VIA University College

# Web Development 1

Responsiveness, Flex layout

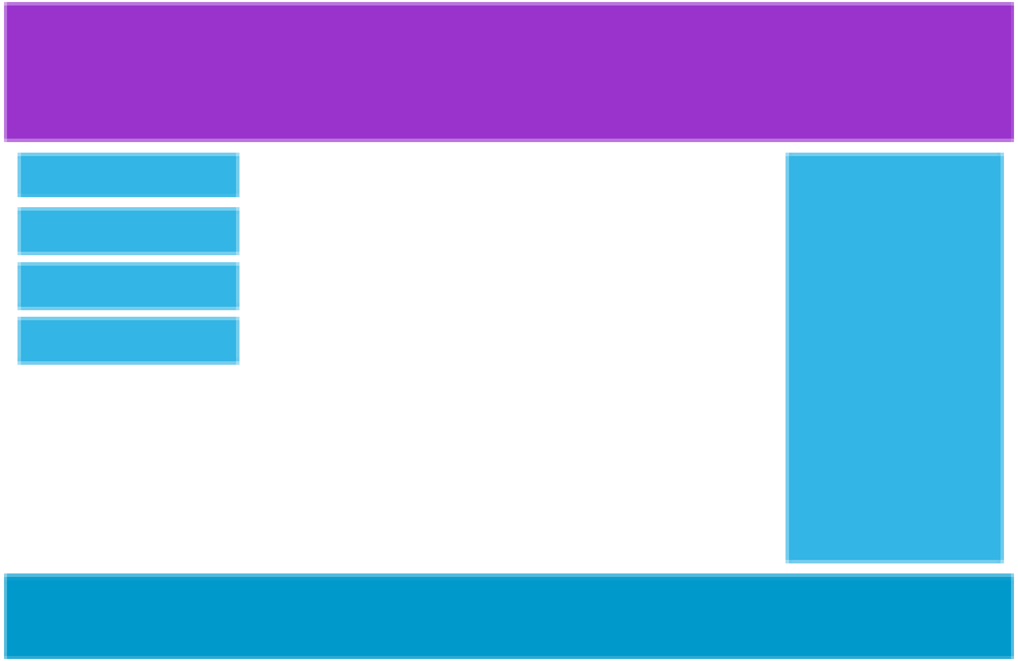
# Agenda

- Recap
- What is Responsive Web Design?
- Box-sizing
- Media Queries
- Flexbox
- Developer tools (in Chrome)

# What is Responsive Web Design

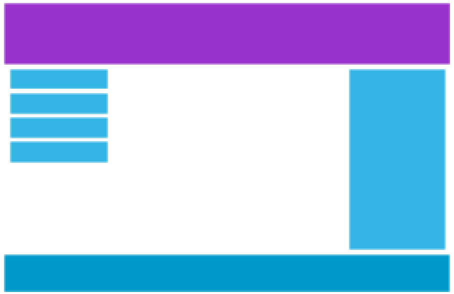
- Responsive web design makes your web page look good on all devices
- Responsive web design uses only HTML and CSS
- Responsive web design is not a program or a JavaScript
- The HTML code is the same; all layout changes are done in CSS

# What is Responsive Web Design

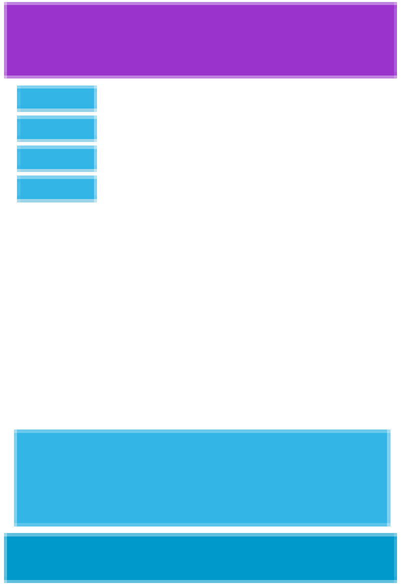


Desktop

# What is Responsive Web Design

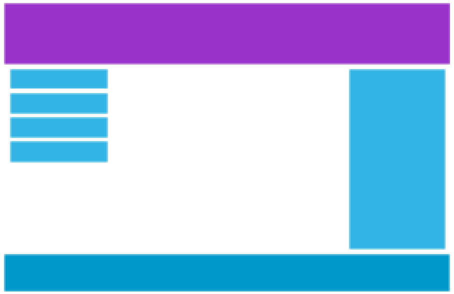


Desktop

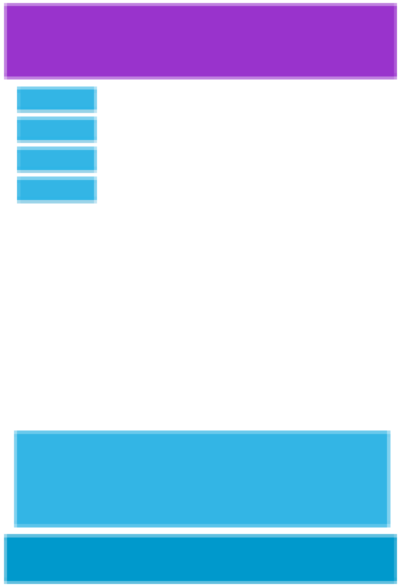


Tablet

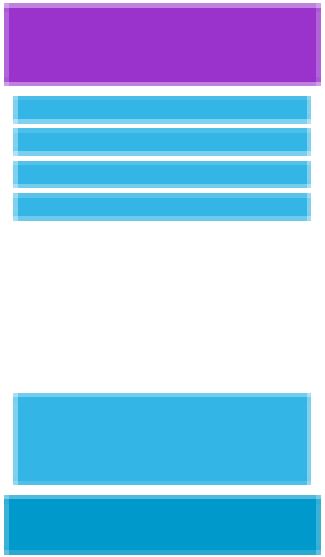
# What is Responsive Web Design



Desktop



Tablet



Phone

# What is Responsive Web Design

Your layout changes based on platform and viewport size

Check out this example: [W3Schools Tryit Editor]()

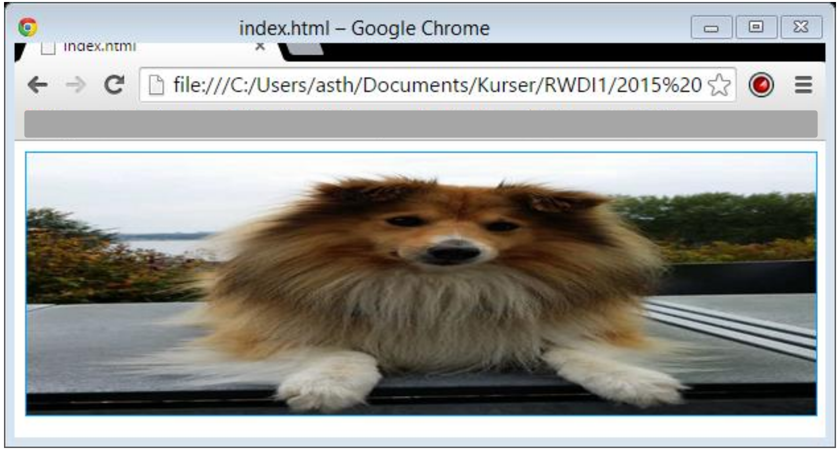
# Responsive Web Design - Images

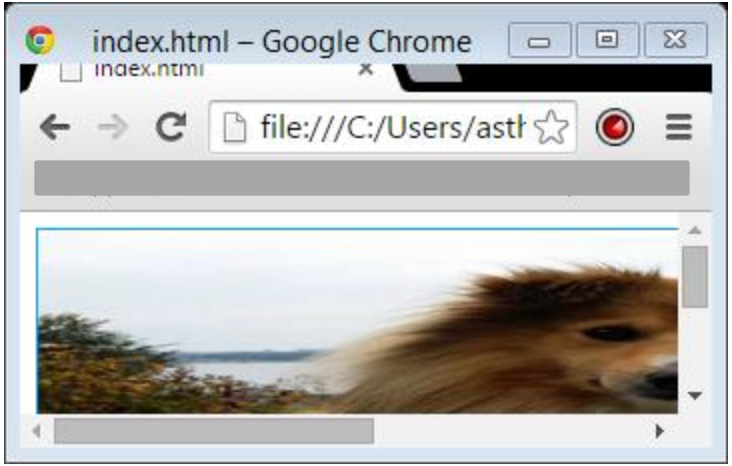
- We can control sizing of images
- Static (pixel dimensions) or dynamic (percentage dimensions)
- Size is generally always inherited outward to inward

# Image – Fixed Size

```
img {
        width: 600px;
        height: 200px;
}
```

Element size is set regardless of the size of parent and children elements.

