



# HCI Course PWA with Hugo

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Information Architecture and Web Usability 2022/23

# Current HCI Website

## Advantages:

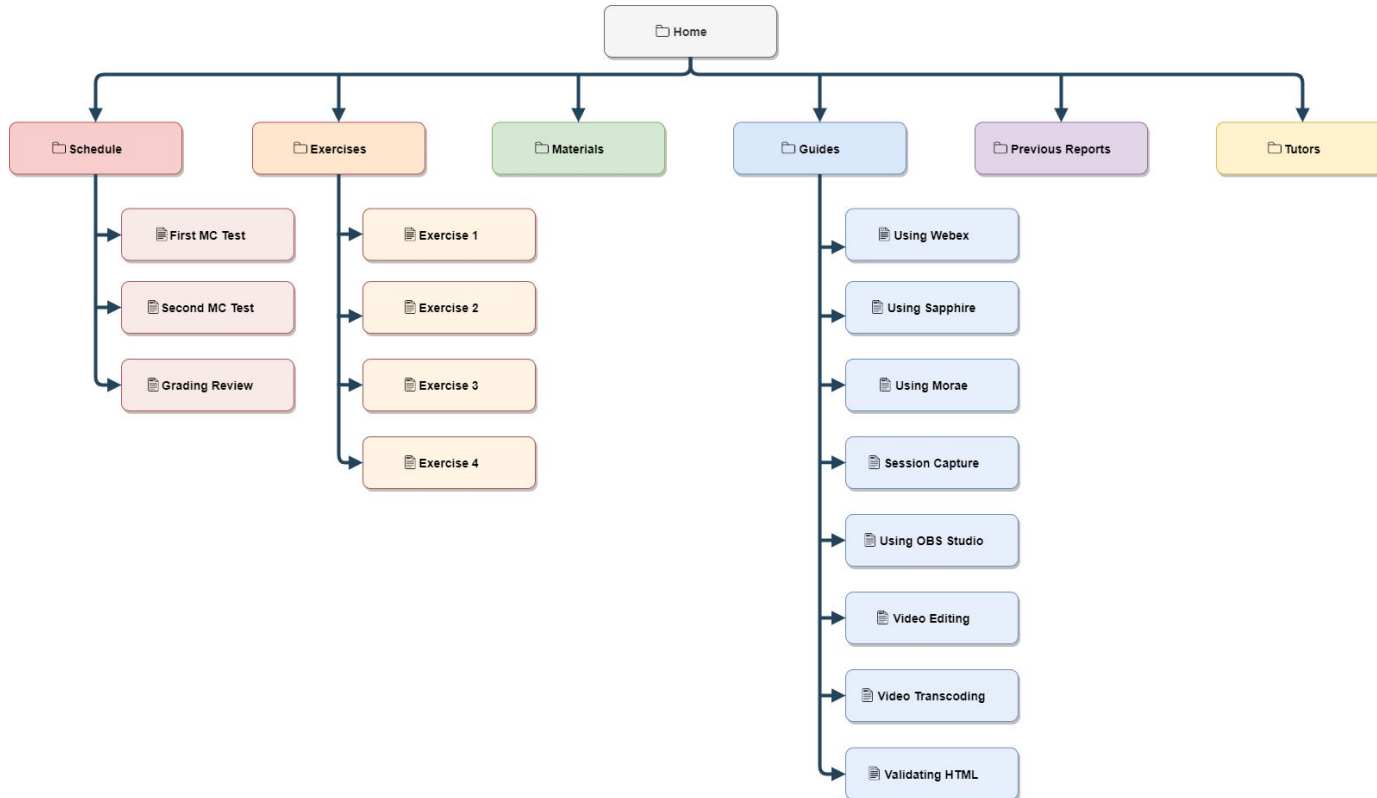
- Lightweight (minimal CSS, no JS)
- Good web accessibility



## Disadvantages:

- No navigation → Hard to navigate
- Outdated CSS (“responsiveness” achieved with tables)
- Non-responsive tables
- No reusable components (duplicated headers, footers)

