Accessible Webtechnology - Lesson 3

CSS, Responsive Design, Bootstrap

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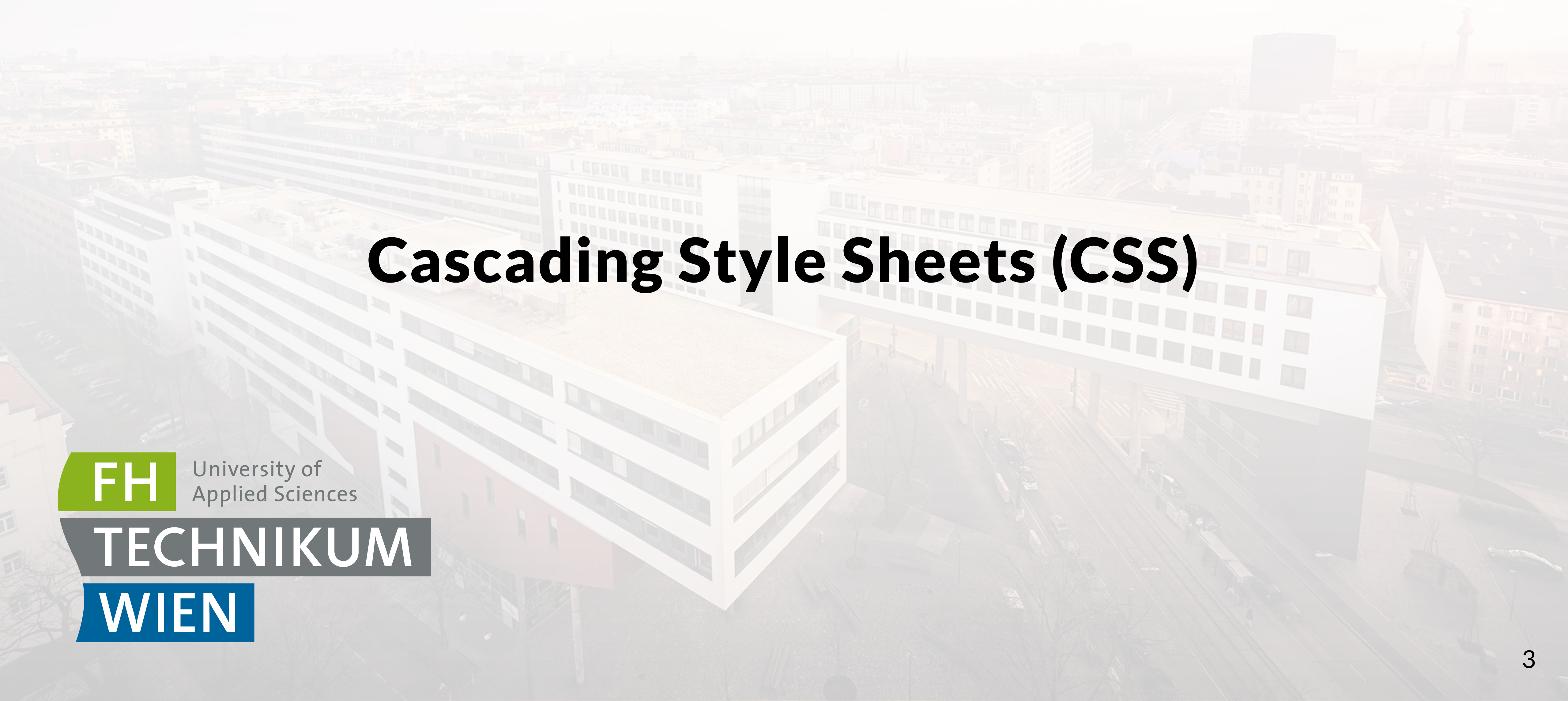
Lesson 3 Overview

- CSS
- Responsive Design
- Bootstrap



Cascading Style Sheets (CSS)

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CSS example

Example of a **CSS rule**:

```css
h1 {
  background-color: yellow;
}
```

- `h1` is a **selector**, it selects to which elements the style should apply (all h1 tags)
- `background-color` is a **CSS property**
- `background-color: yellow` is a **declaration** which defines how the selected elements should look like.

CSS basics

Cascading Style Sheets (CSS) are used for **visual styling** of HTML documents.

