

## FLUID LAYOUTS

To allow webpage to adapt to the current viewport width (or even height)

Use **%** (or vh / vw) unit instead of px for elements that should adapt to viewport (usually layout)

Use **max-width** instead of width

## RESPONSIVE UNITS

Use **rem** unit instead of px for most lengths to make it easy to scale the entire layout down (or up) automatically

**Helpful trick:** setting 1rem to 10px for easy calculations

## FLEXIBLE IMAGES

By default, images don't scale automatically as we change the viewport, so we need to fix that

Always use % for image dimensions, together with the **max-width** property

Use max-width for responsiveness

## MEDIA QUERIES

Bring responsive sites to life!

To change CSS styles on certain viewport widths (called breakpoints)

Use media queries and select breakpoints

# DESKTOP-FIRST VS. MOBILE-FIRST DEVELOPMENT

## DESKTOP-FIRST

Start writing CSS for the desktop: large screen

Then, media queries shrink design to smaller screens.

## MOBILE-FIRST

Start writing CSS for mobile devices: small screen

Then, media queries expand design to a large screen

Forces us to reduce websites and apps to the absolute essentials.

## BLUEPRINT

A lightweight layout library for building great responsive mobile first UIs that work everywhere. Open Source, built with CSS Grid and Flexbox.

# FOUNDATION

The most advanced responsive front-end framework

# MICRODATA

Microdata is used to nest metadata within existing content on web pages.

Search engines and web crawlers can extract and process microdata from a web page and use it to provide a richer browsing experience for users.

Microdata allows search engines to understand the information on web pages and provide more relevant results to users.

Microdata consists of a group of name-value pairs -

- To create an item, the Itemscope attribute is used.

- To add a property to an item, the itemprop attribute is used on one of the item's descendants.

Google and other major search engines support the *schema.org* vocabulary for structured data

## REFERENCES

**READING MATERIAL**

- https://developer.mozilla.org/en-US/docs/Learn/CSS/First_steps

**VIDEO LINKS**

- https://www.youtube.com/playlist?list=PLu0W_9lII9agiCUZYRsvtGTXdxkzPyItg
- https://www.youtube.com/watch?v=1Rs2ND1ryYc&t=2s