UNIVERSITY OF CALGARY

CPSC 481 HUMAN-COMPUTER INTERACTION

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Project Iteration 5

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1 Executive Summary

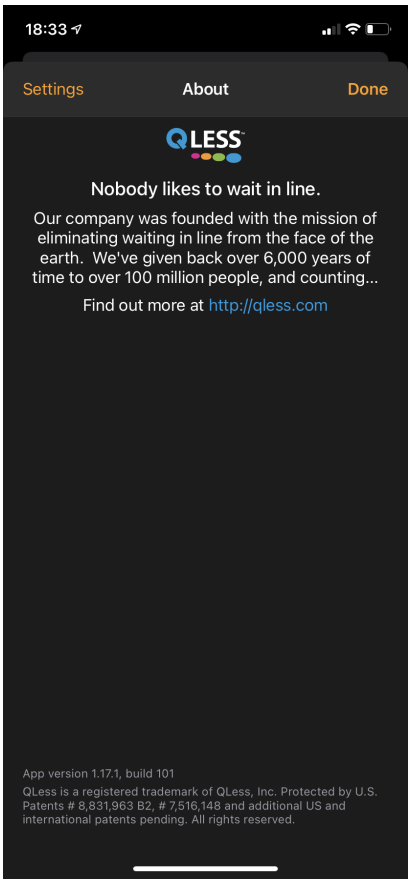
When developing an application, it is important to consider how people will interpret and interact with the UI. For this project, we built an original user interface from scratch to examine how the human interaction with apps can be improved upon. More specifically, we looked at the interface of an existing application, QLess, and developed a new interface with the goal of improving upon the existing solution. In order to do this, we identified the common users and stakeholders of the app and performed user research in order to cater the user experience to them. With this in mind, we developed a low-fidelity prototype, to implement a few tasks vertically, and then iterated on the ideas to create a high-fidelity prototype. We performed a heuristic evaluation on the high-fidelity prototype to refine our design decisions to further improve the experience. Our findings indicate that by using these stages of interface development, we were able to create an enhanced UI for the existing solution.

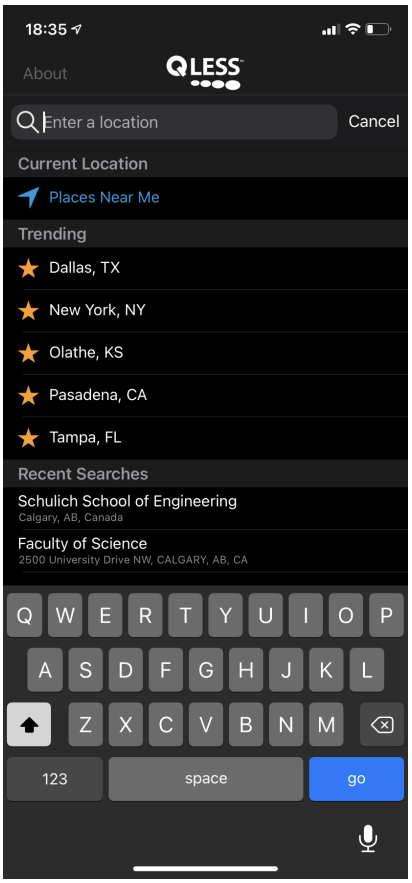
2 Introduction

For our project we have designed a mobile application called WaitLess. The WaitLess app revolves around improving the virtual academic advising experience for students by refining a virtual line up system. We went with a mobile application approach as it is the most accessible for students on the go. When students need advising, virtually lining up is as easy as just hitting “Join Line.” While the student waits, they are updated about their placement in line regularly, removing the need for the student to constantly check how long until they are up next. With WaitLess, we are able to expedite the process to meet with academic advisors and manage it all in a simplified manor.

