ISMLA Session 10 - CSS/Bootstrap/GWT

Björn Rudzewitz

Tübingen University

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Plan

1. Motivation

2. Bootstrap
   - Using Bootstrap
   - Grid Design
   - Buttons
   - Badges
   - Forms
   - Alerts
   - Cards

3. Icons

Motivation

industrial-strength:

- going beyond functional proof-of-concept prototypes
- moving from applications developed by experts in one field (e.g. compuational linguist for NLP) to real applications/**products** by a team of different experts
- one *very* important factor: user interface/usability

Motivation

Users/customers expect from web application:

- modern, clean look (not e.g. '90s-style')
- scalable interface supporting all resolutions and display sizes, scalable components (e.g. no scrolling to the right)
- mobile-optimized variant, responsive design
- touch device support and common touch gesture support
- certain usage conventions, e.g. back button in top left corner or navigation menu at the top of page (not bottom)
- ...

Motivation

How to realize these functions ?

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- idea 1: write CSS code to provide style

Motivation

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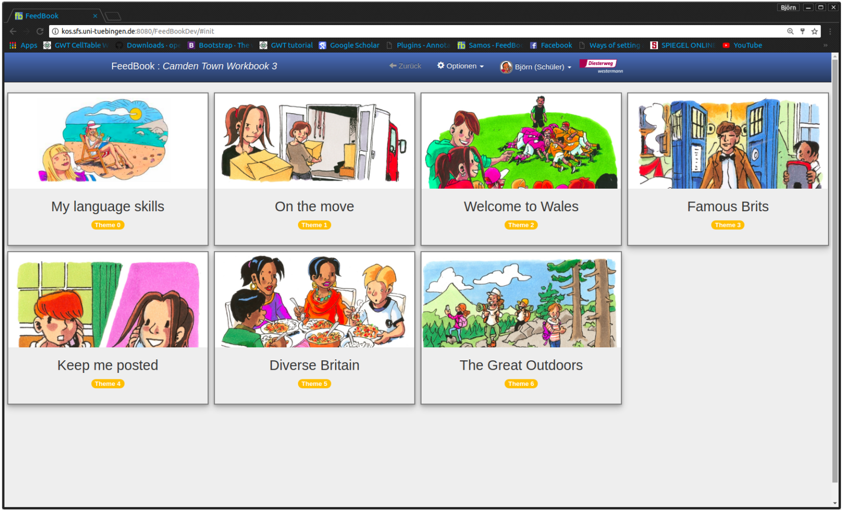
- idea 1: write CSS code to provide style
- but: how to make deeper changes, e.g. change of menu bar on next slides ?

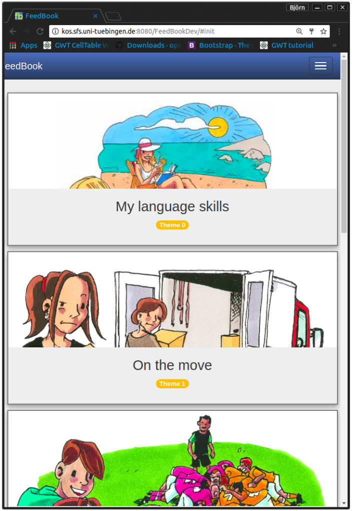
Example



FeedBook : *Camden Town Workbook 3*

My language skills Theme 0	On the move Theme 1	Welcome to Wales Theme 2	Famous Brits Theme 3
Keep me posted Theme 4	Diverse Britain Theme 5	The Great Outdoors Theme 6	

Example


FeedBook
Björn
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My language skills
Theme 0
On the move
Theme 1

Motivation

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- idea 2: write CSS code to provide style *and* write code for deeper changes

Motivation

How to realize these functions ?

- idea 2: write CSS code to provide style *and* write code for deeper changes
- but: how to separate frontend from function then ? How can we write the code for layout changes ?

→ write JavaScript/Java code compiled to JavaScript

Motivation

How to realize these functions ?

[1] but possibility

Motivation

How to realize these functions ?

- idea 3: let someone else worry about it

[1] but possibility

Motivation

How to realize these functions ?

- idea 3: let someone else worry about it
- fortunately, there are libraries that do almost all the work for us
- libraries providing both CSS and JavaScript
- no need[1] to write own CSS rules and functions, sufficient to assign CSS classes to elements
- classes have associated CSS rules and JavaScript refences for behavior

[1] but possibility

Bootstrap

- one instance (among many): **Bootstrap**[2]
- open–source, free (private/commercial) component library
- one of the most widely used component libraries in the world/in industry
- mobile–first, responsive web design

the following Bootstrap discussion is based on the official documentation linked at the end of the slides

[2] https://getbootstrap.com/ (last accessed 2017-12-18)

Installation

- HTML5 doctype declaration for complete document

Installation

add in HTML head element:

```
<link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/4.0.0-beta.2/css/bootstrap.min.css">

<meta name="viewport" content="width=device-width, initial-scale=1,
shrink-to-fit=no">
```

Installation

add scripts in this order before </body>:

```
<script src="https://code.jquery.com/jquery-3.2.1.slim.min.js"></script>
<script src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.12.3/umd/popper.min.js"></script>
<script src="https://maxcdn.bootstrapcdn.com/bootstrap/4.0.0-beta.2/js/bootstrap.min.js"></script>
```

Installation

- alternative to including references to Bootstrap server: download and package locally
- allows to modify the source code if necessary (but: override also possible depending on file inclusion order)
- modifying Bootstrap source files is considered undesirable

Using Bootstrap

- primary use case in this seminar: using Bootstrap in conjunction with GWT
- Bootstrap provides base CSS and behavior
- task of (GWT) developer: add pre-defined classes to elements

Using Bootstrap

- Bootstrap is defined mobile-first
- first (nowadays realistic) assumption: user uses mobile device
- Bootstrap provides "responsive breakpoints" based on viewport dimension
- allows to serve different layouts depending on viewport of user

Grid Design

- Bootstrap offers grid system for easy layout definition on different screens
- idea: 12 columns
- for each screen size, define how many of the 12 columns an element takes (implicitly or explicitly)
- 5 responsive breakpoints for columns: xs, sm, md, lg, xl
- breakpoint here means “this or bigger”

Grid Design

Implementation:

- define div element with class `container` (fixed width) or `container-fluid` (full width of viewport) as wrapper
- for each row, add div with class `row`
- then for each column/element, define div with class, and optionally size of column, e.g.
  - `col`
  - `col-6`
  - `col col-lg-2`
  - `col-md-auto`

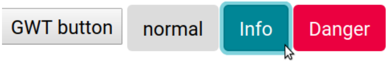
Grid design

see GWTBootstrapDemo project, UiBinder GridDemo

learn everything about the Grid system at
http://getbootstrap.com/docs/4.0/layout/grid/

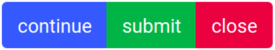
Buttons

- modern, material design look for buttons
- add class `btn`, and if desired class `btn-{primary, secondary, success, danger, warning, info, light, dark, link}`
- size can be controlled by additionally adding `btn-lg`, `btn-sm`, etc.



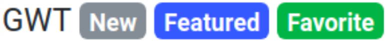
Buttons

- buttons grouped in div with class `btn-group` occur on one line



Badges

- spans can be augmented with `badge` class to have a badge-like appearance
- contextual modifiers as for buttons, `badge-primary`, `badge-warning`, etc.

