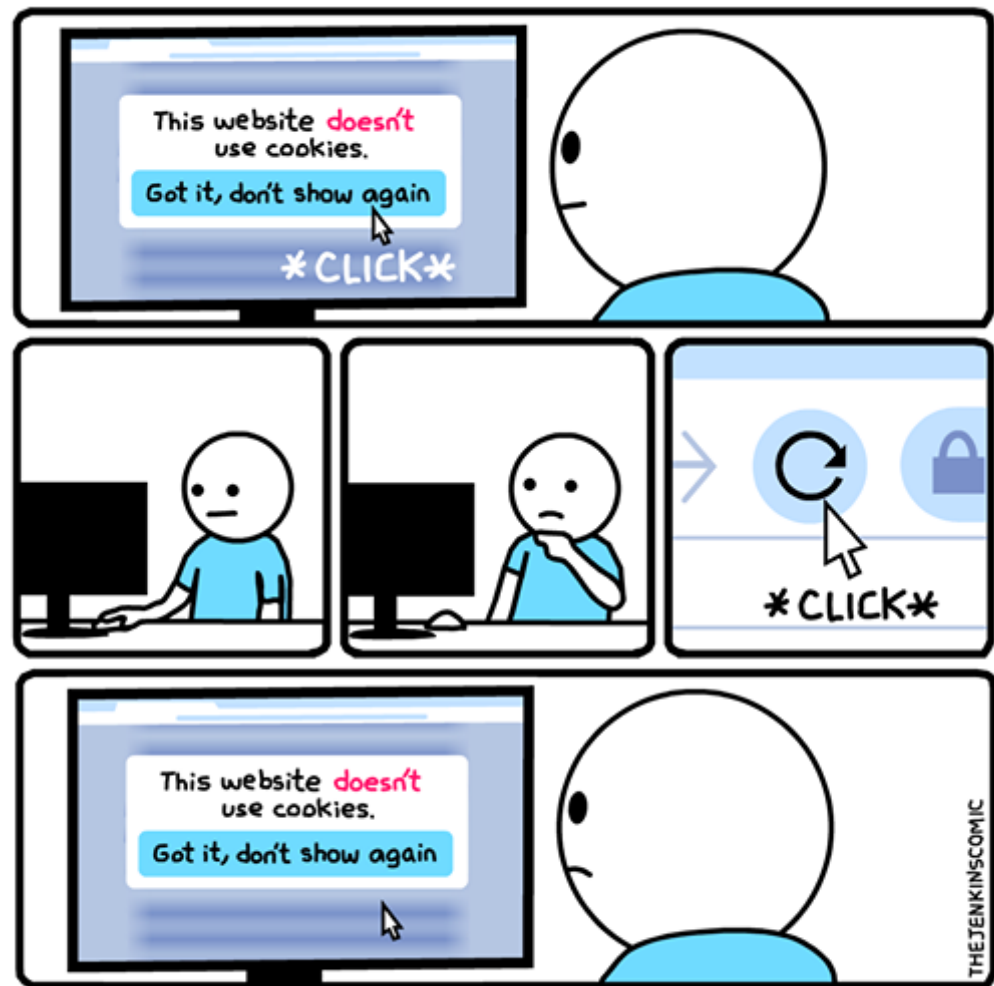


Cookies, Profiling & Accessibility

Web Programming 2021-2022

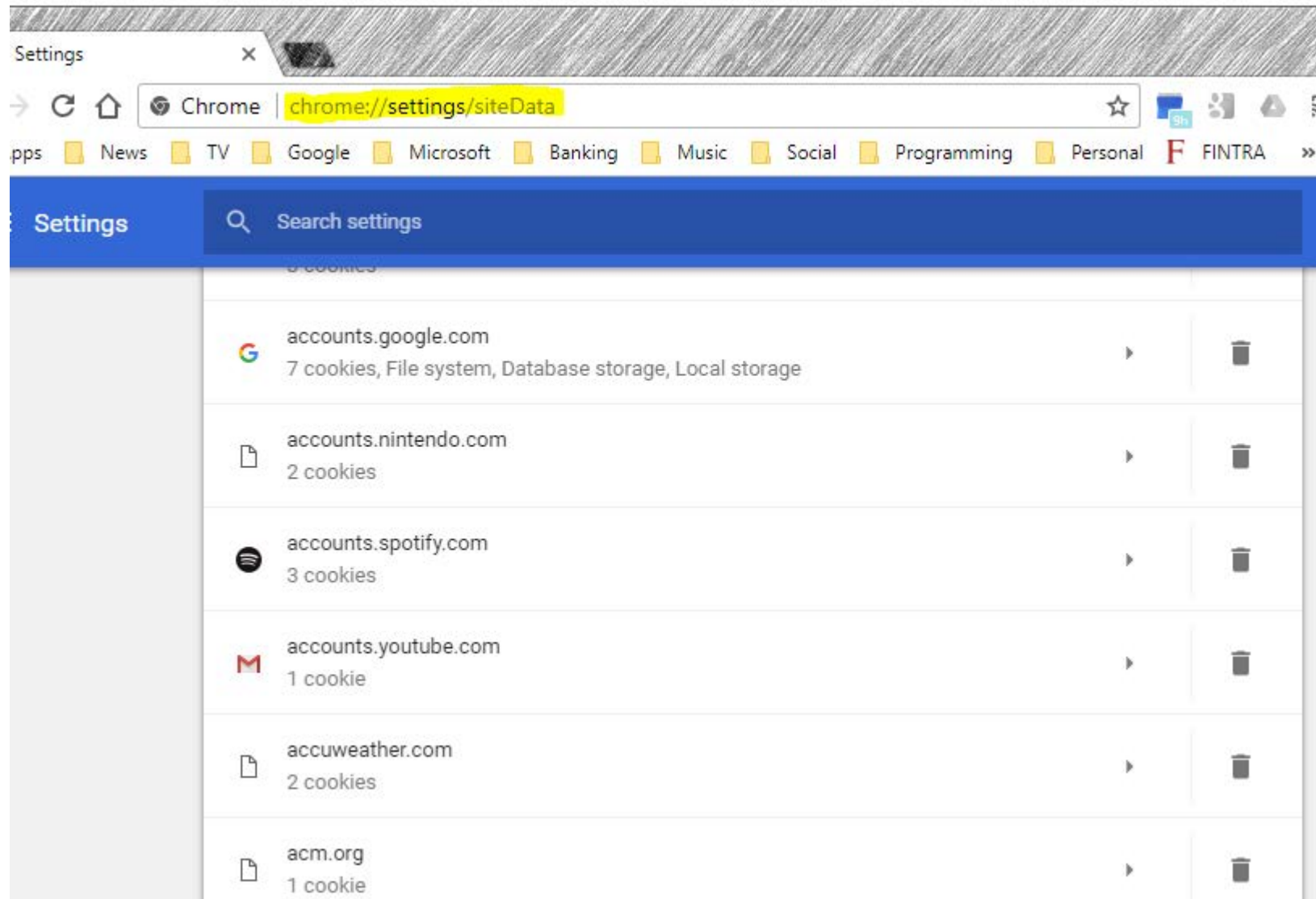


Cookies

- Small pieces of information websites store on your computer
 - stored and managed by your web browser
 - websites are only allowed to look at their own cookies
- Used for 'remembering' information across different web pages
 - user's preferences (e.g., language)
 - login state (basis for access control)
 - provide personalized content (e.g., recently browsed products)
 - advertising and tracking (e.g., recommending products)
 - websites using scripts from advertising network can be tracked by advertising network by comparing values of cookies



Managing your Browser's Cookies



Cookies: client side

- similar to GET & POST parameters
- initially created by the web server
- stored at the client (web browser)
 - automatically attaches cookie to every request
- example in PHP
 - use before any output

```
// remember user's preferences
```

```
setcookie( "lang", "nl" );
```

```
/* expire at the end of the session */
```

```
setcookie( "wepr", "DIFF", time( ) + 3600 );
```

```
/* expire in 1 hour */
```

```
// ... later, on another page
```

```
if ( $_COOKIE["lang"] == "nl" )
```

```
    echo "Welkom!";
```

```
// updating cookie
```