3 Design Problem

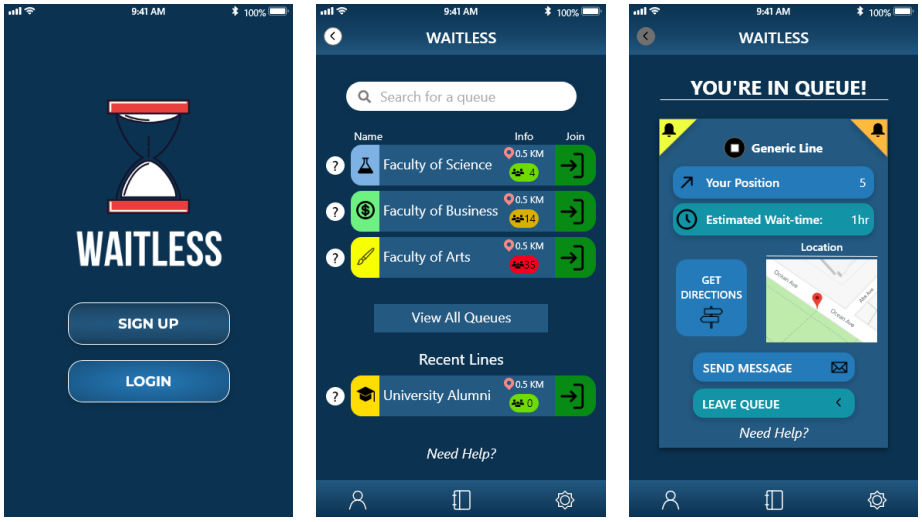
The main problem that we are trying to solve with WaitLess is simplifying an existing app QLess so that the process of students meeting with academic advisors is seamless and straightforward. One problem with the current application is the complexity of its UX. When opening the application, you are immediately greeted with a seemingly infinite list of locations to join virtual lines. For new users, this can seem rather daunting. Another problem is the UI/UX that is used for joining these virtual lines. Every time you want to join a line, it will prompt you to enter your personal details and inquiry. This becomes tedious for repeat users. Lastly, we realized that the user had to navigate too many pages to complete the simple task of meeting with an academic advisor. We thought this process could be broken down and simplified so that users can become familiar with the process having minimal steps. Overall with the problems we have come across with QLess, we feel we can solve this by designing our own new application that has the same premise, yet patches up the holes this current app has.





4 Design Solution

For the problems mentioned above, we wanted to fix these and create solutions that will most importantly benefit the students. Firstly, the problem with the long list of locations, we can fix this by implementing user location. That way we can ensure that better suggestions are made to the user for lines they want to join in their area. Another problem was the information the user needed to enter before joining a line. To solve this we were able to have the user sign up for an account before using the app. That way their information is stored and there is no need to ask for it each time. Finally, we were able to create a hub for the app and have only a handful of pages that the user has to navigate to complete each process. We realized with this ideation that the time it takes for users to use WaitLess compared to QLess was much faster, making for a better UX.



5 End-User and Stakeholders

- The **University Students** are the ones who will use this system to line up to get advice and counseling on their degree. Students can be split into two categories:
    1. Students familiar with the existing solution QLess have sufficient experience and background using a virtual advising system. Hence, would be more understanding when using our idea.
    2. Students NOT familiar with QLess do not have much experience or background with virtual advising and would need special attention to make our WaitLess solution more welcoming.
- The **Academic Advisors** are individuals who will be using this system to advise students and set up lines. Advisors are assumed to already have the requirements and experience of conducting virtual advising as well as background knowledge in QLess.
- The **University Administration** are stakeholders that will want to oversee the our system but will not directly use it.

6 User Research Methods and Process

Competitive Product Survey

We used this IDEO Method Card to compare what we want to create as a product with the pre-existing QLess app. We were able to make comparisons and evaluate this product to create initial requirements for our app and make changes we deemed necessary. We were able to sit down with two University of Calgary students and get their feedback on the QLess app. Instead of giving our participants a traditional survey, we instead allowed them to test the app and give feedback with each step they took.

Extreme User Interviews

We used this IDEO Method Card by identifying two groups of individuals. Those extremely familiar and those completely unfamiliar with the QLess App. So we first interviewed students who changed their Program of Study at the University of Calgary and had subsequently made regular appointments with Program Advisors. For the second group, we talked to the parents of one of our teammates to get an idea of solely the design of the app as well as first-year university students to get a better idea of the actual application functionality and evaluated their overall user-experience.

Flow Analysis

This IDEO method card was used in our research by drawing out the process flow that listed out the steps of putting yourself in a drop-in advising line. Draw.io was used to draw this diagram, and the QLess app was used to get a baseline of what the process should look like. Our group then added, removed, and updated certain tasks as we responded to some of the feedback received in our user research.