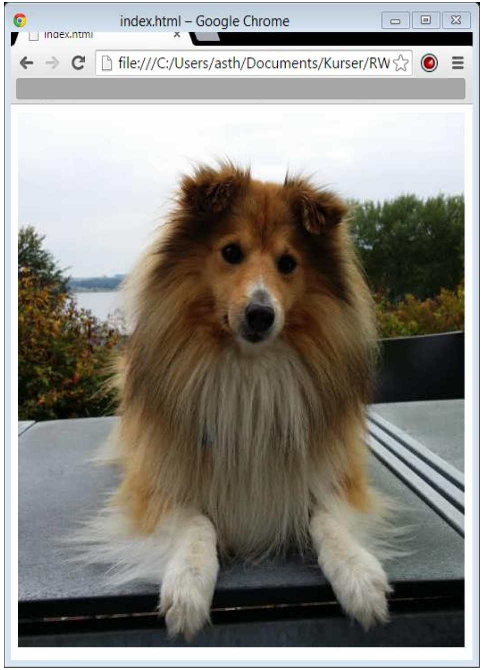

index.html – Google Chrome
index.html
file:///C:/Users/asth/Documents/Kurser/RWDI1/2015%20

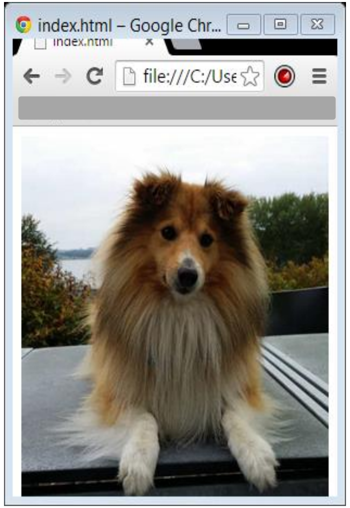


# Image – Relative Size

```
img {
          width: 600px;
          height: auto; //Default value
}
```

Element size is set relative to size of parent (in this case the browser window view/the <body> element).


index.html – Google Chrome
index.html
file:///C:/Users/asth/Documents/Kurser/RW

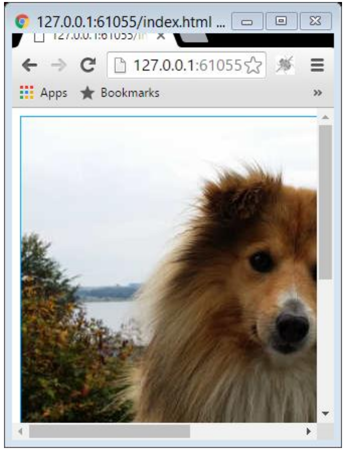


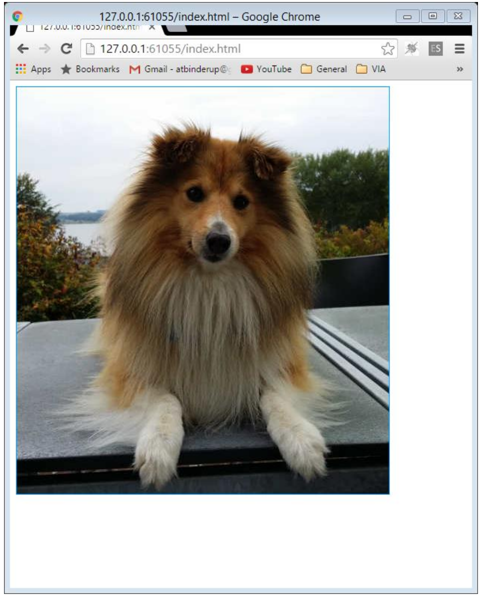
# Image – Relative Size

```
img {
          width: auto;
          height: 100%;
}
```

Does not work when the parent element is the browser view/the <body> element, but otherwise will.
What we see here is the default sizing.
To fix add:

```
html, body {
    height: 100%;
}
```



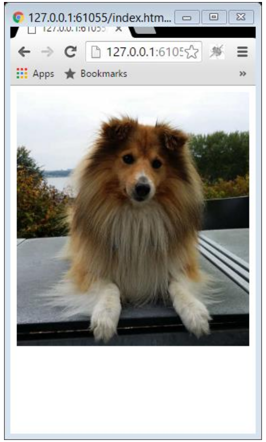

127.0.0.1:61055/index.html – Google Chrome
127.0.0.1:61055/index.html
Apps
Bookmarks
Gmail - atbinderup@
YouTube
General
VIA

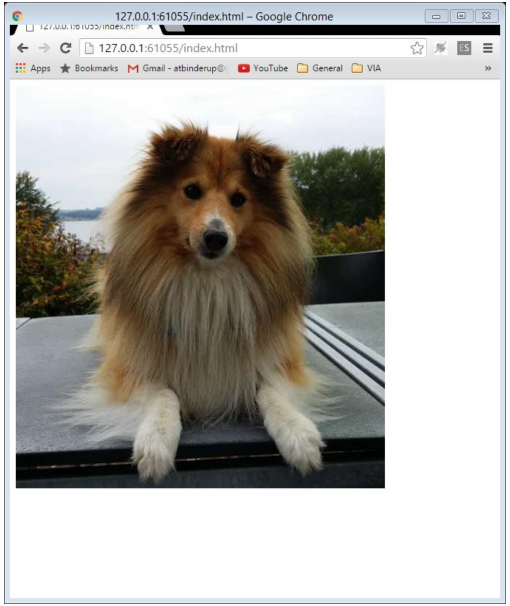
# Image – Relative Size

```
img {
        max-width: 100%;
        height: auto;
}
```

If the `max-width` property is set to `100%`, the image will scale down if it has to, but never scale up to be larger than its original size.

This only works on images though.



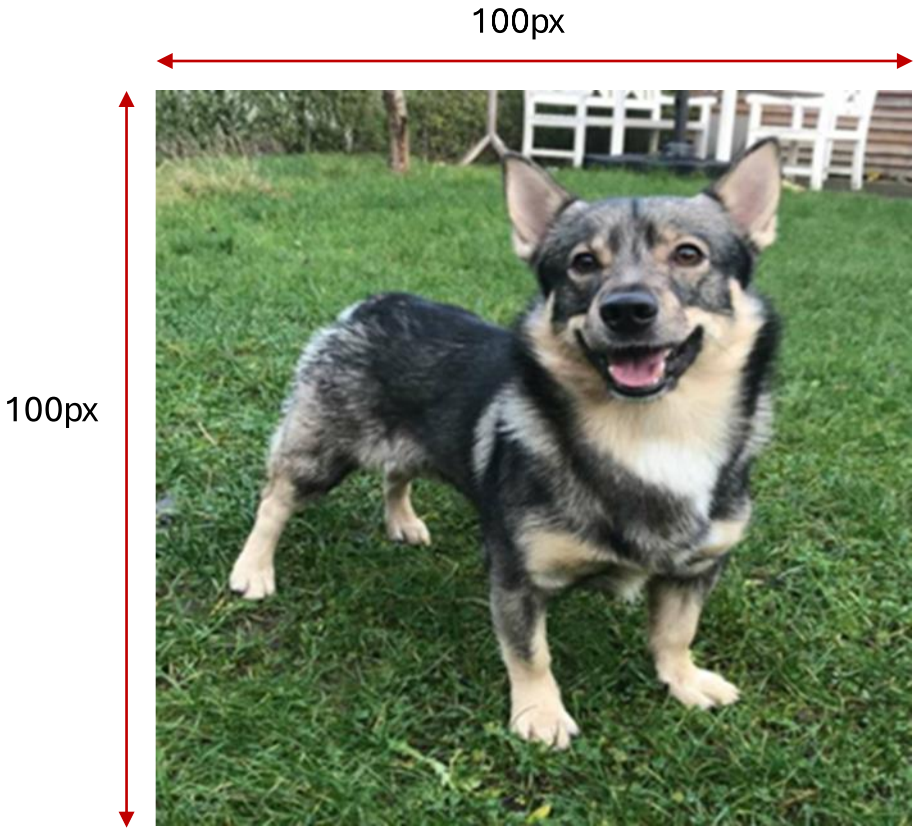

127.0.0.1:61055/index.html – Google Chrome
127.0.0.1:61055/index.html
Apps
Bookmarks
Gmail - atbinderup@
YouTube
General
VIA

