

Module 3 - Lecture 4

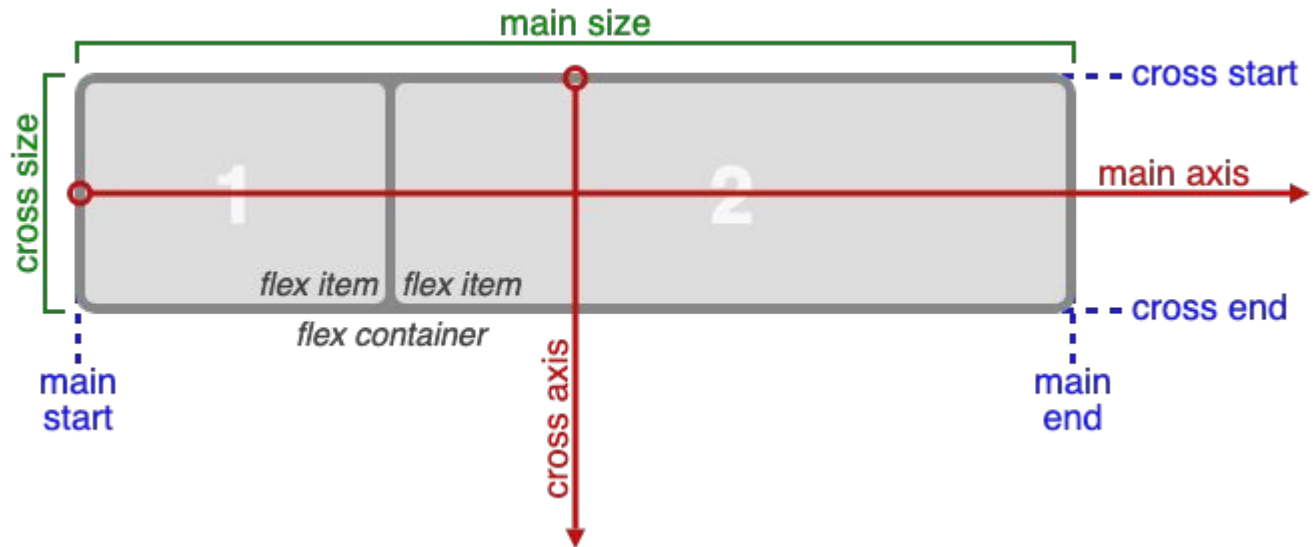
CSS Flexbox



CSS Flexbox

<https://www.w3.org/TR/css-flexbox-1/>



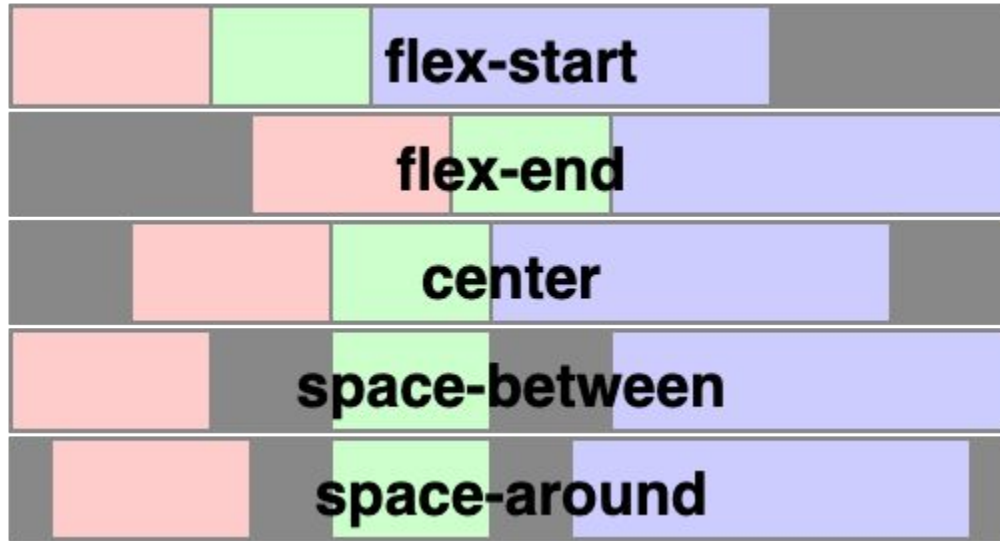


- A flex container takes away some of the functionality of the block container
- For example: float and vertical alignment do not apply.