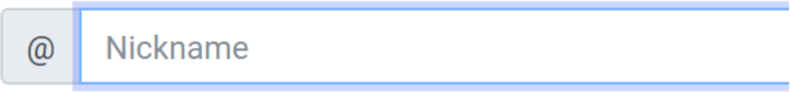


GWT New Featured Favorite

Forms

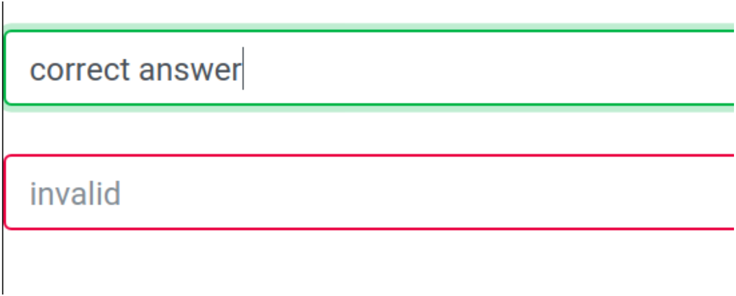
- forms can be augmented and customized; default: add `form-control` class
- forms can be put into groups with other elements

```
<div class="input-group">
<div class="input-group-addon">@</div>
<input type="text" class="form-control" placeholder="Nickname"></input>
</div>
```



Forms

- validation: add `is-valid` or `is-invalid` option



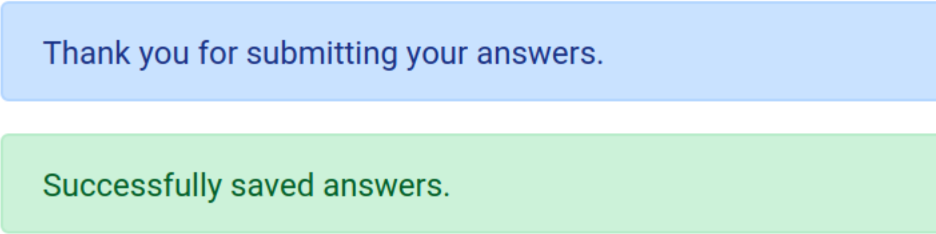
correct answer

invalid

Alerts

- system messages of different type
- div with class alert alert-{primary, success, warning}, ...

```
<div class="alert alert-success" >
       Successfully saved answers.
</div>
```



Thank you for submitting your answers.

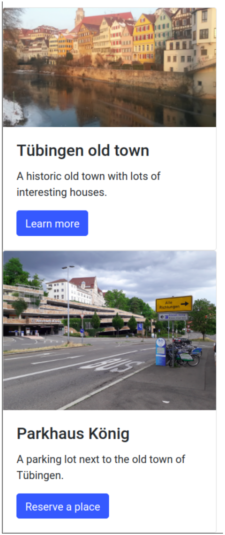
Successfully saved answers.

Cards

- cards as a means for presenting previews of contents or offering selections

```
<div class="card" style="width: 20rem;">
<img class="card-img-top" src="neckar.jpg" alt="a road"></img
<div class="card-body">
<h4 class="card-title">Tbingen old town</h4>
<p class="card-text">A historic old town with lots of interest
<a href="#" class="btn btn-primary">Learn more</a>
</div>
</div>
```

Cards



Tübingen old town

A historic old town with lots of interesting houses.

Parkhaus König

A parking lot next to the old town of Tübingen.

Icons

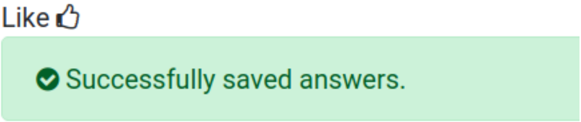
- icons as a way to easily display functions to user
- very popular free framework: Font Awesome[3]
- download distribution, then link stylesheet

```
<link rel="stylesheet" href="path/to/font-awesome/css/font-awesome.min.css">
```

[3] http://fontawesome.io/ (last accessed 2017-12-21)

Font Awesome

```
<i class="fa fa-thumbs-o-up" aria-hidden="true"></i>
```



Like 👍

✓ Successfully saved answers.

Web Design

- presentation covered a small part of what modern frontend libraries can offer
- many more aspects wait to be explored

Exercise

see handout

References

home page:
https://getbootstrap.com/

documentation:
https://getbootstrap.com/docs/4.0/getting-started/introduction/

examples/themes:
https://getbootstrap.com/docs/4.0/examples/

tutorial:
https://www.w3schools.com/bootstrap/bootstrap_get_started.asp

(all links last accessed 2017-12-18)