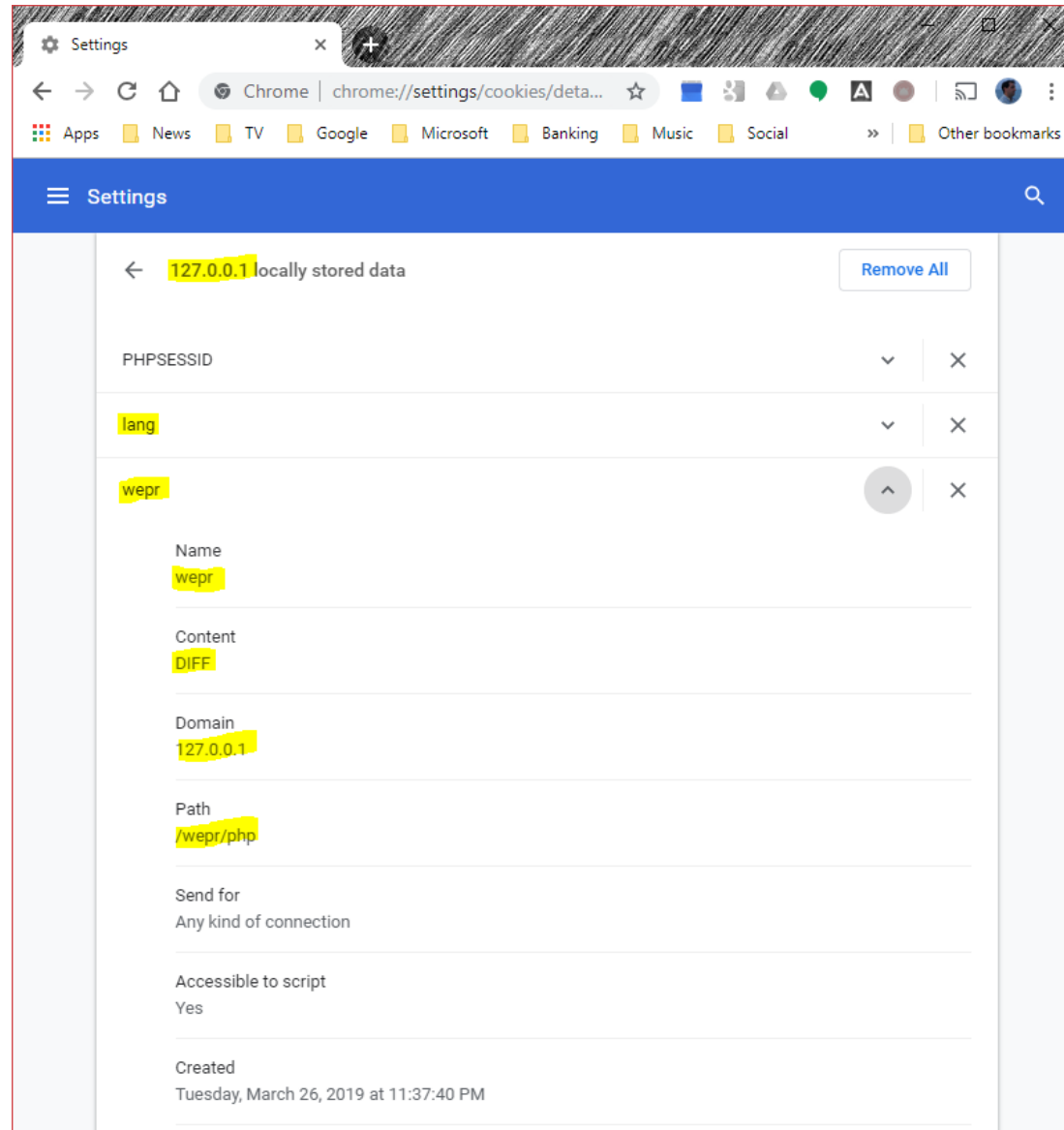
```
setcookie( "lang", "fr" );
```

```
// delete a cookie
```

```
setcookie( "wepr", "DIFF", time( ) - 1 );
```

```
/* set expiration time in the past */
```