Basic general syntax of a **CSS rule**:

```
selector, [[selector-2], ...] {
  property-1: value-1;
  ...
  property-n: value-n;
}
```

- the **selector** defines **which elements** are affected
- the **declarations** define some **visual properties** of the selected elements

CSS selectors

The most important CSS selectors are:

- **element type** e.g. `h1` simply selects all `<h1>` headings
- **class**: `.class-name` selects all elements with the given `class` attribute like `<div class="class-name">`
- **ID**: `#my-id` selects the one element with this ID, e.g. `<ul id="my-id">`
- **descendant**: `div p` selects all `<p>` elements that are a descendant of a `<div>` element, e.g. `<div><p> ... </p></div>`

See a full list of possible selectors e.g. at
https://en.wikipedia.org/wiki/CSS#Summary_of_selector_syntax

Common CSS properties

Some common CSS properties:

- `color` : text color, e.g. `color: red` or `color: #ff0000`
- `background-color` : color of background
- `font-size` : size of font, e.g. `font-size: 14px` or `font-size: 2em`
- `width` and `height` : size of an element, e.g. `width: 100px`
- `border` : border of an element, e.g. `border: 1px solid black`
- `margin` : outside blank space next to the element, e.g. `margin: 1em` or `margin-top: 1em`
- `display` : how elements should be positioned
    - `display: block` : one element per row
    - `display: inline` : elements next to each other in a row
    - `display: flex` : flexible alignment possibilities (in combination with other CSS properties)

CSS: try it for yourself

Use the online editor of **stackblitz.com** in order to try basic CSS for yourself:

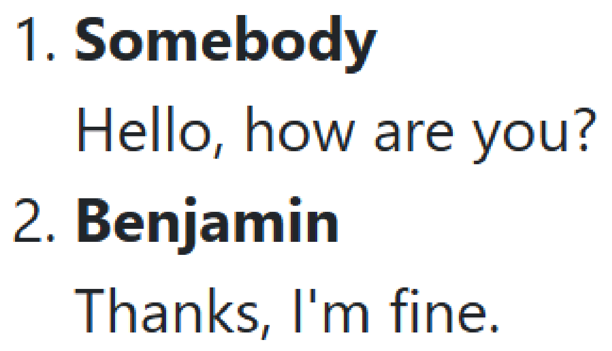
t1p.de/aw-03

> ℹ️ **Info**: You can also open `lecture_3/lecture_examples/3_css/index.html` in VS Code and use the "Live Server" plugin for showing it in the browser (see *Self-study - preparations*).

Style components

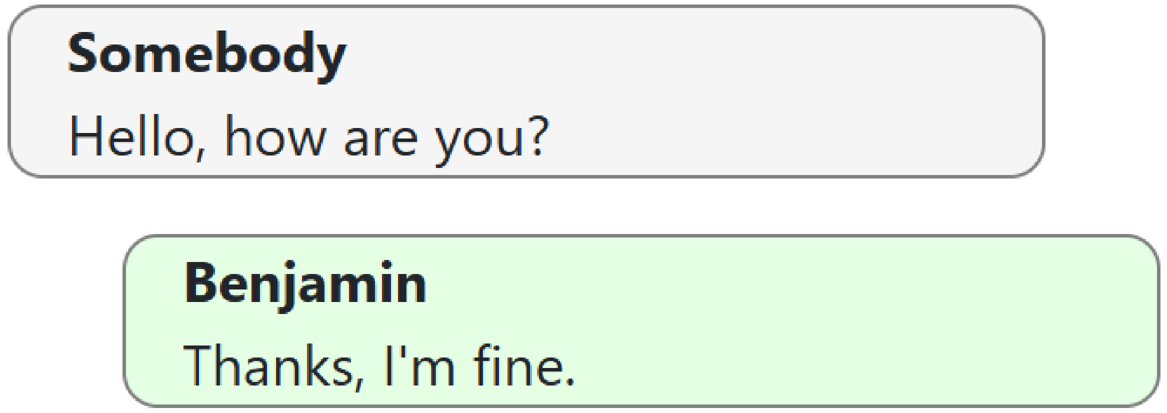
Let's improve the style of our `MessageList` component.

We have:



1. **Somebody**
   Hello, how are you?
2. **Benjamin**
   Thanks, I'm fine.

We want:



Somebody
Hello, how are you?

Benjamin
Thanks, I'm fine.

