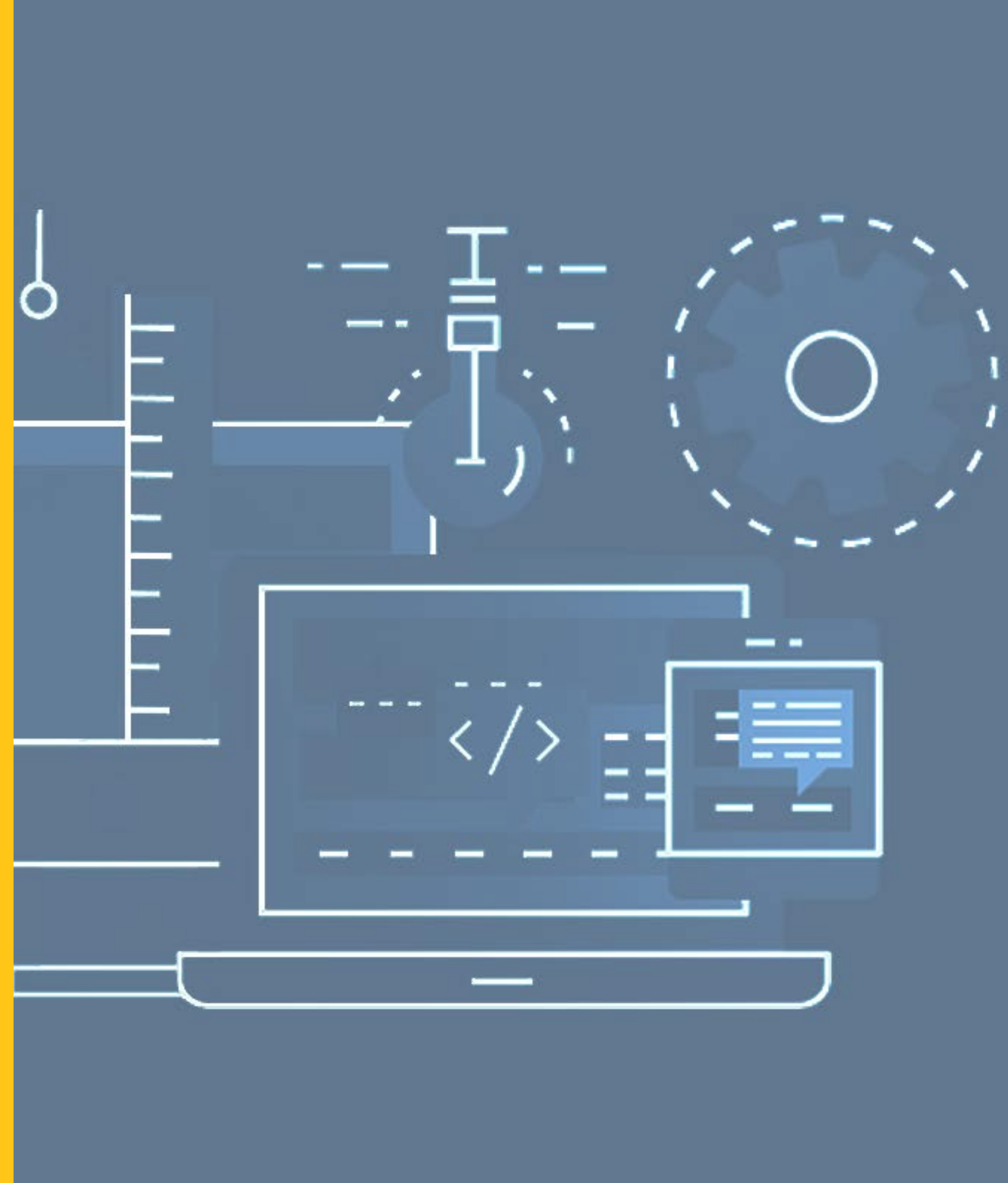


SHELLY GRAHAM, 02/04/2021

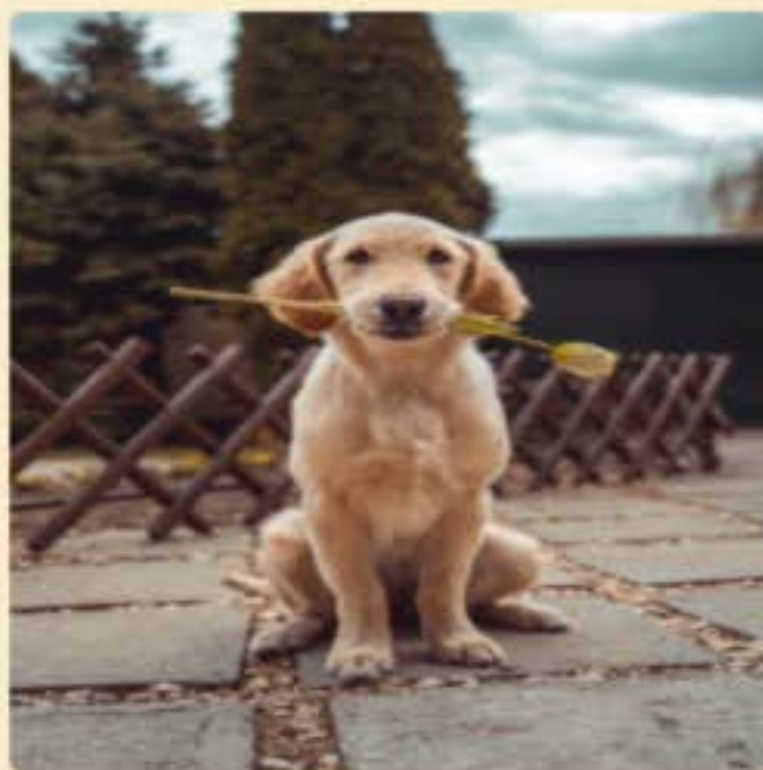
# WEB DEV 3

## WINTER 2021

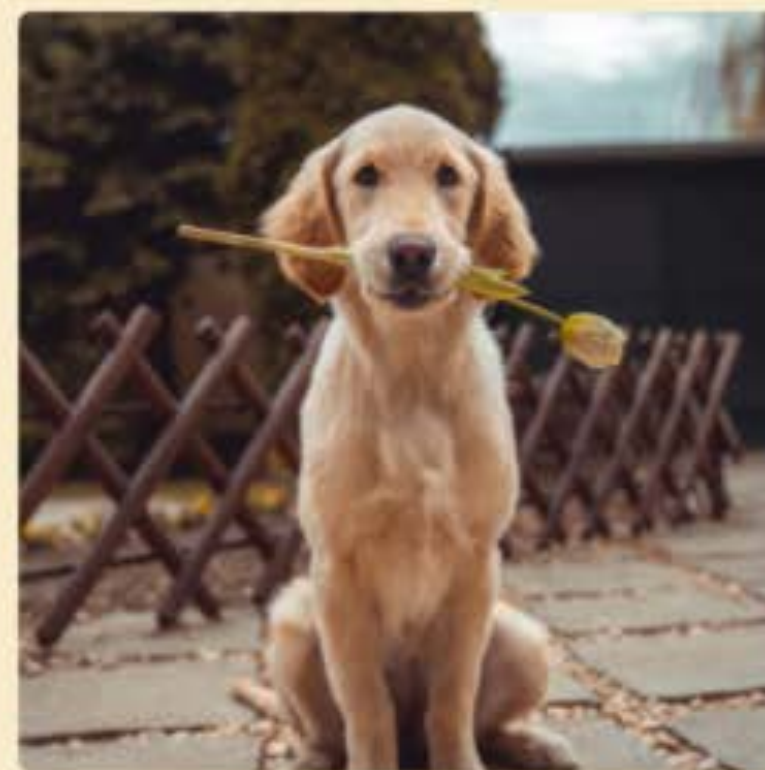
Week5: Flexbox



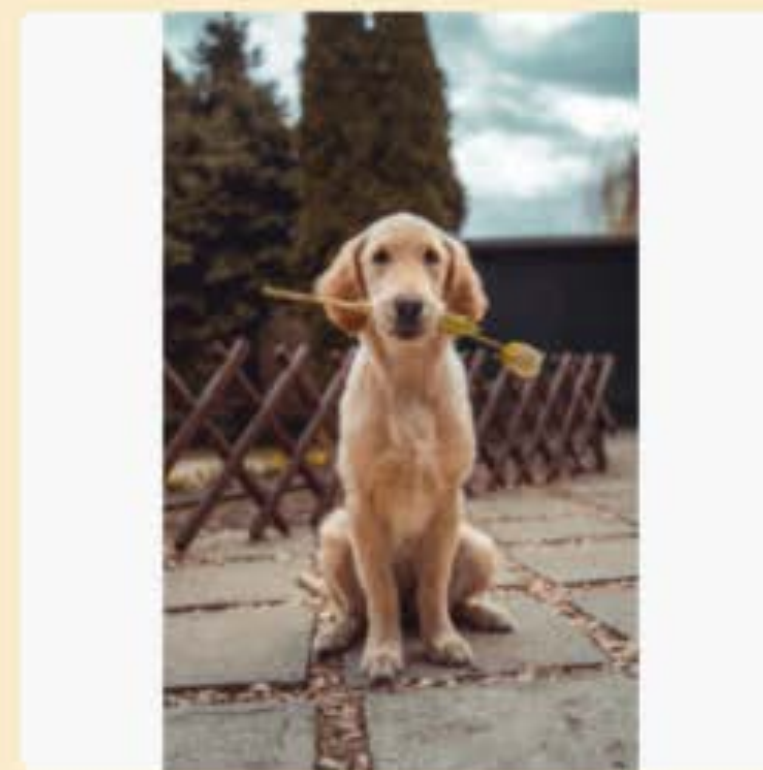
# OBJECT FIT



fill



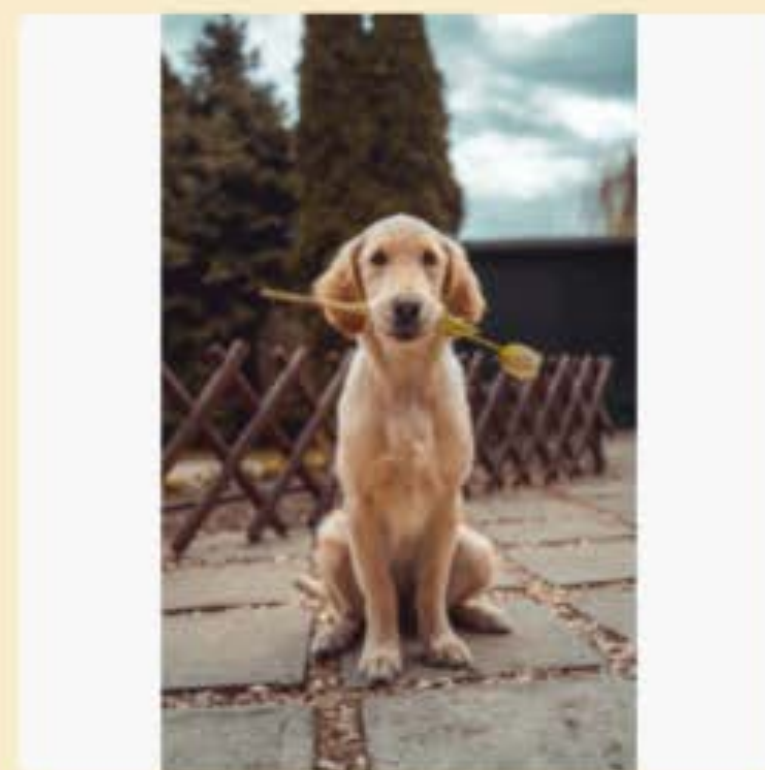
cover



contain



none



scale-down



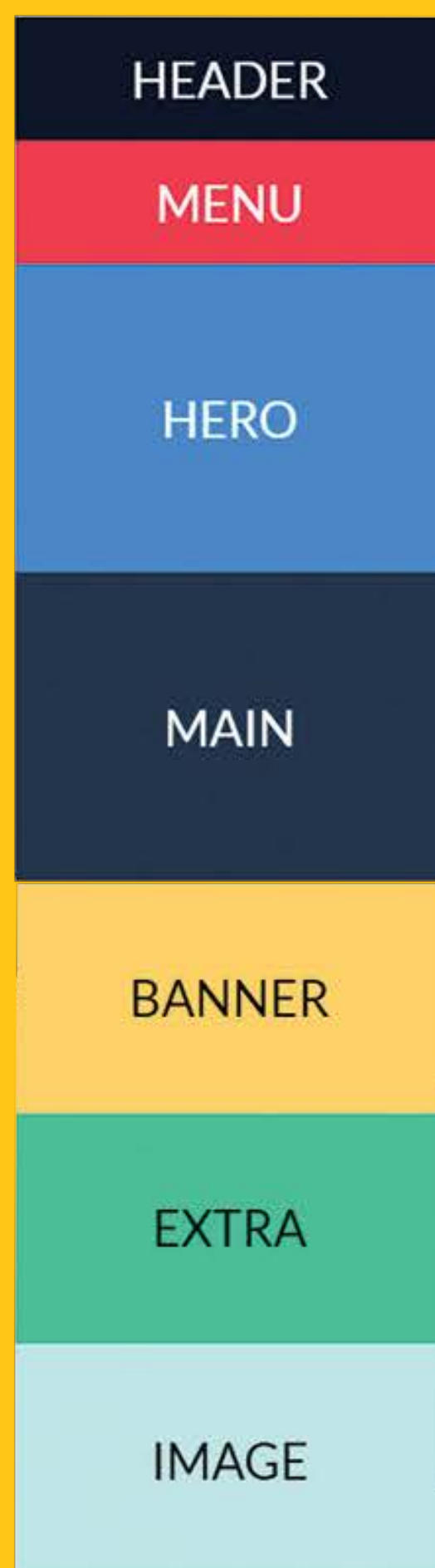
# OBJECT-FIT

- Let's us treat images just like background images!
- It is set on the image itself, not the parent!
- You'd be using this while setting a fixed width/height on an image (usually in flexible values like vh or % but also px)
- **none** is similar to cover but keeps the dimensions of image intact. It crops sides to fit image
- **scale-down** is similar to contain but won't grow the image larger than the original dimensions

```
.container {  
  .item {  
    object-fit: none  
              fill  
              contain  
              cover  
              scale-down;  
    object-position: top|right|bottom|left  
                   30% 40%  
                   25vh  
                   2em 40px;  
  }  
}
```

# LAYOUTS

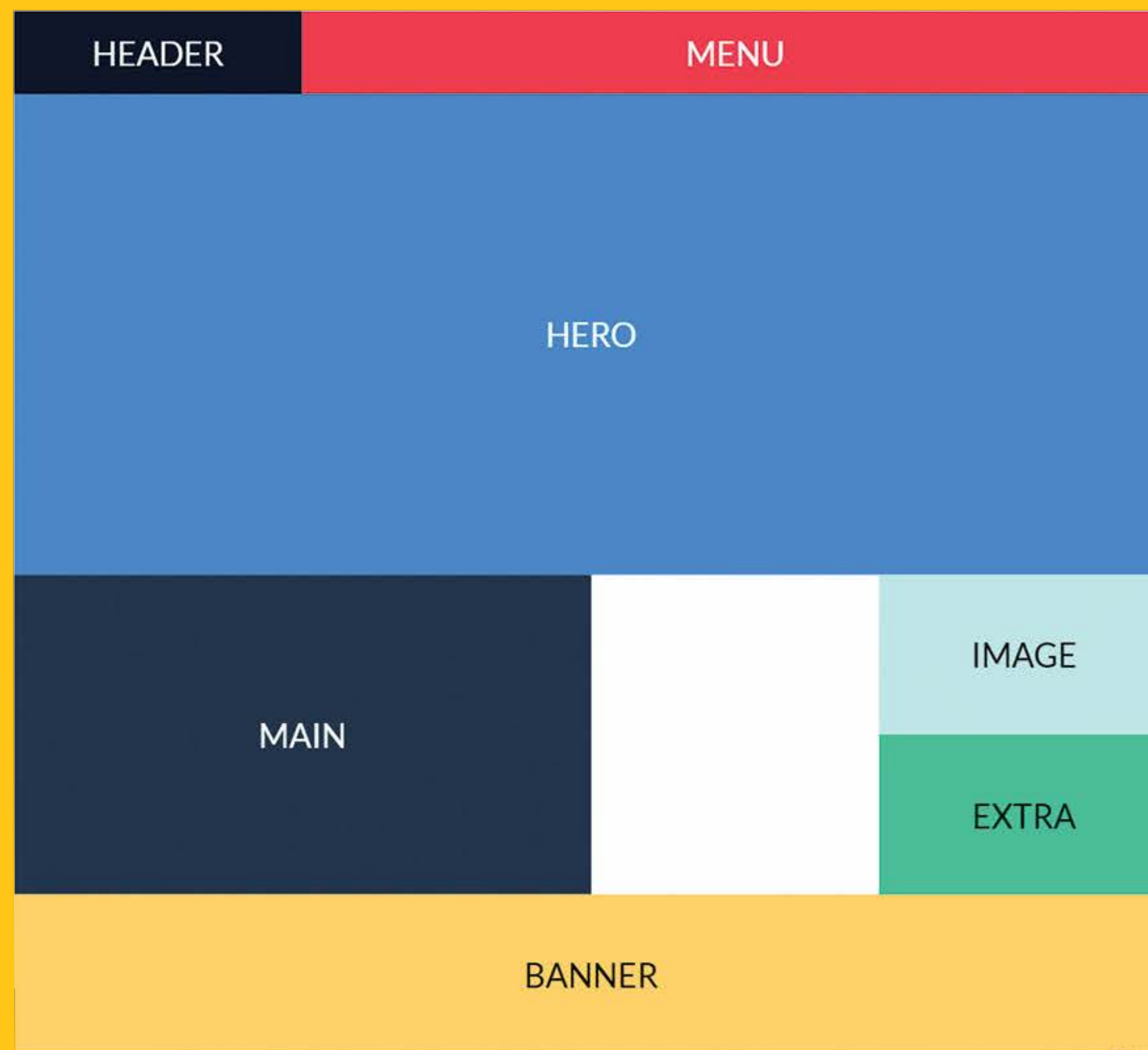
MOBILE



TABLET



DESKTOP



