2021/2022

Accessibility & disabilities

Objectives

The objective of the tutorial is to discover the evaluation process of accessible resources and the problems related to accessibl

Documents used in this tutorial

There are many online resources available to understand the challenges of accessibility and the different solutions proposed

- **Accessibility Cheatsheet:** https://moritzgiessmann.de/accessibility-cheatsheet/
- **Getting Started with Website Accessibility:** https://medium.com/statuscode/getting-started-with-website-accessibility-5586c7febc92
- **ARIA** (Accessible Rich Internet Application): https://www.w3.org/TR/using-aria/

Although most of the solutions presented seem to be specifically for the visually impaired or blind people, disability is not limited to this issue. As there are so many obstacles to accessibility and situations: thinking about accessibility also means thinking about uses where everyone may be in a situation of disability (hands, eyes occupied with another task, ambient noise, etc.).

In Most cases, understanding the situation means to address the problem by using alternative methods.

Preamble – technical solutions: Screen Readers

Try a screen reader (used by most of blind people). You can for example use Narrator on Windows, VoiceOver on MacOS or download NVDA (**N**on **V**isual **D**esktop **A**ccess) here → https://www.nvda-fr.org (for a portable version, download the version here: https://www.softpedia.com/get/PORTABLE-SOFTWARE/System/System-Enhancements/Portable-NVDA.shtml)
Use NVDA with your eyes closed and try to navigate to the **University of Toulouse 3** website (https://www.univ-tlse3.fr) to find the link to the **student ENT intranet** (**using voice feedback only**). In the same context (audio feedback only), open a text editor and type notes about your experience 😊.

- What are the problems you have identified?
- How do you plan to remedy this (hardware or software solutions)?

A website to evaluate

- Evaluate the website of the University Toulouse 3 with the following tools:
  - https://wave.webaim.org
  - https://color.a11y.com/?wc3
- What are the most common mistakes (list them)
- What can be done about it?

An accessible application to develop

p5.js

Download the zip archive **p5js.zip** at
`https://github.com/truillet/upssitech/blob/master/SRI/3A/FH/TP/Outils/p5js.zip`

P5.js (`https://p5js.org/get-started`) is the *javascript* version of Processing that allows rapid prototyping of interactive web applications.

- Unzip the archive and run **SpeechRecognition_Simple.html** with Google Chrome web browser (to ba able to use inner speech recognition and speech synthesis). Do the same with **SpeechRecognition_Continue.html**. Look at the code and modify it in such a way as to help the user' tasks with voice feedback (TTS) for example.
- Test and understand the code written in **Accessibilite.html**

Note: You can also use Adobe Color's accessibility tools (`https://color.adobe.com/fr/create/color-contrast-analyzer`) to check contrasts or create palettes for colour-blind vision

Finally, develop an interactive mini-application capable of completing a drawing (using recurrent neural networks) **AND accessible** to at least one disability (e.g. motor disability, colour blindness, dyslexia, etc.). This application is to be produced with the **p5.js** framework (`https://p5js.org`) and the ***p5.accessibility***, ***p5.speech*** *and* ***m5.js*** modules, and others available here:

- **`https://p5js.org/libraries`**
- or here for Augmented Reality - AR (*TopCodes – Augmented Reality*)**:** **`https://github.com/sehmon/TIDAL-topcodes-demo`.**

You can download the zip archive to start **drawing.zip** at
`https://github.com/truillet/upssitech/blob/master/SRI/3A/FH/TP/Outils/dessin.zip`

The user should be able to change the "*drawing pattern*" by voice for at least the following patterns: *pineapple*, *cat*, *lobster*, *bird* and trombone. A description of the situation should be provided on request by the user (using the accessibility module).

Finally, evaluate your production with **WCAG 2.2** - `https://www.w3.org/TR/WCAG22` and propose a short evaluation report. Iterate on your solution taking into account the identified problems.

Notes taken during the session should be sent by email