HMTL:

```
<div>
   <strong>{{ message.sender }}</strong>
   <div>{{ message.text }}</div>
</div>
```

Styling step-by-step (1)

Step 1: make elements selectable via CSS

```
<div id="message-1" class="message">
   <strong>{{ message.sender }}</strong>
   <div>{{ message.text }}</div>
</div>
```

```
#message-1 {
  /* some styles - selection by ID*/
}

.message {
  /* some styles - selection by class*/
}
```

Styling step-by-step (2)

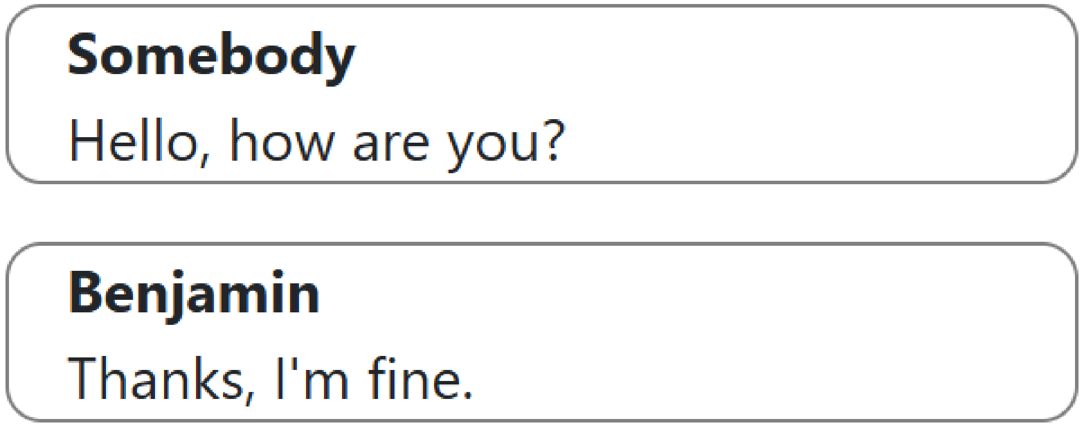
Step 2: add CSS declarations

```html
<div class="message">
   <strong>{{ message.sender }}</strong>
   <div>{{ message.text }}</div>
</div>
```

```css
.message {
  border: 1px solid gray;
  margin-top: 1em;
  border-radius: 10px; /* roundness of borders */
  padding-left: 1em;
  width: 90%;
}

ol {
  list-style-type: none; /* no "1. 2. 3." in list */
}
```

Style components - intermediate result

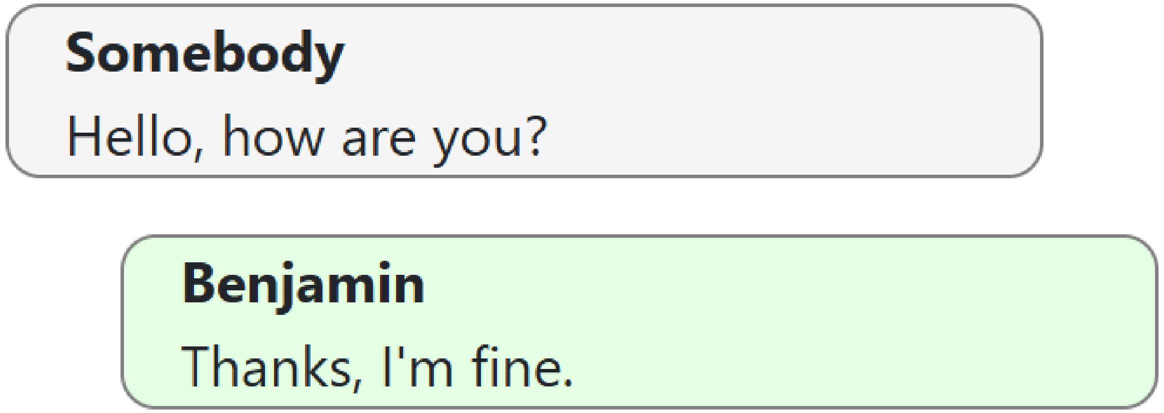
We now have:



Somebody
Hello, how are you?

Benjamin
Thanks, I'm fine.

We want:



Somebody
Hello, how are you?

Benjamin
Thanks, I'm fine.

Styling step-by-step (3)