# THE EVOLUTION OF LAY OUTING

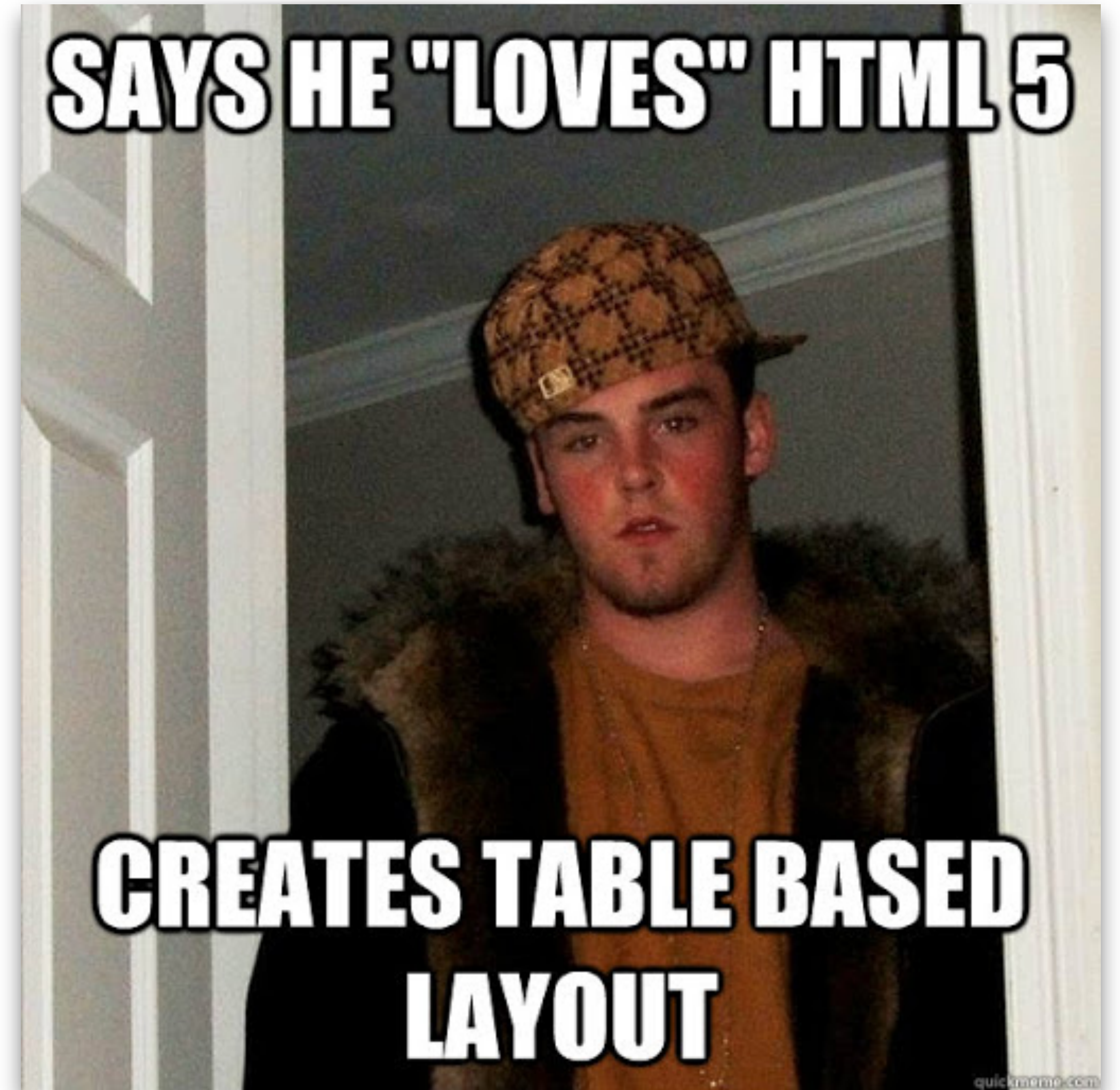
- Initially, websites were mainly text and images.
- You didn't really mess with the HTML flow and were happy you could place some text on the internet!
- Designing beautiful layouts wasn't even in the picture!
- But the internet evolved and with it its appearance...
- Introducing: The Table Layout!

```
<table border="1" width="980" cellspacing="0" align="center">
  <tr>
    <td width="150" height="150">
      
    </td>
    <td></td>
    <td></td>
  </tr>
  <tr>
    <td height="50" colspan="2">
      <table border="1" width="980" cellspacing="0" align="center">
        <tr>
          <td height="50"></td>
        </tr>
      </table>
    </td>
    <td></td>
    <td></td>
  </tr>
</table>
```



# FROM TABLES TO FLOATS

- In a far away land...long before our time... developers used **tables** to create a layout with rows and columns...
- It was very complicated and tedious, so people started using floats for layout purposes because it made things a lot easier!
- Initially, floats were created to wrap text around images - not to layout entire pages!
- And since floats weren't meant to be used for layouts, stuff went wrong left and right...