# HCI Site Structure

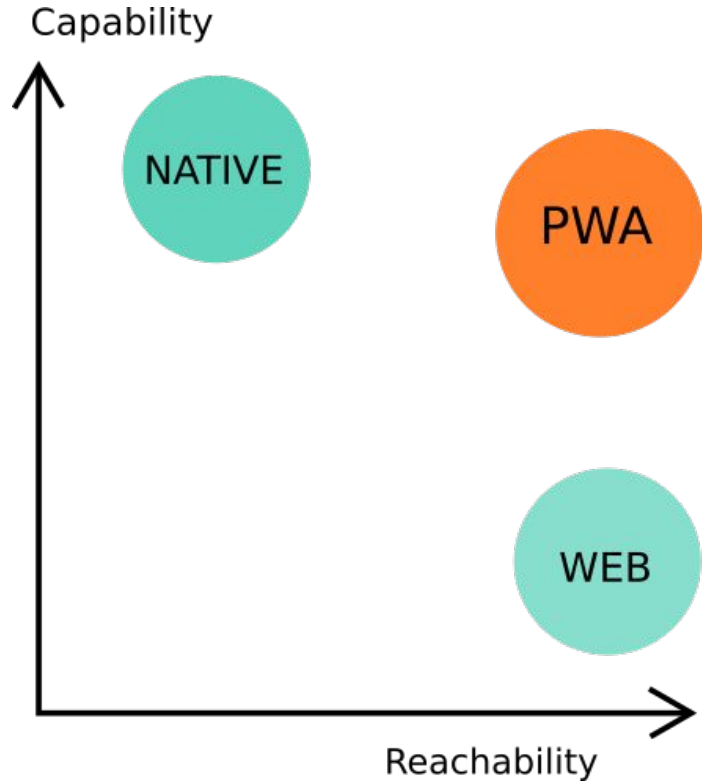


# Progressive Web App (PWA)

PWA is web application and runs within a browser, but it can be made installable by using service-workers, caching and manifest.json file.

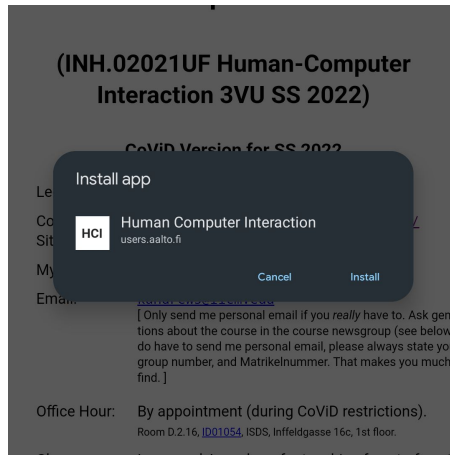
## Advantages:

- Native-like user experience
- More capable than basic web-app
- Better reachability and findability (SEO)
- Runs fast from cache
- Works in offline mode



# PWA Criteria

- PWAs have several requirements:
  - Web manifest file (*manifest.json*)
  - Service worker for offline caching (*registerSW.js, sw.js*)
  - Icon (*icon.svg, apple-touch-icon (iOS)*)
  - Must be served over HTTPS
  - Only supported in some browsers
- Files are cached for offline use when website is loaded.
- The user can choose to install the PWA and use it like a normal phone application.



INSTALLABLE

- Web app manifest and service worker meet the installability requirements

PWA OPTIMIZED

- Registers a service worker that controls page and `start_url`
- Configured for a custom splash screen
- Sets a theme color for the address bar.
- ▲ Content is not sized correctly for the viewport  
The viewport size of 533px does not match the window size of 360px.
- Has a `<meta name="viewport">` tag with `width` or `initial-scale`
- Provides a valid `apple-touch-icon`
- Manifest has a maskable icon

# PWA Support 1/2



	iOS and iPadOS			Android		
	Safari	Chrome	Firefox	Samsung Internet	Chrome	Firefox
Add to home screen	✓	✗	✗	✓	✓	✓
Offline browsing	✓	✗	✗	✓	✓	✓
Push notifications	✓	✗	✗	✓	✓	✓