Step 3: differentiate between senders

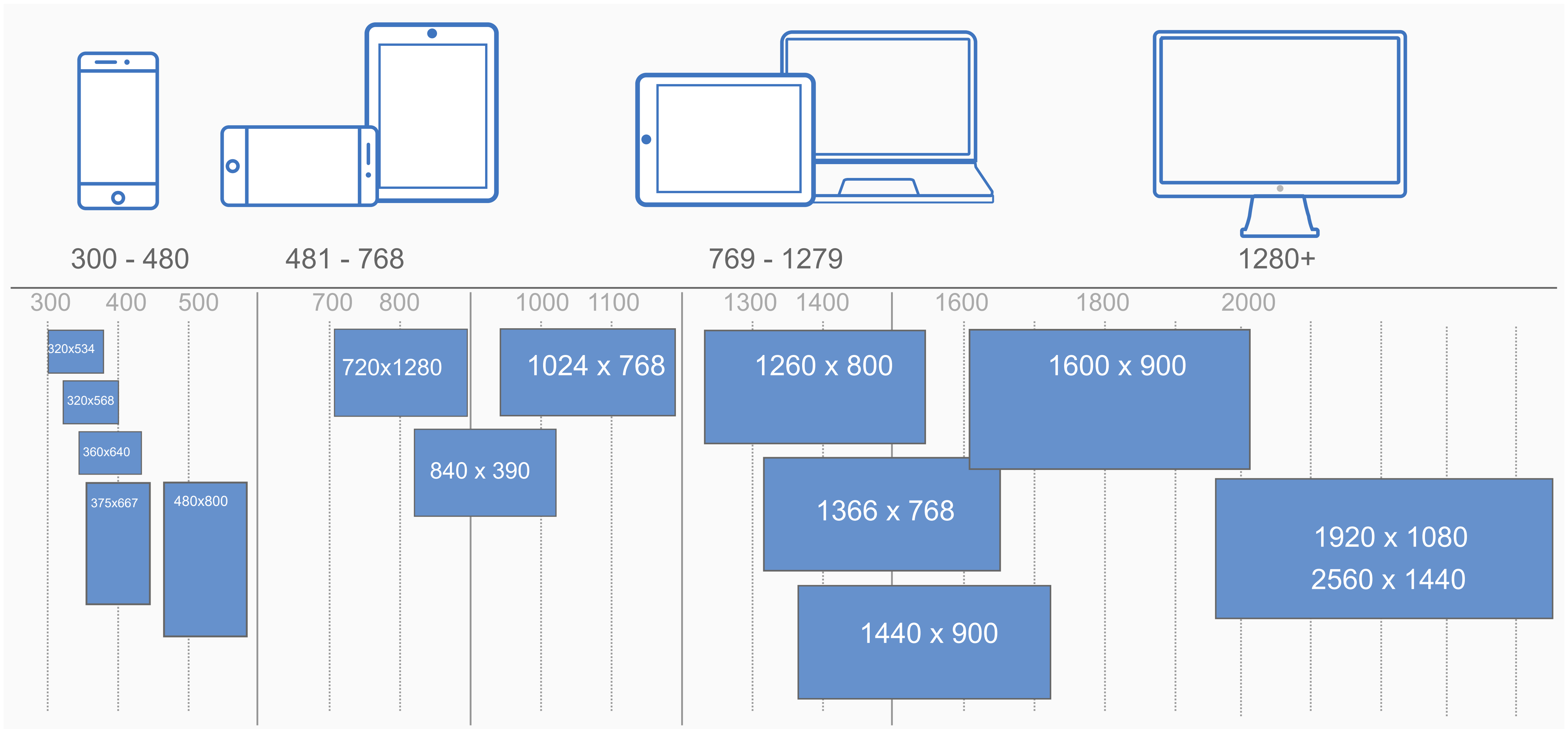
```
<div :class="getClass()">
   <strong>{{ message.sender }}</strong>
   <div>{{ message.text }}</div>
</div>
```

```
getClass() {
  return this.message.sender === "Benjamin" ? "message own-message" : "message other-message";
}
```