# FLOATS

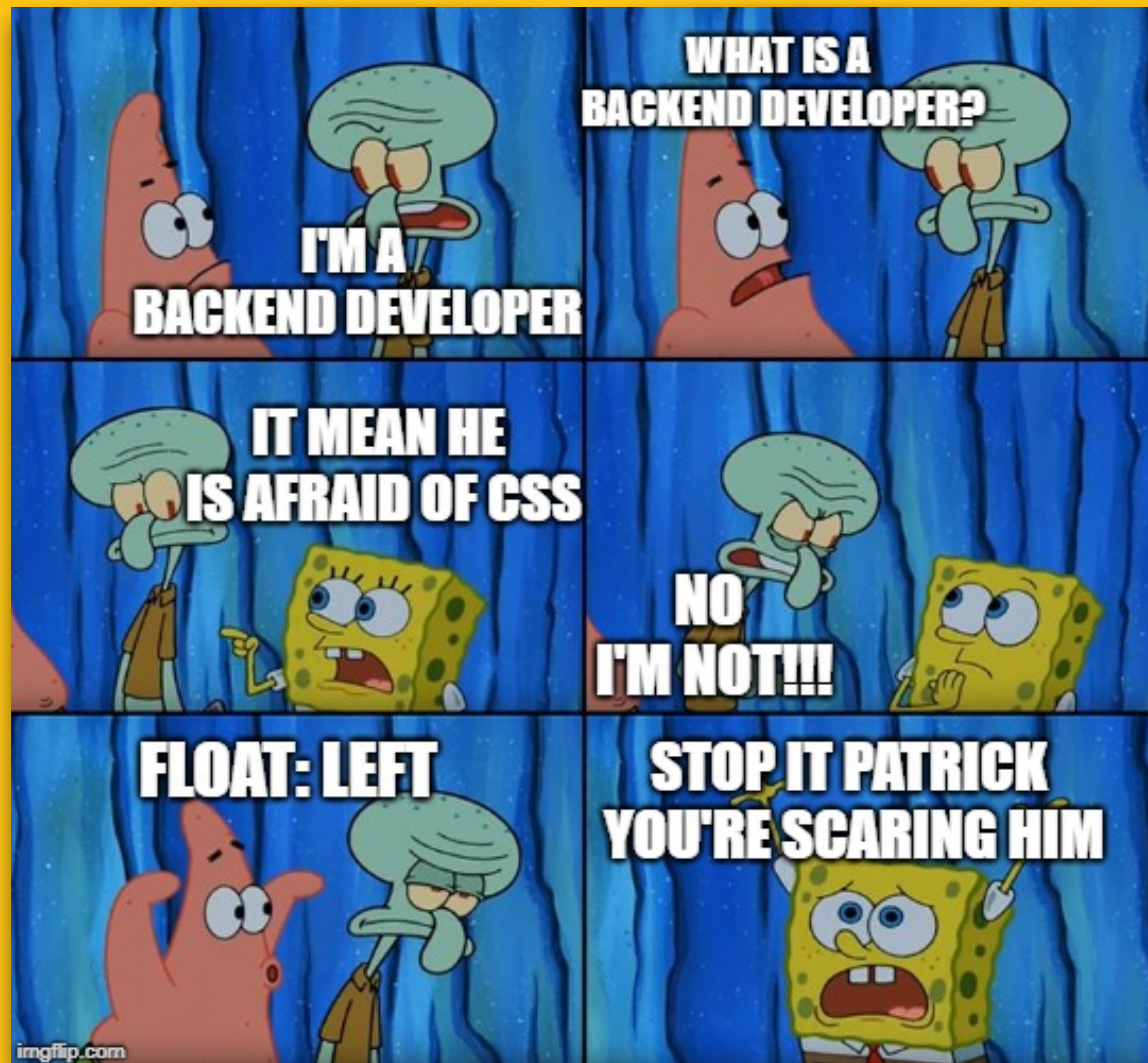
- We can use float on multiple items and they will wrap next to each other and behave like flex: row-wrap in Flexbox
- But if you use floats you lose the height of block elements!
- In order to fix this, people used clearfixes
- The clearfix would be added to the parent element to add the lost height back in with a pseudo element
- By using floats, we would intentionally break the HTML flow to behave the way we want it to but along the way we had to use fixes to fix the things that happened due to us breaking it in the first place - I already have a headache!

## Floats for layouts

Lorem ipsum dolor sit amet consectetur adipisicing elit. Ipsam, impedit, explicabo nostrum atque quo cumque repudiandae corrupti mollitia dolorum cupiditate reprehenderit exercitationem temporibus obcaecati veniam iste facilis quidem incidunt ad!	Lorem ipsum dolor sit amet consectetur adipisicing elit. Ipsam, impedit, explicabo nostrum atque quo cumque repudiandae corrupti mollitia dolorum cupiditate reprehenderit exercitationem temporibus obcaecati veniam iste facilis quidem incidunt ad!	Lorem ipsum dolor sit amet consectetur adipisicing elit. Ipsam, impedit, explicabo nostrum atque quo cumque repudiandae corrupti mollitia dolorum cupiditate reprehenderit exercitationem temporibus obcaecati veniam iste facilis quidem incidunt ad!
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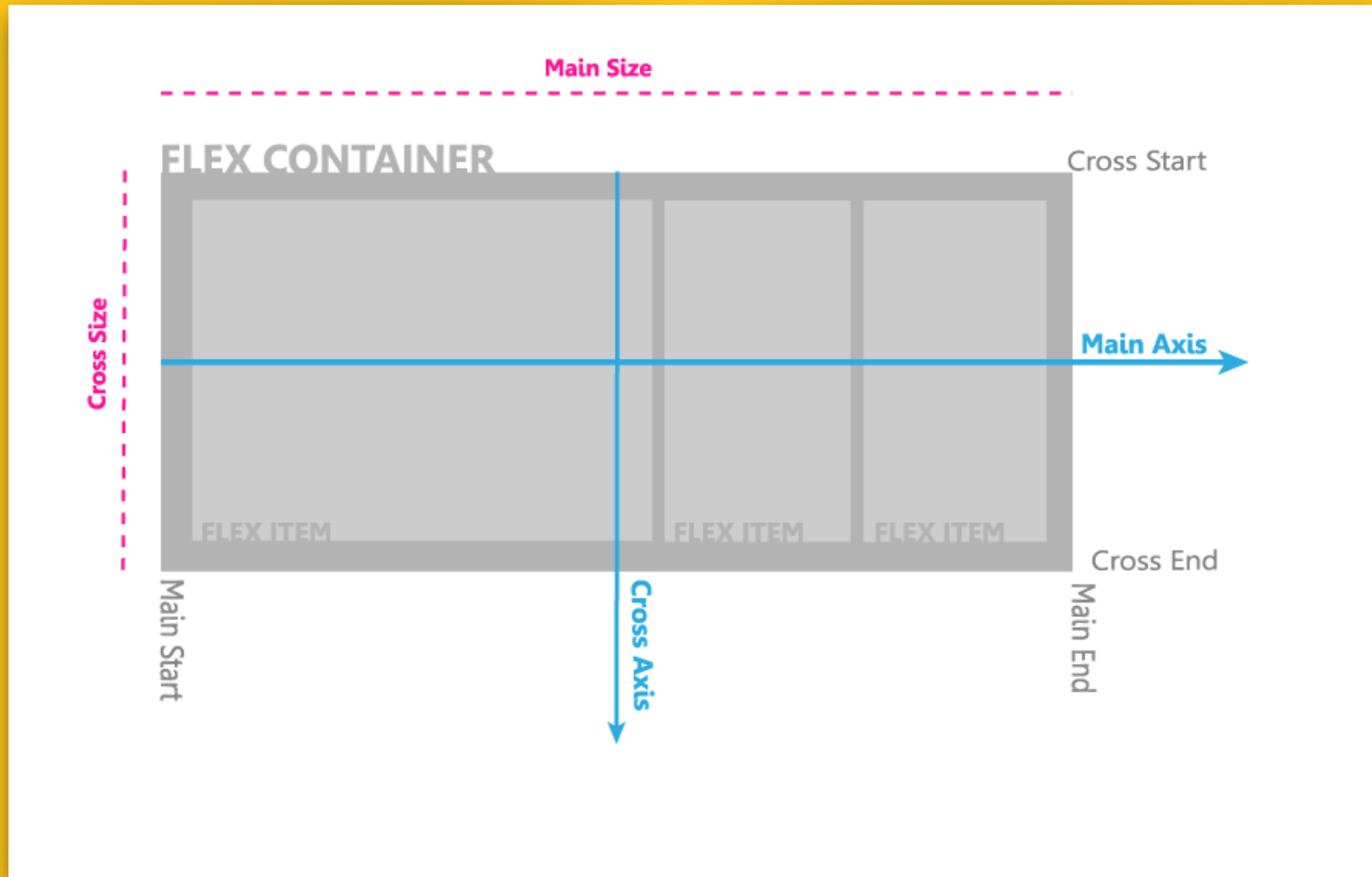
# FROM FLOATS TO FLEXBOX

- Flexbox was the first attempt in CSS to give us a tool to create layouts
- It was created so we wouldn't have to use floats anymore and break every site
- It changes the natural HTML block element flow
- But in reality, it was created to help us create rows OR columns!
- Floats were used directly on the element you wanted to float itself whereas Flexbox needs a parent container to tell the flex elements within how to behave
- Flexbox is by default responsive so content will shrink and grow based on screen size