Cookies: client side



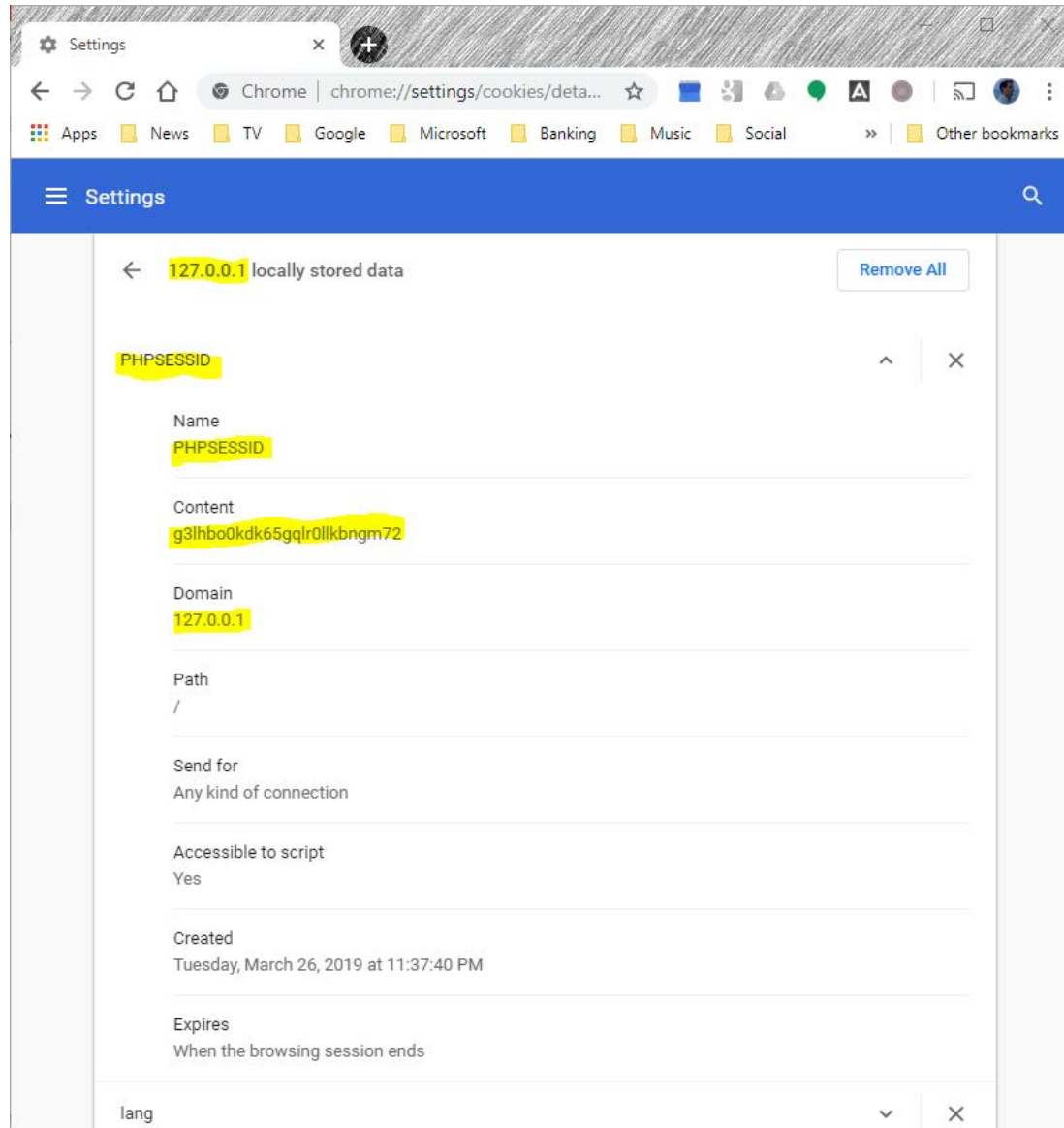
Cookies: session

- Remember: cookies are stored at the client side!
 - can be read and modified by the user
 - never store any sensitive data, only identifiers for accessing the data
- use sessions for sensitive data
 - only a user key is stored at the client side to identify the session
 - information itself is stored on the server
 - session variables default last until the user closes the browser
 - use before any output

```
session_start( );           // start new session
$_SESSION["isAdmin"] = "true";

// ... later, on another page
session_start( );           // resume existing session
if ($_SESSION["isAdmin"] == "true")
    include( "adminMenu.php" );
```

Cookies: session



Profiling & Optimization

- Goal: optimizing page loading time / interaction speed
- What can be optimized?
 - Images
 - Resize images to fit required dimensions
(results in smaller image file sizes -> faster responses)
 - Use higher compression ratio
 - Number of HTTP requests
 - One HTTP request is made for every resource (see slides PHP)
 - Reduce this number by 'inlining' some data
(e.g., make small pieces of JavaScript part of HTML)