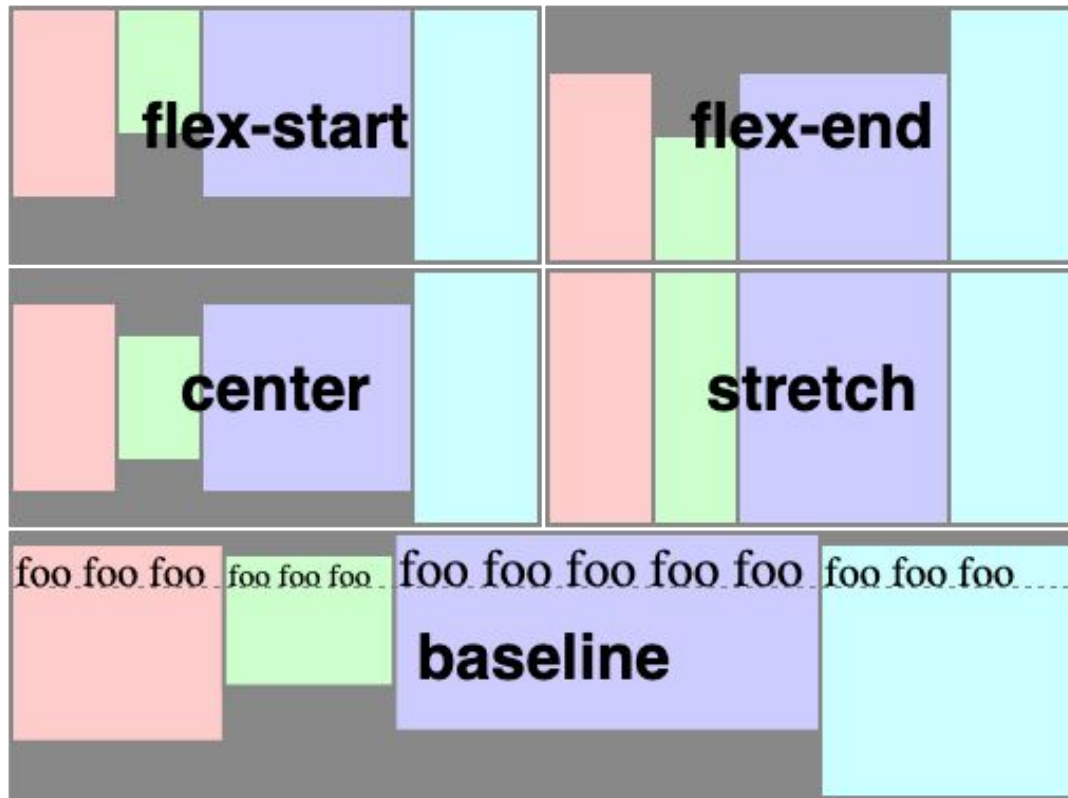
Main Axis Alignment

justify-content, justify-self



Cross Axis Alignment

align-items, align-self



Direction of Flex Items

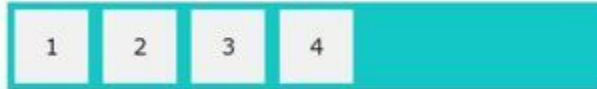
** Changing the direction from row to column will also change the main and cross axes



flex-direction: column



flex-direction: column-reverse



flex-direction: row



flex-direction: row-reverse

```
flex-container{  
  display: flex;  
  flex-direction: ____;  
}
```



Customized Order of Flex Items

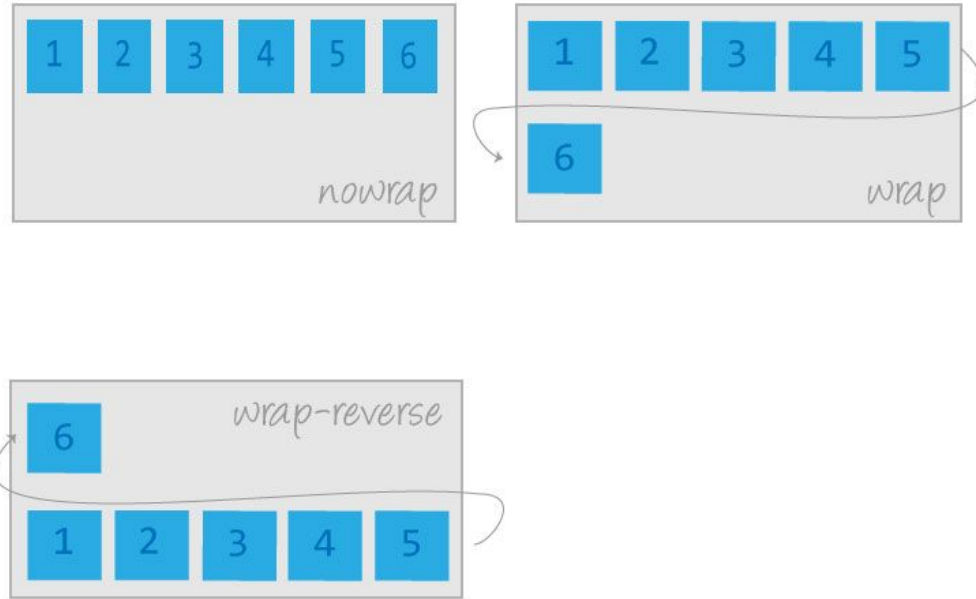


- All items have a default order of 0.
- The order property can be altered to achieve a different arrangement on the screen. It allows for positive or negative integers.

```
.items {  
  display: flex;  
}  
  
.item-three {  
  order: -1;  
}  
  
.item-five: {  
  order: -1;  
}
```