# FLEXBOX



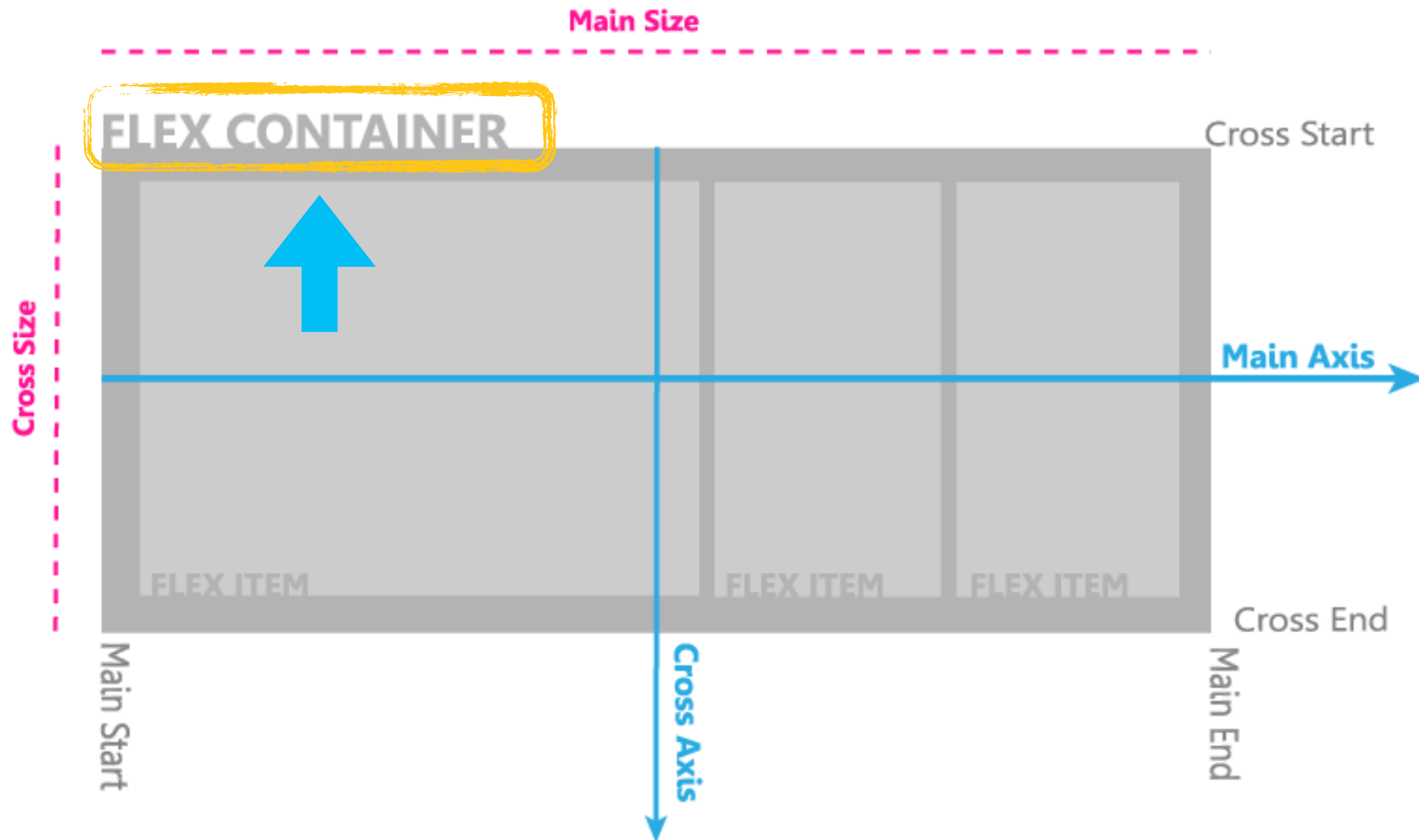


# FLEXBOX

- In order to use Flexbox, you need:
  - a **flex container** aka parent and
  - **flex item(s)** aka direct children
- The behavior of the children is dedicated by the parent
- Floats, clears and vertical-align have no effect on flex items!







# FLEX CONTAINER





# 1. FLEX CONTAINER / PARENT

- Flex-direction
- Flex-wrap
- Flex-flow
- Justify-content
- Align-items
- Align-content
- New: Gap

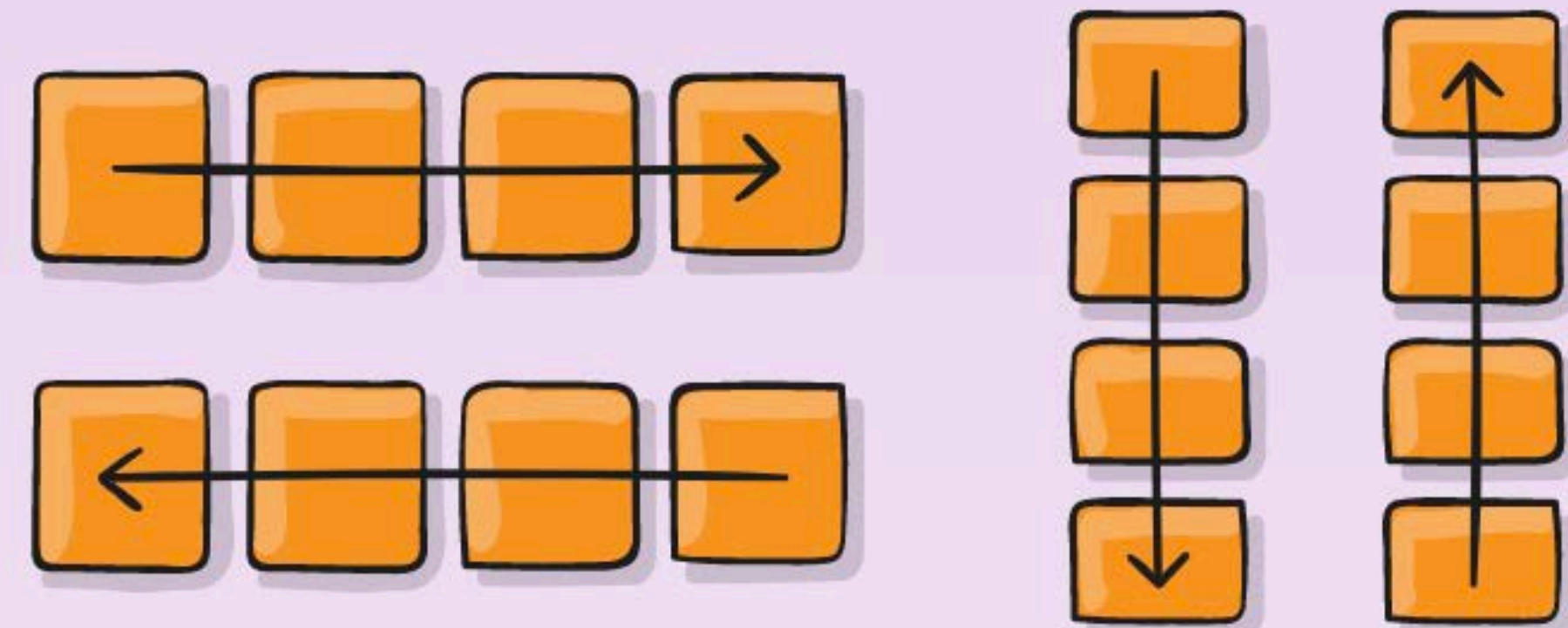
```
.container {  
  display: flex; /* or inline-flex */  
}
```



# FLEX-DIRECTION

- Default is set to row, so all items will try to sit next to each other instead of stacking on top one another
- The block element still remains for the flex-children but is extended over the entire flex container
- Row replaces float: left
- Row-reverse replaces float: right
- Column: basically forcing it to behave “normal” by stacking children
- Direction changes are really helpful for navigation bars in media queries

## flex-direction



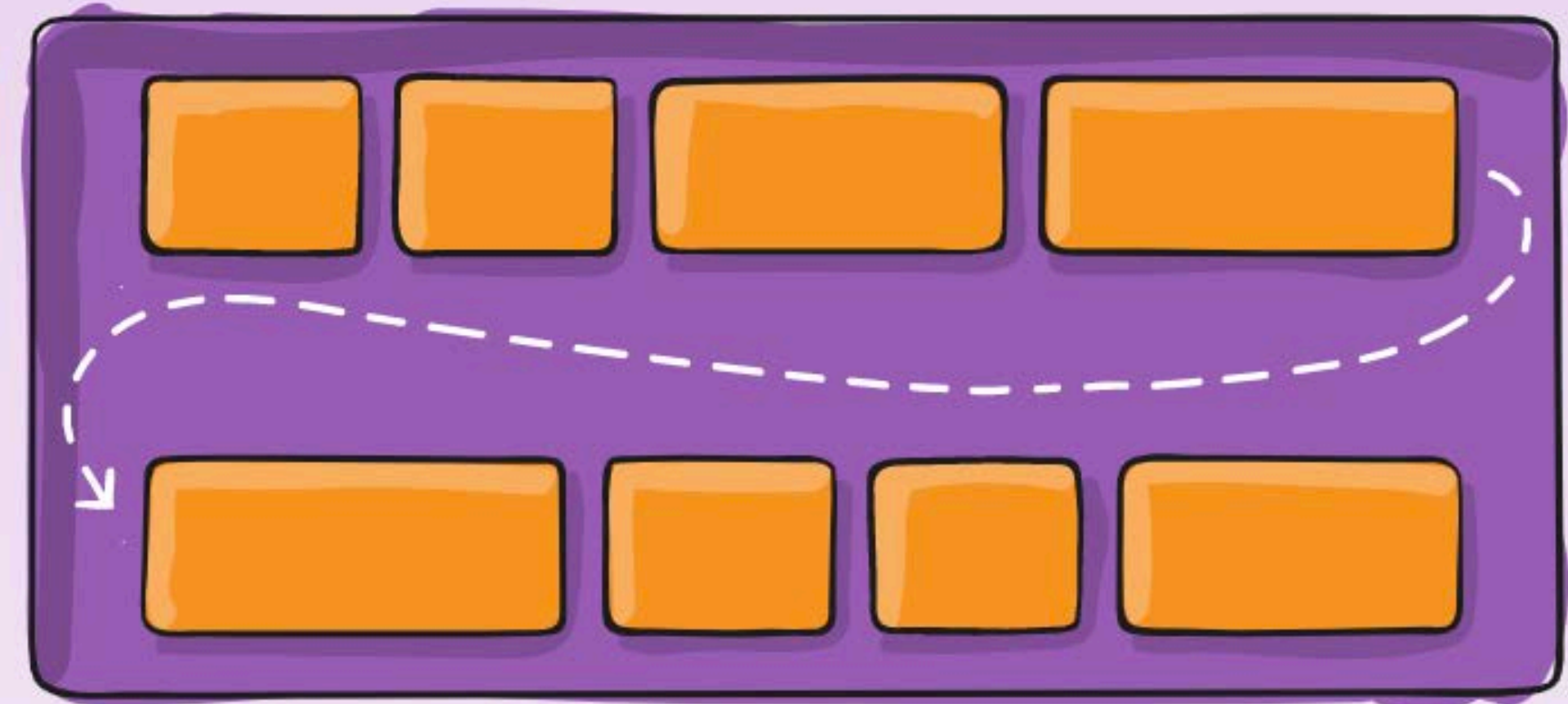
```
.container {  
  display: flex;  
  flex-direction: row  
                row-reverse  
                column  
                column-reverse;  
}
```



# FLEX-WRAP

- Flex-items will automatically adjust to the content that's inside them, but will eventually spill out of container if too many flex elements fill up the container
- Default: nowrap - but better would be a default of flex-wrap: wrap;
- Items will get as small as possible if wrap is not turned on
- If flex-wrap is not turned on, it will ignore the width set by a child element!