Based on: <http://wimleers.com/talk-practical-wpo-intro-2013>

Profiling & Optimization

- Goal: optimizing page loading time / interaction speed

- What can be optimized? (cont.'d)

- JavaScript

- Compress JavaScript

- Remove whitespaces
 - Shorten variable names
 - Can be automated, see <https://www.minifier.org/>

- Include JavaScript at end of page

- Prevents browser from delaying its rendering until JavaScript is downloaded

```
/*! jQuery v1.12.4 | (c) jQuery Foundation | jquery
!function(a,b){"object"==typeof module&&"object"=
{var c=[],d=a.document,e=c.slice,f=c.concat,g=c.pv
b.toUpperCase();n.fn=n.prototype={jquery:m,const
b.prevObject=this,b.context=this.context,b},each:
this.eq(0)},last:function(){return this.eq(-1)},e
this.prevObject||this.constructor()},push:g,sort:
{}),h===i&&(g=this,h--);i>h;h++)if(null!=(e=argume
g},n.extend({expando:"jQuery"+(m+Math.random()).re
```

- CSS

- Similar to JavaScript: shorthand notation
 - Automate with <http://cssminifier.com/>

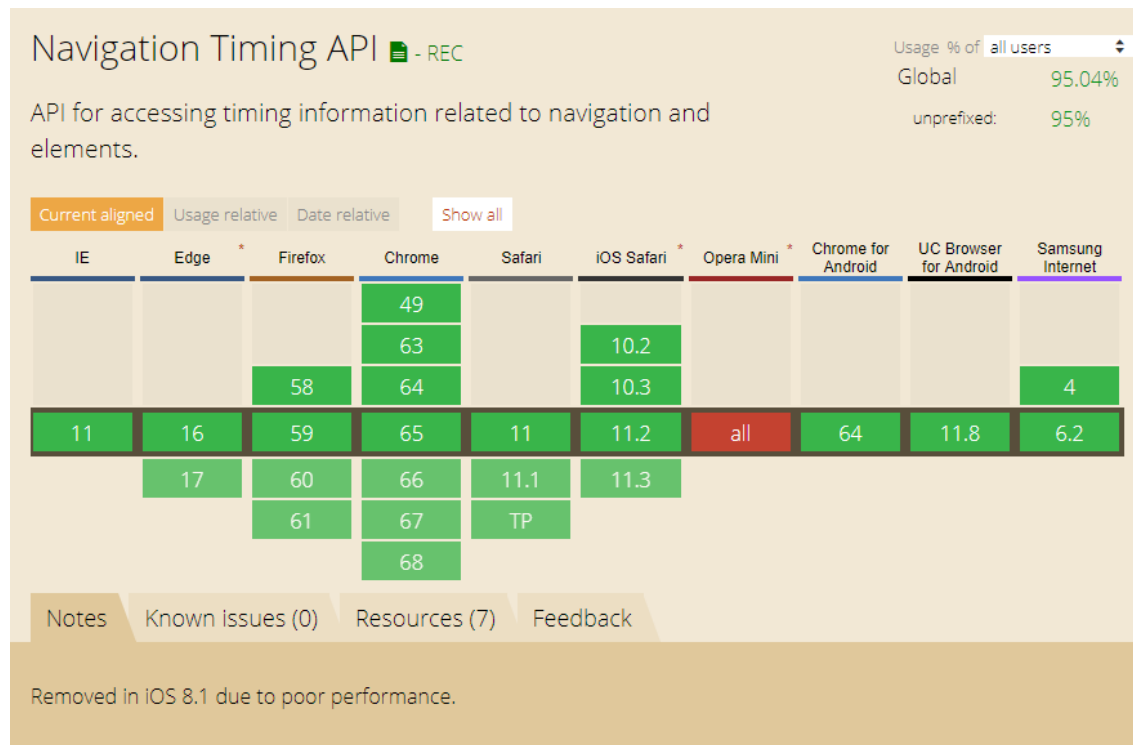
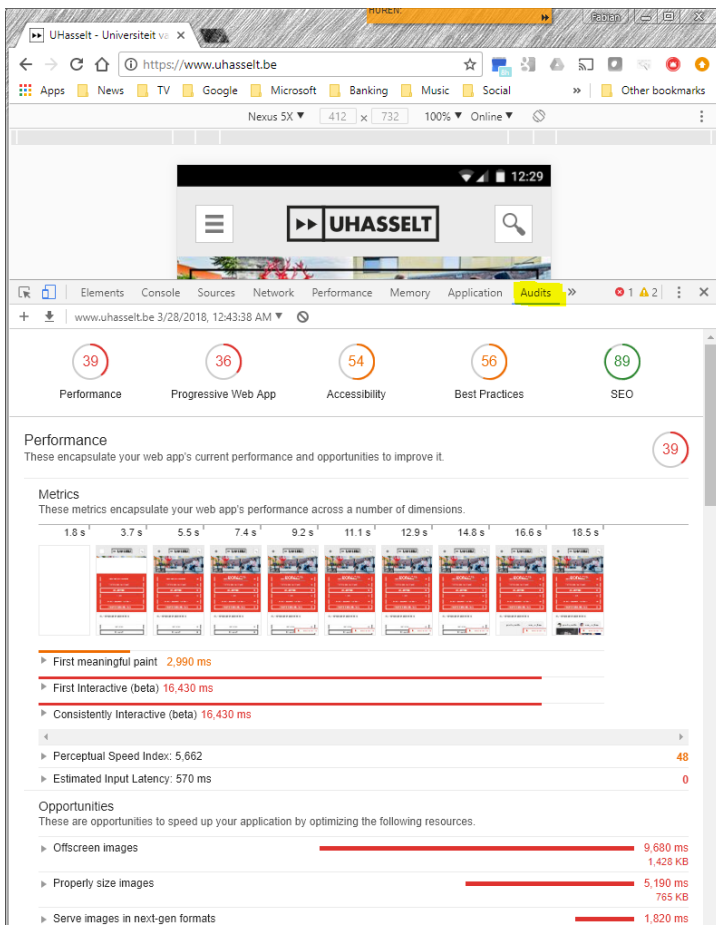
```
*{margin:0;padding:0}body,html{font-family:Futura
header{display:block;width:100%}@media only scree
{header.page-header nav .menu-button{background:#
wrapper{display:block;width:100%;height:45px;posi
size:.85em}.header-top-wrapper ul li a{color:#fff
color:#efefee;border:1px solid #ccc;display:block
color:#efefee;border:none;float:left}.header-top-
screen and (-webkit-min-device-pixel-ratio:2),onl
fieldset input[type=submit]{background:url(../img
-align-middle;display:block;position:absolute;top:
```

