

CPSC 481 Final Report

Group #1024

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Nutrition Caddy

Introduction

Nutrition Caddy is a user-friendly grocery management app aimed towards individuals with special dietary needs or restrictions. These users may include individuals with Diabetes, Celiac Disease, or those on special diets such as Vegan or Keto. The app will contain all the functionalities expected from a grocery management app such as the ability to select and enter grocery items, adjust quantities, track expiration dates and sync with other household members' app. However, as mentioned, our app will have a large focus on food items as our goal is to provide an effective way for users with dietary restrictions to plan, track and shop for groceries.

Design Problem

The design problem we are trying to solve is to provide individuals who live with dietary restrictions a way to effectively manage their groceries. There are numerous grocery management apps available for users to download, however, we recognized a need for an app which operates with a focus on dietary restrictions. There are millions of people around the world of various ages and backgrounds who live with dietary restrictions. For example, medical reasons such as life-threatening allergies, Diabetes or Celiac disease means that people have to follow strict diets or avoid certain ingredients which can be detrimental to their health. Other diets such as a Vegan diet may be for ethical reasons. Therefore, we decided to research and develop an app which will provide a user-friendly interface to track everyday grocery items while providing users with the ease of excluding the items which they would like to avoid. Our goal was to create an extensive grocery management app which benefits users with special diets as well as provide a useful tool for all users who choose to use it.

User Research and Findings

For our user research we chose the Secondary Research and the Persona IDEO methods. We chose these methods because they complemented each other well. The main findings of our secondary research included what the most popular dietary restrictions are, the popularity and demographics of those diets as well as how other grocery management apps operate. Through our research we identified five main categories of dietary restriction reasons:

1. Health - individuals in this category may have life-threatening allergies, Diabetes or Celiac disease just to name a few. This is a critical category as consuming certain foods can be detrimental to the individual's health and even fatal.

2. Diets - These can include dieting for weight loss, low-sugar, low-carb or Ketogenic diets. These are very common and usually revolve around avoiding one type of food.
3. Religious - Religious diets such as Halal or Kosher means that individuals must avoid some food items or can only eat special made food in accordance to their religious views.
4. Ethical - Ethics is another reason for which individuals may follow a special diet. For example, some people choose to follow a Vegan diet which avoids all animal products. Common concerns of these individuals are damage to the environment, exploitative labor practices, food shortages for others, inhumane treatment of food animals, and the unintended effects of food policy.
5. No Restrictions - These are individuals who have no dietary restrictions and are open to all products. These individuals can still benefit from our user-friendly grocery management functionalities and may have certain food preferences which they can customize in our app.

Using this information we developed the following five personas which represent our potential users. The full descriptions of each of our personas can be found here:

<https://doelldd.github.io/index.html>

Design and Justification

For our final design idea, we decided to create a simple user-interface which will give users a streamlined experience. Our app maintains a top bar which gives users easy access to important options such as edit profile, edit dietary restriction, create, delete, view and change current grocery list. There is also a bottom bar maintained throughout the app to give users easy access to the other main pages. We have sectioned our app into four main parts: Feed, Grocery, Inventory, and Recipes. Initially, our design idea centered mainly around the grocery and recipe functionalities. However, we identified that having a social aspect to our app enhances the user experience. We decided to implement a social feed similar to facebook or instagram where users can connect with other users who share the same dietary restrictions. Moreover, users can also join groups which align with their specific dietary interests allowing individuals to share tips, recommendations and recipes with each other.

The home screen for the app is the user's current shopping list. Here, the user can carry out all the tasks which are expected from a grocery management app such as adding items, checking them off, removing items (by swiping it off the screen) as well as searching for specific items. There are also Recent, Favourites and Order Online sections for user convenience. There will also be a functionality to order all items through the mobile app from nearby grocery stores. Furthermore, the inventory section allows the users to manage quantities, specify expiry dates and set custom reminders for replenishing the item they currently have at home.

Lastly, our app has a dedicated recipes section where users can browse and search for recipes which are tailored to fit the user's dietary restrictions. We designed two separate pages: Find Recipes and My Recipes. In the Find Recipes page the user can view all recipes and use various filters to find the specific recipes they are looking for. Moreover, the user can "thumbs up" or "thumbs down" recipes to indicate to others whether this is a good recipe or not. On the My recipes page the user can view their saved recipes and create a new recipe as well.

Heuristic Evaluation and Findings

We received heuristic evaluation from group 3. They found the app is easy to use since the layout is similar to apps that are commonly seen. Operations can be performed without giving too many instructions in detail.

They suggested some consistency problems, such as transitions between screens, some icons are not clickable, text position is not fixed when toggling between recipe pages and sometimes when scrolling. On the readability aspect, they've noticed the font of expired item list were too small, we will definitely take this point and adjust the font. On the aspect of matching between system and the real world, they suggested adding units to inventory items for a more accurate description. On the efficiency aspect, an additional suggestion was brought up to have the option to copy recipe ingredients to shopping list for ease of use.

One of the most noticeable and constructive improvements they came up with was differentiating search criteria in each section to limit the searching scope and improve functional specifications. This was because they found the search options in the app were kind of unclear and caused confusion.

In summary, we got a mostly positive feedback which motivated the whole group. We found the heuristic evaluation to be a really essential step before moving to the next stage. The group who provided their evaluation to us assessed our progress from an objective perspective. They tested the usability and helped us discover problems.

User Testing and Findings

We did user testing with three users and asked them to complete three major tasks. We evaluated user performances based on the time they spent on each task, the completion of each task and whether they complete the task with assistance or not. After testing, the users were asked to rate each task with a score from 1 to 10, as well as, provide feedback in more detail. The overall user testing was positive and most tasks were completed successfully and independently by the testers.

We've noticed some small issues for transitions between screens. One problem our users encountered was unable to delete items from shopping list. This was due to the swiping for deletion functionality we had so far was not obvious, so we will implement delete from long press menu in the future as well. (Note: long press is not possible to simulate in Adobe XD) And there was still room for improvement on error prevention, such as adding a confirmation message or preventing some invalid operations automatically.

Recommendations for Next Iteration of Design

There are still a bunch of features haven't been implemented from lo-fi prototype, including Social Feed section that provides users a social platform to join a group with the same interest and share their dietary tips. Also, the online ordering option, dietary settings and user profile will be our next goal.

We will also incorporate tasks from the remaining feedback from heuristic evaluation and user testing. Adding a delete option for long-pressed list item and expired tab, adding an exit confirmation message for editing item details tab, and adding a quick add button in search section for the recipes are all put into consideration.

The rest would be the improvement on flexibility and consistency. We plan to optimize transition effect between pages. We will change the home screen of the recipes page to “Find Recipes” since users may use this page more frequently to look for recipes than creating and checking their own recipes. In addition, we believe implementing an option to create a custom item in the grocery list and giving options to check or uncheck arbitrary recipe instruction steps can provide users more flexibility.

Conclusions

Our group began with the idea to create a grocery management app and then narrowed our focus to a grocery management app specifically for people with dietary restrictions. The next step in our design process was to conduct user research where we conducted secondary research to find out more about dietary restrictions and currently available apps. This lead us to create personas for five different groups of end users which we used to guide our design decisions. Next we created a low fidelity prototype to model how several user tasks might be accomplished. For the high fidelity prototype we focused on three tasks and created a highly interactive simulation of how our system should respond at every step of each task. Heuristic evaluation and user testing was then conducted which revealed some flaws and oversights in our design which were updated to arrive at our final submission. The weekly tutorial exercises as well as our project submissions guided us through every step of the design process short of production and gave us valuable experience in understanding how the design process moves between stages.

Appendix

Heuristic Evaluation for Group #2 (Kizum)

1. Visibility of system status

- The top tab color should be reversed. When selected, it should be white and all others tabs should be gray. This is the standard in many other apps so the expectation for first time users may be the same.
- The bottom tab does not clearly indicate which one is selected. The bolded text is visible but since all the words are white it may cause confusion. Consider using a different colour to differentiate the bottom tab selection or a small bar which moves to indicate which tab is selected.
- On the “Following” page, the bottom right of each post has a label saying album, song or playlist. However, some of these labels are highlighted while others are not without any obvious reason. This is confusing and does not clearly communicate what that label is indicating.

2. Match between system and the real world

- There does not seem to be any way to categorize music by style, genre or recently added

3. User control and freedom

- The progress bar is missing for songs.
- Add more filters to the search option on the top page, such as, recent.
- Need a way to browse the app and quickly go back to the currently playing song

4. Consistency and standards

- The top and bottom tabs are confusing. White should be used to show it is selected and the rest should be gray.
- Differentiate the top tab with bottom tab.
- On Discover page, the tab in the bottom right of each entry that says song, album etc some are grey and some are white the colour of these tabs seems arbitrary and random
- Top allows you to select artist/albums/songs etc but discover has no option to select from different options

5. Error prevention

6. Recognition rather than recall

7. Flexibility and efficiency of use

- In my music, when “see all” is clicked, there is no option to sort the playlist alphabetically.
- The follower section is not sorted in alphabetical order (The following option is sorted alphabetically so internal inconsistency).
- It is too difficult for users to find the create a playlist option. It is not obvious that users need to click “See all” to find the create new playlist option.
- Missing a quick save/add option for songs.

8. Aesthetic and minimalist design

- Remove underline for title “My Music”. I would remove underlines in general as they don’t look good for graphic design.
- The title of “You” page should be “Your Music”.
- The Explore tab looks very bare. Most of the page is blank. Exploring depends on you knowing what you want to explore instead of having categories or other options available to explore.
- On the Top page the number of each entry is displayed over the picture so it can be hard to see or it might block something important in the picture
- I wouldn’t display the date as prominently as the name on the following page

9. Help users recognize, diagnose, and recover from errors

10. Help and documentation

Heuristic Evaluation for Nutrition Caddy by Group #3

Aesthetic and minimalist design

- Pros:
 - Appealing layout similar to many popular apps
 - Elegant colour scheme
- Cons:
 - Inventory: expiry tab could have countdowns instead of date to improve readability

Flexibility and Efficiency of Use

- Pros:
 - Easily remove items from the list and find removed items
 - Easy to add items
 - Good design for recipes. Easy to use and follow
- Cons:
 - Could be time consuming to add and maintain inventory regularly

- Search criteria are unclear. Can't tell which sets we're searching through
- Copy recipe ingredients to shopping list

Match between system and the real world

- Pros:
 - Good navigation icons
 - Very familiar layout
- Cons:
 - Could more accurately reflect real world quantities

Consistency and standards

- Pros:
 - Similar to how we would expect a grocery or shopping app would work
- Cons:
 - Transition from current to expired in inventory is awkward
 - Some icons can't be clicked (grocery home: inventory icon)
 - Under add new recipes: toggling between public and private moves the text
 - Kept reaching dead ends

User Testing Report

User Info

User 1: Aiden, Male, 23

User 2: Sehaj, Male, 21

User 3: Melissa, Female, 28

Testing

Task Steps	User 1		User 2		User 3	
	Without Help	With Help	Without Help	With Help	Without Help	With Help
Task 1: Grocery List						
1.1 Add chicken breast with the search function	✓		✓		✓	
1.2 Browse all the produce to find and add bananas	✓		✓		✓	
1.3 Add a BBQ Pork Bun that you previously favorited	✓		✓		✓	
1.4 Check off oranges from the list as if you picked them up while shopping	✓		✓		✓	
1.5 Delete oranges from the list		✓		✓	✓	
1.6 Check off Lime then Bread then Almond Milk	✓		✓		✓	
1.7 Change list settings to not show checked items	✓		✓		✓	
1.8 Turn checked items back on	✓		✓		✓	
1.9 Go to recent items	✓		✓		✓	
1.10 Leave recent items	✓		✓		✓	
1.11 Edit the quantity of Almond Milk from 1 to 2	✓		✓		✓	
1.12 Change name from Almond Milk to Chocolate Almond Milk	✓		✓		✓	
1.13 Favourite Chocolate Almond Milk and save	✓		✓		✓	
Time	3min 30sec		3min		2min 10sec	
Score (1 to 10)	9		8		8	

Task Steps	User 1		User 2		User 3	
	Without Help	With Help	Without Help	With Help	Without Help	With Help
Task 2: Inventory						
2.1 Go to "Inventory" page	✓		✓		✓	
2.2 Click "Dairy, Cheese & Eggs" section, change quantity for eggs	✓		✓		✓	
2.3 Click "eggs" to see more information	✓			✓	✓	
2.4 Set quantity alarm	✓		✓		✓	
2.5 Set expiry alarm	✓		✓		✓	
2.6 Remove any alarm	✓		✓		✓	
2.7 Edit item details (edit purchase date, expiry date)	✓			✓	✓	
2.8 Finish editing and go back to "inventory" page	✓		✓		✓	
2.9 Switch "CURRENT" page to "EXPIRED" page	✓		✓		✓	
Time	2min		1min 33sec		1min 23sec	
Score (1 to 10)	9		7		7	

Task Steps	User 1		User 2		User 3	
Task 3: Recipe	Without Help	With Help	Without Help	With Help	Without Help	With Help
3.1 Select the recipe tab from the bottom bar	✓		✓		✓	
3.2 Go to the Find recipe page (view/scroll)	✓		✓		✓	
3.3 Fund your saved recipe and view the cheese cake recipe	✓		✓		✓	
3.4 Click on number of servings and choose 10	✓		✓		✓	
3.5 Go to instructions page	✓		✓		✓	
3.6 Tick off all the instructions in order (you can try unchecking the previous instruction)	✓		✓		✓	
3.7 Click back button to go back	✓		✓		✓	
3.8 Create a new recipe	✓		✓		✓	
3.9 Try going back → click cancel on the message box	✓		✓		✓	
3.10 Switch recipe to "Private"	✓		✓		✓	
3.11 Go to Instruction page	✓		✓		✓	
3.12 Change recipe name	✓		✓		✓	
3.13 Confirm recipe name by clicking enter on the keyboard	✓		✓		✓	
3.14 Save recipe → confirm OK	✓		✓		✓	
Time	1min 42sec		1min 34sec		1min 34sec	
Score (1 to 10)	9		8		8	

User Feedback

User 1

- For Grocery List, suggested adding a delete button when a list item is long pressed.
- For Inventory, add a confirmation message for "edit item details" page to prevent user going back to main page without saving.
- For Recipe, the user should be able to check and uncheck any step

User 2:

- For Grocery List, suggested changing the search function to make it more clear what is being searched.
- For Inventory, some of the buttons are not clickable (eggs quantity page at 11 or 13 are not clickable to see more information); the buttons for quantity are too small.
- No feedback for Recipe

User 3:

- For Grocery List, should have a button to add a custom item within the favorites tab
- For Inventory, should be able to delete items in the expired tab. Should be able to add items to inventory without going through grocery. Doesn't believe the quantity alarm is a useful feature as you are personally updating the quantity.
- For Recipe, the tab that is shown first should be the left tab. Should have a button on the recipe cards while searching to quickly add them to your recipes.

Attachments

Low-fi prototype link: <https://doelldd.github.io/P2.html>

Hi-fi prototype link: <https://doelldd.github.io/P3.html>