FINAL REPORT WRITING DRAFT BELOW

A Playbook to Be Proud of: Implementing Inclusivity

By: Dara Ajayi, Beatrice Fadrigon, Princess Gordon

Project Links:

Final Project Website

Github Repository

I. Goals and Introduction

The high-level goals of this project were to 1) Show our audiences how user account designs exclude LGBTQ+ populations 2) Inform our audiences *how* users feel when sharing information online/ show *what* negative feelings arise at expense of exclusionary design 3) Provide an informative resource – particularly for product developers – to utilize in order to educate themselves (and others) on inclusive design principles that they might be able to implement in the workplace. The content in this website will inform our target audiences (people working in product teams as other teams in industry and general populations) on current user account designs that promote feelings of discomfort and ostracization for LGBTQ+ individuals in particular. We will be using screenshots from the Facebook Sign up page, which we utilized in our Capstone research case study to measure perceptions of comfort and inclusivity in sharing gender and pronoun information. The data that we present in this assignment is visualized data from our Capstone research, which includes user surveys from LGBTQ+ users of technology and interviews from LGBTQ+ users of technology. We use this data in order to inform our audience of the sentiments of these research participants.

The visualizations that we use to present this data include a Sankey diagram, bar charts, heat maps, a tree diagram, and isotypes. In viewing the Sankey diagram, the audience's targeted task is similar to what we described in our usability study, which was to navigate our Sankey diagram and be able to uncover how LGBTQ+ digital product users feel about sharing personal pronoun information. We wanted to understand if the data presented in this graph was applicable to the implications of sentiments' of LGBTQ+ populations outside of our survey group, as well as understand the clarity of the information presented in this graph. Additionally, the task that was targeted toward our heat map visualization was to have users be able to discern the varying levels of comfort in sharing personal information depending on the *digital platform* and *information asked.* In order to aid a viewer of the heat map in being able to perform the targeted task for this graph, we presented two legend measurements for the heat map: one being levels of comfort in sharing a given piece of personal information (lighter shades of purple being less comfortable and darker shades of purple being more comfortable) and the other being levels of

discomfort in sharing personal information (lighter shades of orange being less uncomfortable and darker shades of orange being more comfortable). The other tasks that these visualizations allow (such as the bar graphs) are for users to digest statistical information from our data to further assess users' feelings of inclusive and exclusive account design. Moreover, the information that is presented in the playbook at the bottom of the website serves as an introduction to our audience as to what they can expect to find from our playbook such as background data from Pew Research that presents data on LGBT individuals finding community online, design principles to expect as well as, implementation strategies. Overall, the interface and its visualizations are intended to work together cohesively to execute our project goals.

II. Discussion of related work.

In providing the ***why*** to our project, Ortman and Parker's FCSM article *Why Do Federal Agencies Ask About Sexual Orientation and Gender Identity (SOGI) on Surveys?* highlight the need for inclusive language in order to have accurate, rich data that represents people's unique identities. They elaborate that it allows agencies to accurately measure areas where sexual and gender minorities (SGM) need additional support or visibility and reduces data misrepresentation, and extends to the target users who use data-driven processes. Digital user account interfaces collect user data, however, do not always utilize SOGI data principles when asking for data.

Sasha Constanza-Chock was a large inspiration in this project, providing very explicit and detailed examples of the impact and issues that currently exist in this space. In *Design Justice, A.I., and Escape from the Matrix of Domination,* Costanza-Chock writes about the harm caused by a sociotechnical gap that enforces a gender binary. This reading is a powerful example that can explain to designers that failing to consider inclusive design choices can cause widespread user harm. Further, Costanza-Chock's value based approach from *Design Values: Hard-Coding Liberation?* to challenge current designers' and product managers' norms of how they "should" create products and offer a well-researched alternative that focuses on LGBTQ+ inclusivity. Lastly, Costanza Chock emphasizes the importance of LGBTQ+ centered design is further buttressed in *Design Narratives: From TXTMob to Twitter* through design justice. Design justice principles are meant to generate attention to marginalized communities under the matrix of domination - described as the intersectionality of oppressed identities - by scoping and framing these issues through broader narratives, while offering design based strategies and tools and concrete suggestions to maximize the impact of solutions.