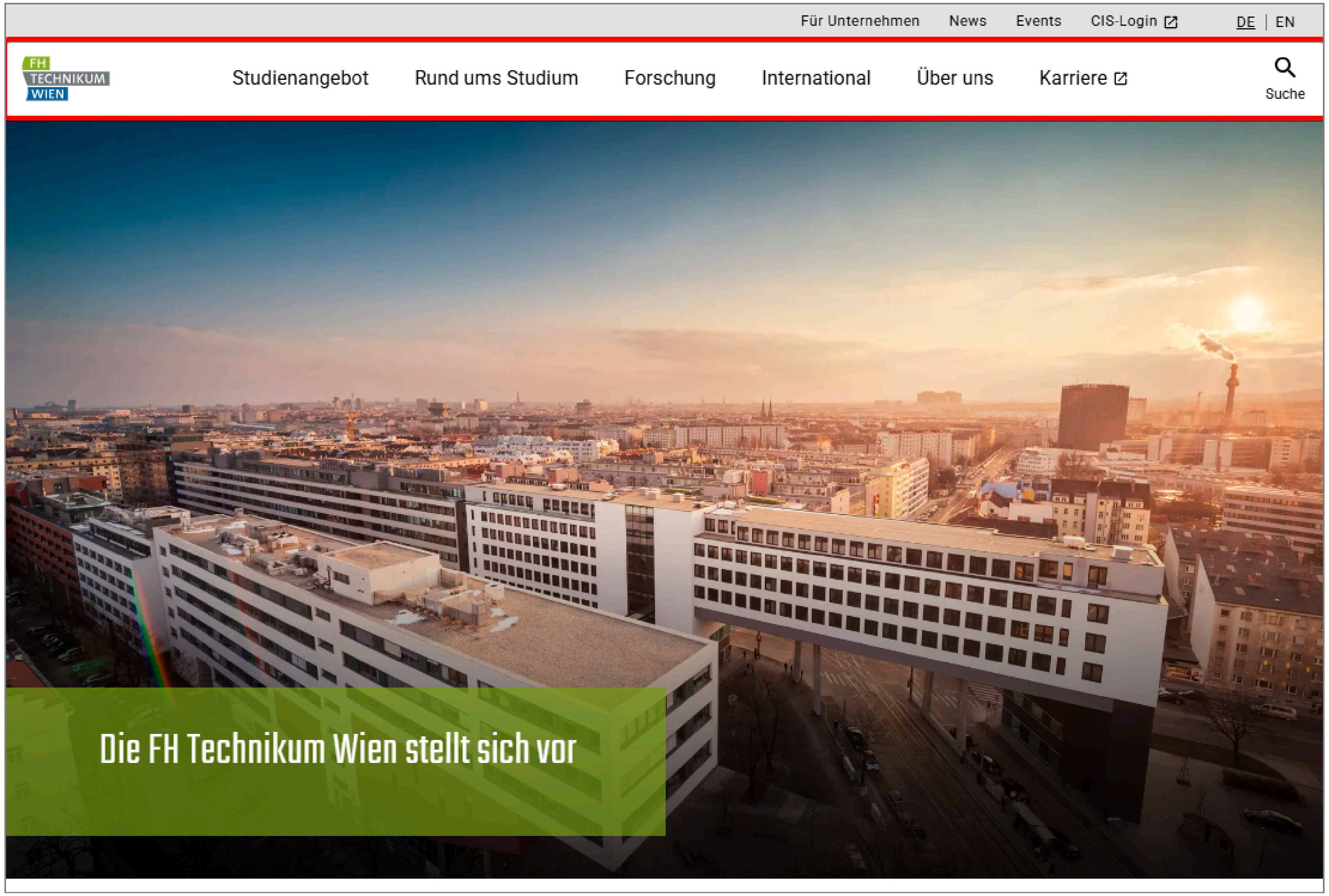
```
.own-message {
    margin-left: 10%;
    background-color: rgb(228, 255, 228);
}

.other-message {
    background-color: whitesmoke;
}
```

