HCI Course PWA Web Site

Information Architecture and Web Usability

WS 2020/2021

Group 2:
Michael Hebesberger
Diego Jacobs Tercero
Christoph Koch
David Mischak

What are Static Sites?

- Static sites consist of pre-built files (HTML, JS, CSS).
- No changes to sites from a server.
- Displays same information for all users.

Advantages and Disadvantages

+ Improved performance for end users.

+ Fewer dependencies.

+ Cost savings.

− Dynamic functionality must be in client side.

− Maintaining a large number of pages without automated tool.

What is a Static Site Generator (SSG)?

- Framework that creates static sites.
- Content is written in markup language (HTML, Markdown).
- Generates views to be ready ahead of time instead of waiting until it is requested.

Static Site Generators

- [Eleventy](#)
- [Hugo](#)
- [Next.js](#)
- [Gatsby](#)
- [Nuxt.js](#)
- [Jekyll](#)

https://snipcart.com/blog/choose-best-static-site-generator

What is Eleventy?

- JavaScript based SSG. (Not a JS framework)
- Flexible configuration.
  - No configuration by default.
- Can work with your current project structure.
- Works with many different template engines:
  - Mustache (*.mustache)
  - Handlebars (*.hbs)
  - Liquid (*.liquid)
  - Nunjucks (*.njk)

https://www.11ty.dev/docs/

Eleventy Navigation

- Plugin for creating hierarchical navigation.
- Features:
  - Re-order
  - Nesting
  - Alternate text for navigation

```
---
layout: page.njk
title: &title "Exercises"
eleventyNavigation:
  key: exercises
  title: *title
  order: 200
---
```

What is Nunjucks?

- Templating language:
  - Uses JavaScript.
- Precompile the templates.
- Different features:
  - Variables declaration.
  - Built-in filters.
  - Includes.

```
<header>
  {% include "partials/pagetitle.njk" %}
  {% include "partials/navbar.njk" %}
</header>
<main>
{% block content %}
  {{ content | safe }}
{% endblock %}
</main>
{% include "partials/footer.njk" %}
```

HCI Course Website

- Rework of current HCI course website.
- Requirements:
  - Relative URLs.
  - Navigation Bar.
  - Offline (service worker).
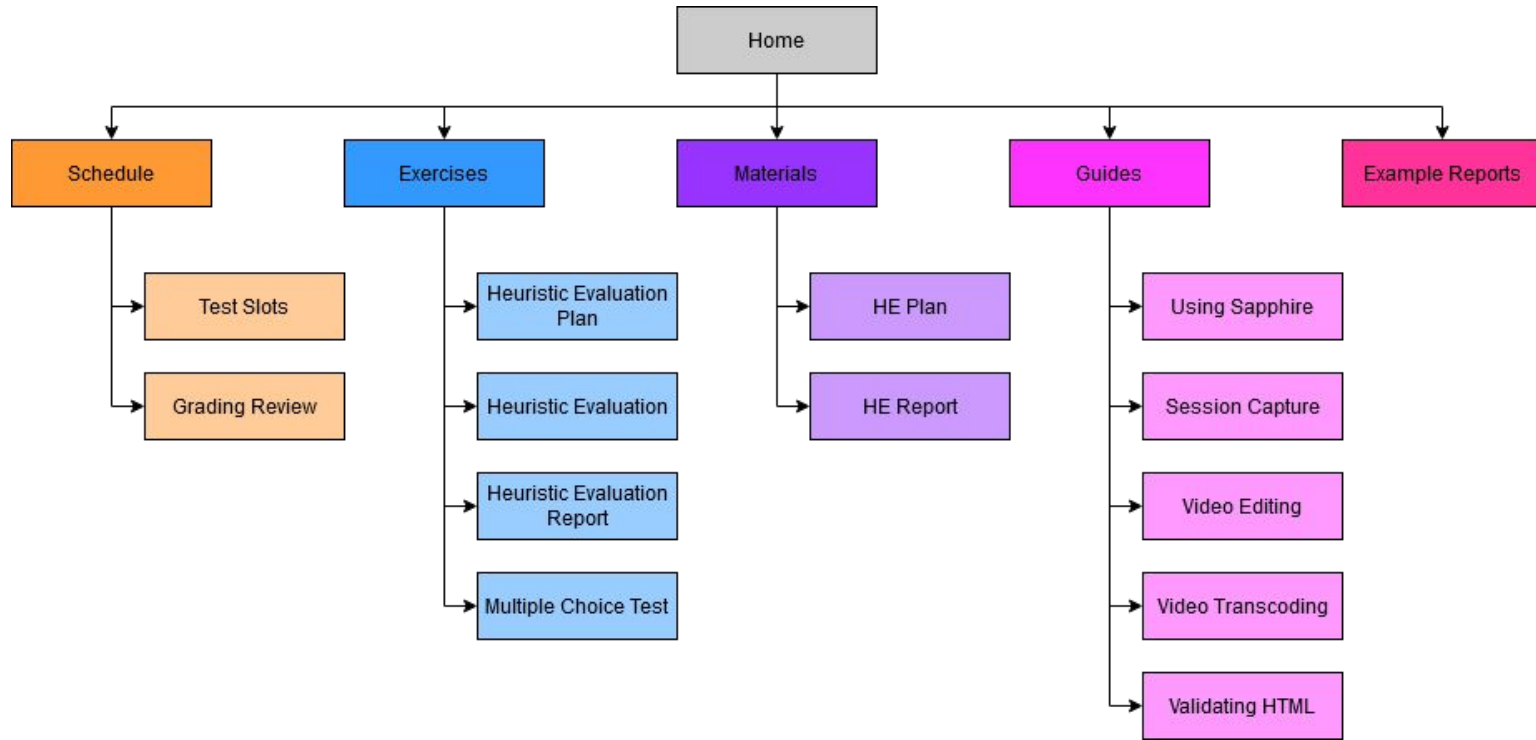 - A2HS (PWA).