## flex-wrap



```
.container {  
  display: flex;  
  flex-wrap: nowrap  
            wrap  
            wrap-reverse;  
}
```

# FLEX-FLOW

- Shorthand for:
  - flex-direction
  - flex-wrap
- Default:  
flex-flow: row nowrap;

```
.container {  
    display: flex;  
    flex-flow: column wrap;  
  
    // flex-direction: column;  
    // flex-wrap: wrap;  
}
```



# JUSTIFY-CONTENT

- Defines the alignment along the main axis
- Main axis can be reversed with flex-direction!
  - flex-direction: row = X axis is main axis
  - flex-direction: column = Y axis is main axis
- Default is flex-start

```
.container {  
  display: flex;  
  justify-content: flex-start  
                flex-end  
                center  
                space-between  
                space-around  
                space-evenly;  
}
```

## justify-content

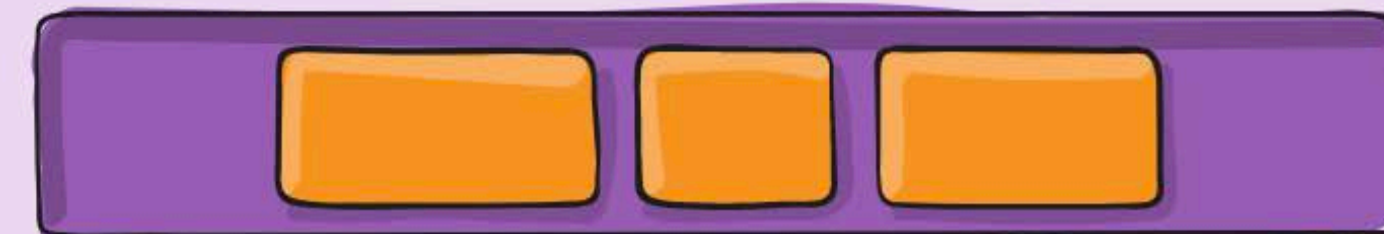
flex-start



flex-end



center



space-between



space-around



space-evenly



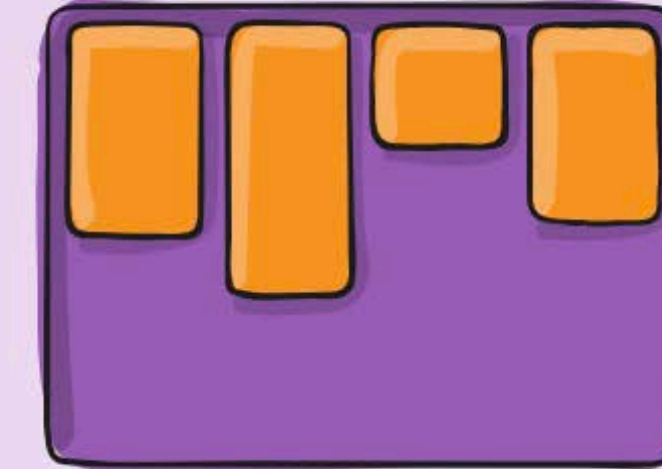
# ALIGN-ITEMS

- Defines the alignment along the cross axis
- Default is stretch: content stretches across the entire container width or height
- If taken off of default, they will shrink to minimum size
- Baseline to align items all on one line/same height

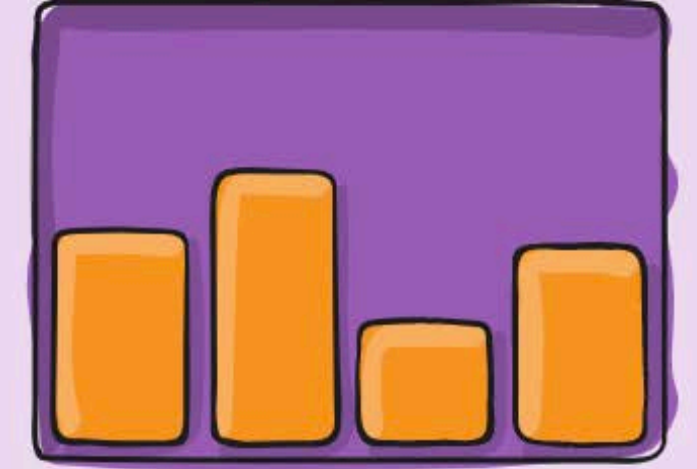
```
.container {  
  display: flex;  
  align-items: stretch  
  flex-start  
  flex-end  
  center  
  baseline  
  first baseline  
  last baseline;  
}
```

## align-items

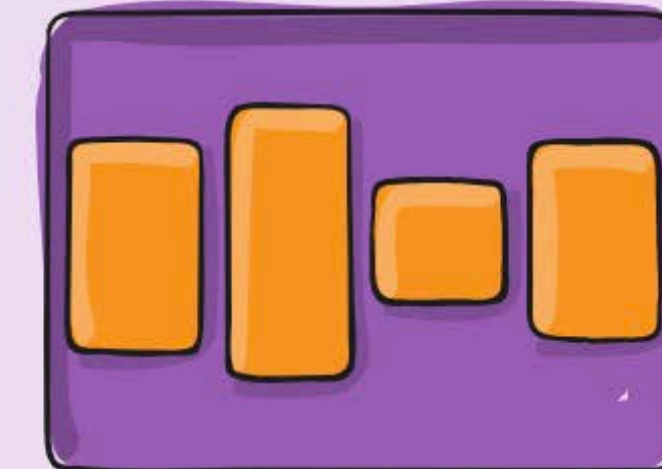
flex-start



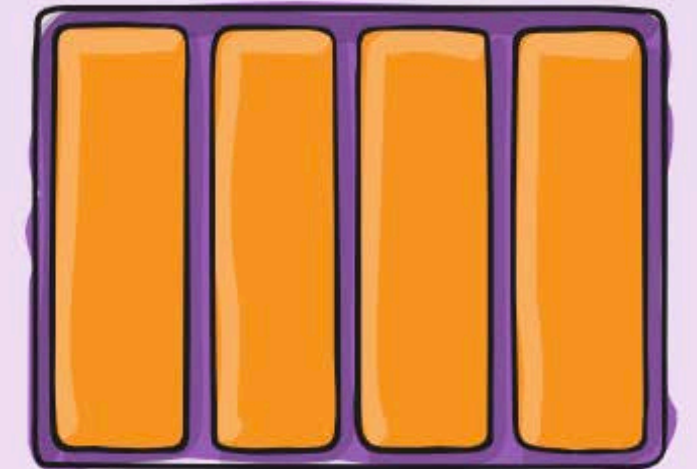
flex-end



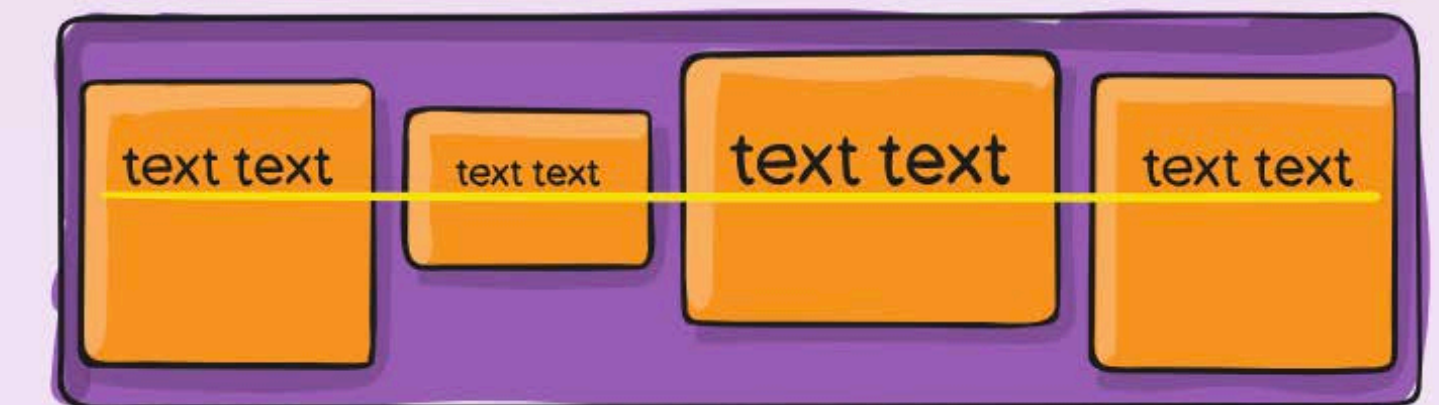
center



stretch



baseline





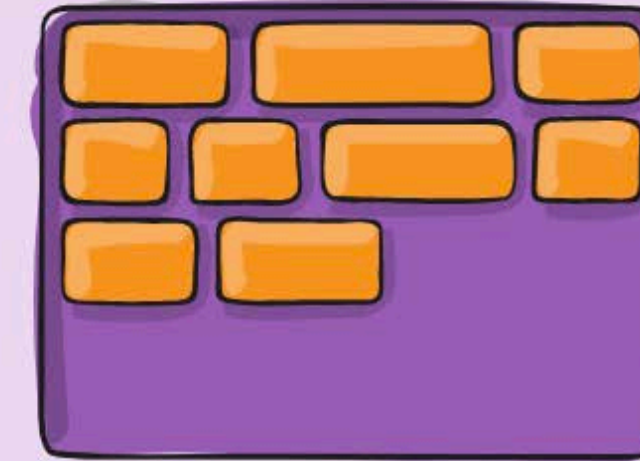
# ALIGN-CONTENT

- Works like justify-content but not on items but entire flex content
- Only works if you have multiple lines of content and flex-flow is set to wrap or wrap-reverse

```
.container {  
  display: flex;  
  align-content: flex-start  
                flex-end  
                center  
                space-between  
                space-around  
                space-evenly  
                stretch;  
}
```