# PWA Support 2/2



	Windows			macOS			Linux	
	Edge	Chrome	Firefox	Safari	Chrome	Firefox	Chrome	Firefox
Add to home screen	✓	✓	✗	✗	✓	✓	✓	✗
Offline browsing	✓	✓	✓	✓	✓	✓	✓	✓
Push notifications	✓	✓	✓	✗	✓	✓	✓	✓

Sources: <https://firt.dev/ios-15.4b>, <https://web.dev/learn/pwa/progressive-web-apps/>, <https://caniuse.com/?search=pwa>

# Hugo Overview

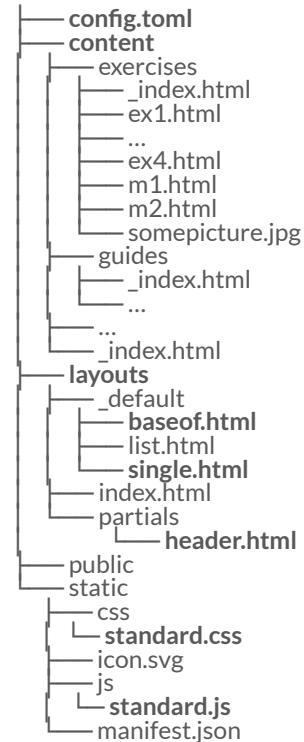
- Static site generator
- Define shared layout using templates
  - E.g. menu and footer
- Multiple content formats supported
  - In this project, content is HTML

## Why Hugo?

- Consistent builds
- Easy deployment
- No dependencies

Source: <https://gohugo.io/>

## Example structure





# Migrating Content

## How Hugo conversion is done:

1. Move all content to *content/*
2. Add front matter to HTML files and remove everything except body (see diff)
  - a. Add any special CSS files for page in front matter
3. Rename *index.html* with subdirectories to *\_index.html* (see [1])
4. Add *url: "/url\_to\_page\_here"* front matter for any *index.html* and *\_index.html* files
5. Move shared elements (footer, title, etc.) to layouts

## Diff of schedule.html

```
--- schedule.html 2022-12-16 17:24:42.557794334 +0100
+++ schedule_new.html 2022-12-16 17:25:34.401173477 +0100
@@ -1,17 +1,7 @@
-<!DOCTYPE html>
-<html xmlns="http://www.w3.org/1999/xhtml" lang="en" xml:lang="en">
-
-<head>
-<meta charset="UTF-8"/>
-<meta name="viewport" content="width=device-width, initial-scale=1"/>
-
-<link rel="stylesheet" href="schedule.css"/>
-
-<title>Human-Computer Interaction Schedule</title>
-</head>
-
-
-<body>
+---
+title: "Human-Computer Interaction Schedule"
+custom_css: ["schedule.css"]
+---
<div id="whole">
@@ -398,5 +388,3 @@
</div> <!-- whole -->
-
-</body>
-</html>
```

