Democratizing Event Management: Developing a Mobile User Interface Tailored for College Students

The Rise of Infinite Scrolling in Software Design

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By
Jay Chadha

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

ADVISORS

MC Forelle, Department of Engineering and Society

Briana Morrison, Department of Computer Science

Introduction

Smartphones have exploded in growth since their inception, with an estimated 5.25 billion smartphone users globally (Oberlo, 2023). In many developing countries, mobile phones serve as the primary means for individuals to connect to the internet, with over 58% of global internet traffic coming from mobile devices (Kiran, 2023). In addition, around 92% of all global internet users utilize smartphones to access the internet, underscoring the significant influence mobile phones hold on the internet and technology sector (Howarth, 2023). With this surge in the number of smartphones globally, mobile user interface (UI) and user experience (UX) have become increasingly important facets of software companies.

Mobile UI is different from desktop UI, since it requires users to interact with UI elements via touchscreen instead of a keyboard and mouse. Software developers and web designers familiar with creating web applications often struggle when tasked with creating a mobile application, as the UI elements utilized by smartphones are different from those used in desktop applications. Smartphones typically exhibit lower performance capabilities when compared to desktop computers, requiring software engineers to scale down desktop feature sets to fit the constraints of smartphones (Kass et al., 2020, p. 136).

To ensure developers follow UI best practices, both Apple and Google distribute UI best practice guidelines for iOS and Android respectively. While developers do not have to follow these practices, failure to do so may result in users spending more time learning the unique UI of an application. These recommendations help ensure that software developers with little to no experience in UI design can build effective applications that users are comfortable using.

Commonly used UI elements in mobile design sometimes does not originate from the operating system designers such as Apple or Google. Developers and UI designers often copy

UX from their competitors or popular applications in a similar space. By adopting established UX patterns in popular applications, users will experience a painless interaction with your application, as they have already used similar product offerings in the same field.

Given the rise of social media in recent years and its nearly ubiquitous adoption of infinite scrolling as a means of displaying content, It is important to understand why so many companies have opted to employ this technique. Infinite scrolling is a content loading approach that continuously loads new content as the user scrolls down, commonly found on social media platforms. This STS project aims to answer the question, what is the significance of the rise of infinite scrolling? For my technical topic, I will discuss my work redesigning a mobile application's UI as part of an internship. Like my STS research question, this project is based on UI and standardized UI conventions.

Technical Topic

In the spring semester of 2023, I had the privilege of being a software engineer at DoorList, a startup that originated at UVA and was founded by another student at the time. DoorList is a cross-platform mobile application focused on democratizing event management for college students, satisfying the distinct requirements of the student demographic and collegiate social organizations. DoorList allows customers to host events, monetize their events, and invite entire social groups at their university in one click. Each DoorList user has a unique continuously changing QR code used to gain entry to any event they are invited to. The QR code is invalid if screen-shotted or screen-recorded, ensuring that only the invited users can attend the event. This dramatically increases the security compared to wristbands or guest-lists, which can easily be circumvented (Weiss, 2022).

When I joined the company, the application was transitioning out of its initial minimum viable product (MVP) phase. At that stage, the application's UI prioritized functionality over user-friendliness and visual appeal. Therefore, my first task was to transform DoorList's UI to follow established UI conventions and improve user friendliness.

At the time, a significant portion of the application's UI used incorrect UI elements that did not adhere to Apple's Human Interface Guidelines (HIG). Apple's HIG provides information on how to implement reusable UI elements such as buttons, pickers, or navigation properly within an iOS application. Adhering to these suggestions enable customers to navigate a new application quicker, as they are already familiar with these UI elements.

I started by creating design mock-ups in Figma, taking heavy inspiration from various built-in iOS apps, and following the design conventions found in Apple's HIG. These initial mock-ups focused on reducing the number of colors used, improving text legibility, and improving the navigation throughout various pages. Using these mockups, I started to implement the various changes into the application's codebase. Since DoorList was written using Flutter, a cross-platform framework, any change I made would be visible on both iOS and Android. While implementing the design modifications, certain elements underwent slight adjustments as I iterated on my initial mock-up. Once the redesign was close to being complete, I had to begin testing the application. To test the application, I built a beta version of the application and released it via TestFlight, a developer tool enabling beta builds to be downloaded to a physical device. After a week or two, we were able to release the new version on the app store, where we got great feedback from users who loved the redesign of the application.

This project relates to the topic of UI and UX. To enhance the user experience, I reconfigured the existing UI to align with the best practice conventions, resulting in improved

ease of use for the application. This new UI helped users became more familiar with the application and began to use more complex features.

STS Topic

The question I aim to answer with this STS project is: what is the significance to the rise of infinite scrolling? Specifically, we will explore the combination of infinite scrolling with curated content tailored to a user's interests.

In 2006, a UX designer named Aza Raskin created the UI convention of infinite scrolling as a means of eliminating pagination which was present on most websites. Raskin documented his creation of infinite scrolling, called "Humanized History" at the time, on his blog stating, "to let you spend more time reading, and less time thinking about navigation" (Raskin, 2006b). Raskin claimed that the concept of pagination was an outdated practice, however, no one ever cared to go back and redesign what the internet would look like without pagination (Raskin, 2006a).

New players to the social media game began adopting infinite scrolling, influencing larger companies to do the same. Instagram, launched in 2010 as a mobile only application, implemented Raskin's infinite scrolling technique by showing users all new and previous posts in a single chronological stream (Blystone, 2022). After seeing Instagram's rapid success, Facebook, the most popular social media at the time, adopted infinite scrolling on both their desktop and mobile applications in 2011 (Neyman, 2017, p. 6). In 2022, Google, long famed for their pagination at the bottom of their pages, switched to infinite scrolling for both mobile and desktop websites (Mehta, 2022). Companies found that replacing pagination with infinite scrolling on their websites increases user engagement time leading to higher revenue as more advertisements are shown. *Time* magazine redesigned their website to adopt infinite scrolling,

four months after its launch, the percentage of users who leave the site after viewing only one page dropped by 15% (Kirkland, 2014). According to Bhargava (2023, p. 5), showing more content leads to higher user engagement because users value variety in content.

To feed their constant desire for a potential reward, users began to develop addictive habits to social media applications that employed infinite scrolling. Social media with infinite scrolling is often compared to a gambling machine, as a user scrolls, they can either be rewarded by content they like or get no reward at all (Rixen et al., 2023, p. 5). Nostril and Payne (2019, p. 3) argue that a reward that follows this non-predictable pattern is partial reinforcement which is seen in the context of compulsive use.

To answer this STS question, I will conduct a literature review of different articles and journals to understand what the motivation was for companies to employ infinite scrolling. These sources will help me understand why so many social media platforms and content consumption application employ this form of navigation. In addition, I will look to conduct a primary document analysis from a company document or press release documenting the introduction or usage of infinite scrolling. A primary document could hold information on the company's exact motivation for using this technique of scrolling.

Conclusion

My technical project was successful in redesigning DoorList's UI to adhere to UI best practices set forth by Apple. This improved UI led to higher customer satisfaction and increased the usage of power user features. My STS research project aims to provide a greater understating on why infinite scrolling is so widely employed by companies. The findings of my research can

help create future studies that gain a deeper understanding of the impacts infinite scrolling has on different actors.

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