## align-content

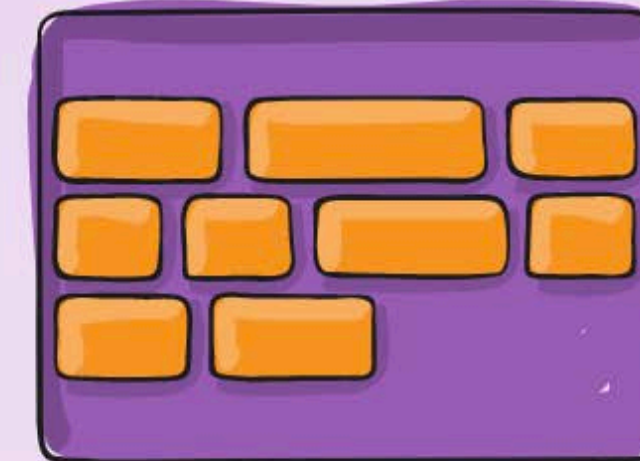
flex-start



flex-end



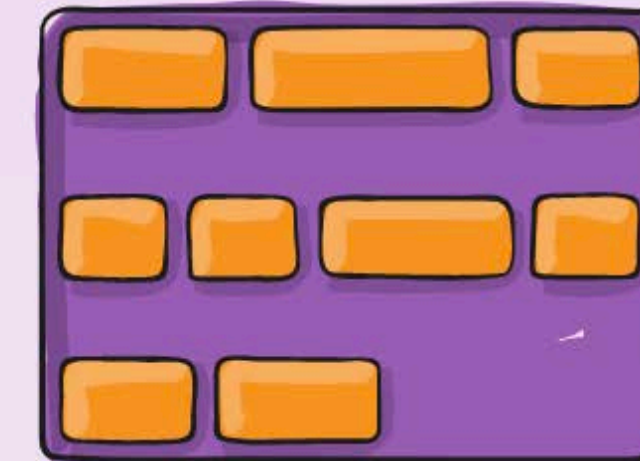
center



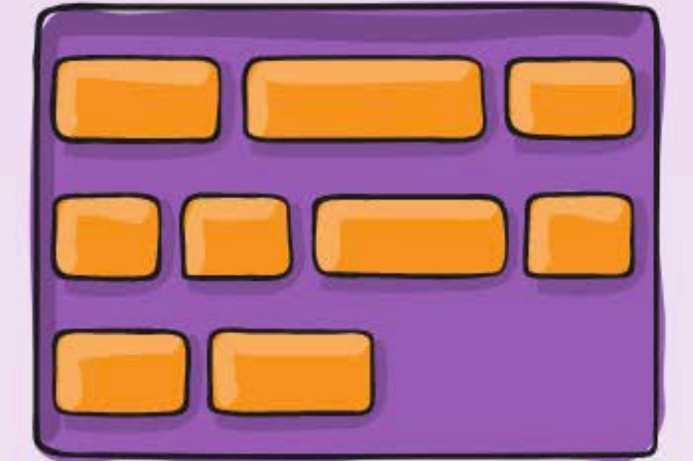
stretch



space-between

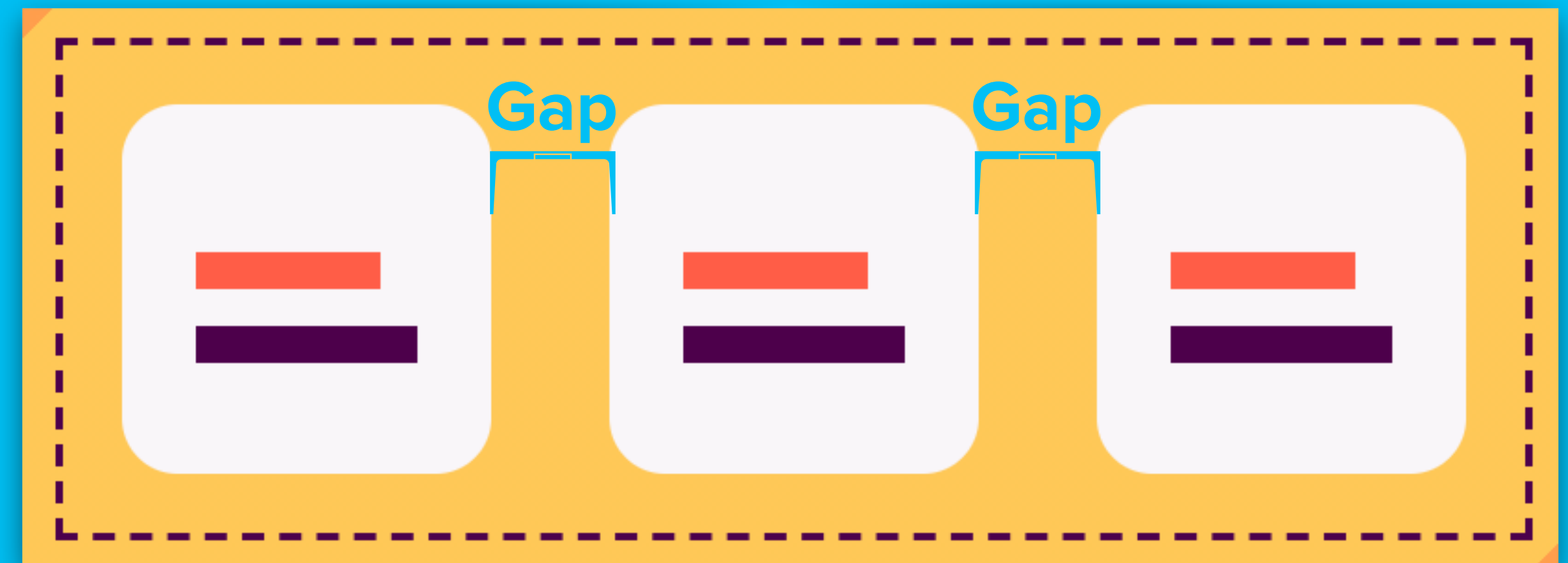


space-around



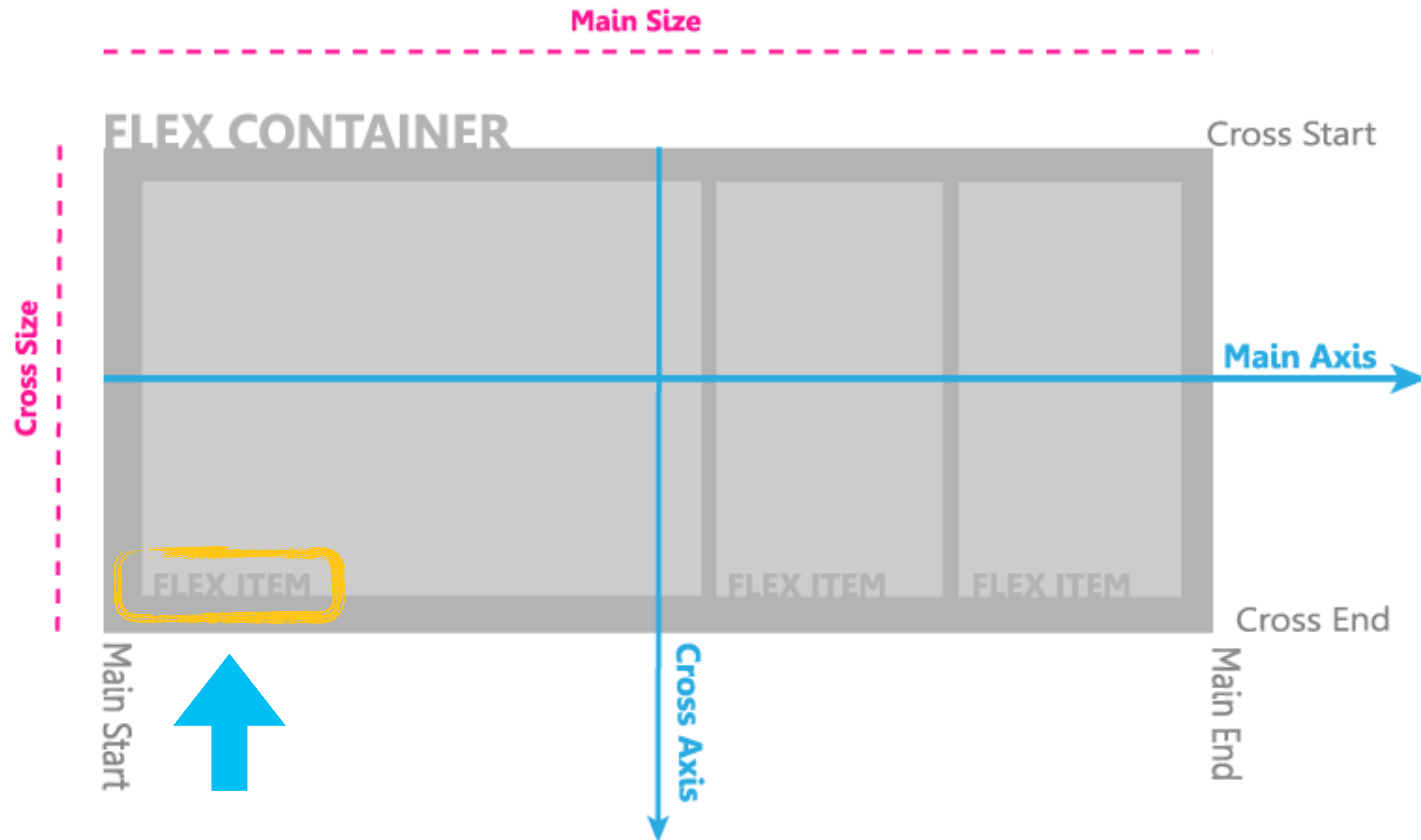
# GAP

- You can now use Gap with Flexbox!
- Set the gap in the flex container/parent
- It will only act between the flex element, not at start or end to not cause weird margins
- Also works with media queries if you switch the flex direction from column to row!
- Use gap instead of margin to create space between flex items



```
.container {  
  display: flex;  
  // row-gap: 1em;  
  // column-gap: 1em;  
  
  gap: 1em;  
  gap: 10px 15%;  
}
```





The Child Element

# FLEX ITEMS



## 2. FLEX ITEMS / CHILDREN

- Flex-grow
- Flex-shrink
- Flex-basis
- Flex
- Align-self
- Order

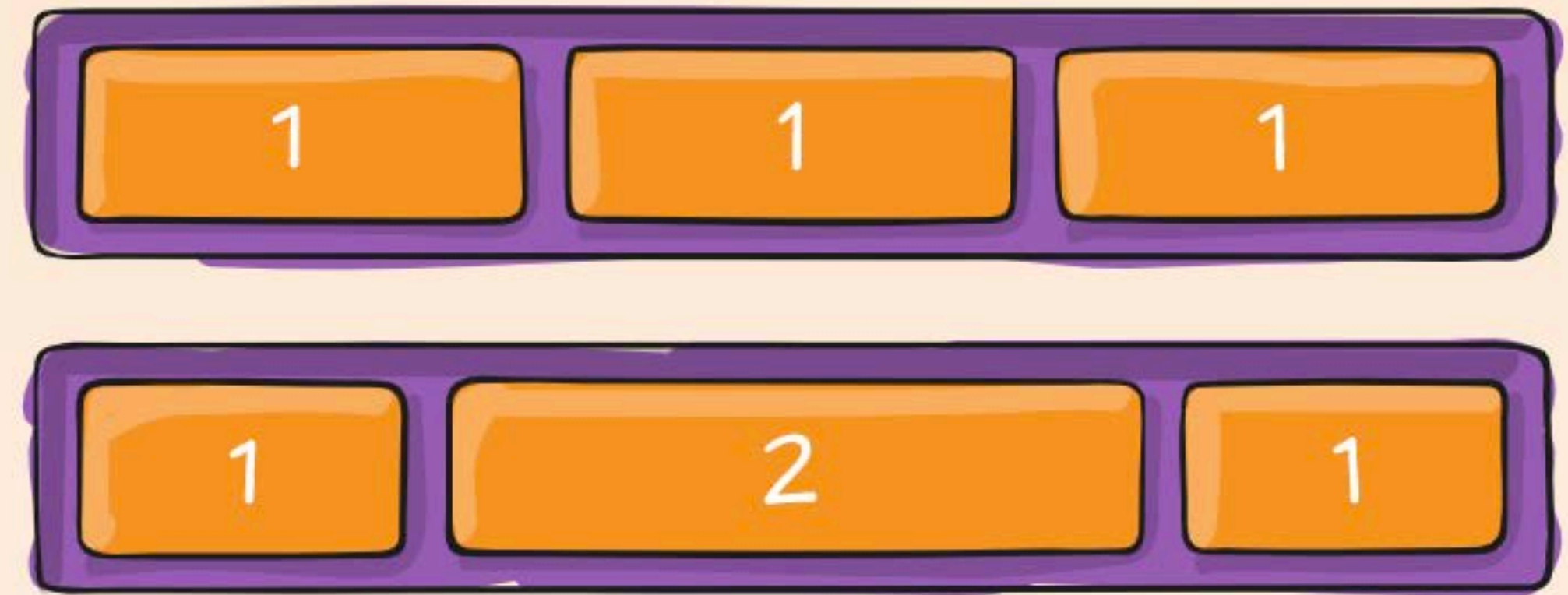
```
.container {  
    display: flex;  
  
    .item {  
        flex-grow:  
        flex-shrink:  
        flex-basis:  
        flex:  
        align-self:  
        order:  
    }  
}
```



# FLEX-GROW

- Default is 0
- Flex-grow dictates what amount of the available space inside the flex container the item should take up
- This defines the ability for a flex item to grow if necessary.
- Unitless value that serves as a proportion

## flex-grow



```
.container {  
  display: flex;  
  
  .item {  
    flex-grow: 2;  
  }  
}
```

# FLEX-SHRINK

- Default is 1
- Flex-shrink defines the ability for a flex item to shrink if necessary
- Negative numbers are invalid
- Unitless value that serves as a proportion

```
.container {  
    display: flex;  
  
    .item {  
        flex-shrink: 3;  
    }  
}
```



# FLEX-BASIS

- Default is auto
- Defines the default size of an element before the remaining space is distributed
- Use this instead of giving your flex-items a width
- It's the ideal width, behaves like max-width but will get smaller OR bigger if it has to due to resizing —> depending on what grow and shrink are set to
- If you want all columns to always have the same size, regardless of amount of text inside, give all children a flex-basis: 100%
- This works because flex-shrink is turned on by default so they are ok to shrink but they really want to be as big as possible (100%)

```
.container {  
    display: flex;  
  
    .item {  
        flex-basis: 250px;  
        flex-basis: 100%;  
    }  
}
```