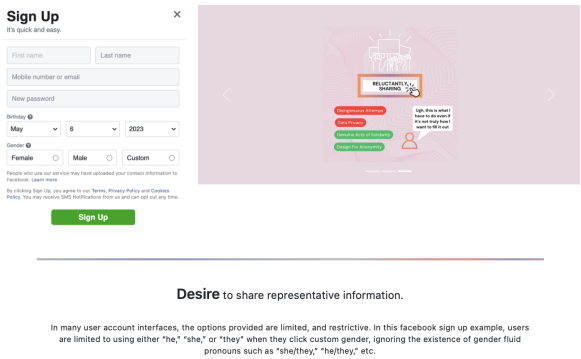
Since our data collection and the overall project wanted to not only highlight issues in exclusionary design but also provide context & solution spaces, we read research such as *How to Do Better with Gender on Surveys: A Guide for HCI Researchers*. This article discusses the burden that the "gender question" places on marginalized people and offers best practices for surveying gender. Utilizing the context of these works, we were able to provide background on what data is important to portray in this space, in order to properly present the issue through our data visualizations.

Additionally, the following psychologists draw from the social sciences for their article in *What is Gender, Anyway: a Review of the Options for Operationalising Gender;* Anna Lindqvist, Marie Gustafsson Sendén, and Emma A. Renström. They dissect the complexities and social construct of gender and how social science researchers must understand these layers in order to develop inclusive, accurate research questions. Their work extends to the user group – product teams designing user accounts – as gender and sex are common and often essential user account fields and researchers must understand the nuance behind the data before asking users to share.

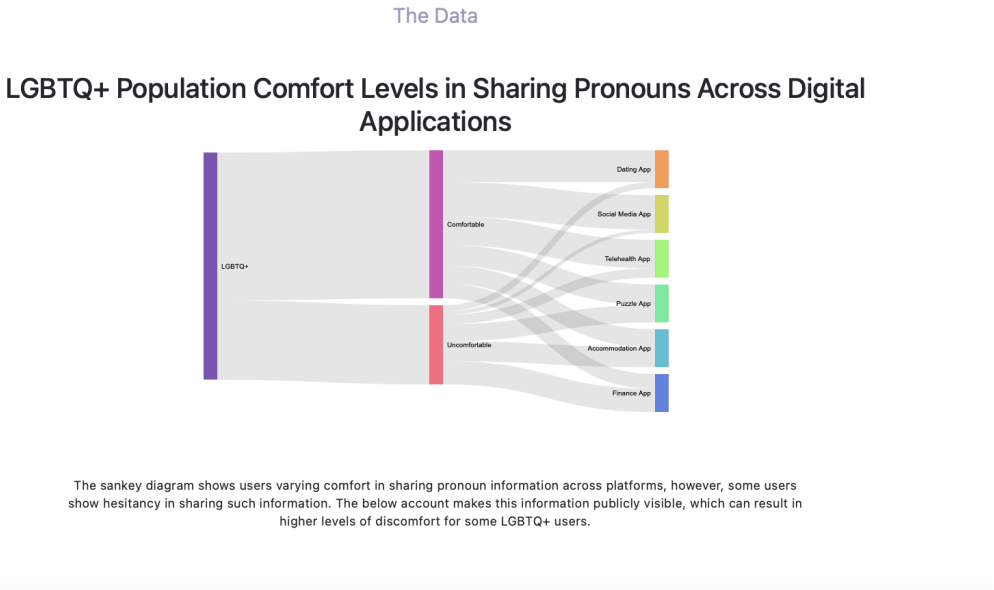
Our project was also guided by research from The National Academies of Science, Engineering, and Medicine's (National Academies) *Measuring Sex, Gender Identity, and Sexual Orientation* which covers *how* to ask for SOGI data. They outline 5 key principles around SOGI data collection: Inclusivity, Precision, Autonomy, Parsimony, and Privacy. This principle structure acts as a helpful guide, applying to the digital product world for designing user account sign up structures. Finally, we looked at two possible examples of exact implementations and solutions–the first one being *A Two-Question Method for Assessing Gender Categories in the Social and Medical Sciences* by researchers Charlotte Tate, Jay Ledbetter, and Cris Youssef. Through the lens of the social and medical sciences, they share work in creating a method for collecting more accurate gender data that is also inclusive of the transgender identity spectrum. They provide a reliable two question method that asks about a user's gender identity and sex to more accurately represent the user and to increase question response rate. This research serves as one example of an alternative way to ask users about their sex and gender identity in a digital product that requires this information. Lastly, Jose Bauermeister et. al. document the process of implementing and the impact of imi in their research study *An Identity-Affirming Web Application to Help Sexual and Gender Minority Youth Cope With Minority Stress: Pilot Randomized Controlled Trial* [24]. The success of this project was largely due to the nature of the design process: including a diversity of LGBTQ+ youth voices all throughout the research, design, testing, and deployment phases, especially focusing on including racial and ethnic minority voices.