# Box Sizing

- Remember the CSS box
- Has padding, border, margin
- All adds up when calculating size
- To make width and heigth include CSS box, use
  `box-sizing: border-box;`

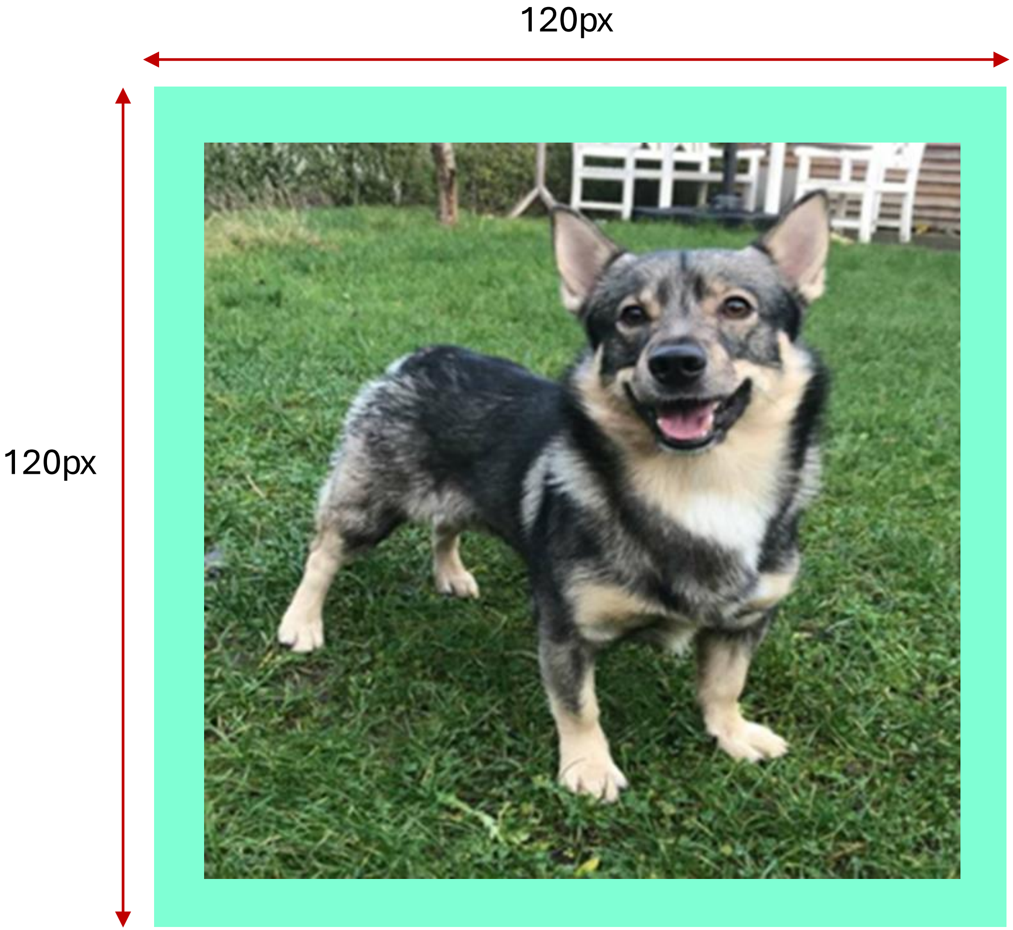
# Box Sizing - Example

```
div {
width: 100px;
height: 100px;
background-color:
aquamarine; //not
visible
```



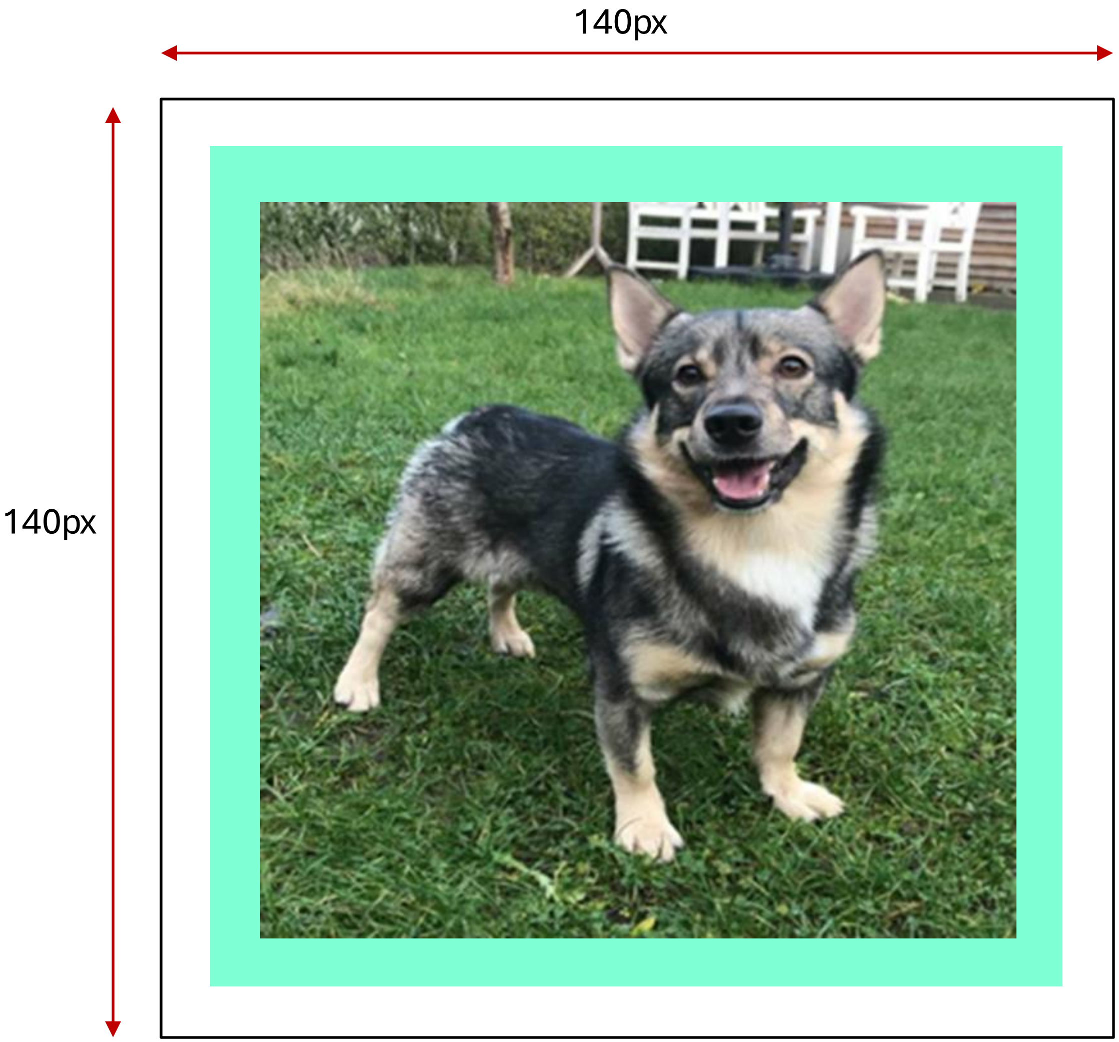
# Box Sizing - Example

```
div {
width: 100px;
height: 100px;
background-color:
aquamarine;
padding: 10px;
```