7 User Research Findings

Competitive Product Survey

- There is an ”About” label on each page that provides no valuable information to the user except a way to get to the settings.
- The user can’t access the settings unless currently on the home page.
- When searching for lines, the app will have a constant ”refresh” animation appear which covers up the first line in the list.
- The lines suggested to the user are nowhere near them such as ”Los Angeles” and ”Dallas” while searching for lines in ”Calgary”.
- There are multiple pages needed for joining a line. User feel that this could be simplified down to just 1 or 2.
- Information about the user is not retained from joining lines in the past.

Extreme User Interviews

Regular Users:

- Setting up appointments for a second time asks for the same data to be input which users find extremely time-consuming.

- The app doesn't allow re-using previous inquiry messages from the user. Users feel this would help them organize their thoughts and questions for the next meeting.

Non-Regular Users:

- The UI is very dull and boring to look at.
- The app could make use colors to help identify/differentiate different faculties.
- The list of faculties is not alphabetical making it difficult to find a specific program advisor quickly.

Flow Analysis

- Stripped down the process of getting into a virtual line for academic advising. Identified important tasks, decisions that a student should do in order to get into a line.
- Determined alternative endpoints/end-goals for the lining up process. These alternative end goals keep students needing short answers out of the line.
- Introduced possible improvements in the lining up process by having the student submit their question before they get in the line, so the student and advisor can reduce session time and shorten the line.

8 Important Design Choices and Justification

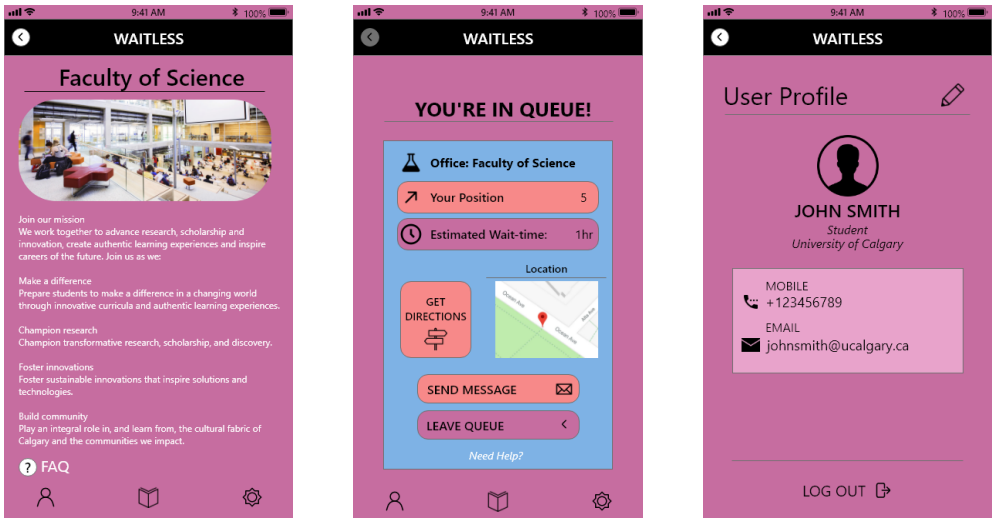
All of our design choices for creating our application centered around having a simple UX for the user. Everything from logging on to the app to finishing up a session that you queued for, we wanted minimal interactions necessary with the user and the app. With one of our design choices, we wanted to have an eye-catching colour scheme that made using our app enjoyable. Included in this colour scheme, we went with a generic blue colour as our background with other off-setting colours like green and red to attract the users attention towards the join line button and FAQ page respectively. Without the user realizing, it makes it easier for them to navigate the app by drawing their eyes towards specific functions. Also, unlike our competitors QLess, we wanted to create a hub in our app that can take the user to any part of our app. We felt like this created a feeling of familiarity as they can learn over time how to operate the app by always starting in the hub.

