CPSC 481 Fall 2020 – Team D
Final UCD Report

Tutorial 01
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Executive Summary

Having a good UI design is an essential part of today's tech industry and the quality of it alone can entirely determine the success of a product. The purpose of this report is to demonstrate the knowledge about UI design Group D has accumulated throughout the CPSC 481 course and how it has been applied to make the Grocery Getters high-fidelity prototype. In order to create a decent UI, many techniques were used in the creation of the app such as usability testing, storyboarding, IDEO Card Research methods, sketching and even the design of a low-fidelity prototype through Balsamiq. It is through the study and application of these design strategies as well as the guidance of TA Hessam Djavaherpour which allowed us to learn about proper UI design. The following report presents the combined efforts of Group D on every stage in the creation of the Grocery Getters app.

Introduction

From a high level overview of the entire process, we started off with the idea of creating a more useful grocery list and shopping app that provides more functionality than similar apps such as Microsoft To Do. Using three unique IDEO method cards, we conducted user research to better understand the behavior of the average consumer who uses grocery lists or apps. Once the user research concluded, we constructed a low fidelity prototype using Balsamiq which was inspired by the group sketches, affinity diagrams and storyboards. This eventually allowed us to illustrate some of the major user tasks behind the app and decide on a general design to follow through on our high-fidelity prototype. For the high-fidelity prototype, we used Adobe XD to give a more complete design of the Grocery Getters application and tried to replicate true usability as if the app truly existed. Once we performed heuristic evaluation, we refined the prototype to address some usability and design issues that led us to where we are for this current stage. All user tasks have been prototyped vertically with as much detail as possible, closely paying attention to the color schemes, text fonts, and shape layouts.

Design Problem

With the current design of grocery list apps, some of them are rather limited to what the user can do or individuals find that dedicated apps are not worth using because they do not provide much functionality. The Grocery Getters application's design is to address or modify what is currently available such as Microsoft To Do or simple Notes apps. We believe that our app could provide needed functionality for people to switch over to using a dedicated grocery shopping application that is not as simple as only adding items to lists. The main problem with current list apps is that it does not do much more than simply adding items to lists. What if the list could tell a user what is on sale at a certain store or tell them where that item is located in the store as well? We believe that our design solution can provide simple list functionality while simultaneously saving a consumer time and money with unique features.

Design Solution

Team D's Grocery Getters app seeks to combine the simple functionality of most grocery list apps with additional functions which we discovered to be most useful through our extensive research. Rather than just adding items to a list, Grocery Getters allows users directly link up with a store's inventory system and make their grocery list based on what items are actually available. Being able to immediately check if something is in stock can potentially save users from the extra trip travelling to a different store. To further add to this functionality, users can check the location of items and even compare their prices between stores to ensure that they save time and get the best deals possible in case there is a sale. We also incorporated a mapping feature which allows users to plot out their shopping trip and even save their preferred stores. What ties the design of Grocery Getters together is its simple yet effective design. Despite having more features than standard grocery list apps, the few colours and clear options ensure that users are never lost in the UI even when it is their first-time operating Grocery Getters.

End Users and Stakeholders

For this project, our end users will be our customers as they are the ones that will be interacting with the app, they both choose and navigate through a grocery store. The stakeholders of Grocery Getters will be the grocery stores themselves. They will be working in conjunction with the app by allowing access to view their inventory and in-store map which will in turn create a seamless shopping experience for their customers and thereby gain more business. In addition, Team D is also a stakeholder as the quality and design of Grocery Getters directly correlates with our grade.

User Research Methods and Process

<u>Shadowing</u>

To begin our research, we performed Shadowing in order to get general insight on how an average customer goes about shopping. During our test, we followed and observed a subject as they went grocery shopping without a grocery list app and noted down everything they did. We outlined how decisions were made and potential inefficiencies as they went through their routine.

<u>Cognitive Task Analysis</u>

This research method was used to determine a user's decision-making based on how they would interact with an app while shopping. Critically analyzing how a grocery app is used allowed us to confirm our previous thoughts on how it can improve a user's shopping experience. It also gave us valuable information on the logic involved when considering how users make decisions on which products to purchase.

<u>Flow Analysis</u>

By plotting out a user's normal shopping trip into a simple flow diagram, we were able to figure out a basic formula based on their decision-making throughout. From this diagram, we were able to find faults and inefficiencies which could be further studied.

User Research Findings

We were able to make a number of conclusions based on these research methods. From Shadowing, we made several discoveries such as how time is wasted looking for items between aisles and how knowing the stock of items while making a shopping list ahead of time drastically increases efficiency. Through Cognitive Task Analysis were able to determine potential issues with implementing an inventory tracking system and comparing prices between stores. Finally, with Flow Analysis, we managed to create a far more efficient flow diagram that incorporated the use of an app to enhance the shopping experience. Overall, these tests provided valuable information about the inefficiencies of shopping and how these problems could be solved through the use of Grocery Getters. It also confirmed the need for certain features in the app that would definitively help users in their shopping experience.

Important Design Choices and Justification

Some important design choices that Team D made while planning out our user tasks was making sure that Grocery Getters was more than just another grocery list app. Rather than simply adding superfluous features to the limited functionality of other similar systems, we wanted to design something that would truly benefit the shopping experience of users. By analyzing the inefficiencies of an average shopping trip, we made user tasks such a map system to help users plot out their trip ahead of time, displaying what is in stock to make sure users are not wasting time going to a store and even a floor-map to help find products while inside the store. To tie all these functions together we decided on implementing a fairly minimalist design that would ensure that users would never be lost while using Grocery Getters. This was a key take-away from researching other apps, ensuring that even someone who was unfamiliar with the system could intuitively understand and use it properly.

Lo-Fi Design and Lessons Learned

During the creation of the Lo-Fi prototype, Team D learned Balsamiq in-depth in order to implement our design. Although Balsamiq was easy to use, during this process we ran into several problems. The first and largest was that we did not create a base layout for all the pages. The base layout are features such as a home button and a settings button. Instead of replicating each slide with a base layout and then adding content, we populated each page with content then implemented the settings and home buttons which was not the most efficient. The next lesson that team D learned is to create each page and link them up as more pages are created, this creates a seamless flow and ensures that no page or button is mis-linked. A prevalent issue during this stage was figuring out a good balance in presenting information: were we flooding the user with detail or not providing enough? We also did not incorporate a proper back button, users had to go back to the home menu to go back in screens. After the Lo-Fi prototype was finished, we had a far better grasp on how to fix these initial issues.

Hi-Fi Design and Lessons Learned

In order to create Hi-Fi prototype, Team D had to learn Adobe XD from scratch as none of us had any prior experience with the program. In comparison to the relatively simple Balsamiq, Adobe XD had a much steeper learning curve. Being able to implement the more complicated features of Grocery Getters took much trial and error as the program took time getting used to. The layering features as well as the Adobe UI itself were challenging to use and implementing icons required us to either create them ourselves or take them off third party sources. By this point in the Grocery Getters design, we had found the proper balance in providing enough information to end users. After getting feedback on this stage, we learned that we needed to polish our design by making smoother transitions, adding more colour for clarity purposes and decreasing the size of certain buttons. Overall, we had fewer problems with the Hi-Fi prototype compared to the Lo-Fi prototype as we had a much better grasp on UI design from previous iterations.

Heuristic Evaluations and Findings

By going through the heuristic evaluations, Team D was able to make a number of observations on Grocery Getters thus far. Almost all heuristic design criteria were followed to a decent degree. We had created a streamlined UI that provided users with all the necessary information that even a new user could easily read and properly operate. As long as the user understood English and recognized common symbols used universally, Grocery Getters was completely intuitive and provided them with all the necessary functions to improve their shopping experience. One problem that we encountered during this stage in development was our smaller team size due to a member dropping the course which resulted in fewer reviewers to get input from. Besides relatively minor cosmetic changes, the Grocery Getters app was almost complete.

Changes Based on Heuristic Evaluations

Based on the evaluations, we made a few additions to Grocery Getters. We changed the size and shape of the home/settings buttons (Appendix A) and separated Completed Lists from Non-Completed lists. These are completely cosmetic but provided more clarity to users which is an essential part of UI design.

Changes in Hi-Fi Prototype in Stage Five

The first change we addressed was one of the horizontal tasks in Stage Four which was the visual map and store location feature. Users had the choice to set their preferred store using either their Most Visited or Most Recent grocery store location. We only built the button but did not implement the logic behind it. For addressing the other horizontal task in Stage Four, we gave the item locator feature a little bit more detail by giving the user the option to use an in-store map that highlights the section that a chosen item is in. To access that in-store map, they only need to click on the help icon beside the section when they click on an item in the store inventory. We also missed a simple feature in the last stage, as users were forced to add items to their list using the item search function. With our current prototype, they can use the

“Quick Add” toggle to let them add items to their grocery list without using the item search function and they can simply add in their own items in manually.

In terms of the overall visuals and layouts, some of the colour schemes were changed to make the application more interesting for the user. Each function of the app will have a different shade of green, for example, adding a new list will be dark green, item search is lime green, and completed lists are turquoise. Even though we changed the icons for the home and settings button after the heuristic evaluations, we made them too obvious and it could have distracted the user from performing their tasks. We made the icons more reasonable in the final prototype such that they are still clear but not overpowering at the bottom task bar (Appendix B).

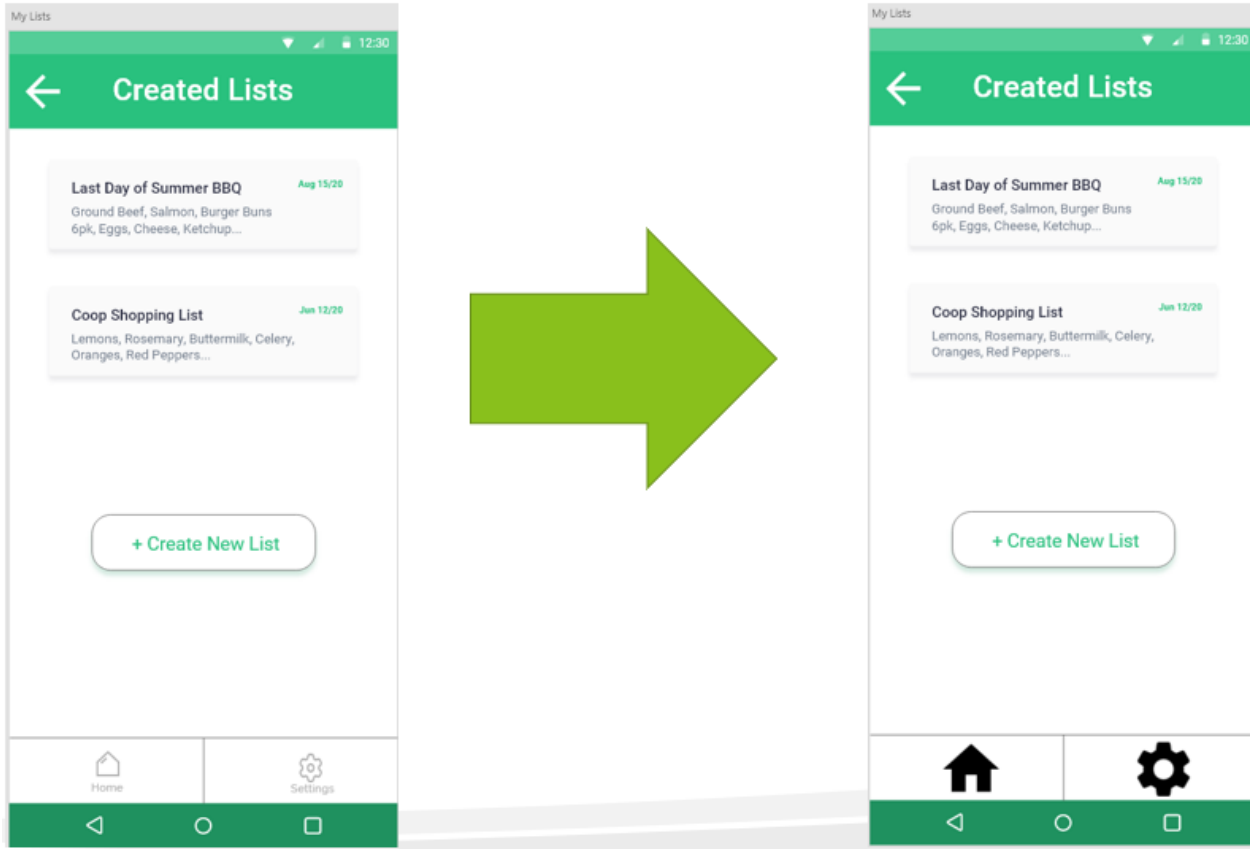
In terms of future changes, the Grocery Getters app should have the ability to share the grocery lists with other users or collaborators allowing for multiple people to work on a grocery list simultaneously. We also feel that we should give the option for users to have a list of grocery stores available instead of forcing them to look on a map to click on a certain location. What could have been added for this prototype iteration is a separate page for certain sale items or coupons for a grocery store. These buttons were added to give the home page design more symmetry instead of leaving them out of the picture. However, we did not choose to prototype these user tasks as they did not provide as much value or uniqueness to the app as the other tasks we chose.

Conclusion

Our choice for designing and prototyping the Grocery Getters application was not the most unique idea but it still provided us a surplus of learning experience for UI and UX design. We learned quite quickly that there is more to designing a mobile application than simply sketching it immediately and spontaneously attempting trial and error. In terms of the decision making and quality during all five stages of the project, we believe that we performed the best we could for this project given the challenges of remote classes and losing a member halfway through the course. Overall, the process of designing Grocery Getters provided Team D with a wealth of knowledge and experience which we hope to apply in case we have to work with HCI in the future.

Appendix

Appendix A: Initial Home Button Change



Appendix B: Final Home Button Change