Week 3: Flexbox and CSS Grid
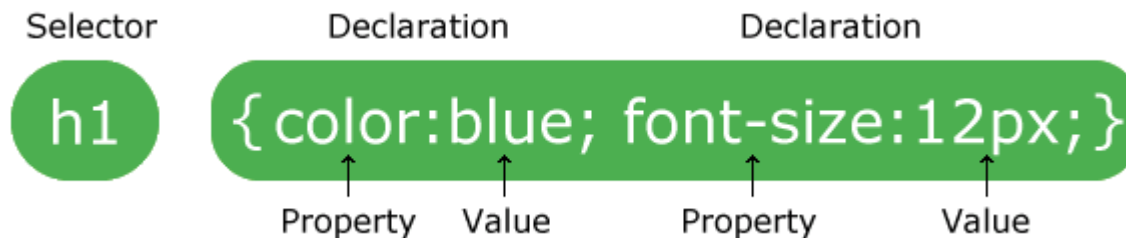
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What is a CSS?

- According to W3Schools
  - CSS is a language that describes the style of an HTML document
  - CSS describes **how HTML elements are to be displayed on screen, paper, or in other media**
  - CSS **saves a lot of work**. It can control the layout of multiple web pages all at once
  - External stylesheets are stored in **CSS files**

Why use CSS?

- HTML only **describes the content** of a web page, like:
  - <h1>This is a heading</h1>
  - <p>This is a paragraph.</p>
- When tags like <font>, and color attributes were added to the HTML 3.2 specification, it started a nightmare for web developers. Development of large websites, where fonts and color information were added to every single page, became a long and expensive process.
- To solve this problem, the World Wide Web Consortium (W3C) created CSS.
- CSS removed the style formatting from the HTML page
- CSS Saves a Lot of Work. Just one change in style, can change style of the whole website.

CSS Syntax

- A CSS rule-set consists of a selector and a declaration block:

- The selector points to the HTML element you want to style.
- The declaration block contains one or more declarations separated by semicolons.
- Each declaration includes a CSS property name and a value, separated by a colon.
- A CSS declaration always ends with a semicolon, and declaration blocks are surrounded by curly braces.

Recap – CSS

- CSS is a style sheet language
- CSS describes the style of an HTML document and that how HTML elements be displayed
- CSS can be placed inside <style> </style> tags of HTML inside the <head> </head> tag
- External style sheets are stored in **.css** file (recommended)
- CSS can be used inline, by placing inside an HTML tag, but it is not recommended

CSS Syntax Example

- Example

```
<!DOCTYPE html>
<html>
<head>
<style>
p {
  color: red;
  text-align: center;
}
</style>
</head>
<body>

<p>Hello World!</p>
<p>These paragraphs are styled with CSS.</p>

</body>
</html>
```

Hello World!

These paragraphs are styled with CSS.

Recap – CSS Selectors

- A selector can be based on element name, id, class, attribute or others
  - Element selector = p {colour:blue; text-align:center; line-height:1.5em}
  - ID selector = #box{background:black;}, or div#box{background:black;}
  - Class selector = .center-text{text-align:center;}, or p.center-text{text-align:center;}
  - Group selector = h1, p, div {color:red;}

CSS Syntax – CSS <u>element</u> Selector

```
<!DOCTYPE html>
<html>
<head>
<style>
p {
  text-align: center;
  color: red;
}
</style>
</head>
<body>

<p>Every paragraph will be affected by the style.</p>
<p id="para1">Me too!</p>
<p>And me!</p>

</body>
</html>
```

Every paragraph will be affected by the style.

Me too!

And me!

HTML <div> Tag

- It defines a division or a section in an HTML document.
- The <div> element is often used as a container for other HTML elements to style them with CSS or to perform certain tasks with JavaScript.

Example – <div> tag

A div element is displayed like this:

> This is some text in a div element.