9 Lo-Fi Design and Lessons Learned

For the design of our lo-fi prototype, we focused on the core functionalities of searching and browsing queues, accessing various help pages for the app and for queues, and also alerting the user with notifications when they are nearing the front of the queue. With these in mind, we pursued a task-centered design to allow the user to easily log in and have easy access to these three functionalities. With our black and white theme, we learned to avoid using contrasting colours to go along with it. Our design also included an initial messaging system which resembled email rather than instant chat, which taught us the lesson of ensuring that these elements are designed with a familiar concept.

10 Hi-Fi Design and Lessons Learned

For the design of our hi-fi prototype, we kept the structure of a few elements from the lo-fi prototype including the registration and login pages, as well as the settings page. We switched the design for searching and browsing queues to allow for more information to be displayed on the page. Instead of the previously spacious interface, we opted for a compact display of queues. We also added visual components to previously bland pages such as the queue FAQs and the front-of-queue notification page. While developing the hi-fi prototype and struggling with navigation in early versions, we learned to include consistent navigation options to the user such as always having a "back" button available and including a taskbar which redirects the user to important pages. We also continued to iterate on overall aesthetic choices to reinforce the lesson of choosing pallets which enhance user experience without causing distraction or visual strain.



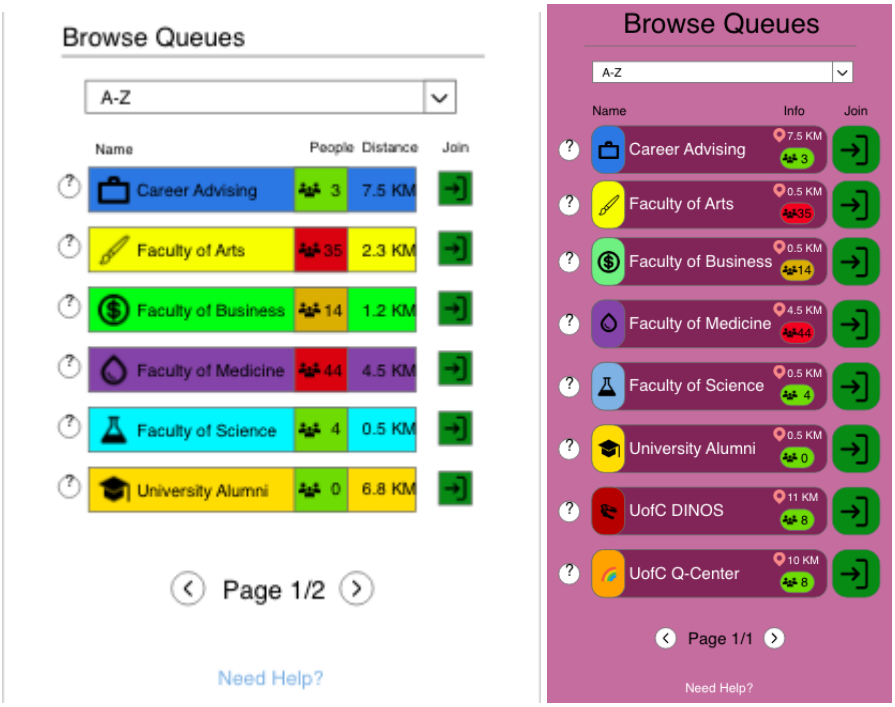
11 Heuristic Evaluation and Findings

Our heuristic evaluation was conducted using Nielsen and Molich's UIDesign Guidelines. Each evaluator independently viewed the application and reported their findings, which were then analyzed by the reviewers to determine problems and their severity. Initially, we encountered

some high priority issues related to traversal of the app. In early versions of the prototype, some buttons did not redirect the user as intended and there were a few inaccessible pages. We also identified some low severity issues which were mostly related to the quality of life aspect of the interface. We identified the need to recolour a few sections and buttons to increase coherence and reduce visual strain. Building upon these improvements, we also looked at the overall consistency between pages to ensure the user can use the app intuitively via familiar recognition of the interface rather than having to explicitly recall elements of the interface to use them. The heuristic evaluation also identified some strengths of the prototype. Mainly, communication with the user regarding system status. The information given to the user while they are in a queue or looking for a queue was clear and concise, albeit not customizable. Throughout the entire process, the app required the most attention in the area of error prevention, mainly relating to navigation and accessibility, and required the least attention in the area of matching the system to the real world, which was integrated well in previous stages.