# Added Features Overview

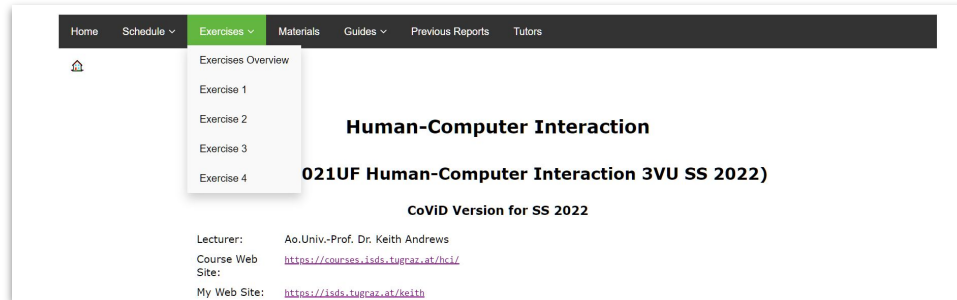


## What is new in the HCI website?

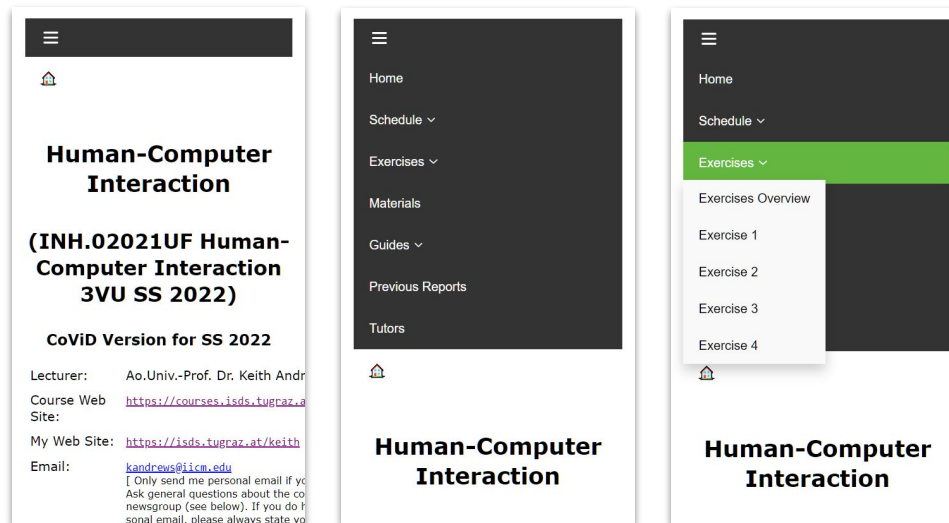
- It is now an application! (PWA functionality)
- Responsive and web accessible navigation menu
- Breadcrumb navigation
- Relative URLs
- Responsive tables
- Responsive tutors page
- “Guides Overview” page
- Header and footer partials

# Navigation menu

Desktop:

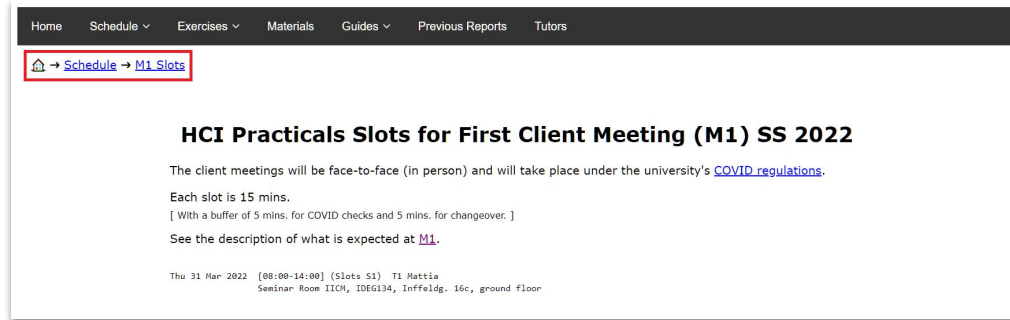


Mobile:



# Breadcrumb Menu

Desktop:



Mobile:



# Responsive Tables

Exercises Table:

Ex	Title	Type	Announce	Hand-In
1*	<a href="#">Heuristic Evaluation Plan (HE Plan)</a>	group	Tue 15 Mar 2022	Wed 30 Mar 2022 18:00
2	<a href="#">Heuristic Evaluation (Individual Evaluations)</a>	individual	Tue 15 Mar 2022	Mon 02 May 2022 18:00
3	<a href="#">Heuristic Evaluation Report (HE Report)</a>	group	Tue 15 Mar 2022	Wed 18 May 2022 18:00
4	<a href="#">Multiple Choice Test</a>	individual		