Change the default CSS settings to see the effect.
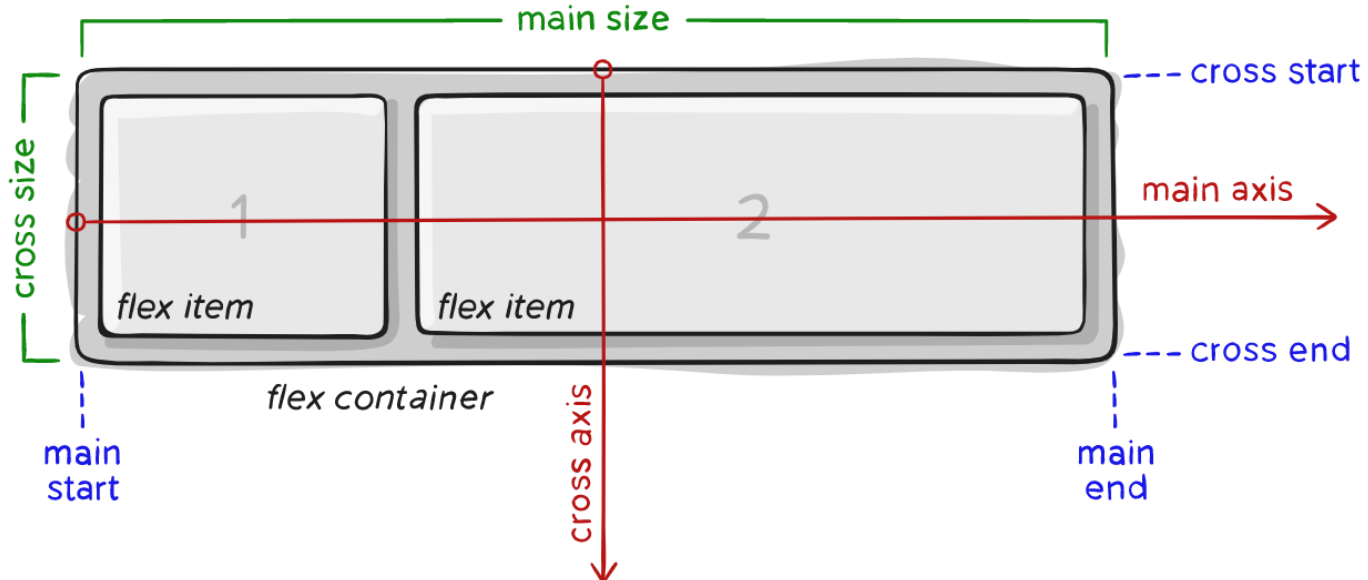
```
<!DOCTYPE html>
<html>
<html>
<head>
<style>
div {
  display: block; border: 1px solid; padding: 10px;
  margin: 20px; outline:solid green; outline-offset:10px;
}
</style>
</head>
<body>

A div element is displayed like this:

<div>This is some text in a div element.</div>

Change the default CSS settings to see the effect.

</body>
</html>
```
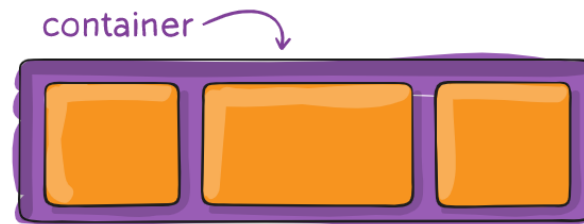
Flexbox Layout (Flexible Box)

- An efficient way to layout, align and distribute the space among items in a container, even when their size is unknown and/or dynamic
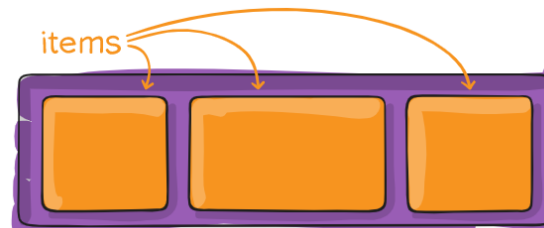
What is CSS Flexbox...?

- Flexbox has two elements:
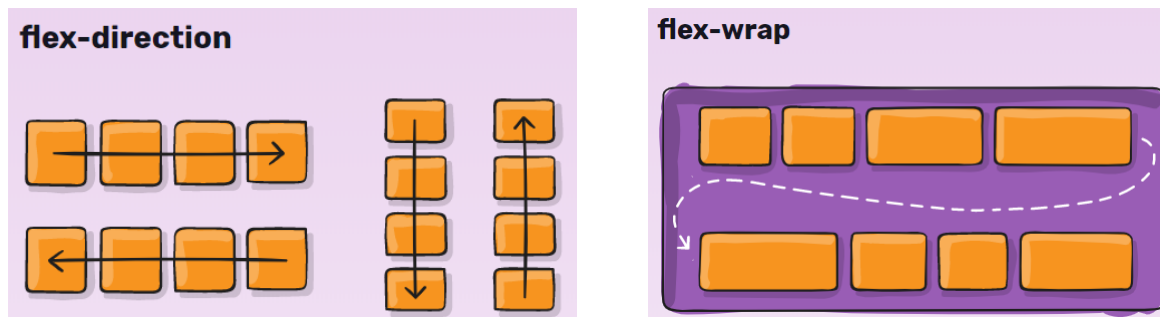 - Parent Element (Container)

  - Child Elements (Items)

  - Online learning resource
    - https://css-tricks.com/snippets/css/a-guide-to-flexbox/
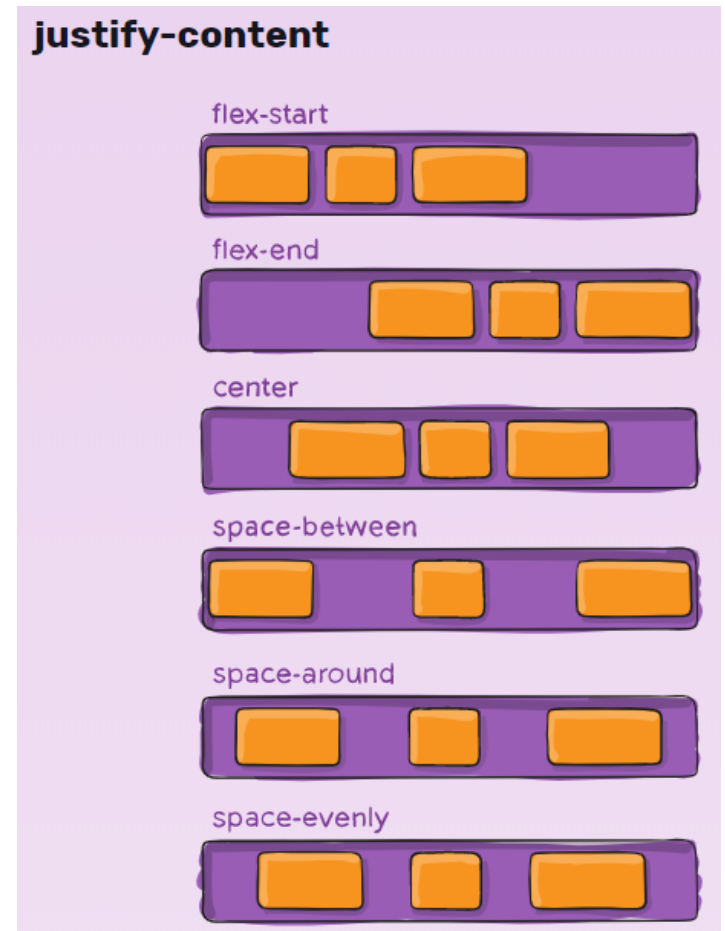   - https://www.w3schools.com/css/css3_flexbox.asp

Flexbox Parent Properties (1)

- display: flex;
  - Defines flex container. It enables a flex context for all its direct children.
- flex-flow: <flex-direction> || <flex-wrap>
  - It is shorthand for the flex-direction and flex-wrap properties. Default is row nowrap
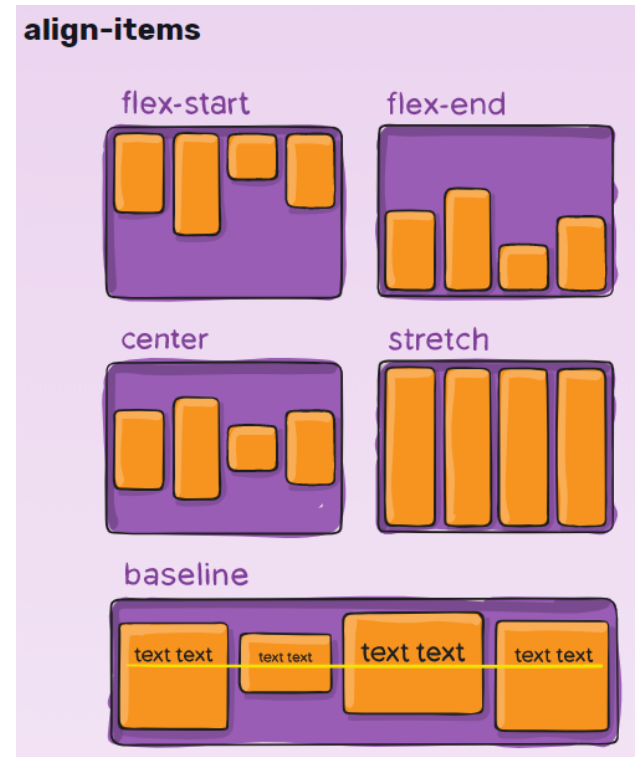

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Flexbox Parent Properties (2)

- justify-content:
  - defines the alignment along the **main axis**
  - helps distribute extra free space leftover when either
    - all flex items on a line are inflexible
    - or are flexible but have reached their maximum size.
  - It exerts some control over the alignment of items when they overflow the line
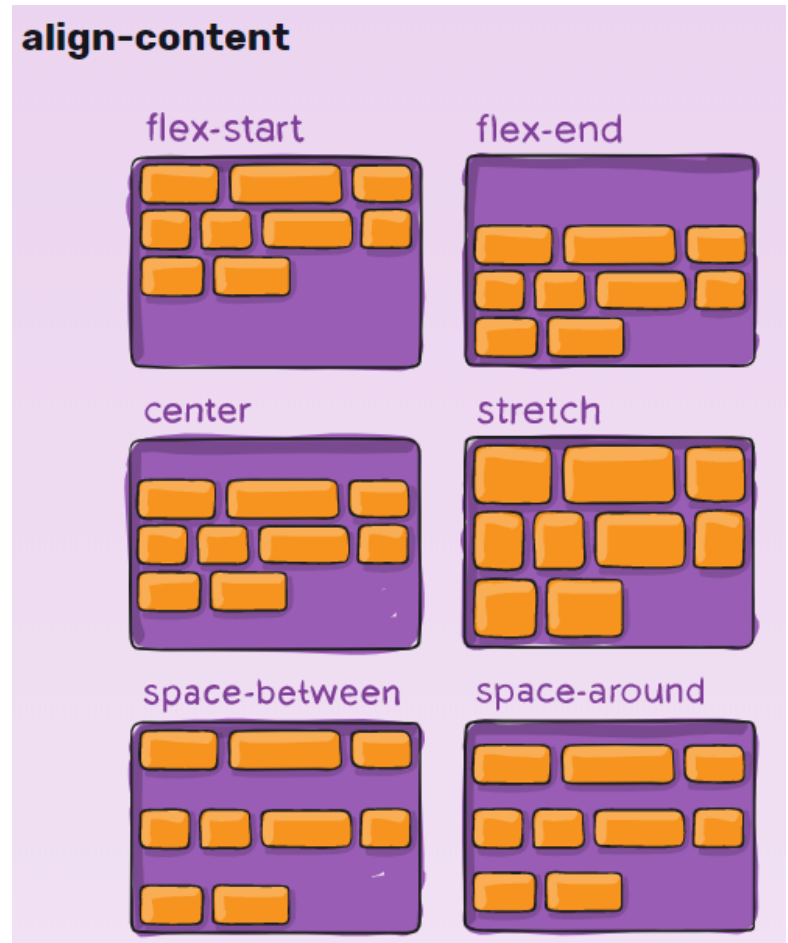

justify-content

flex-start

flex-end

center

space-between

space-around

space-evenly

Flexbox Parent Properties (3)

- align-items
  - defines the alignment along the **cross axis** on the current line

Flexbox Parent Properties (4)

- align-content
  - aligns a flex container's lines **within** when there is extra space **in the cross-axis**

align-content
flex-start   flex-end
center   stretch
space-between   space-around
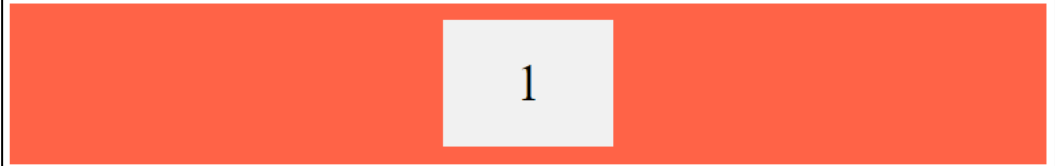
Flexbox Example (1)

```html
<head>
  <style>
    .flex-container {
      display: flex;
      flex-flow: row wrap;
      justify-content: center;
      background-color: DodgerBlue;
    }

    .flex-container > div {
      background-color: #f1f1f1;
      width: 100px;
      margin: 10px;
      text-align: center;
      line-height: 75px;
      font-size: 30px;
    }
  </style>
</head>
<body>
  <h1>The Flexbox</h1>
  <div class="flex-container">
    <div>1</div>
  </div>
</body>
```

The Flexbox
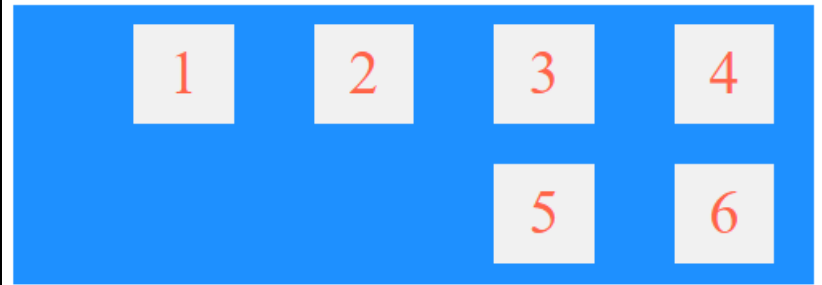
1

Flexbox Example (2)

```
<head>
  <style>
    .flex-container {
      display: flex; width: 400px;
      flex-flow: row wrap;
      background-color: DodgerBlue;
      justify-content: flex-end;
    }

    .flex-container > div {
      background-color: #f1f1f1;
      width: 50px; margin: 10px 20px;
      text-align: center;
      line-height: 50px;
      color: tomato;
      font-size: 30px;
    }
  </style>
</head>
<body>
  <h1>The Flexbox</h1>
  <div class="flex-container">
    <div>1</div> <div>2</div> <div>3</div> <div>4</div>
    <div>5</div> <div>6</div>
  </div>
</body>
```


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Flexbox Example – Creating a Menu

```
<style>
    .navigation {
      display: flex;
      list-style: none;
      background: deepskyblue;
      flex-flow: row wrap;
      justify-content: flex-end;
    }
    .navigation a {
        text-decoration: none;
        display: block;
        padding: 1em;
        color: white;
    }
    .navigation a:hover {
        background: green;
    }
</style>
</head>
<body>
    <h1>Menu</h1>
    <ul class="navigation">
      <li><a href="#">Home</a></li> <li><a href="#">About</a></li>
      <li><a href="#">Products</a></li>
      <li><a href="#">Contact</a></li>
    </ul>
```

Menu

| | Home | About | Products | Contact |