12 Design Changes - Stage Four

After completing the heuristic evaluation, we made a few changes to the design of the app. The most significant change involved a full audit of interactive components of the app, ensuring that redirects between pages comprehensively covered every page. In addition to this fix to forward navigation, the implementation of a generic "back" button on most pages ensured that users could always return to a previous page to avoid getting stuck on an unwanted page. On top of these navigational changes, we implemented multiple iterations of different colour pallets for the app to improve upon overall aesthetic and coherence. Many icons for different actions were changed to be more intuitive and consistent with each other and an animation was added to allow for better communication with the user during times when they need to take action.

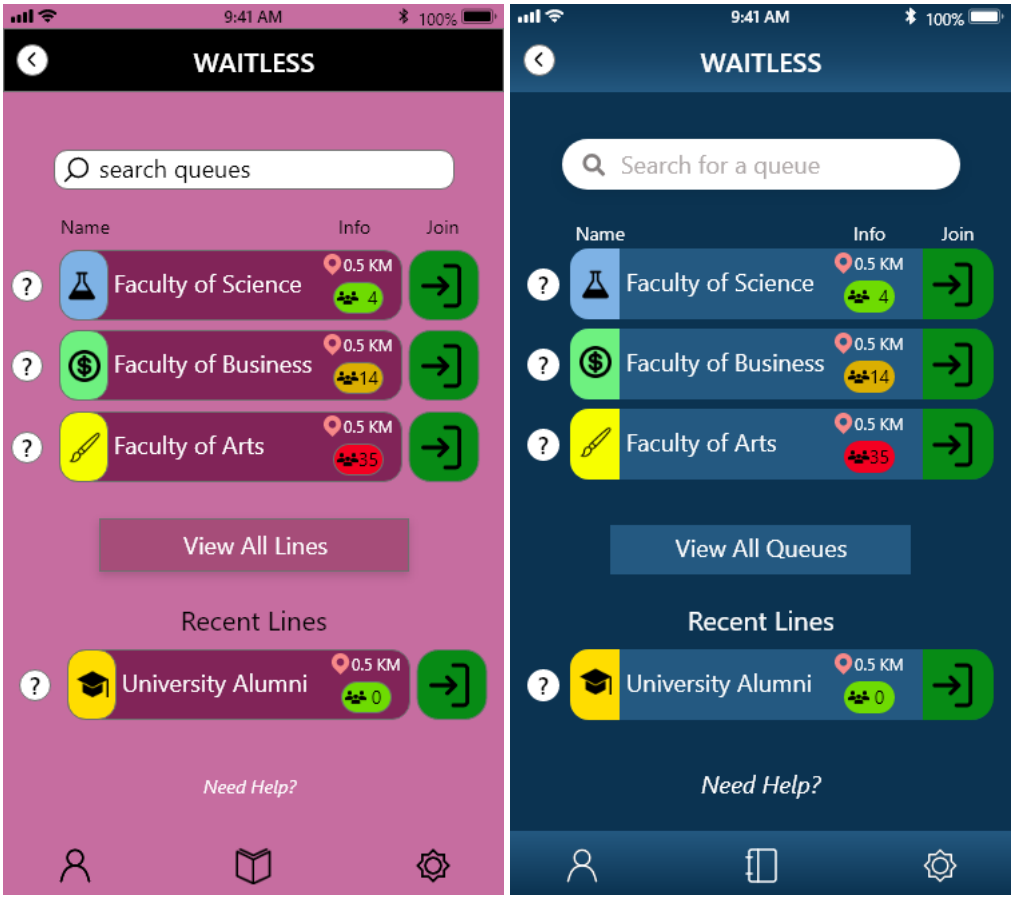


13 Design Changes - Stage Five and Beyond

Following the completion of stage 4, we went out and decided to critically evaluate our high fidelity prototype design for stage 5. This evaluation included feedback from team members, friends, and

