Introduction

This report describes the experience of building a website using HTML and CSS, highlighting the challenges encountered. It also explores how modern web development frameworks like Bootstrap and W3.CSS can simplify the process compared to traditional methods. Additionally, the report emphasizes the importance of adhering to regulatory standards and best practices in real-world web development. Notably, HTML5 and CSS3 were used for this project, reflecting the rapid evolution of technology.

The website's images were sourced from a GitHub URL accessible through the university's Canvas platform, and the font is hosted by Google, with fallback options depending on browser support. Internet access is recommended to fully experience the website.

Experience with HTML

While working with HTML, it became evident that following the correct syntax is crucial, as errors in the code would prevent content from displaying correctly, often without providing explicit warnings. Once the purpose and functionality of HTML tags (W3Schools, 2024) were understood, creating a basic website became relatively straightforward. Since HTML forms the structural foundation of a website, the likelihood of encountering errors was minimized, as confirmed by validation tools such as the W3C Markup Validation Service.

Experience with CSS

CSS presented a greater challenge, particularly in achieving responsive design, visual effects for text and images, and the use of media queries. One issue encountered was the variation in how different browsers rendered CSS, particularly Internet Explorer, which does not support responsive design or certain web fonts. Understanding Flexbox and its implementation for creating flexible layouts for smaller screen sizes was a key challenge. Despite efforts to ensure responsiveness across devices, the CSS behavior was often counterintuitive, especially when making changes for the hamburger menu (de Murga, 2024) at the top of the page, which occasionally caused the background image to overflow (Mozilla Developer Network [MDN], 2024). Furthermore, using Flexbox to make the text and images flow around required careful attention, as mistakes could cause undesirable effects on surrounding elements (Coyier, 2024). This process of fine-tuning layout and styling was more complex than working with HTML, requiring extensive testing and adjustments to achieve the desired results.

Testing Behavior

The HTML code generally behaved as expected during testing. However, the behavior of CSS was at times unpredictable, especially when formatting content. For example, altering the CSS for one element could unintentionally affect other elements, leading to layout inconsistencies. This necessitated an iterative approach to debugging and refining the code, which added to the overall complexity of the project compared to the more straightforward HTML syntax.

Enhancements Using Modern Frameworks

The website development process can be greatly streamlined using contemporary web frameworks. Developers can prevent having to start from scratch with every new project by using frameworks like Bootstrap and W3.CSS (World Wide Web Consortium [W3C], 2024), that offer pre-built, configurable responsive components. Developers can speed up the development process while preserving a high degree of responsiveness and design integrity by using these frameworks.

Trends in Web Technologies

AI Search Assistants and Chat Agents

An emerging trend in web development is the integration of AI elements, such as Copilot and embedded chat agents, within webpages. These AI technologies streamline searches and support multiple languages, paving the way for faster UI/UX design and web development without the need for repetitive tasks.

Conclusion

In summary, web development relies on both HTML for structure and CSS for aesthetics. While HTML is simpler, the combination of both enables fully functional websites. Adding JavaScript enhances dynamic elements like animations and interactions, which are increasingly common in modern design. Using frameworks and adhering to best practices, such mobile-first design and accessibility specifications, can accelerate development and guarantee legal compliance and accessibility.

References

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