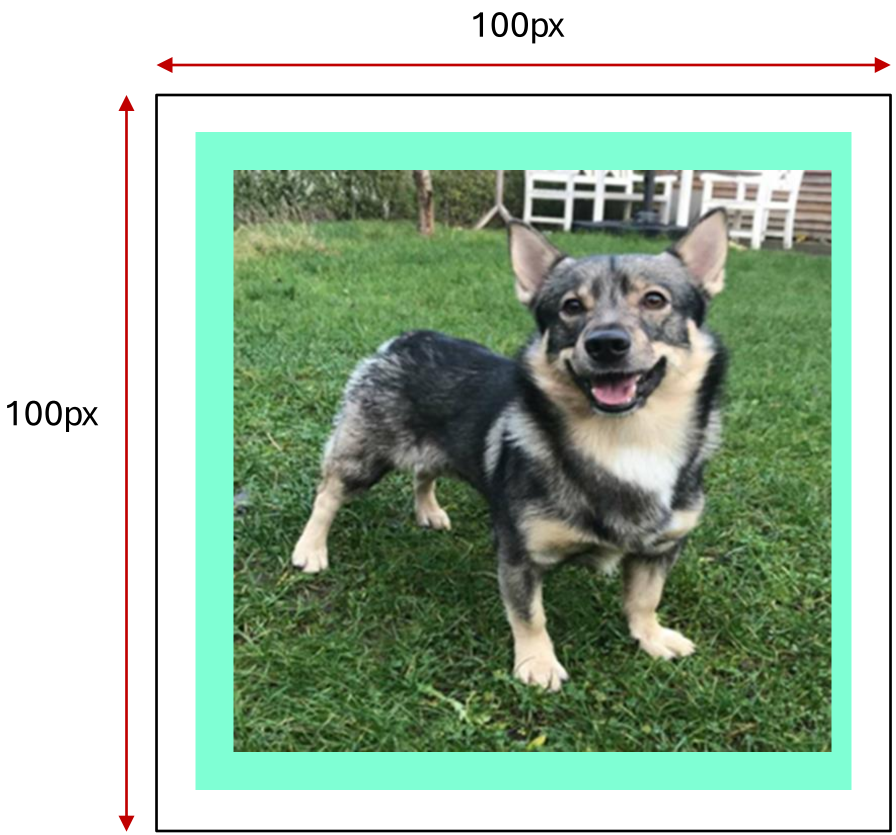
# Box Sizing - Example

```
div {
width: 100px;
height: 100px;
background-color:
aquamarine;
padding: 10px;
marging: 10px;
```

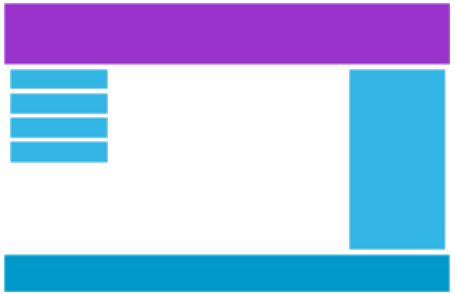


# Box Sizing - Example

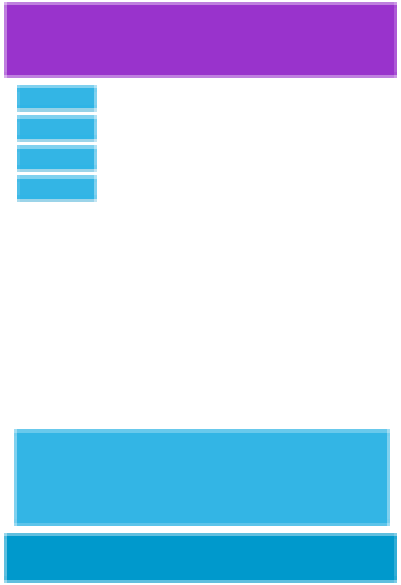
```
div {
width: 100px;
height: 100px;
background-color:
aquamarine;
padding: 10px;
marging: 10px;
box-sizing: border-box;
```



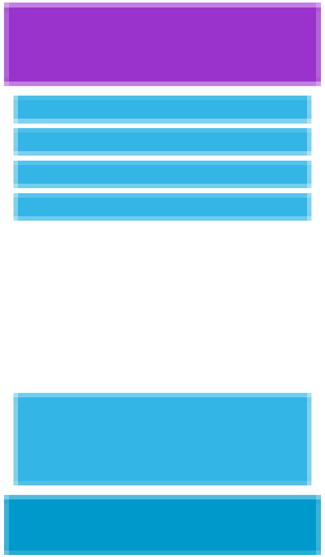
# Media Queries



Desktop

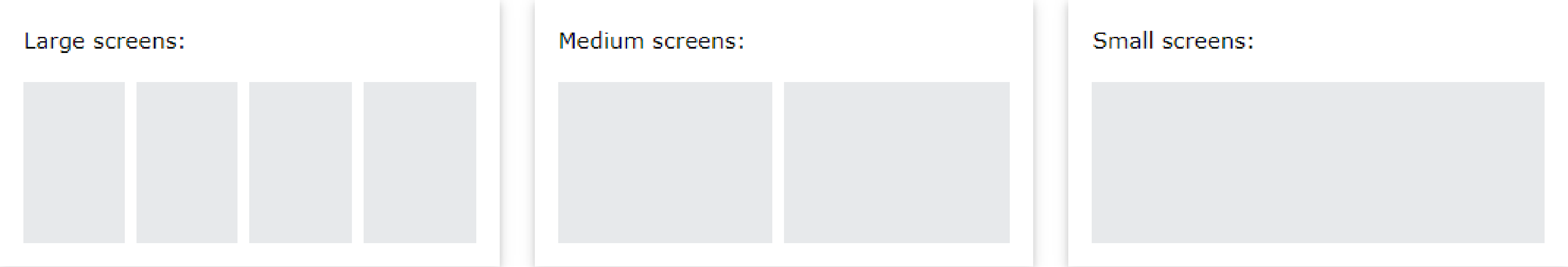


Tablet



Phone

# Media Queries



Large screens:

Medium screens:

Small screens:

# Media Queries

- Change which CSS styling is applied, based on client (screen resolution/window size)

- Select which stylesheet to apply:

```
<link media="mediatype and (media feature)“
      href="myStylesheet.css"
      rel="stylesheet"
      type="text/css">
```

- Or manipulate the CSS Styles directly:

```
@media mediatype and (media feature) {
  CSS-Code;
}
```

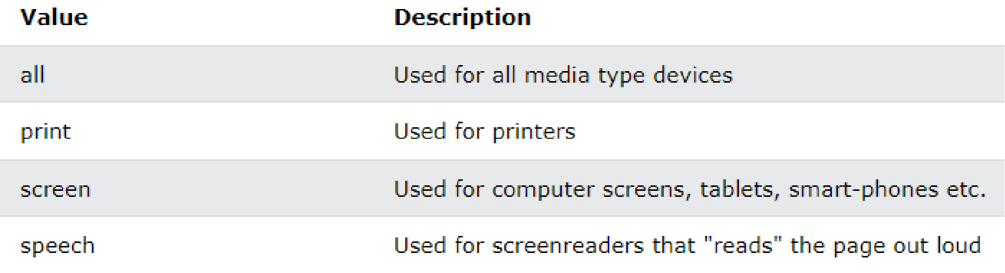
# Media Queries

- Media type and feature = “Breakpoints” to define different behaviour

- Relates to device (type) and size (feature)

- When `mediatype` is `screen` and `media feature` is `max-width/min-width`, you are comparing against browser window size (CSS pixels) and not the actual device size (to do that, use `max-device-width/min-device-width` as `media feature` instead).

- Generally, `mediatype` is `screen`



| Value | Description |
|---|---|
| all | Used for all media type devices |
| print | Used for printers |
| screen | Used for computer screens, tablets, smart-phones etc. |
| speech | Used for screenreaders that "reads" the page out loud |

# Media Queries

- Select which stylesheet to apply:

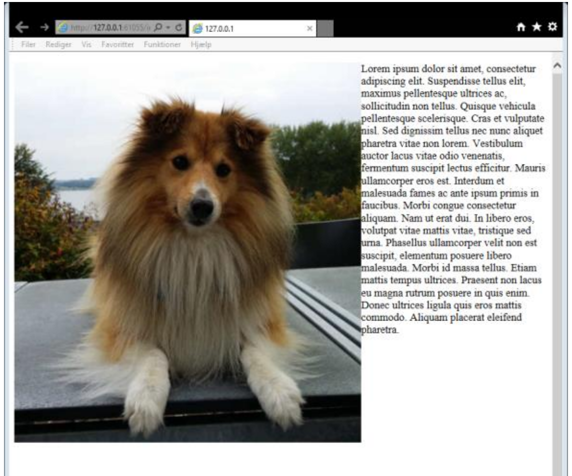
```
<head>
  <link rel="stylesheet" media="screen and (max-width: 480px)"
  href="css/smallStylesheet.css" type="text/css">

  <link rel="stylesheet" media="screen and (min-width: 481px)"
  href="css/largeStylesheet.css" type="text/css">
  …
</head>
```

# Media Queries

- In CSS

```css
img {
        width: 500px;
}

@media screen and (min-width: 800px) {
        img {
                float: left;
        }
}
```