III. Visualizations

The website begins by introducing the situation and problem that we will be addressing with our data visualizations.



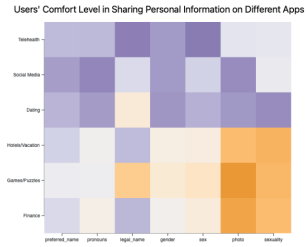
The website then introduces the narrative further, through a presentation of a user account interface that we used as a case study in our research, and begins to introduce themes that resulted from our interview and survey data. This first page of the section presents the user account interface as well as themes coupled by user quotes that act as a "preview" into the section.



As the website progresses, it introduces the data visualizations that we developed from our stated data. The above image is a Sankey Diagram as mentioned in the discussion above. Each data visualization in this section is used to further support the larger theme of its given section. The theme that was being addressed in this data visualization was LGBTQ+ users' *Hesitancy to share representative information.* This theme was introduced with a quote that was juxtaposed next to a screenshot of an exclusionary user account design feature that relates to the concerns of this

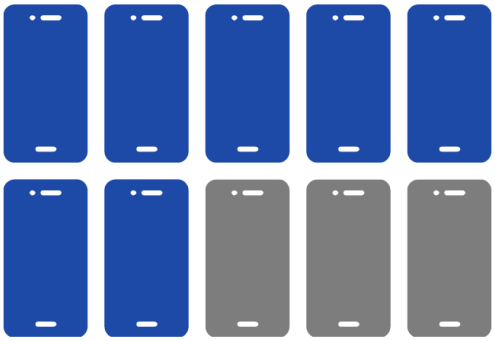
theme. The Sankey diagram provides further insight into where users might be hesitant or "uncomfortable" sharing a given piece of information.

Researchers surveyed all users on their comfort levels associated with sharing SOGI related data with different types of industries, gauging how an industry affected users' hesitance, resistance, and compliance. Users were able to multi-select all industries with which they were comfortable sharing.



Overall, users were most comfortable sharing SOGI-related data with Telehealth Apps, followed closely by Social Media and Dating Apps. Game or Puzzle apps ranked least comfortable across almost all data fields. Hotel or Vacation Rental Apps and Finance Apps, while ranking near comfortable for Legal and Preferred Names, were among the least comfortable industries for sharing other SOGI data.

The heat map to the left explores the theme of users comfort in sharing personal information a bit more, however, offers more detail into the nuances of comfort levels and how they vary across platforms.



This viz is using isotopes to represent that 70% of Product Professionals we spoke to had mid-senior level positions in their company. It was difficult to find the best use of an icon for this, but a phone was chosen due to the available selection and its representation of products.

IV. Data

What data were used to accomplish the goals?

This project used several different data sources to accomplish our goals. Primarily, the data was collected from Bea and Princess' capstone survey (N = 151), which surveyed LGBTQ+ and Non-LGBTQ+ Users of Technology about the comfort levels with data privacy and feelings of inclusion/exclusion for user accounts. Data from one-hour long semi-structured interviews with LGBTQ+ User and Product Professionals also helped us accomplish our goals, those being User N = 5 and Professionals N = 10. Lastly, external data sources such as surveys done by the Pew Research Center was used to help us buttress our main goals.

V. Which tools were used to accomplish the goals.

The first part of this project involved accessing survey data from qualtrics. Then we used Python and Python libraries like Pandas and NumPy to clean and organize the data. For EDA, we used Tableau to create some initial visualizations and to analyze survey questions of interest. To prototype our website, we used zoom whiteboard and Figma. This helped with sketching the desired outline for the website. To generate the various plots included, we used Tableau, Observable and D3. In addition to these, we used Figma to create visualizations involving isotypes. These plots were then directly embedded into the website from these applications. To create the website, we utilized VSCode to create the HTML and CSS files. The HTML file was used to structure the website and CSS was used for styling and animation. We used Bootstrap for styling and outlining the website. Github was used for version control and to host the website on Github pages.

VII. Results

What kinds of results you obtained, with *a focus on usability tests or* responses from prospective or real users.

During our usability tests of our visualizations, we received a lot of feedback, particularly regarding the effectiveness and the whimsicality of the hover function of the heat map, as well as the colors which caused some confusion due to the shades of blue being difficult to decipher. In order to directly respond to the overall feedback from the usability tests, we removed the tooltip hover function since they caused some confusion, and we changed the color scheme of the heat map. Additionally, our legend had 2 different measures (lower levels of comfort in sharing a given piece of personal information being lighter shades of purple and more comfortable being darker shades of purple, as well as low levels of discomfort in sharing personal information being lighter shades of orange and more levels of discomfort being darker shades of orange, as previously stated in our introduction, in order for viewers to be able to more easily determine comfort levels across apps, without having the cognitive load of trying to discern various shades of blue across distinct spectrums, and with an inconsistent hover function.

Additionally, in our Sankey diagram, which displays data on comfort levels of LGBTQ+ populations in sharing pronouns, the responses that we received from users were their unawareness of the hover feature, and some confusion in reading levels of comfort. To combat this, on our website we noted the audience to "Check out the hover feature to see more!" so that they can be aware of this feature and interact more. In our other two Sankey diagrams that compared comfort levels of sharing gender information between LGBTQ+ and non-LGBTQ+, however, we decided to no longer include these graphs since the website hosted two comparisons of this aspect of our data already. When we had prospective users scroll on our interface and describe a piece of information from our narrative, users noted that they found the written context presented with the graphs to help their understanding of what the data visualizations are showing, which helps develop the overall narrative we are aiming to convey in our interface. This shows some improvement in the effectiveness and digestibility of the information in our visualizations in previous earlier assignments.

VIII. Contributions

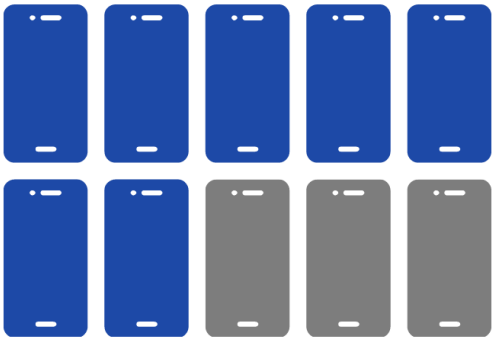
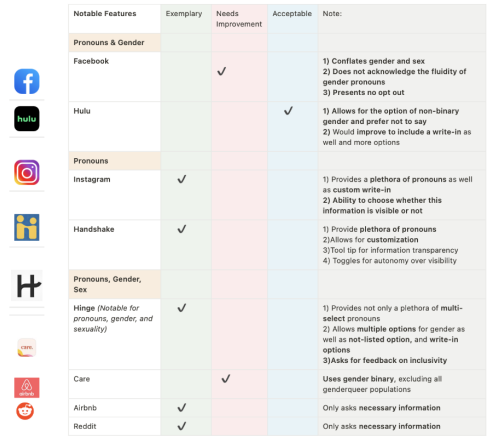
Team Member	**Contribution**	**Percentage of Overall Contribution**
Dara Ajayi	Data Cleaning Led Data Analysis Discussions Made Website Created heat map viz on website Split writing amongst group members	33%
Bea Fadrigon	Used previous assignments (EDA Tableau) for this project Split writing amongst all members Created vizes for playbook on website	33%
Princess Gordon	Led meetings for deadline goals Created visualizations and written content for FB sign up and themes section on website	33%

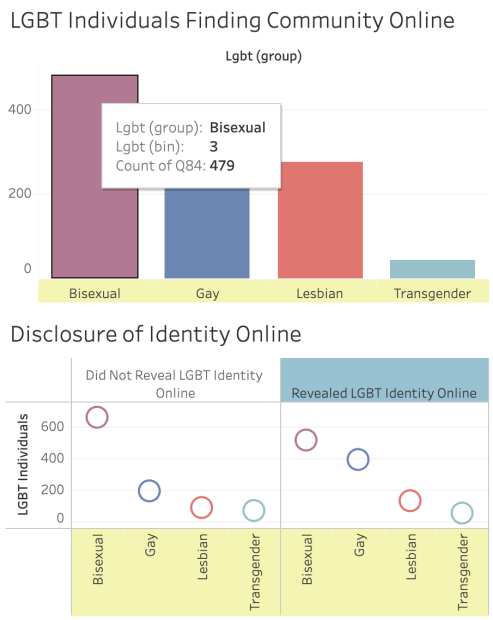
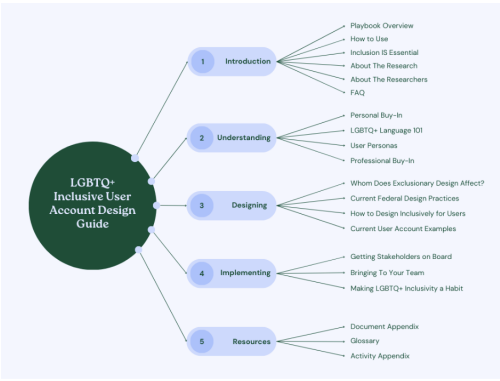
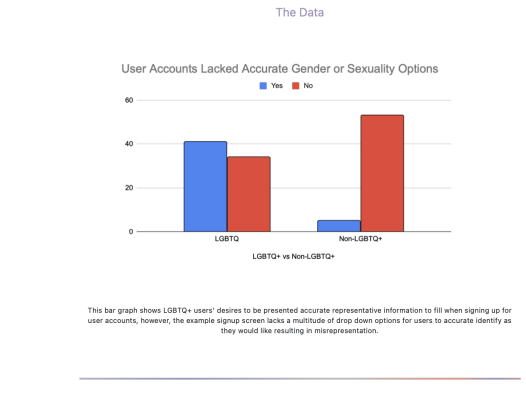
	Goals and Results section of paper Split writing amongst other group members in other sections	

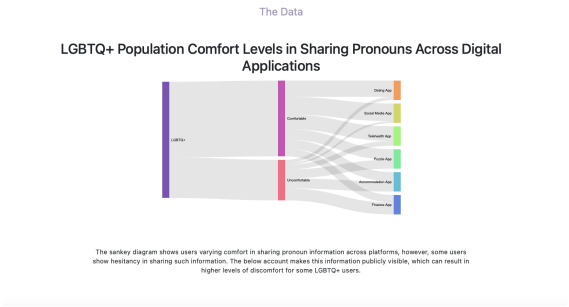
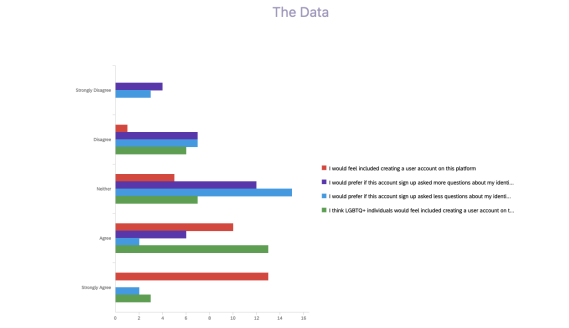
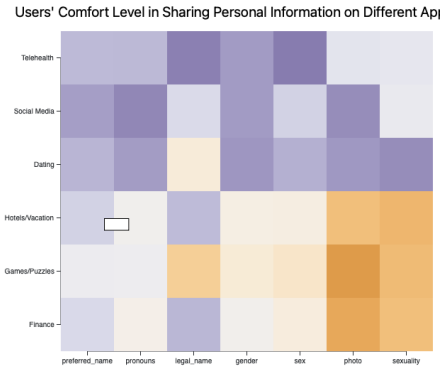
IX. Appendix

[Final Project Website]

[Github Repository]

 Product Professionals - Isotypes	This viz is using isotopes to rep resent that 70% of Product Professionals we spoke to had mid-senior level positions in their company. It was difficult to find the best use of an icon for this, but a phone was chosen due to the available selection and its representation of products.
 Designing Standards - Table Chart	This competitive analysis chart was used in our designing pages for the playbook, which we shared in the project for posterity and context for the sankey diagrams.

 Understanding LGBT+ Community - Tableau Dashboard	This tableau dashboard was out of the EDA assignment, and provided context on the LGBTQ+ communities' senses of disclosure about their identities and numbers towards finding community–something we emphasize in our capstone project report.
 Playbook Overview - Hierarchical Tree Map	Given more time, we would have loved to make this a progressive disclosure tree map as it relates to the books and chapters of our playbook. As it stands as a static image, it is still suppose to represent the breakdown of the information we presented in the guide.
	Bar chart within theme sections

	Sankey diagram
	Bar Chart
	Heat map