# FLEX

- Shorthand for:
  - flex-grow
  - flex-shrink
  - flex-basis  
—> in that order!
- Default:  
flex: 0 1 100%;

```
.container {  
    display: flex;  
  
    .item {  
        flex: 1 1 250px;  
    }  
}
```

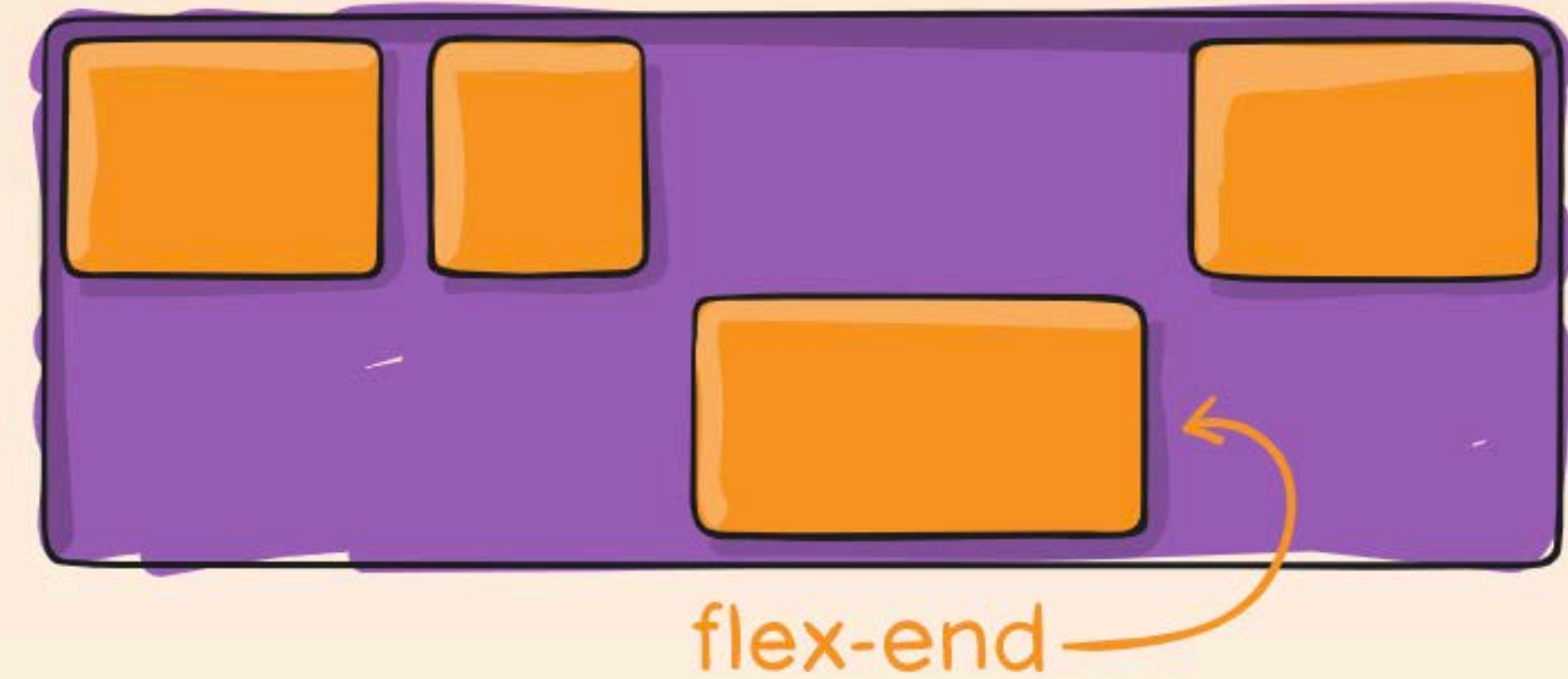


# ALIGN-SELF

- Default is auto
- Aligns said item on secondary axis and overwrites the default alignment

## align-self

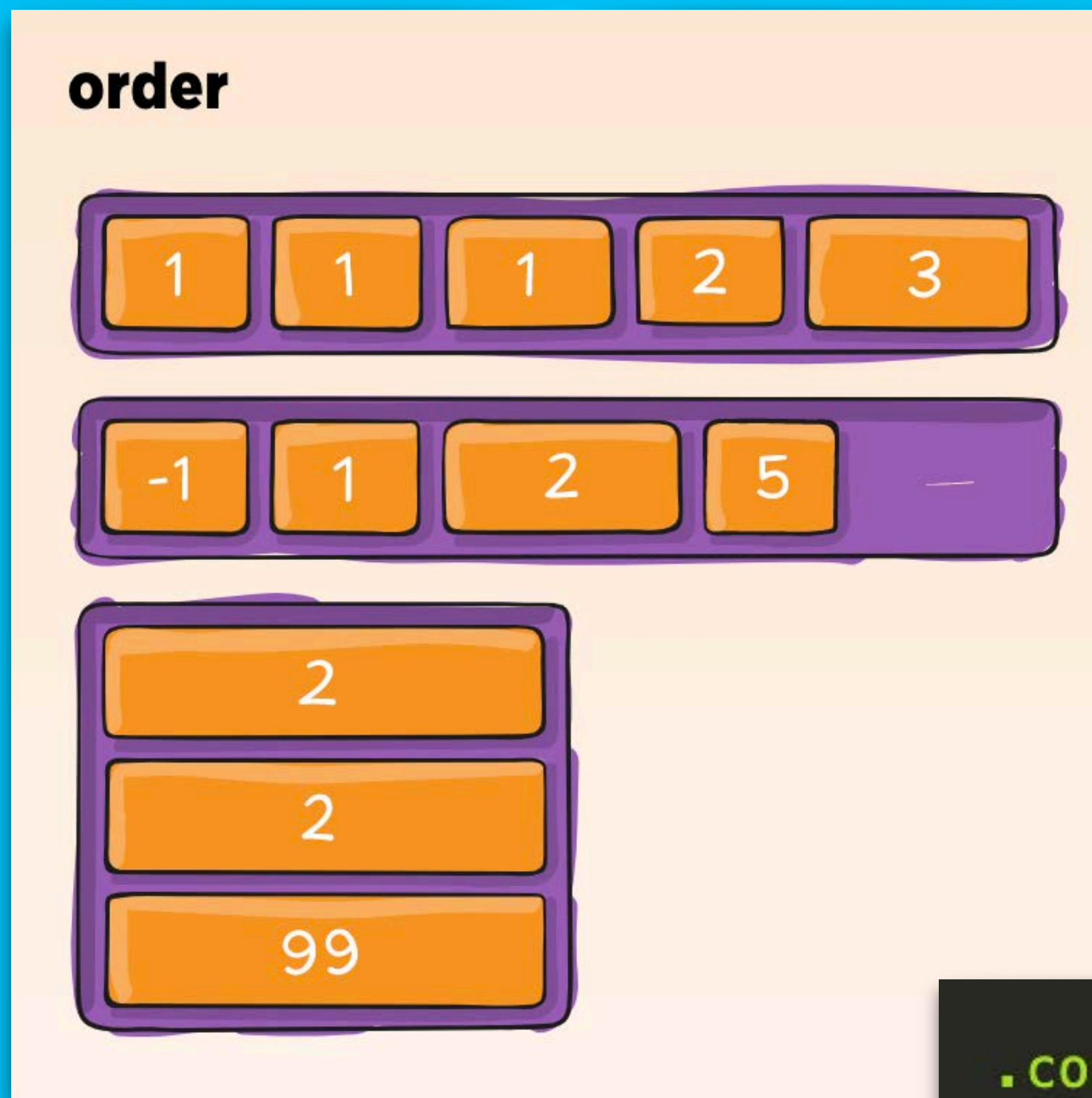
flex-start



```
.container {  
  display: flex;  
  
  .item {  
    align-self: auto  
              flex-start  
              flex-end  
              center  
              baseline  
              stretch;  
  }  
}
```

# ORDER

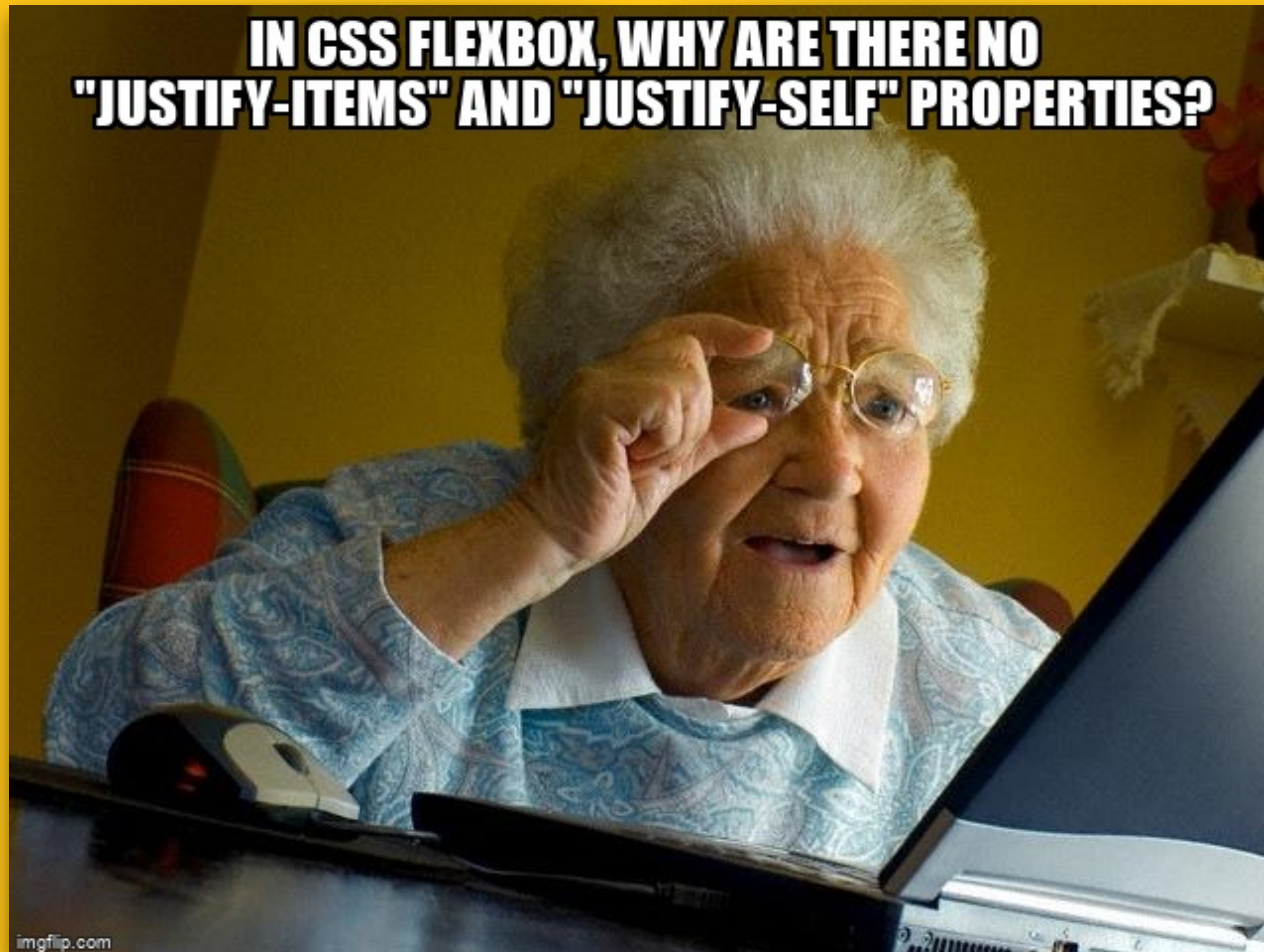
- Default is 0
- `order: -1` puts an individual item to the **FRONT**
- `order: 1` puts an individual item to the **END**



```
.container {  
  display: flex;  
  
  .item {  
    order: -1;  
    order: 4;  
  }  
}
```