Responsive Design

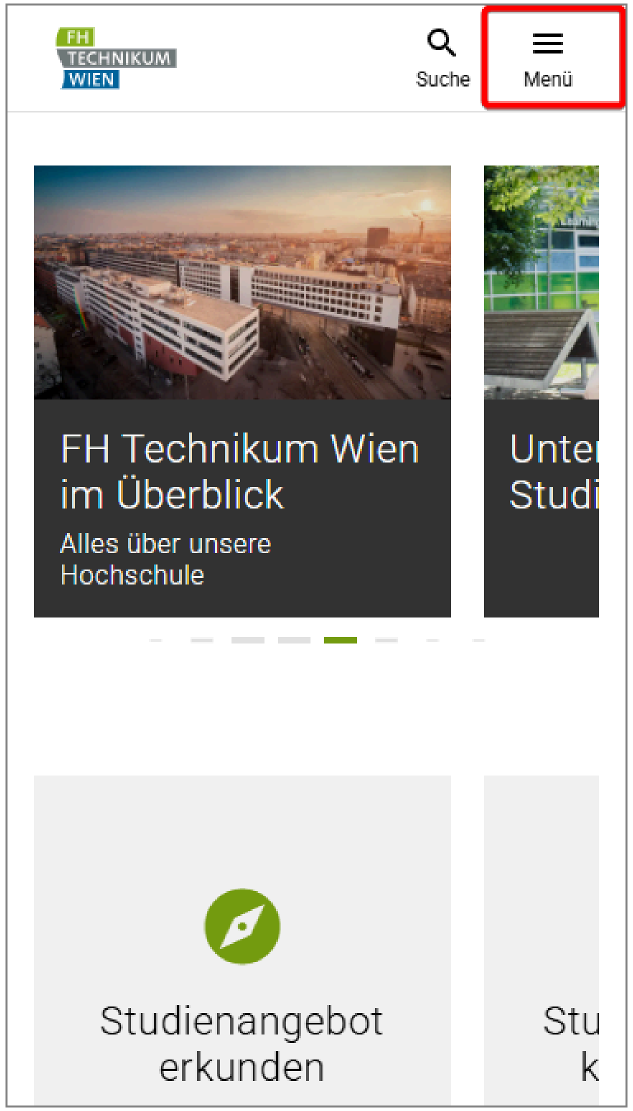
Responsive design - screen sizes

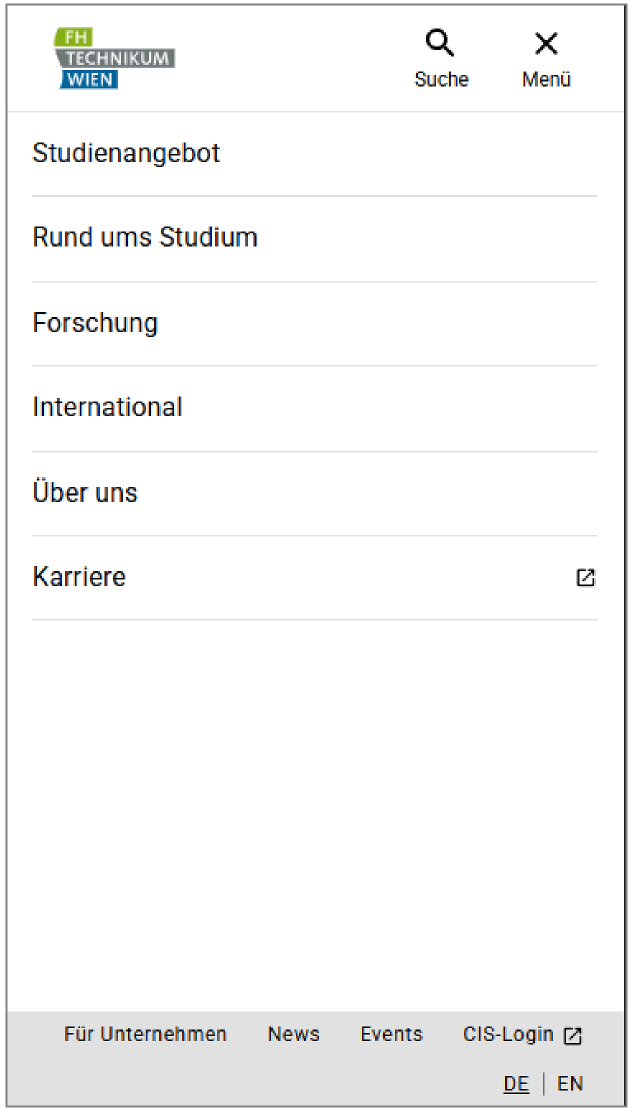


Website (desktop) - navigation bar

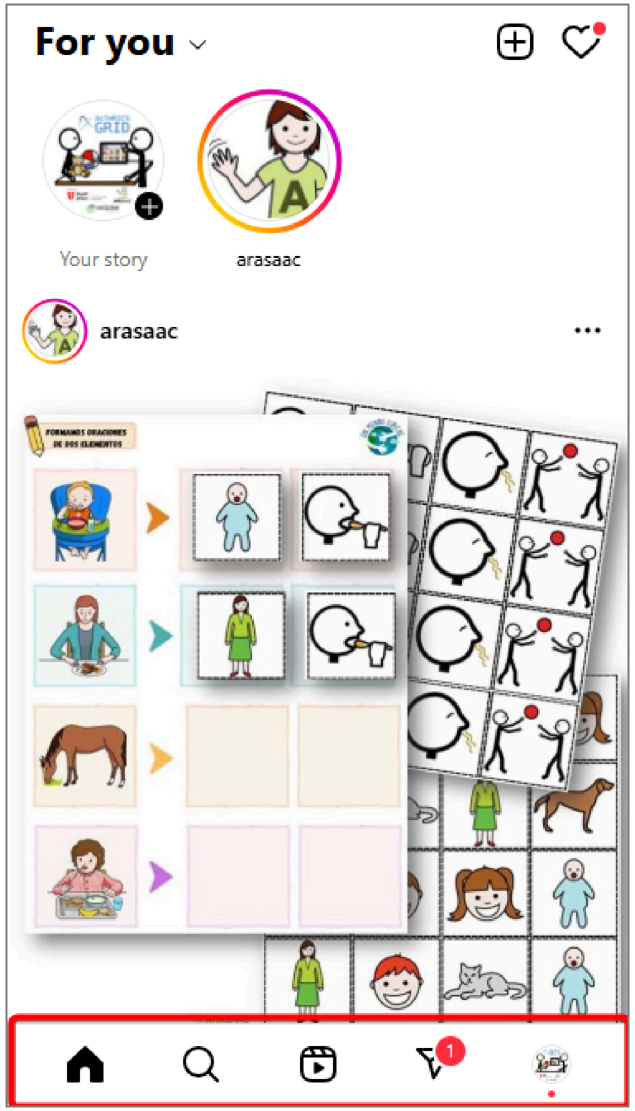


Website (mobile) - burger menu





Mobile app - bottom navigation bar



Responsive design - in your app

- **Responsive design**: modern websites are designed to **dynamically change the design** depending on the **screen size**
- UI Frameworks are a great help, e.g. *Bootstrap*, see https://getbootstrap.com/

Proper responsive design is **beyond the scope of this lecture**. Do this for your project:

- select **one screen size** (desktop or mobile)
- select **one menu style** (see last slides)
- base your design on these decisions
- see examples for different menus in `lecture_3/example_solution`
  - `indexNavbar.html` : example of a functional navbar menu (mobile and desktop)
  - `indexBottomNav.html` : example of a functional bottom navigation menu (mobile)

Bootstrap

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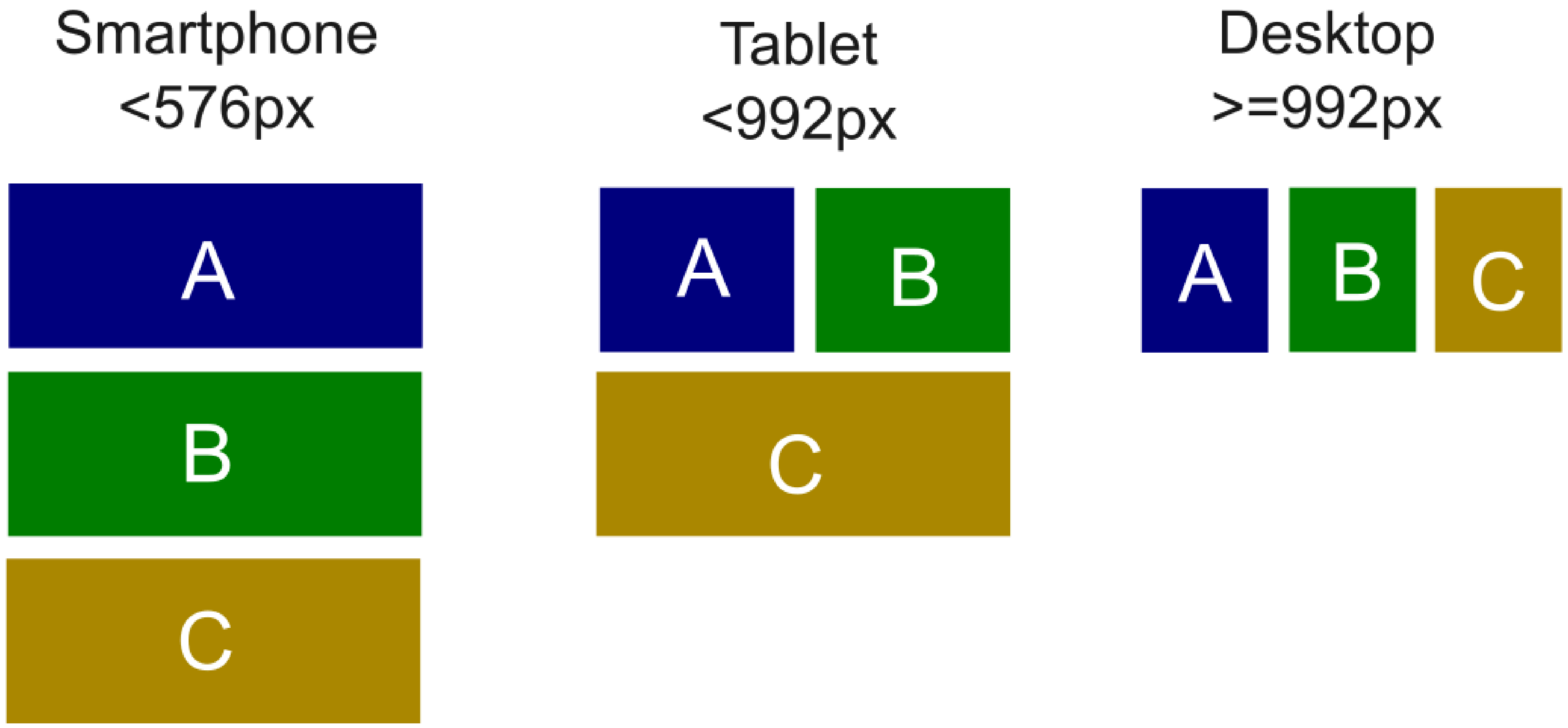
Responsive design with bootstrap



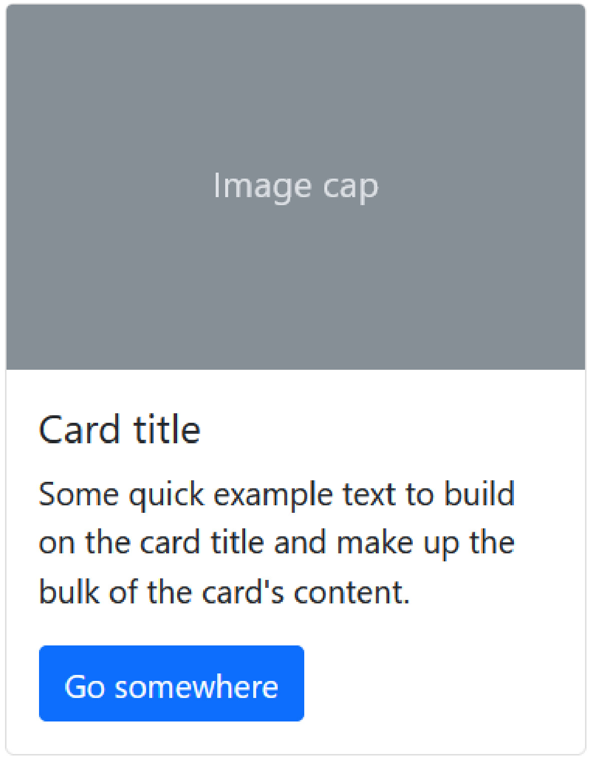
See bootstrap Grid system documentation: https://getbootstrap.com/docs/5.0/layout/grid/

Bootstrap components

Bootstrap offers predefined components, which can be used, e.g. *Card*.

HTML:

```
<div class="card">
  <img src="..." class="card-img-top" alt="...">
  <div class="card-body">
    <h5 class="card-title">Card title</h5>
    <p class="card-text"> Text ... </p>
    <a href="#" class="btn btn-primary">Go ...</a>
  </div>
</div>
```



Some quick example text to build on the card title and make up the bulk of the card's content.

See bootstrap component docs: https://getbootstrap.com/docs/5.0/components/card/

Bootstrap helpers

There are **helper classes** in bootstrap which can be useful to use, e.g. for spacing:

- `m` : margin, e.g. `m-1` , `m-2` , ... for spacing around the element
- `mt` : margin-top, e.g. `mt-1` , `mt-2` , ...
- `mr` : margin-right
- `mb` : margin-bottom
- `ml` : margin-left
- `p` : padding, e.g. `p-1` , `p-2` , ... for spacing within the element (to the border)
- `pt` , `pr` , `pb` , `pl` ... like for margin

See docs: https://getbootstrap.com/docs/5.0/utilities/spacing/

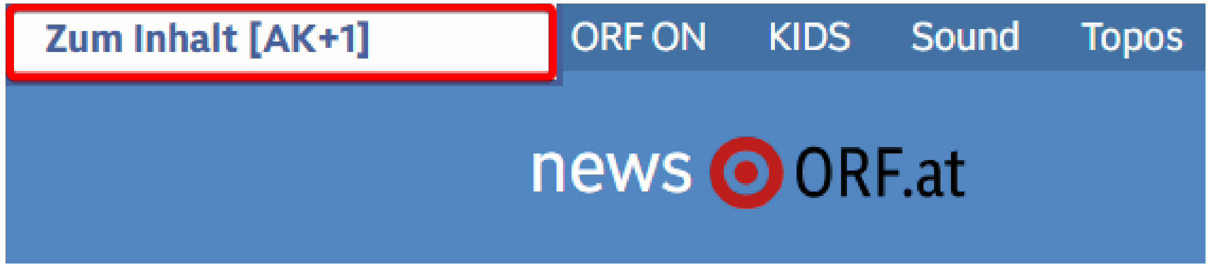
Bootstrap - screenreader only

For accessibility sometimes its helpful to have some code **only visible for screenreaders**, not for sighted users.

Bootstrap offers the classes `visually-hidden` and `visually-hidden-focusable` for that purpose.

```
<h2 class="visually-hidden">Title for screen readers</h2>
<a class="visually-hidden-focusable" href="#content">Skip to main content</a>
```

Try to press `Tab` key on websites and you'll sometimes find these *skip links*:



See docs: https://getbootstrap.com/docs/5.0/helpers/visually-hidden/