

Thesis Project Portfolio

Front-End Development and its Impact on End-User Interaction with Companies

(Technical Report)

The Lack of Language Representation in Web Applications and its Effects on Spanish Speaking Immigrants in the Northern Virginia Metropolitan Area

(STS Research Paper)

An Undergraduate Thesis

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Bachelor of Science, School of Engineering

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Prospectus

Executive Summary

As the world grows more complex, people are turning to the internet to find answers to their daily problems, with more and more platforms and web applications increasingly flooding the internet. As a result, web applications and other forms of media are holding significantly more weight in how the public receives information. Users rely on the way in which web applications structure the layout of content and other components. This relationship between users and these technical interfaces is known as User Experience and User Interaction (UX/UI). Within UX/UI, there are several subcategories that make up and influence the way web applications, along with other technologies, are presented and interacted with. Not only are web applications in charge of the content displayed, but also the layout in which it is structured, its usability, and even the audiences of this information. The significance and successes of these characteristics can impact both the user and the group behind the web applications; this exchange can negatively impact either group if done without consideration to the purpose of the content. One cannot simply create a web application and not think of the potential audiences and results of such a technology. Perspective is an important part of creating any product, and web applications are no different.

There are two subtopics that link to this greater point. First, organizations must confront the impacts of user perspective and front-end development on a company's digital image. In my Technical Paper, I discuss the process I went through during the Summer of 2022 where I learned the technicalities behind promoting a company's digital image through a simulated work-client environment. Through this environment, I was able to provide tangible deliverables, mainly working the front-end development of their web application. With the other interns, we created a website that displayed content properly, gathered user information, and created an interface that uplifted the company's online presence. We mimicked a real-world work-client relationship and learned how to establish relationships within our team and with the client. As a team, we learned the importance of several UX/UI topics and learned how to translate a company's needs to a digital format. As a result, we were able to understand how web

applications are tools for businesses, as well as the lengths that front-end developers go through to create a user-friendly product.

Web applications can also influence who has access to online information. The U.S. is a melting pot of people of all backgrounds and is known as the land of opportunity to immigrants from all over the world. Spanish-speaking immigrants make up a large population of minorities in the United States and therefore are also a potential user to American web applications. However, typically those who immigrate to the U.S. are low-income, non-English speaking people. With several web applications being written in English, this creates an issue with the distribution of online resources and information to immigrants. For my research topic, I interviewed three parent-child pairs and asked them how the lack of language representation in web applications has impacted their Spanish-speaking immigrant parents. The results of the interviews were transcribed and analyzed to find common themes and further discussed in the later parts of the paper. The themes not only addressed the perspective of how English web applications could be improved, but also gave a glimpse into how these web applications have impacted the parents' relationship with technology, language, and with others. While web applications can be beneficial, this paper further discusses how they have affected a specific audience and can thus be further developed to be a tool of support rather than hindrance.

Web applications are resources that are widely used in our day to day lives. These resources carry a lot of weight and can be a well of information. Analyzing web applications can provide a lot of knowledge on how they can affect all types of people. Through my Technical paper, I can better visualize how different formatting affects the UX/UI and promote a prosperous image of clients. Regarding my research paper, I can better understand how current web applications are restricting certain audiences from gaining equal access to information, and how Spanish-speaking immigrants and web applications mutually shape one another. Web applications are still an integral part of the technological boom and the internet. By viewing and analyzing its impacts on society and how its technical components structure the

way we view people and information, front-end developers will be able to create applications that promote positive views and are accessible to all types of audiences.