Wrapping



Flex-Wrap



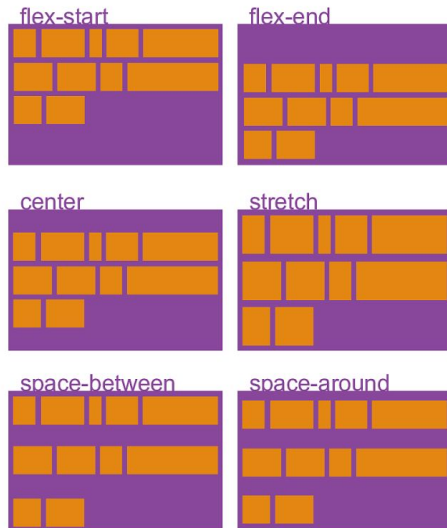
Item alignment when wrapped

align-content

Defines **line** alignment and distributes extra space along the cross axis

Has no effect when the flexbox does not wrap

Values: **flex-start**, **flex-end**, **center**, **space-between**, **space-around**, and **stretch** (default)



css-tricks.com/almanac/properties/a/align-content



Sizing Flex Items

flex-basis: The base size of the flex item.

- Functionally similar to width or height, depending on the direction of the flex container, however, it will override width or height.
- Like width and height, flex-basis can be defined in absolute pixels or relative sizing using percentages or the viewport.

flex-grow: How much a flex item will grow relative to other flex items.

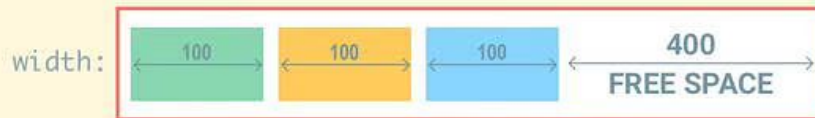
flex-shrink: How much a flex item will shrink relative to other flex items.



Sizing Flex Items

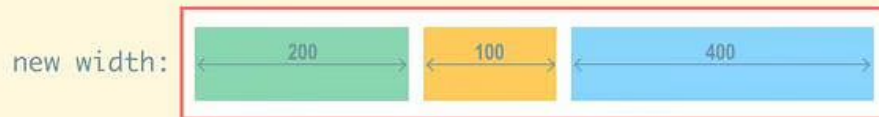
flex-grow calculation

$$\text{new width} = \left(\frac{\text{flex grow}}{\text{total flex grow}} \times \text{free space} \right) + \text{width}$$



calculation:

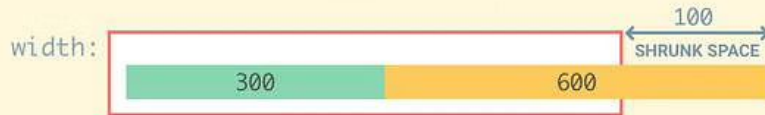
$$\left(\frac{1}{4} \times 400 \right) + 100 \quad \left(\frac{0}{4} \times 400 \right) + 100 \quad \left(\frac{3}{4} \times 400 \right) + 100$$



Sizing Flex Items

flex-shrink calculation

$$\text{new width} = \text{width} - (\text{shrunk space} \times \text{shrink ratio})$$



flex-shrink:

4

6

calculation:

$$\text{total shrink scaled width} = \sum (\text{width} \times \text{flex shrink})$$

$$(300 \times 4) + (600 \times 6) = 4800$$

$$\text{shrink ratio} = (\text{width} \times \text{flex shrink}) / \text{total shrink scaled width}$$

$$(300 \times 4) / 4800 = 0.25$$

$$(600 \times 6) / 4800 = 0.75$$

$$\text{new width} = \text{width} - (\text{shrunk space} \times \text{shrink ratio})$$

$$300 - (100 \times 0.25) = 275$$

$$600 - (100 \times 0.75) = 525$$

new width:

275

525



Resources

Flexbox

[A Complete Guide to Flexbox](#)

[Flexbox Playground](#)

[Flexbox Examples](#)

[Flexbox Froggy](#)



Images

- Images make up 60% of a webpage's size, on average.
- Use relative sizing for images to prevent them from overflowing the container.
- Use the **<picture>** element to specify different images based on media queries. This is called **art direction**.
- Use **srcset** attribute in the **** element to render different images based on the device's pixel density or viewport size.
- Be choosy about which image file format to use:
 - WebP, PNG, JPEG, SVG, etc.
 - Vector vs. Raster



QUESTIONS?