- PHP processing time

- Similar to optimizing C / Java code

Profiling & Optimization

- How to identify possible optimizations?
 - Chrome dev tools
 - Navigation timing API
 - <https://www.w3.org/TR/navigation-timing/>
 - Search for “Mobile Web Performance Measurement Tool”



Accessibility

- Making sure your website runs well
- For disabled users
 - Visually impaired user using a screen reader
 - Motorically impaired user using an uncommon input device
- For users with limited technology
 - Slow internet connection
 - Slow computer
 - Older browser
- For mobile users
 - Little screen estate
 - Impractical input

Accessibility

- Added benefit: website will rank higher in search engine results
- Better semantics / more meta-information
-> better interpretation by search engine
- Google increases the rank of websites that are mobile-enabled

Improving accessibility

- Use proper semantics
 - Use `<nav>`, `<aside>`, `<figcaption>`, etc.
 - Helps (text-based, screen-reading) browsers to find and associate content
- Provide alternative content
 - ``'s alt attribute: explain what's in the image
 - helps both visually impaired users and users with slow connections
 - If `<video>` tag is not available, use an alternative
- Don't use images for navigation
 - rather, combine text links with CSS

Improving accessibility

- Make your website responsive
 - Liquid lay-out
 - Not only beneficial for mobile browsers (also for e.g., low screen resolutions)
 - Detect browser's supported features
 - Make sure user sees the content even when no JavaScript is available
 - Provide alternative content (see previous slide)
- Profiling goes a long way
 - Helps both users with slow connections and users with slow computers