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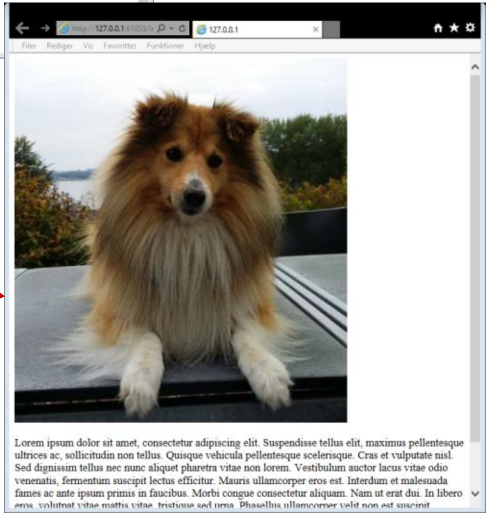
When viewport width larger than 800px



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Default view

# Media Queries

```
@media screen and (max-width: 400px) {
  …
}

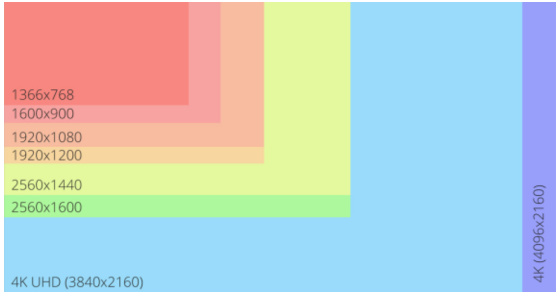
@media screen and (min-width: 401px) and (max-width: 1024px) {
  …
}

@media screen and (min-width: 1025px) {
  …
}
```

# Media Queries

- How to determine ”breakpoints”?
- Common screen resolutions?
  - Hard to maintain (new resolutions to accomodate)
  - Differences in devices (smartphones in new form factors)

✗



- Manual testing
  - Time consuming
  - Leads to best results

✓

# Flexbox

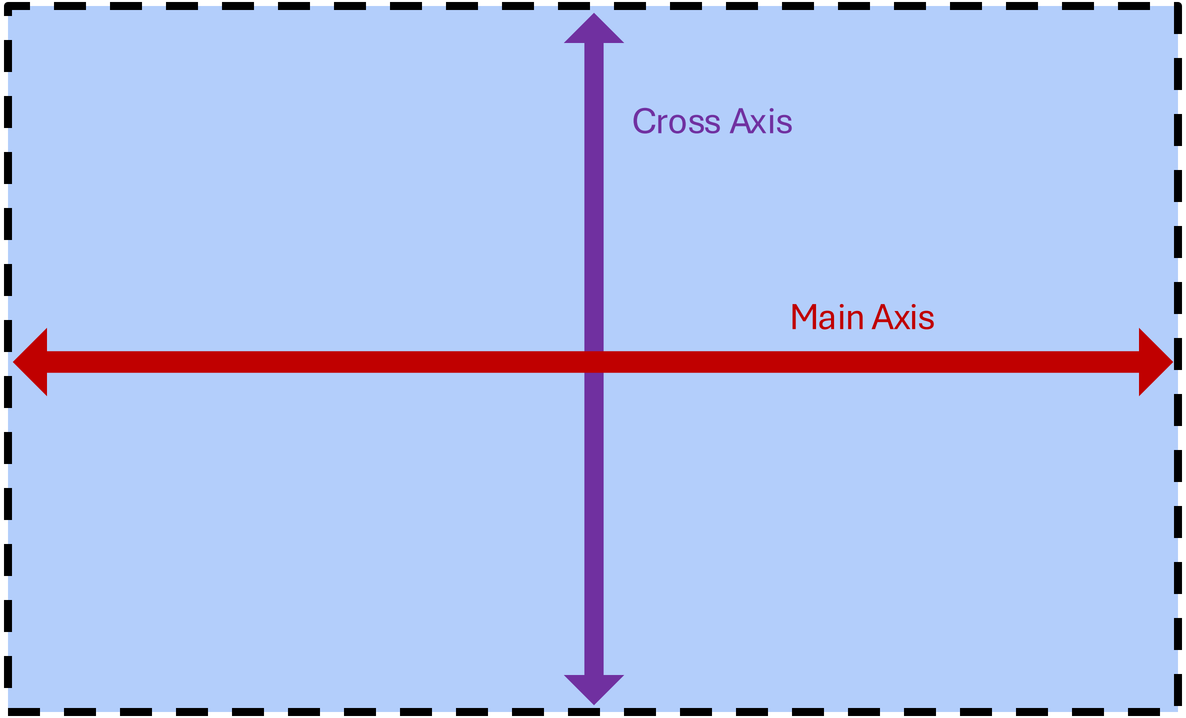
- A layout model
- Like `float`, but more powerful
- When applied to a container, will control layout of nested elements

# Flexbox

- A layout model
- Like `float`, but more powerful
- When applied to a container, will control layout of nested elements
- Two axes
  - Main axis: `justify-content`
  - Cross axis: `align-items`
- Can be used in many ways – try it out

# Flexbox

```
<body>
    <div class="box">
        <div class="container">
            <div></div>
            <div></div>
            <div></div>
            <div></div>
            <div></div>
        </div>
    </div>
</body>
```



# Flexbox

```
<body>
    <div class="box">
        <div
class="container">
            <div></div>
            <div></div>
            <div></div>
            <div></div>
            <div></div>
        </div>
    </div>
</body>
```

```
.container>div {
    width: 50px;
    height: 50px;
}

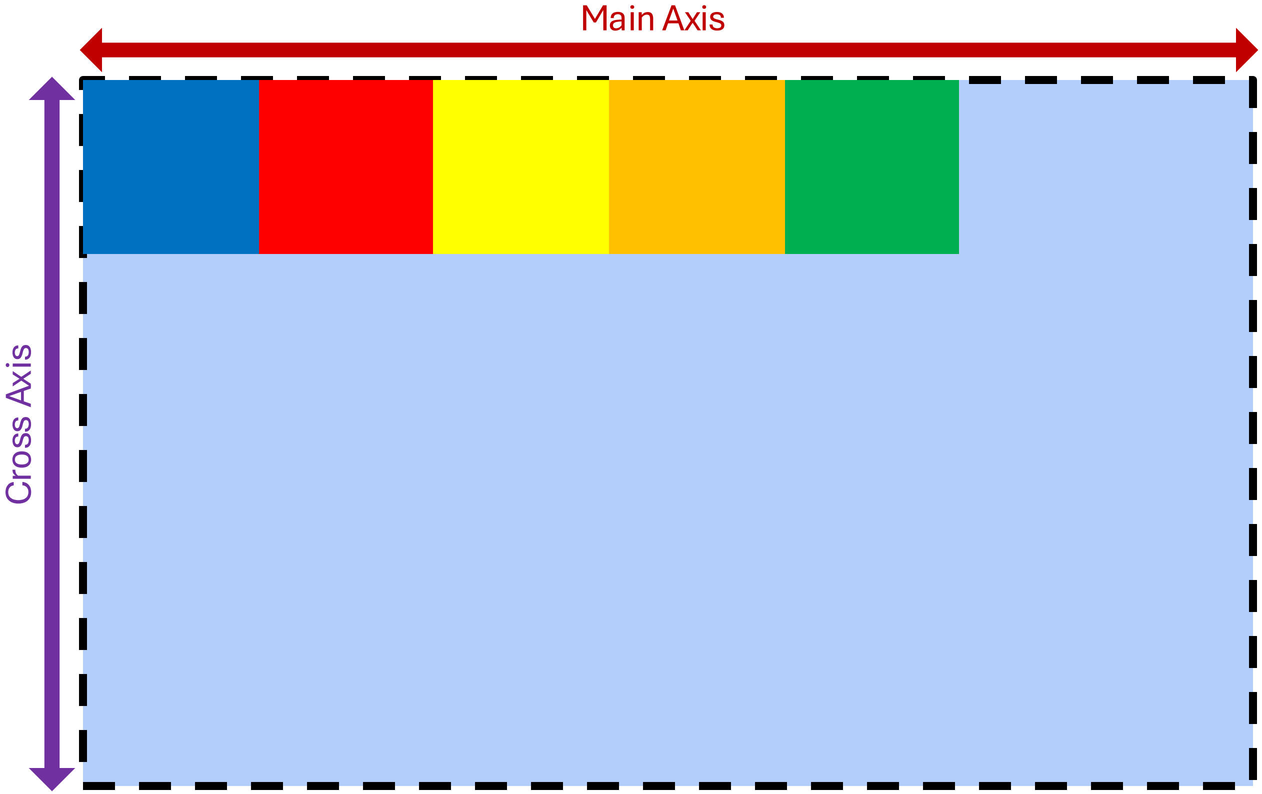
.container>div:nth-child(1) {
    background-color: blue;
}

.container>div:nth-child(2) {
    background-color: red;
}

.container>div:nth-child(3) {
    background-color: yellow;
}

.container>div:nth-child(4) {
    background-color: orange;
}

.container>div:nth-child(5) {
    background-color: green;
}
```

