Spørgsmål 5

Question

Explain and show examples of how to develop a web app with responsive design, and show use of CSS preprocessors and build tools.
Explain and show examples of how to test a React App with Jest.

Responsive design

1. Responsive design referes to an application design that it visually pleasing and results in a better user experience.
2. Responsive design can as an example be, when a menu changes format depending on the size of the screen. So if a screen gets under a specific size the menu collapses and turns into a burger menu.
3. A good practice is to develop the application's design with a mobile first approche.
4. The design of a website changes much more in the smaller viewport scenarios that in the big viewport scenarios, and a lot of work is done remotly on the go.
5. Important to use a container to create some space between the content and the borders of the page
6. Important guidelines to follow
    1. Our pages should render legibly at any screen resolution
    2. We mark up one set of content, making it viewable on any device
    3. We should never show a horizontal scrollbar, whatever the window size

Media Query

media query is a part of CSS3 which enables a functionality similar to that of an if statement. Media query looks at the viewport size and determines wether the containing css should be applied or not. ex. everything above 768px will have 48px

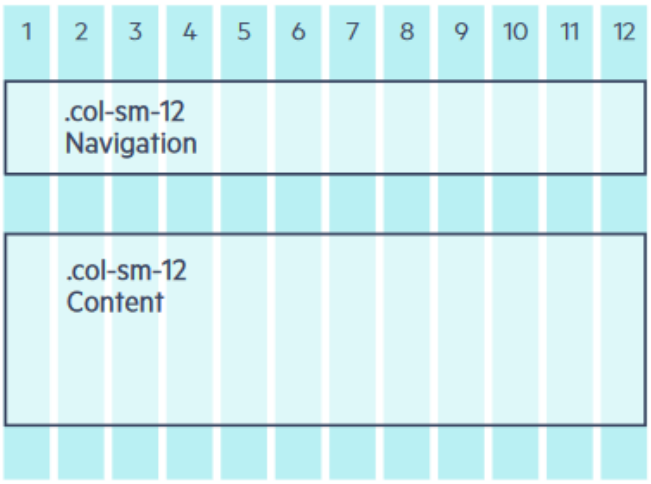
```
@media only screen and (min-width: 768px) {
        .hero-text { font-size: 48px; }
}
```

Grid system

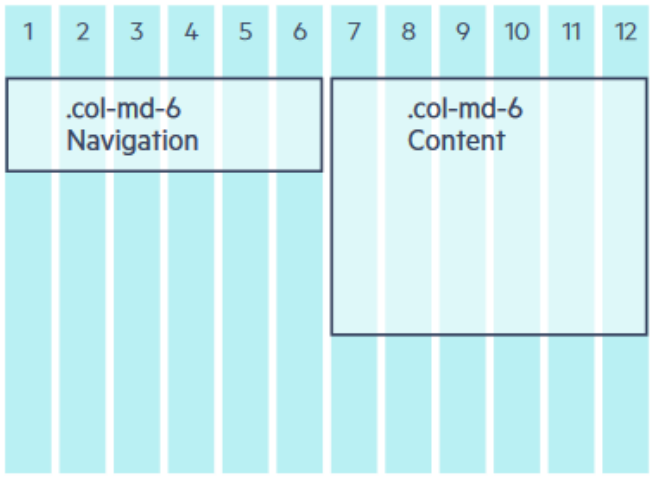
A fluid grid system is the bread and butter of responsive design and most of the frameworks like bootstrap and foundation. In bootstrap there is talk about a 12 column system. Which are not physical

columns but a way to set the width into perspective.

```
<div class="col-sm-12 col-md-6 col-lg-4">
    <!-- some navigation -->
</div>
<div class="col-sm-12 col-md-6 col-lg-8">
    <!-- some content -->
</div>
```



Small devices, tablets (≥768 px)



Medium devices, tablets (≥768 px)

The media query is also in use here but it's only visible in the bootstrap sourcecode, so it's not important to focus on it as a developer.

Flex Containers

1. Is a CSS3 layout method designed for one-dimensional layout
2. Is a flexible, float-free CSS layout method that accommodates different screen sizes and display devices
3. Allows the browser to alter the width or height of elements to best fill the available space on any display device
4. A flex container is the box generated by an element with a display property of flex or inline-flex
    1. Children of a flex container are called flex items and are laid out using the flex layout model
    2.

CSSPreprocessers

1. **S**yntactically**A**wesome**S**tyle**s**heets
2. Sass is a scripting language that is compiled into Cascading Style Sheets (CSS)
3. It's called a CSS Preprocesser language
4. Enables developer to use helpful features such as variables, inheritance and mixin
    1. mixin is a way to write css in a block and refer to it later. Mnimises redundant CSS
    2.

```scss
@mixin table-base {
  th {
    text-align: center;
    font-weight: bold;
  }
  td, th {padding: 2px}
}

#data {
  @include table-base;
}
```

Compiles to

```scss
#data th {
  text-align: center;
  font-weight: bold; }

#data td, #data th {
  padding: 2px; }
```

3. inheritance is a way to extend and reuse css that is already written.
4.

```scss
/*Extend/Inheritance*/
.message {
  border: 1px solid #ccc;
  padding: 10px;
  color: #333;
}

.success {
  @extend .message;
  border-color: green;
}

.error {
  @extend .message;
  border-color: red;
}

.warning {
  @extend .message;
  border-color: yellow;
}
```

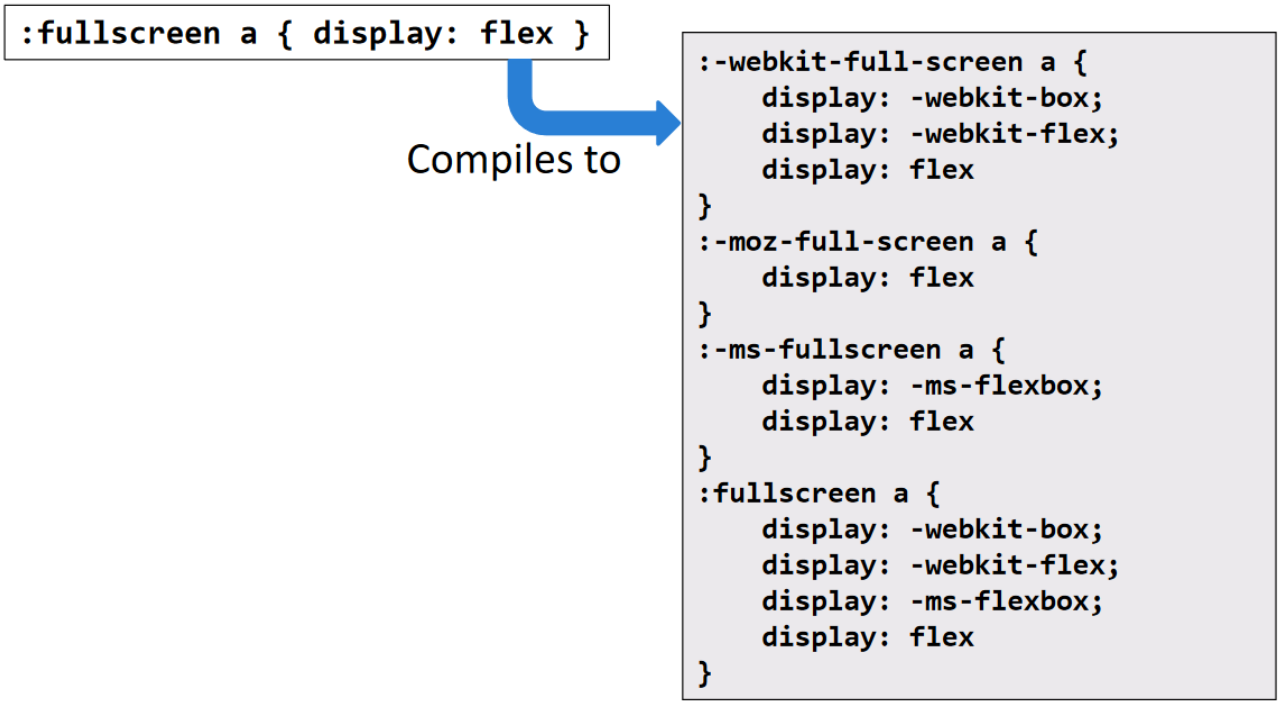
```scss
/*Extend/Inheritance*/
.message, .success, .error,
.warning {
  border: 1px solid #ccc;
  padding: 10px;
  color: #333; }

.success {
  border-color: green; }

.error {
  border-color: red; }

.warning {
  border-color: yellow; }
```

5. It is possible to make "partial" sass files that is important into other sass files.
    1. a partial file is defined by leading underscore before the name, which telsl the compiler NOT to generate a CSS

BuildTools

1. Autoprefixer
    1. For browsers like firefox and safari, there are prefixes that can be added to the CSS that makes the CSS fit the browser better

2. Autoprefixer, makes it possible to write normal CSS and it will then apply prefixes on to the CSS to make it fit the different browsers better
3. It's a postprocessor of CSS which makes it compatible with preprocessors like SCSS and SASS
4.



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2. Prettier
    1. By using prettier it's possible to configure the project to keep a consistent style.
    2. It is done by creating a config file that defines things such as double quotes vs single quotes, tabs vs spaces or how much an indentation is(1 space or 2 spaces)
    3. it's possible to make it fix these changes automatically whenever the document is saved.
3. grunt & gulp
    1. they are task runners and makes it easy to automate process like autoprefixer or linting

JEST TEST IN REACT

- Testing library developed by facebook engineeres
- Can be used as testrunners
    - Testrunners enables a developer to test multiple tests at once and provides a better log for the test status
- works with any JS codebase but suited for React due to react and Jest being developed by facebook
- alternatives(Mocha, Jasmine, Cypress)
- By doing "Shallow" testing you make Jest ignore the embedded components within the component that is under test.
- When testing it's important to test from the perspective of "How will this component be used"

- Unit tests focus on individual units of functionality. For example, say you have a utility method for fetching new posts from the server. A unit test will focus only on that one function. It doesn't care about anything else. Like components, these tests allow for refactoring and promote modularity.
- Service tests focus on bundles of functionality. This part of the "testing spectrum" can include a variety of granularities and focuses. The point, though, is that you're testing things that aren't at the highest level (see integration tests, next) or the lowest levels of functionality. An example of a service test might be something like a tool that uses several units of functionality but is not itself at the level of an integration test.
- Integration tests focus on an even higher level of testing: the integration of various parts of an application. They test the way that services and lower level functionality come together. Typically, these tests test an application through its user interface, not through the individual code behind the user interface. These tests may simulate clicks, user input, and other interactions that drive the application.
- Enzyme give the oppertunity to test the insides of a component(states and methods)
  SRC: https://blog.logrocket.com/testing-state-changes-in-react-functional-components/
  Show example