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05-430: Programming Usable Interfaces

Final Project Writeup

Part 1: Website Description

My website is an interactive freediving tool that is built to create an immersive underwater experience for the user. The web experience for the user includes a breath-up, an interactive scrolling experience of "the dive" and then an immersive underwater experience on the ocean floor. Its purpose is to educate users about freediving, but further can be used for mindfulness or meditation. The information I convey with my website includes various facts about freediving, as well as a demonstration of a typical freediving breathe up. It interests and engages users through its interactive nature, and the gradual color change triggered by the scroll event. The target audience of my website is fairly broad, whether it be users interested in learning more about freediving, or users looking to engage in a relaxing informative experience.

Part 2: User Interaction

- Click event
    - Press start to begin the simulator on index.html
- Screen viewing
    - Complete breathing exercises alongside the screen following the countdown until you reach the pre-dive.html page
- Click event
    - Press start to begin the dive on the pre-dive.html page
- Scroll event
    - Scroll up, reading the freediving facts and components about the dive as you go along, note that you can see your time elapsed underwater, in addition to your depth at all moments in the dive
- Click event
    - Press "restart" at the finish.html page to experience the dive over again

Part 3: External Tool

For external libraries within this project, I used Three.js and Yuka. I chose this JavaScript library because I wanted to utilize 3d animations to further the user experience of my app. Yuka helped in addition to three to include the path for my animation. I used three to create the manta ray animation that occurs on the finish.html page of the website. This adds life and a more immersive nature to the freediving experience for users choosing to engage with my website.

Part 4: Prototype Iteration and Design Changes

I initially did not have the breath up screen as a part of my design, but found it would help engage the user and get them in the mindset of the simulator. I think this was the largest change from my original prototype, as it involved more pages and various JavaScript interactions than I had originally planned on incorporating. Additionally, there were supposed to be more animations throughout the dive, but given the format of the scroll background, incorporating the animation into the framework proved far more difficult than expected despite robust attempts. Instead, I chose to include the animation in the final page of the simulation, which was stagnant and easier to work with.

Part 5: Challenges

My biggest challenges within this website were in animation. The installation specifically of the GLTF loader for Three took many hours and countless attempts to try to figure out. It was nice to learn about Three, which I primarily figured out through online tutorials and the available documentation, but it was a challenging library to harness into my implementation.

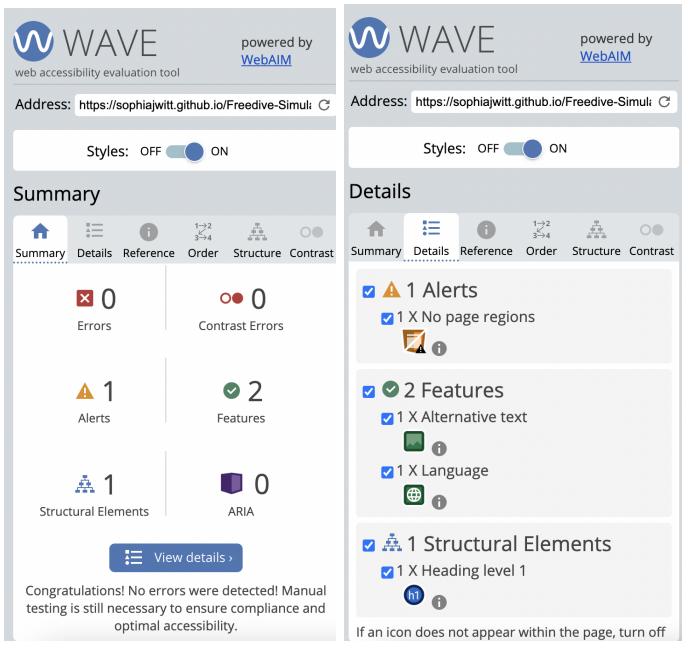
Additional Notes–

Screen sizes to test deployed website:

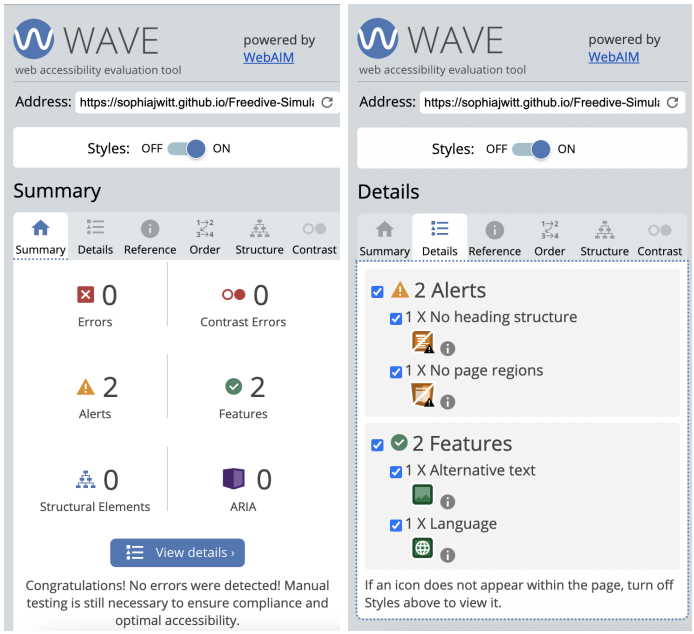
- Laptop
- Desktop (monitor)

Proof of Accessibility:

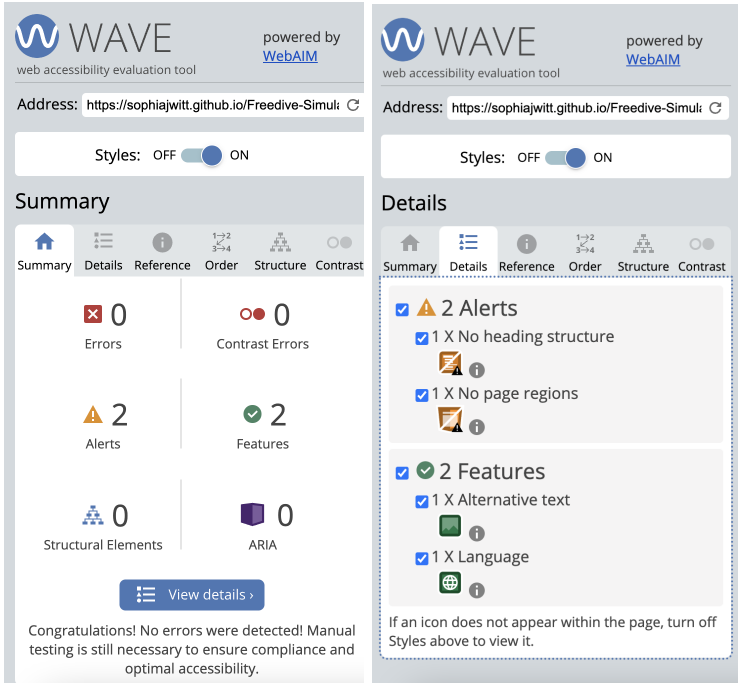
index.html



breathe-up.html



dive.html


WAVE
web accessibility evaluation tool
powered by WebAIM
Address: https://sophiajwitt.github.io/Freedive-Simul
Styles: OFF ON
Summary
Summary Details Reference Order Structure Contrast
0 Errors
0 Contrast Errors
2 Alerts
2 Features
0 Structural Elements
0 ARIA
View details ›
Congratulations! No errors were detected! Manual testing is still necessary to ensure compliance and optimal accessibility.
WAVE
web accessibility evaluation tool
powered by WebAIM
Address: https://sophiajwitt.github.io/Freedive-Simul
Styles: OFF ON
Details
Summary Details Reference Order Structure Contrast
2 Alerts
1 X No heading structure
1 X No page regions
2 Features
1 X Alternative text
1 X Language
If an icon does not appear within the page, turn off Styles above to view it.