Site Structure

Figure 1: HCI site structure
[Figure created by Michael Hebesberger with draw.io]

Relative URLs

- Relative links assume root folder is at domain level
- Relative links break if the source folder is not the root folder on the server
  - E.g. href to stylesheets "/css/style.css"
    on https://example.at/hci/ would result in
    the href pointing to https://example.at/css/style.css instead of
    https://example.at/hci/css/style.css
- Solution: Base tag set with folder path ("/" or "/folder/")
- Href attributes relative to base
- Problem: ServiceWorker
  - Fix: extract base URL from current URL

Navigation Bar

- Template injected to every page with Nunjucks.
- Elements according to site structure.
  - Parents and order set in html files.
  - Only included if eleventyNavigation structure in header.
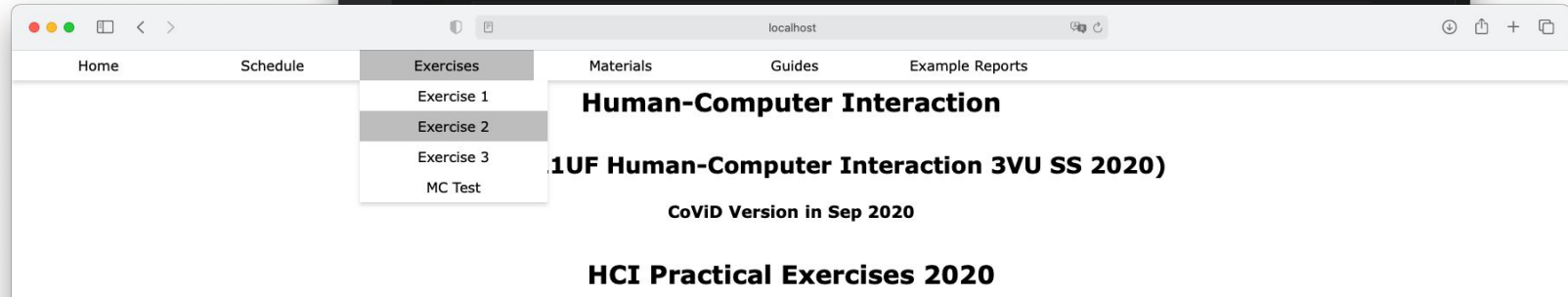- Dropdown functionality with CSS only.

Navbar

Figure 1: CSS and resulting Navbar
[Figure created by David Mischak]

PWA Features

- Manifest:
  - Basic properties.
  - Icon for A2HS.

Figure 2: manifest.json
[Figure created by Michael Hebesberger]

- ServiceWorker purely for offline functionality.
  - Cache selected resources.
  - Serve if loading from server takes too long.
  - Further research on different browsers.

Showcase Video