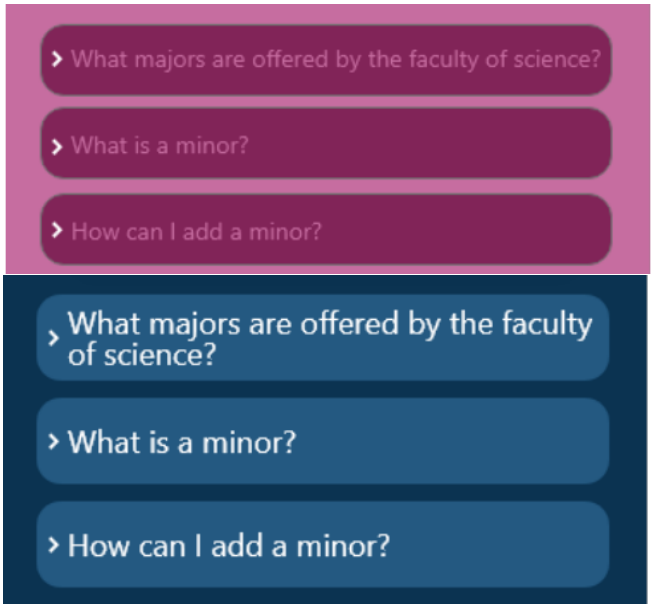
other users. Firstly, we updated the colour scheme from a purple/pink colour scheme to a navy blue colour scheme based on feedback. The design of the "lines" sections were also updated as seen by comparing the two figures below:

Figure 1: General Prototype Before (Left) and After (Right)



In more detail, certain parts of our app did not provide enough contrast to comfortably view what was displayed on screen (a contrast ratio of 2.62 in our worst case) and our initially chosen font size of 10-14px was unreadable in many cases. We fixed these issues by changing the colouring to a navy blue scheme which provided us a contrast ratio of 7.44, making the text displayed on the screen more visible. The font size was also increased to a much more readable 18px font size (16px font sizes were used elsewhere but these were also readable).

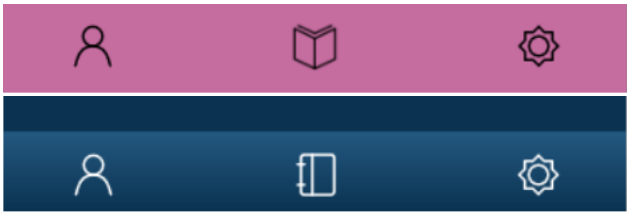
Figure 2: Contrast/Font Before (Top) and After (Bottom)



Another issue that was prevalent in our design was the lack of polish in our navigation menus. For one, neither menu was fixed to the screen when the user scrolled, which is not intuitive. This was an easy update for our high fidelity prototype. Secondly, the bottom menu navigation bar (plain icons on the background) was not consistent in design with the top navigation bar (icons sitting on top of a black rectangle). As such, we overhauled and changed the navigation bars designs to be both icons sitting on top of a rectangle with a linear gradient colour scheme.

Figure 3: Top Navigation Bar Before (Top) and After (Bottom)

Figure 4: Bottom Navigation Bar Before (Top) and After (Bottom)



With our project moving past Stage 5, we would want to progress our app to be used for more then just students looking to meet with academic advisors. We can allow for a larger user count by making it available for any type of line, such as banks and car insurance companies. As well, we haven't been able to deploy our app to be used on mobile devices as we originally intended. Our current design only works for mobile use, so to be able to actually deploy it would be very intuitive.

14 Conclusion

In summary, our process of creating an enhanced alternative to a pre-existing interface involved following the steps of an initial ideation and research phase followed by a development phase focused on multiple iterations. First, by identifying design problems to solve and conducting user research, we were able to establish some initial ideas for how to tailor our interface to its users. Then, through the development of a low-fidelity prototype, we were able to map out our ideas for the interface in a more concrete way and establish some initial design decisions. After this, the transition to a high-fidelity prototype allowed us to further expand on more tasks and ideas of the interface, as well as refine the overall usability and quality of life of the UI. By following these steps of the design processes, the interface we developed as a final high-fidelity prototype was able to satisfy the criteria of improving upon the pre-existing solution.

GitHub Repository, Portfolio, and Pages Links

Here is the link to our GitHub Repository: https://github.com/RMcCurdy/TeamS_Project

Here is the link to our GitHub Project Page: https://github.com/users/RMcCurdy/projects/1

UPDATE THE LINK FOR THE NEW PORTFOLIO
Here is the link to our GitHub Pages Portfolio: