CSS

Let’s make it better looking

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

CSS SELECTORS

Selector Type	Syntax	Description	Example
Universal	*	Selects all elements	* will match all the elements
Type	elementName	Selects all elements that have the given node name	input will match any <input> element.
Class	.classname	Selects all elements that have the given class attribute	.index will match any element that has a class of "index"
ID	#id	Selects an element based on the value of its id attribute	#toc will match the element that has the ID "toc"
Attribute	[attr]	Selects all elements that have the given attribute	[autoplay] will match all elements that have the autoplay attribute

MORE CSS SELECTORS

Selector Type	Syntax	Description	Example
Grouping Selector List	,	The , selector is a grouping method that selects all the matching nodes	div, span will match both and elements
Descendant combinator	" "	The " " (space) combinator selects nodes that are descendants of the first element	div span will match all elements that are inside a element
Child combinator	>	The > combinator selects nodes that are direct children of the first element	ul > li will match all elements that are nested directly inside a element.
General sibling combinator	~	The ~ combinator selects siblings. This means that the second element follows the first (though not necessarily immediately), and both share the same parent	p ~ span will match all elements that follow a <p>, immediately or not.
Adjacent sibling combinator	+	The + combinator matches the second element only if it immediately follows the first element	h2 + p will match all <p> elements that immediately follow an <h2> element

MORE CSS SELECTORS

Selector Type	Syntax	Description	Example
Pseudo classes	:	The : pseudo allow the selection of elements based on state information that is not contained in the document tree	a:visited will match all <a> elements that have been visited by the user
Pseudo elements	::	The :: pseudo represent entities that are not included in HTML	p::first-line will match the first line of all <p> elements

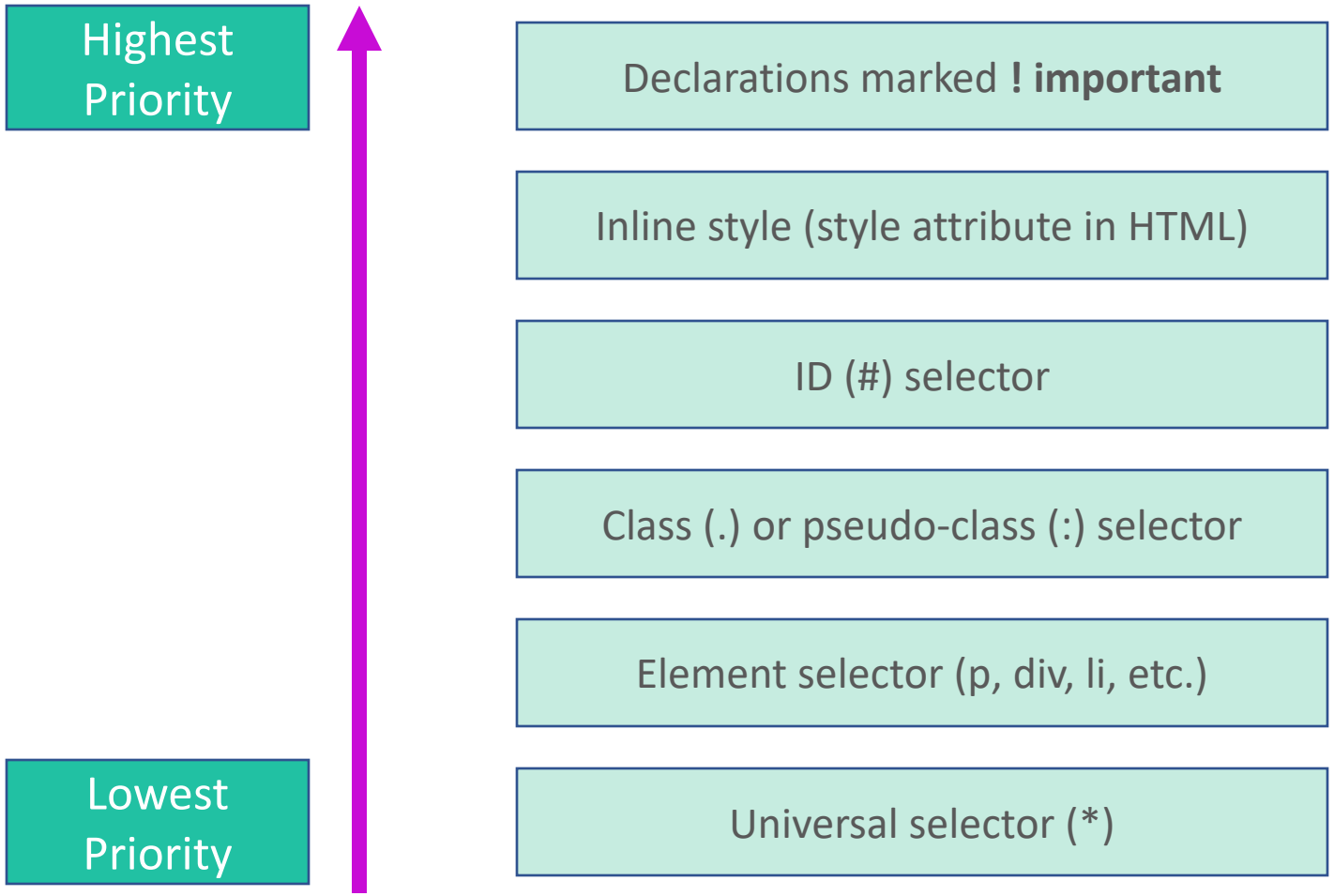
CONFLICTING SELECTORS AND DECLARATIONS

```html
<p id="author-text" class="author">
    Posted by John Doe on Monday, July 12st 2022
</p>
```

Multiple Selectors

```css
p {
    font-size : 12px;
}
#author-text {
    font-size: 16px;
    font-weight: bold;
}
.author {
    font-family: 'Courier New', Courier, monospace;
    font-size: 18px;
}
```

RESOLVING CONFLICTING DECLARATIONS



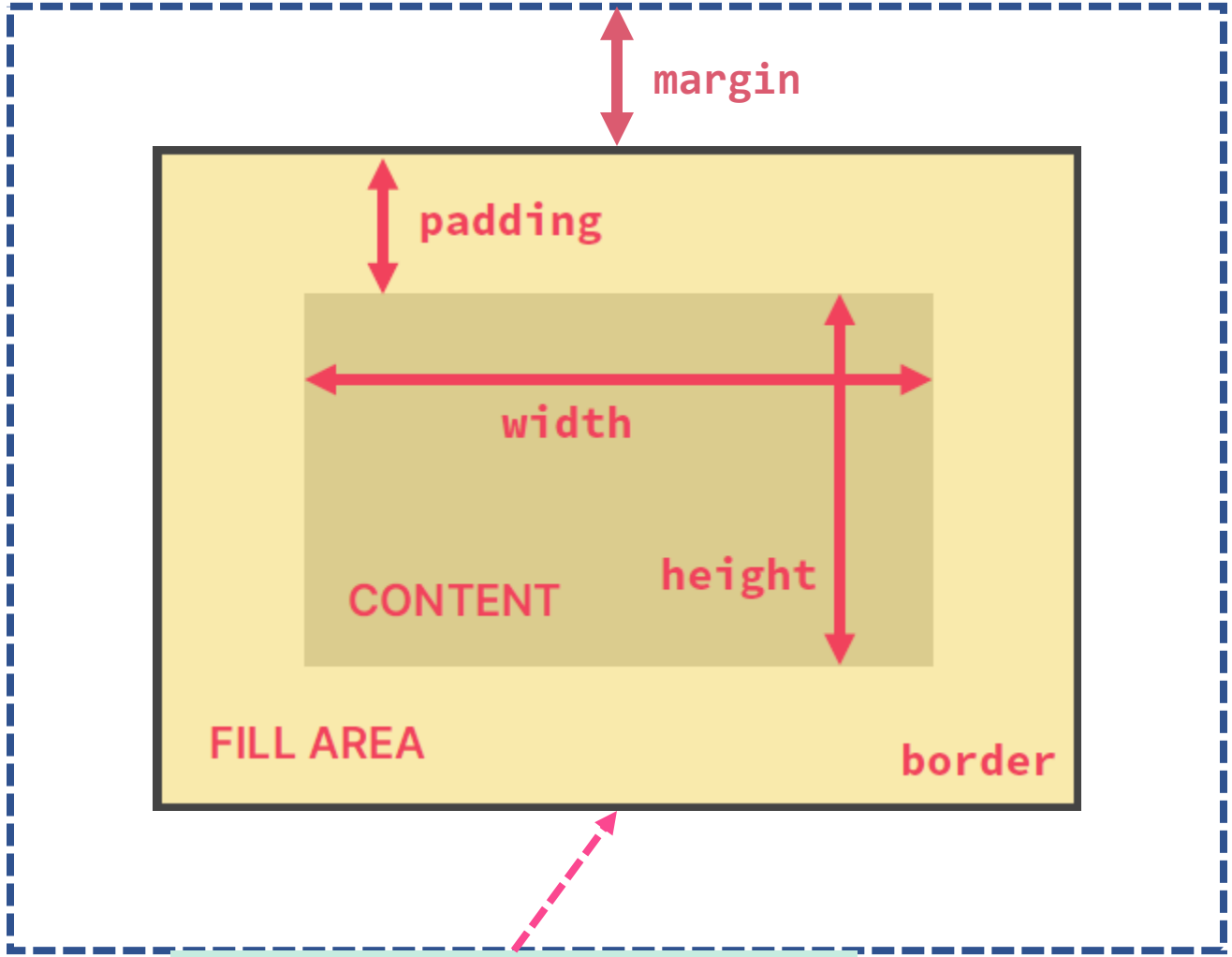
CSS : Inheritance

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



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

Box model applies in a different way: heights and widths do not apply

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

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

With CSS: `display: inline`

NORMAL FLOW & ABSOLUTE POSITIONING

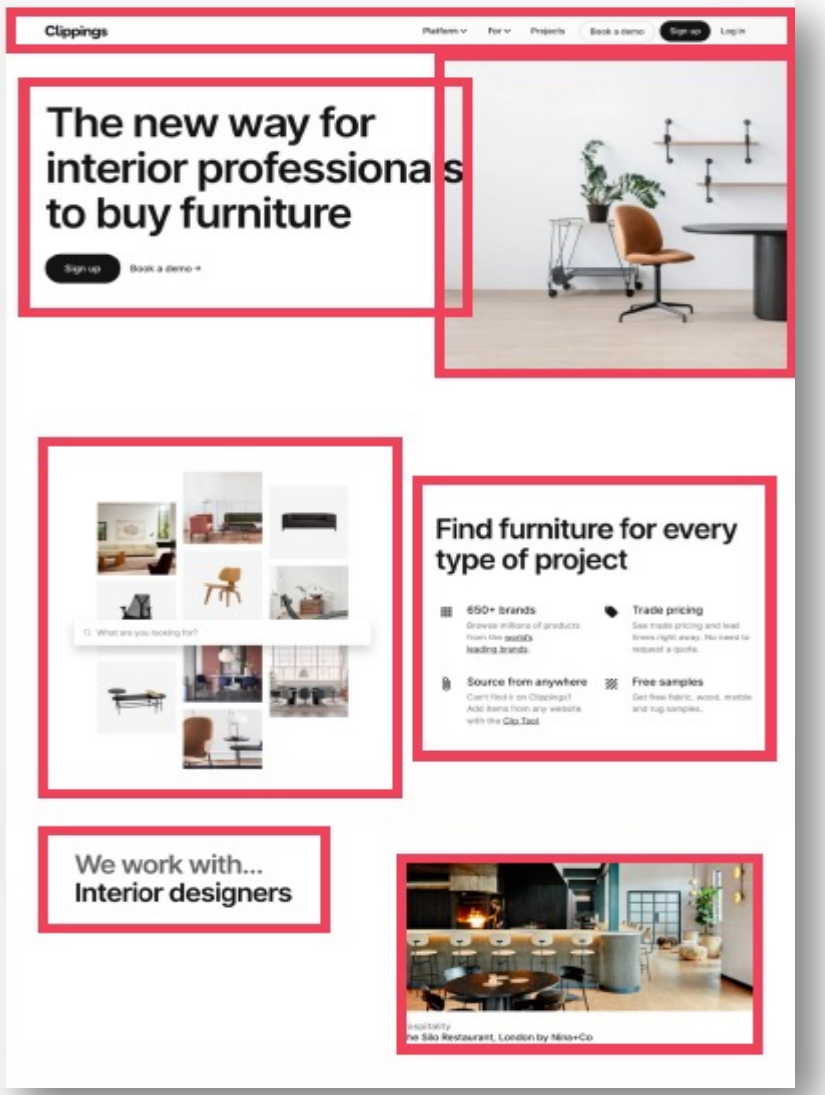
NORMAL FLOW	ABSOLUTE POSITIONING
Default positioning	Element is removed from the normal flow: “out of flow”
Element is “in flow”	No impact on surrounding elements, might overlap them
Elements are simply laid out according to their order in the HTML code	We use top, bottom, left, or right to offset the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

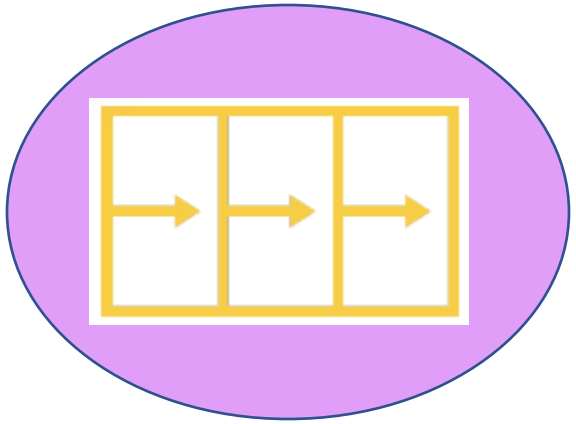
Building a layout: arranging page elements into a visual structure, instead of simply having them placed one after another (normal flow)



THE 3 WAYS OF BUILDING LAYOUTS WITH CSS

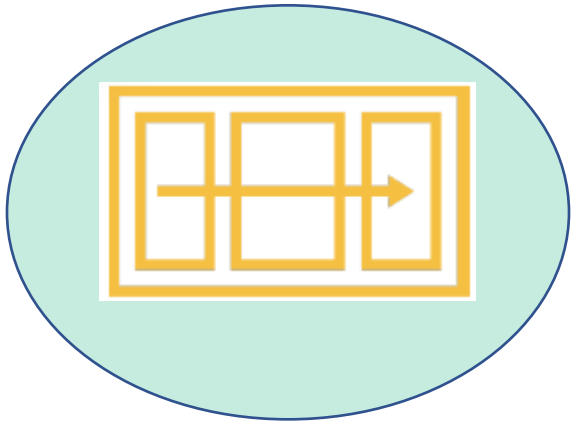
FLOAT LAYOUTS

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



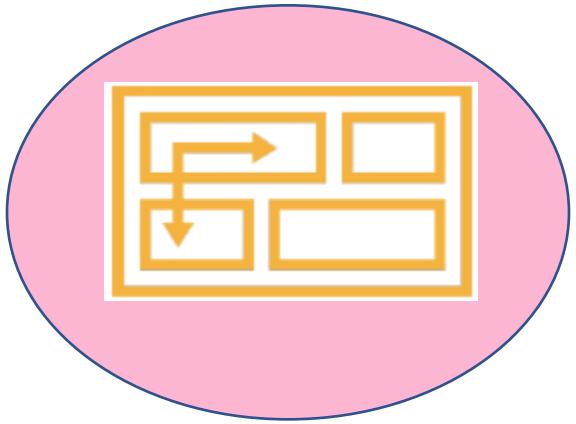
FLEXBOX

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

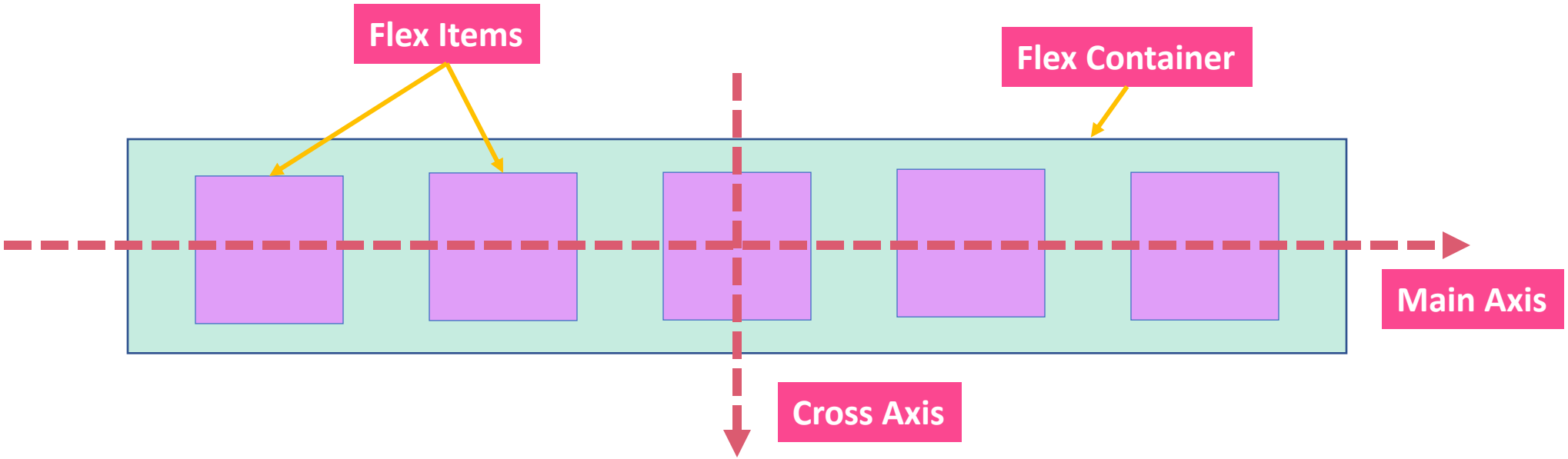
The main idea behind flexbox is that empty space inside a container element can be automatically divided by its child elements

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

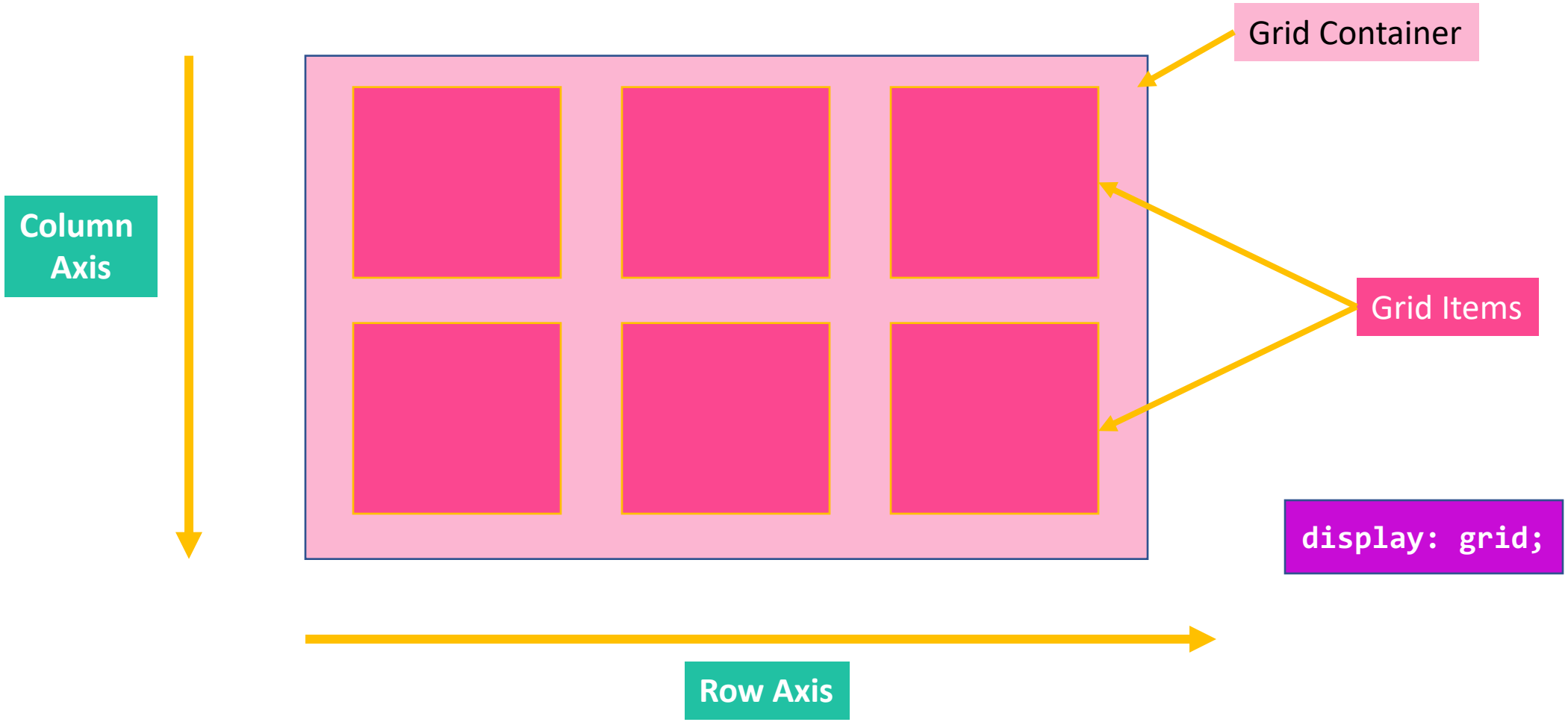
In two-dimensional contexts, CSS Grid allows us to write less nested HTML and easier-to-read CSS

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 **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 **column-gap**	To create empty space between tracks	**0** | <length>
justify-items **align-items**	To align items inside rows / columns (horizontally / vertically)	stretch | start | center | end
justify-content **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 **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 **align-self**	o 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 instead of width

MEDIA QUERIES

- Bring responsive sites to life!
- To change CSS styles on certain viewport widths (called breakpoints)
- how to use media queries and how to 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.

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