

OLET1303 Assignment

Questions Related to Your Web Page

1. *How have you incorporated accessibility, usability, reliability and readability in your website?*

These qualities are characteristic of responsive web design. Since responsive web design's purpose is to implement appropriately readable and usable applications to the website, resizing and rearranging elements according to the browser width is key. As such, my website is accessible as its responsive design limits the need for horizontal scrolling (which is difficult on visually-impaired people) and uses contrasting colours to highlight important information such as in the buttons, links, and backgrounds.

Examples of my responsive web design are in how footer and header elements resize according to the width of the webpage, or how the nav stacks vertically on phone devices to ensure that the entire nav is visible for them. By applying flexbox, the elements of each page resize to fit across different screen sizes while still maintaining their positions. Furthermore, I made it easier to understand links by using the CSS: hover selector like most websites to change elements' appearance when they are hovered over, making for better accessibility and usability.

2. *How have you maintained the Quality of your HTML and CSS code?*

I believe that my code's quality is attributed to many small factors which contribute to its readability, modularity, and understandability:

- I have maintained my code's quality by upkeeping comments as I make edits so it's clear to me and possible readers what the code's purpose is for.
- I have also maintained consistent tabbing in my HTML files so sections can be more clearly visualised.
- The names of my classes' IDs are clear and elements are given an ID or class depending on their significance to the website.
- My file structure is also simple and intuitive since HTML and CSS files are grouped together, making for easy navigation and easy linking.
- While writing my CSS files, I limited repetition by ensuring that a container's element does not have the same CSS properties as its container.
- The repetitive parts of my code: the nav and footer elements, have copies saved into a separate file so they can be tested separately and are saved in the case of any issues.

Research Theme Questions

Mod 3 – “Towards a Taxonomy of Errors in HTML and CSS”

Read the following research article on HTML and CSS and answer the following.

- *Summarize this research.*

This paper began by summarising prominent research recording and classifying the most recurrent errors made by programmers. This highlighted the lack of research about the types of errors made by HTML and CSS programmers specifically, and so used the skills-rules-knowledge framework developed by Rasmussen (1983) to classify the 791 observed errors made by the 20 participants. Skill-based errors are those made from simple typographical mistakes, easily solvable when observed. Rule-based errors are those made due to a misapplication of known rules, resolved through expansion on existing knowledge. Knowledge-based errors are made due to unfamiliarity with the CSS and HTML problem, resolved only through continuous research and practice. The paper goes on to give examples of these errors in the participants' tasks. In the discussion section, the researchers summarise the errors and how they can be resolved when teaching HTML and CSS programming. They also remark that HTML and CSS program's live preview panels can be detrimental to learning as they are often not halted by errors in code, nor do they inform the programmer of their mistakes.

- *What are the errors the researchers detected in terms of HTML and CSS code writing?*

At the skill-based level, the researchers observed errors such as typographical errors (mistypes), confusing HTML and CSS syntax, forgetting brackets and commas, confusing similar constructs such as IDs and class names etc. A difficulty observed with skill-based errors is that coders overlooked those errors' sections to investigate more unfamiliar blocks of code.

For rule-based errors, "the most common rule-based errors involved using the wrong name for a property or attribute, using an obsolete construct, and dealing with lists." However, the paper qualified this with the caveat that rule-based errors were difficult to summarise since they comprised edge cases within the programmers' knowledge.

Knowledge-based errors were the most difficult errors to summarise as they comprised fundamental gaps in HTML and/or CSS knowledge, and especially with how they interact.

- *How do you think you can minimise such errors?*

From this study, I understand that my most valuable tool in minimising errors is to diagnose my error-making according to its type. As I make skill-based errors, I merely have to pay close attention to those issues as I find them, and in fact search for these errors since they are the most common. I can then waste less time searching in less familiar code for non-skill-based errors. For my rule-based errors, I should be unafraid to question my established knowledge and delve into edge-cases for these rules. For knowledge-based errors, they are best remedied with a focussed search on topics I realise I do not fully understand. I could practice these gaps in knowledge by removing myself from my current project and work on a smaller, more focussed project on the knowledge I am attempting to learn.

Mod 4- "The Usability of Magnification Methods"

Read the following research article on Responsive Web Design and answer the following.

- *Summarize this research.*

This paper studied the correlation between responsive web design and web ease of use with the purpose of justifying responsive web design as more helpful to visually impaired people than simple screen magnifiers. To this end, it remarked that screen magnifiers either zoom in on the area around the user's cursor and reduce the context for the information on the page, or zoom out and reduce readability. Its motivation was exemplified in the statistic that 20.6 million Americans above 18 in 2012 had some visual impairment, this showing that web design should aim to improve efficiency and usability for visually impaired people.

The experiment tested sixteen university students as they completed 6 tasks: 3 of which are being examined in this study. Of those three, two of the tasks were comprehension tasks and one was a data input task similar to an e-commerce website. They were tested by placing the screen at a distance difficult for them to read from to stimulate visual impairment. The comprehension tasks' accuracy and speed were significantly better with responsive web design, and the data input task's speed (but not accuracy) was faster with responsive web design. For both types of tasks, the participants reported being able to comprehend information and move between sections more easily when the responsive web design allowed them to view all relevant information on the screen.

- *Discuss the results and findings of this research.*

Although it was indeed valuable to learn that horizontal scrolling and word wrapping are usually harmful to understandability and responsive web design is a much more efficient method of accessible design than magnification, I contest that this study can accurately claim that magnification is inferior for all people with visual impairments. The study attempted to stimulate visual impairment in the subjects by moving the screen further away from them, but that is only accurate to the experience of myopia (short-sightedness). Hyperopia (farsightedness), astigmatism (blurriness at any distance), loss of central vision, loss of peripheral vision etc are vastly different to myopia. While responsive web design can likely be amenable to these impairments, web design may have to be more flexible according to which impairment the user has.

- *How can you apply these findings in your web design projects?*

I can apply these findings by designing my websites so that they limit horizontal scrolling and word wrapping. I should make my websites responsive by ensuring that they can support phone-users, PC users, and tablet users by formatting my sites' information into stackable sections where there is a clear focus on the central elements of the section. These sections should be structured so that all information provides a context for each other- to limit users having to rely on working memory as they scroll back and forth to compare information. Colours, fonts, sizes etc should also be structured to allow this.