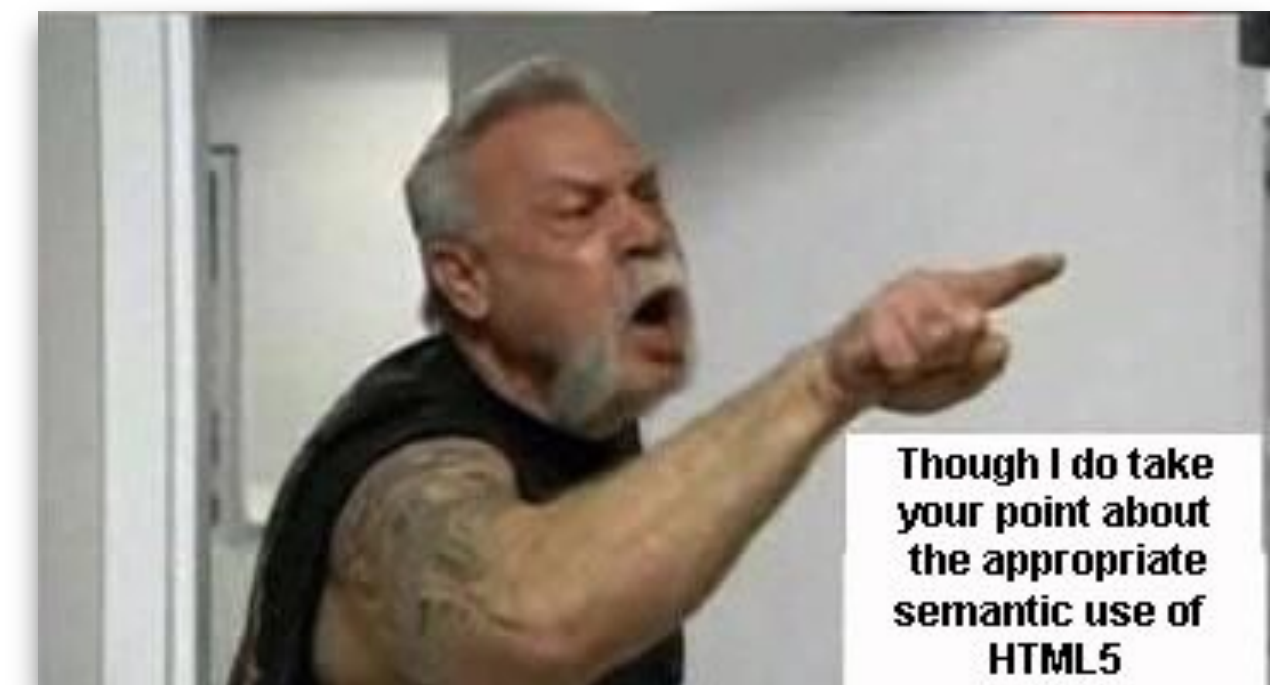
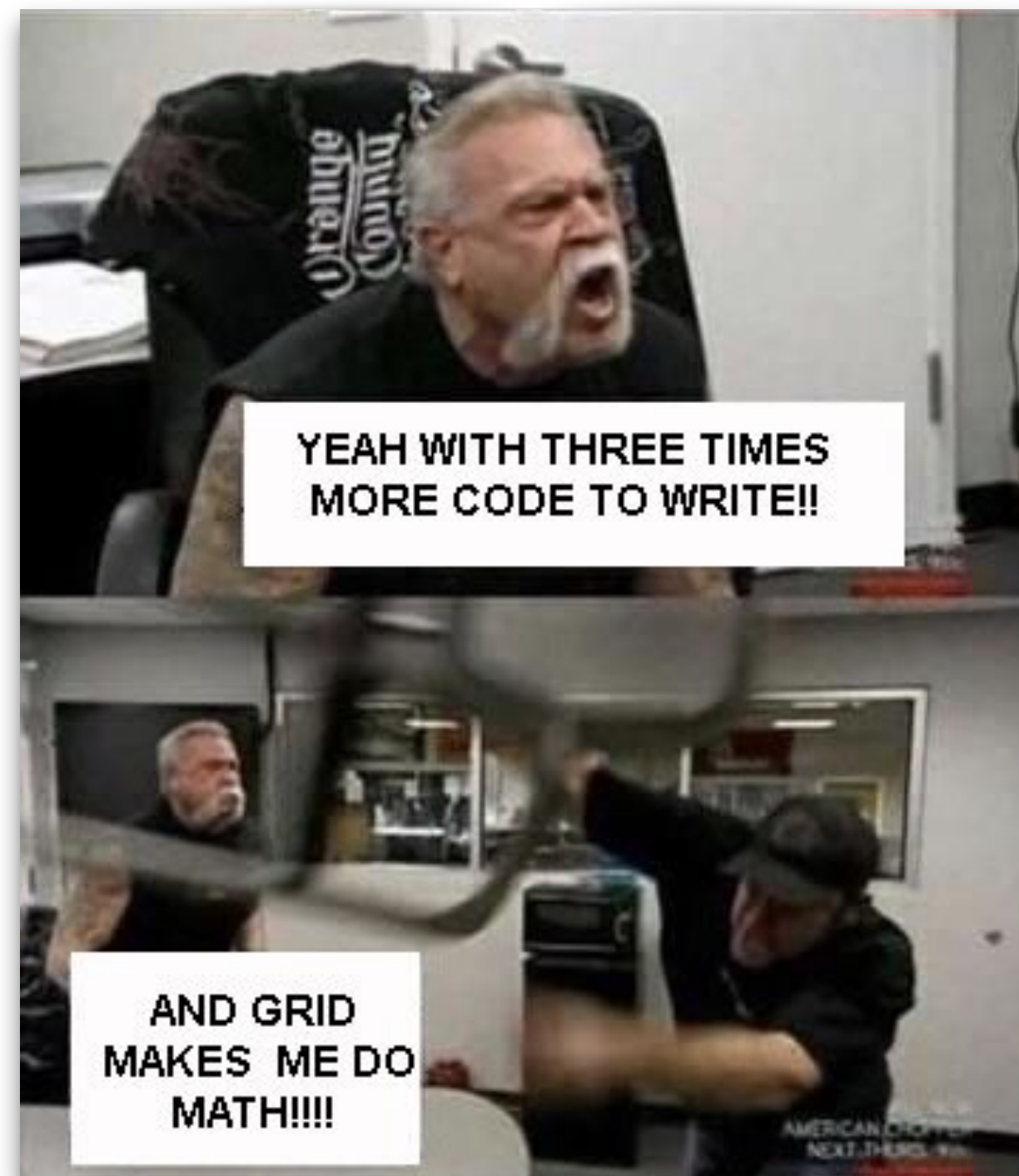
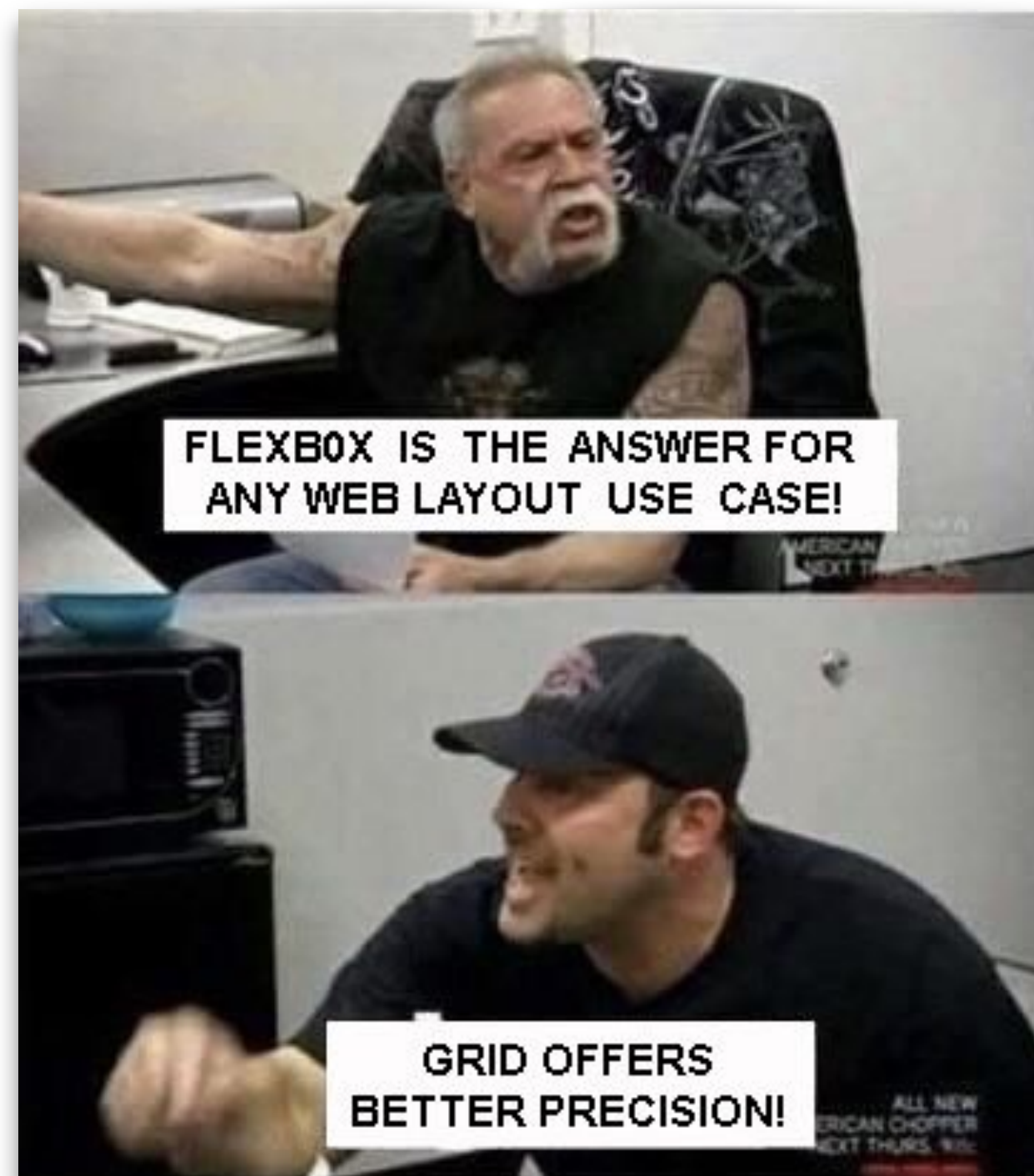
# SOMETHING IS MISSING...





# ROW OR COLUMN - YOU CAN'T HAVE BOTH

- Flexbox lets you layout either in row OR column form.
- You can't define a specific row and column amount but are rather forced to make the content fit in either row or column formats





**QUESTIONS?**

# **HOMEWORK**

- **Use the provided Adobe XD file and recreate the layout using Flexbox.**
- **Export all the images you need from the file and optimize them with the tools and techniques we learned in last week's class.**
- **As usual, the page must be fully responsive. I'd also like to see usage of Sass and BEM.**
- **Take a look at the provided transitions and recreate them. Also, add at least 1 other transition to the website to make it “your own”!**
- **Submit a link to your GitHub repo.**



**FIN**