Exercises
<b>Ex:</b> 1*
<b>Title:</b> <a href="#">Heuristic Evaluation Plan (HE Plan)</a>
<b>Type:</b> group
<b>Announce:</b> Tue 15 Mar 2022
<b>Hand-In:</b> Wed 30 Mar 2022 18:00
<b>Present:</b> <a href="#">M1</a>
<b>Slots:</b> <a href="#">M1 Slots</a>
<b>Points:</b> 46
<b>Percent:</b> 12.6
<b>Ex:</b> 2
<b>Title:</b> <a href="#">Heuristic Evaluation (Individual Evaluations)</a>

Schedule Table:

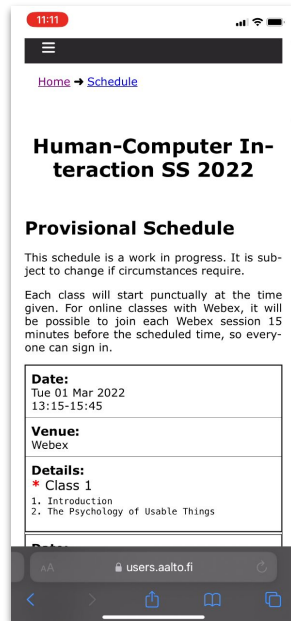
Provisional Schedule		
<p>This schedule is a work in progress. It is subject to change if circumstances require.</p> <p>Each class will start punctually at the time given. For online classes with Webex, it will be possible to join each Webex session 15 minutes before the scheduled time, so everyone can sign in.</p>		
Date	Venue	Details
Tue 01 Mar 2022 13:15-15:45	Webex	* Class 1 1. Introduction 2. The Psychology of Usability
Tue 08 Mar 2022 13:15-15:45	Webex	Class 2 Sec 2.2 (cont.) 3. Usability Engineering
Tue 15 Mar 2022 13:15-15:45	Webex	* Class 3 8. Usability Inspection 8.1 Heuristic Evaluation 8.2 Severity Ratings Announce Ex1 HE Plan Individual Evaluation



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<b>Details:</b> Class 2

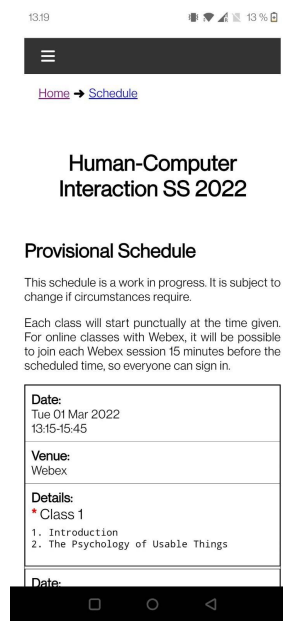
# Live Demo and Showcases

## PWA on IOS:



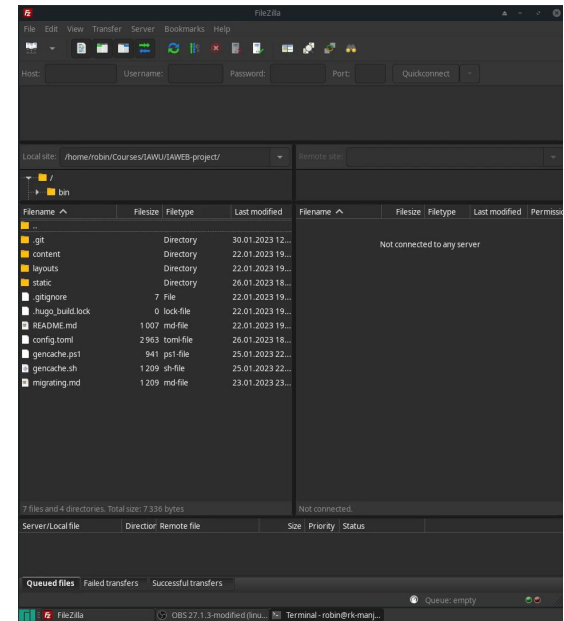
<https://youtu.be/BQXXXp1Oc04>

## PWA on Android:



<https://youtu.be/R9W7taOR4y4>

## Build and deploy HCI site:



<https://youtu.be/RIIuzgOiqxs>



# Thank You!