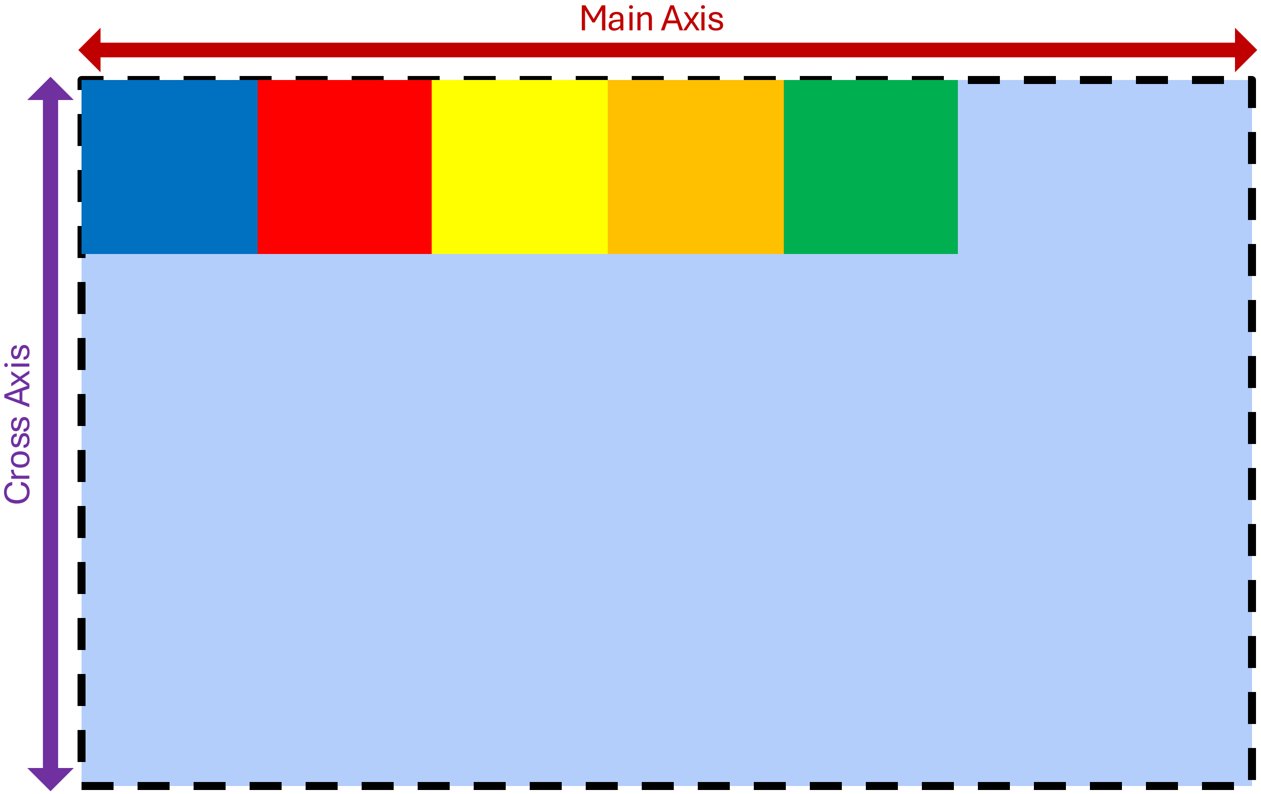


# Flexbox

```
<body>
    <div class="box">
        <div
class="container">
            <div></div>
            <div></div>
            <div></div>
            <div></div>
            <div></div>
        </div>
    </div>
</body>
```

```
.container {
    width: 400px;
    height: 200px;
    border: 5px dashed black;
}
```

```
.container {
    display: flex;
    justify-content: start;
```

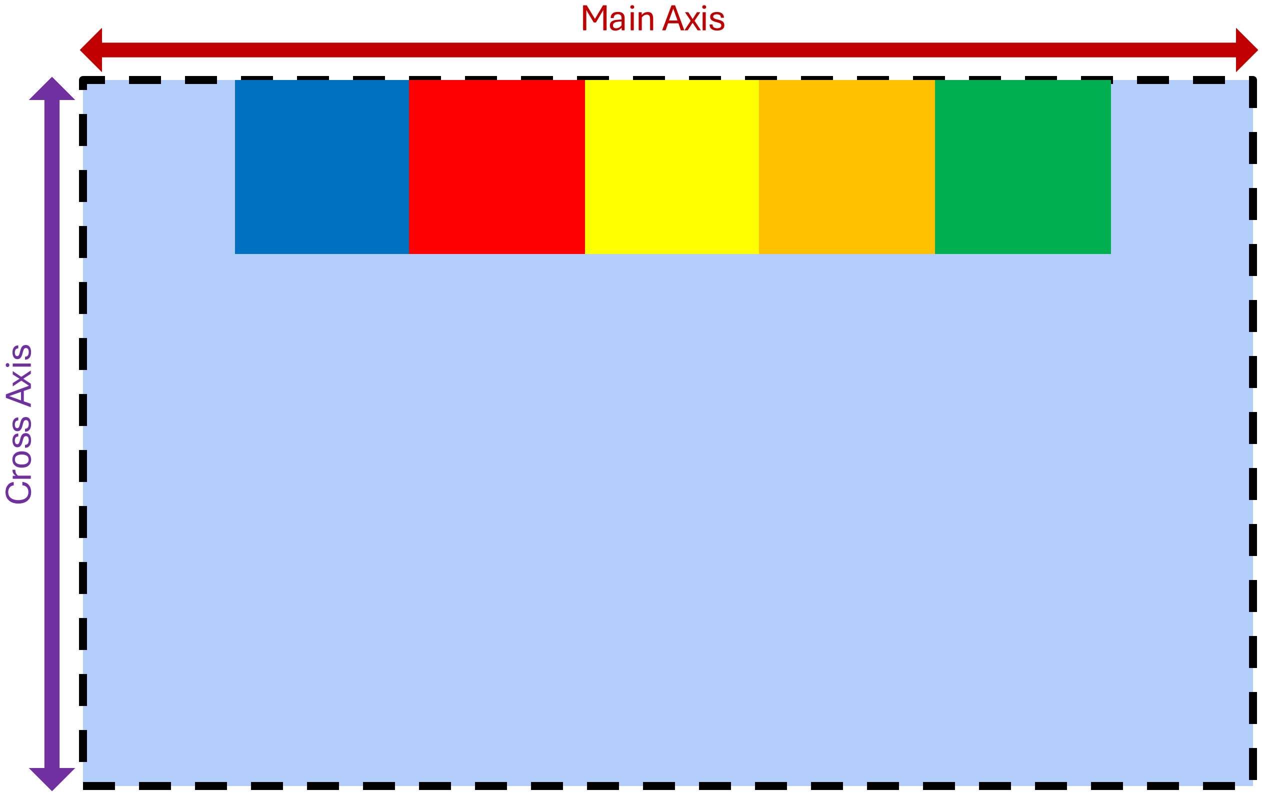


# Flexbox

```
<body>
    <div class="box">
        <div
class="container">
            <div></div>
            <div></div>
            <div></div>
            <div></div>
            <div></div>
        </div>
    </div>
</body>
```

```
.container {
    width: 400px;
    height: 200px;
    border: 5px dashed black;
}
```

```
.container {
    display: flex;
    justify-content: center;
```