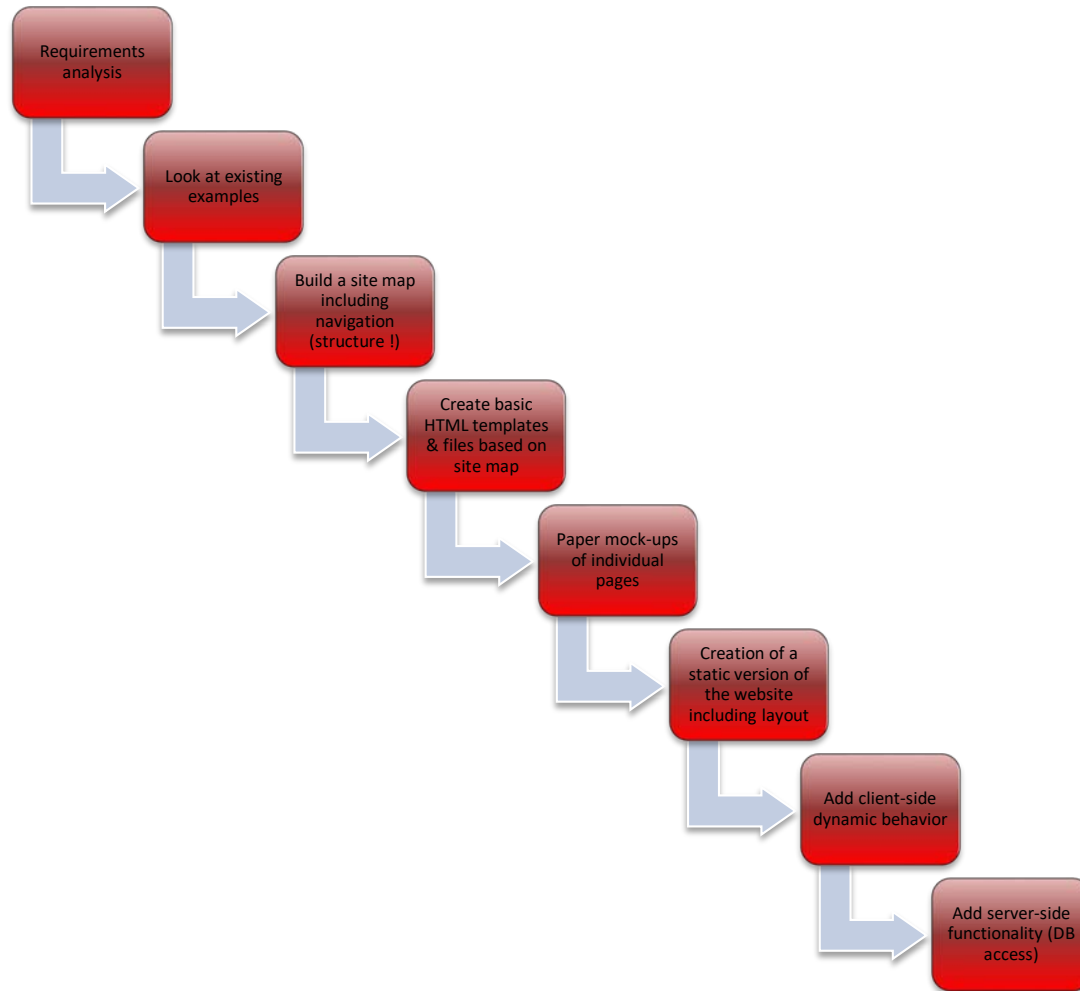
Improving accessibility

- Use meaningful page titles
 - Not only for website, but also for individual pages
- Specify the correct content type
 - HTTP Content-Type headers
`<meta http-equiv="Content-Type" content="text/html">`
 - HTML doctype
`<!DOCTYPE html>`
 - Document language
`<html lang="nl">`
`<article lang="en">...</article>`

Improving accessibility

- More tips:
 - <http://www.w3.org/TR/WCAG20/>
 - Official W3C recommendation
 - <http://wave.webaim.org/>
 - Automated accessibility evaluation tool

The project assignment



Project

- Cookies
 - Make sure user stays logged in across your website
- Profiling
 - Run at least Chrome Dev Tools, and keep tips in mind
- Accessibility
 - Incorporate at least 3 tips from this lecture, or from one of the websites on the previous slide
 - Add an 'accessibility statement' to your website, outlining the accessibility measures taken
 - See <https://www.nomensa.com/blog/2009/writing-an-accessibility-statement> for an example