# Flexbox

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<body>
    <div class="box">
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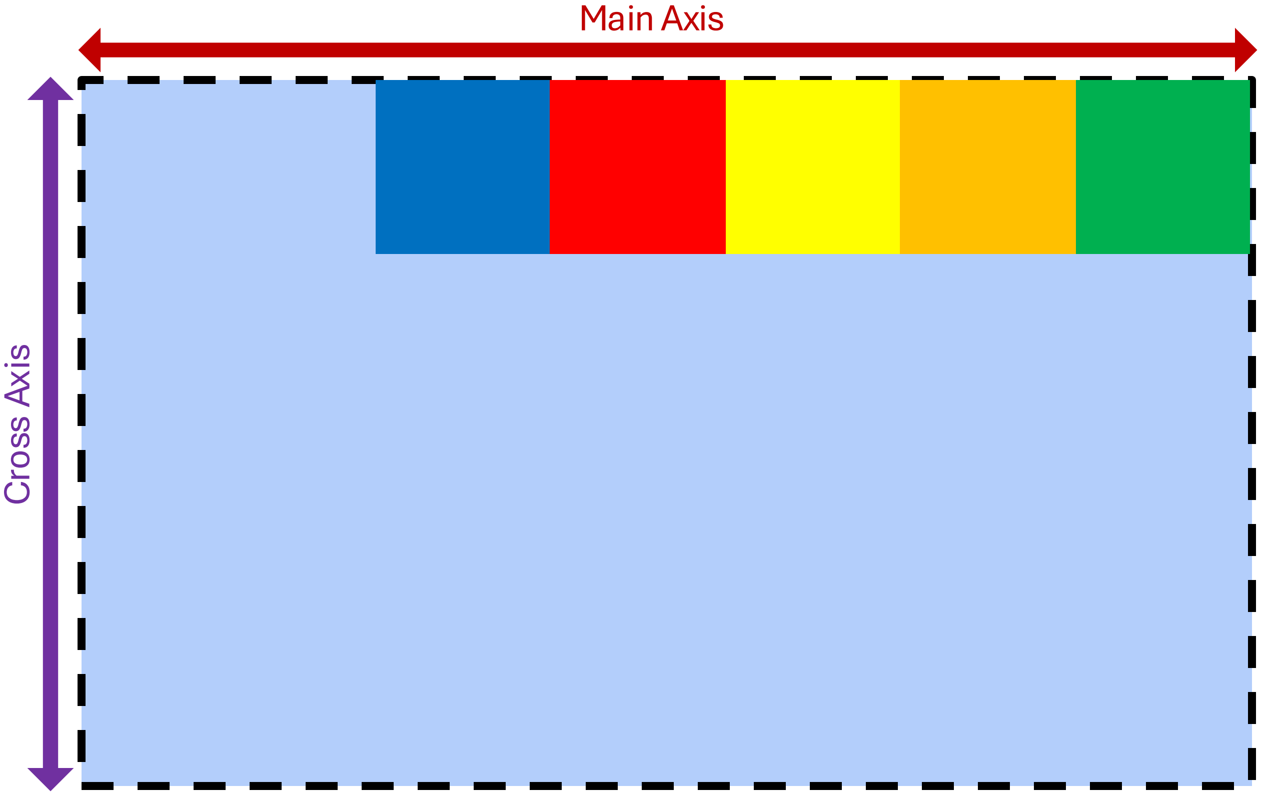
            <div></div>
            <div></div>
            <div></div>
            <div></div>
            <div></div>
        </div>
    </div>
</body>
```

```
.container {
    width: 400px;
    height: 200px;
    border: 5px dashed black;
}
```

```
.container {
    display: flex;
    justify-content: end;
```



# Flexbox

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<body>
    <div class="box">
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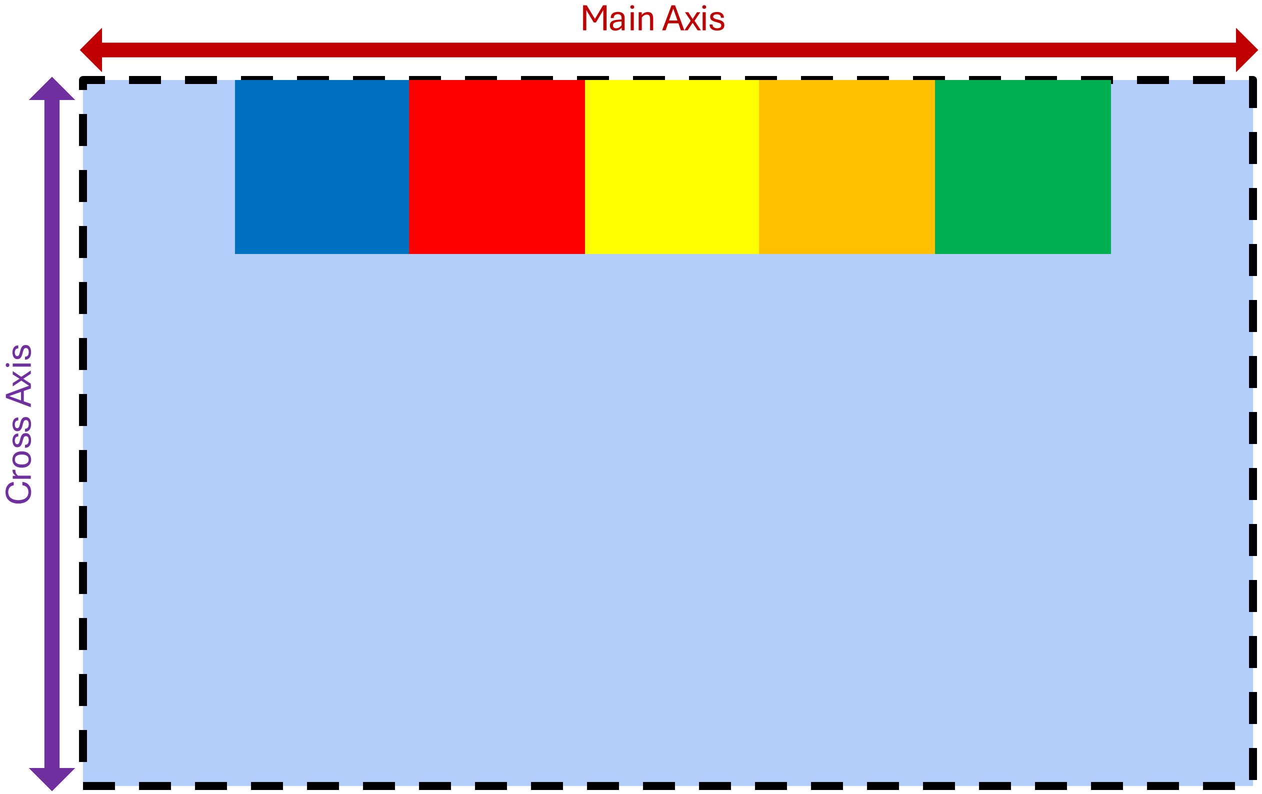
class="container">
            <div></div>
            <div></div>
            <div></div>
            <div></div>
            <div></div>
        </div>
    </div>
</body>
```

```
.container {
    width: 400px;
    height: 200px;
    border: 5px dashed black;
}
```

```
.container {
    display: flex;
    justify-content: center;
    align-items: flex-start;
}
```



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<body>
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            <div></div>
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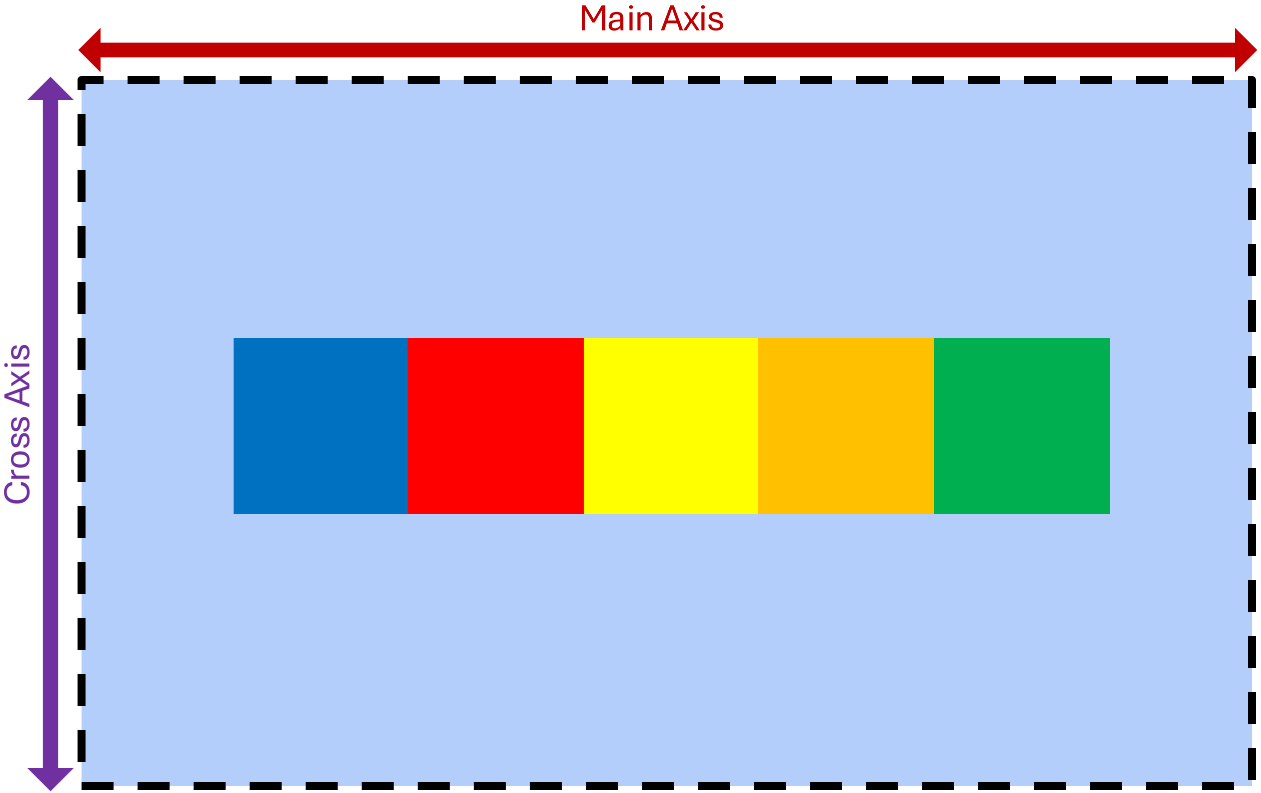
            <div></div>
        </div>
    </div>
</body>
```

```
.container {
    width: 400px;
    height: 200px;
    border: 5px dashed black;
}
```

```
.container {
    display: flex;
    justify-content: center;
    align-items: center;
```



# Flexbox

```
<body>
    <div class="box">
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class="container">
            <div></div>
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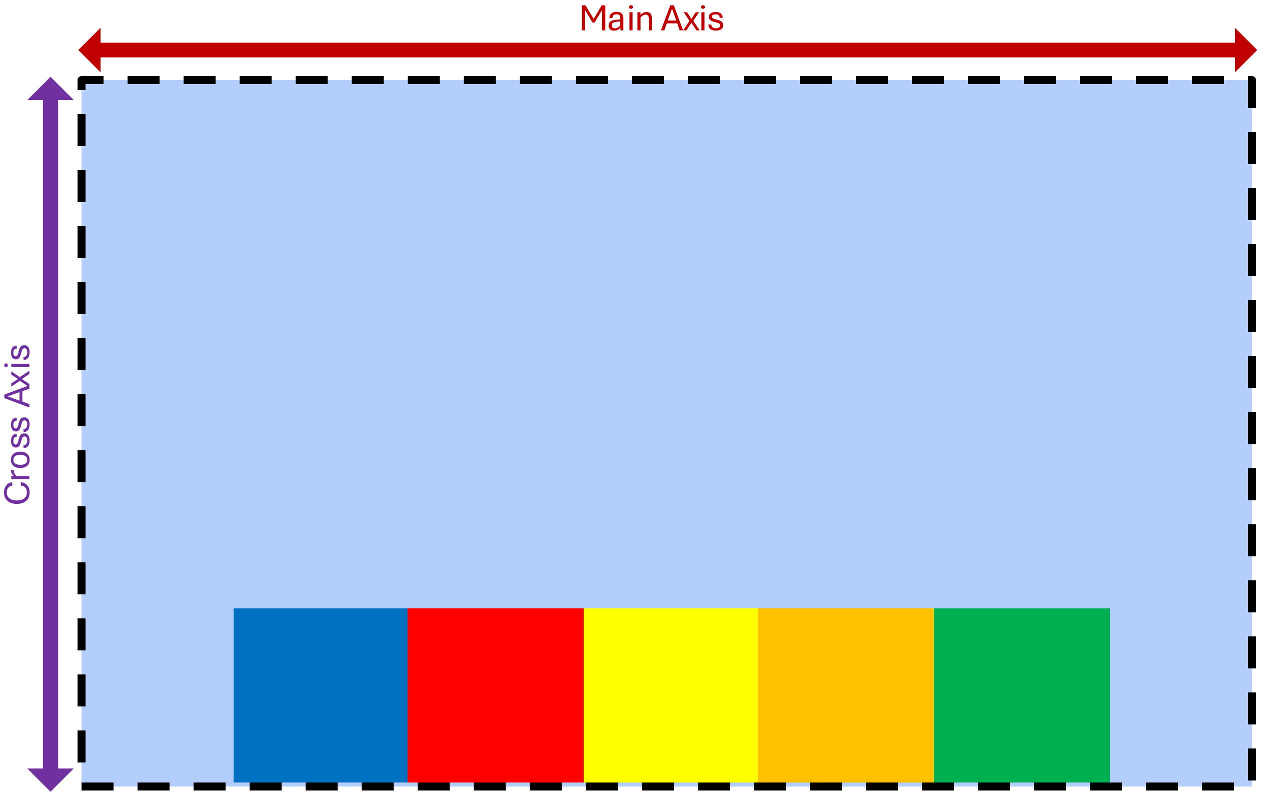
            <div></div>
        </div>
    </div>
</body>
```

```
.container {
    width: 400px;
    height: 200px;
    border: 5px dashed black;
}
```

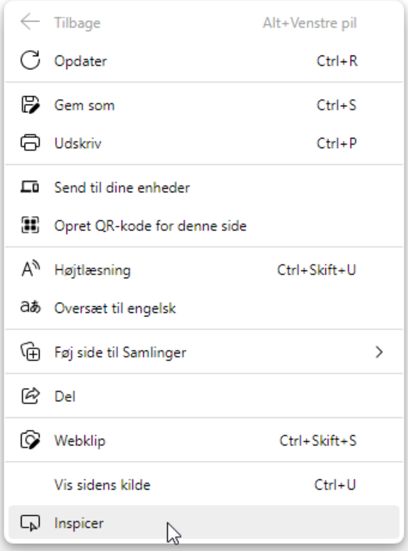
```
.container {
    display: flex;
    justify-content: center;
    align-items: flex-end;
```



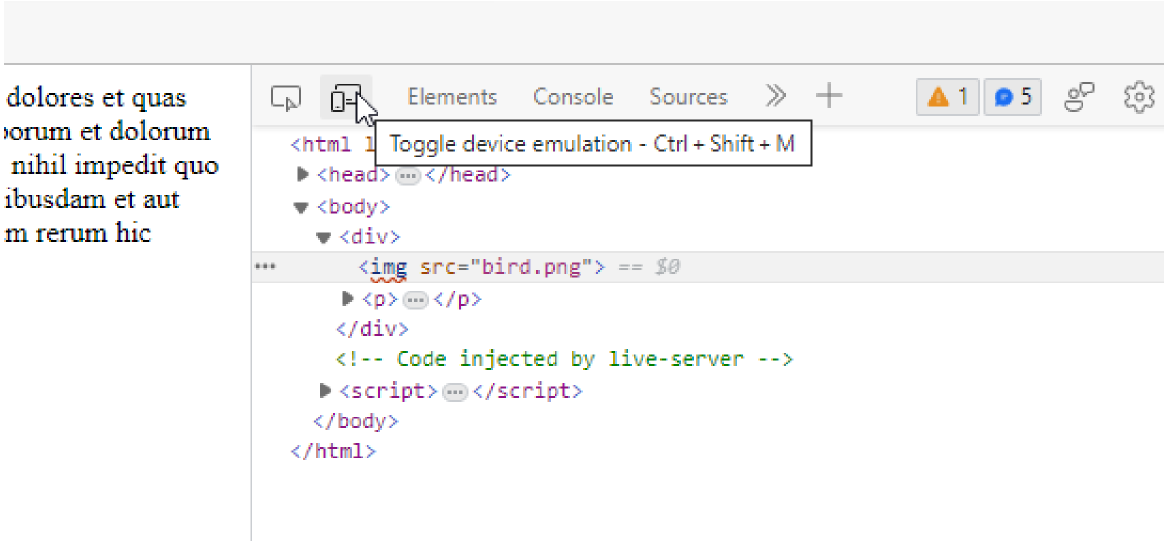
# Developer tools

- Test out responsiveness without actual devices
- Simulate screen size of different devices
- Can also resize window manually to test

# Developer tools



Right click anywhere



```
<html l
 ▶ <head> ⋯ </head>
 ▼ <body>
   ▼ <div>
•••     <img src="bird.png"> == $0
     ▶ <p> ⋯ </p>
     </div>
     <!-- Code injected by live-server -->
   ▶ <script> ⋯ </script>
   </body>
</html>
```

You can see the HTML, highlighted line is what you rightclicked.
The ”Toggle device emulation” is great for finding media breakpoints for tablets/mobiles.