

# Easy Shopper

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## Problem and Solution Overview

The problem we are addressing is that many people have a need for better grocery shopping management. Items are frequently over purchased or forgotten resulting in wasted food and time wasting trips to the grocery store. With better organization these chores could be done in a much more efficient manner. However, many potential users have still not found an acceptable solution--the existing solutions tend to be overly complex, tied to a larger program, or poorly designed. Our solution attempts to solve these issues effectively by providing a very simple and intuitive application built around the idea of making a shopping list that can be easily sorted, added to, and removed from. The key features of this list will be store-specific shopping lists, shopping reminders, and automatic item suggestion (based on past purchases). Adding items to the list should be simple, fast, and intuitive.

## Contextual Inquiry Target, Stakeholders, and Participants

Our first participant, Sarah, is a stay-at-home mom who occasionally does artistic/graphic design commission work. She is married and has one 19 month old child. She does most of the shopping for the family and most of the cooking as well. Her spouse works and is a student. The family only has one car which is usually taken by her spouse to go to work, so taking extra trips to the store if an important item is needed is a significant inconvenience.

Our second participant, Amy, is a mother of 5 who cooks dinner for the family 3-4 times per week. Amy does all the grocery shopping and cooking for the family, and said that she went to the grocery store every 8-10 days.

Our third participant, Shane, is a senior at the University of Utah. He does half of the shopping for his household, and said that he usually makes a trip to the store once every two weeks. He lives in a house with four others and plans his shopping and meals in conjunction with two of them.

Our contextual inquiry technique was to interview the individual, observe how they decided on what was necessary to purchase, and after they had gone to the store do a follow up interview to see if everything went as planned. In particular we focused on budget, expiration of groceries, and frequency of shopping trips.

Our three CI participants were each people who had a need for better week to week shopping organization but had been unable to find solutions they thought were useful. We attempted to target a spread of individuals each in the similar situation of shopping for a household but in different situations otherwise, giving us a better idea of what improvements could be made to people's shopping strategies.

## **Contextual Inquiry Results and Themes**

None of our participants held budgeting as a primary concern. The only participant who expressed any interest in grocery budgeting was Sarah, who mentioned that she would use it if there were an easy way to obtain dollars/meal ratios for different purchases. It may also be the case that shoppers who are interested using their smartphones to budget grocery spending would rather use an app that applies to all spending, rather than just grocery spending. It is possible that tracking spending should not be a primary feature of our project.

None of our participants stated a great desire to track food to prevent food waste. In some cases the perception of the individual was simply that they rarely allowed food to expire, and in the other case, the participant was simply not concerned with food expiration.

Participants favored tangible lists over electronic ones. They also liked to keep their grocery lists in the kitchen, where they could easily be viewed and added to. None of our participants used their phones or other electronics in order to build or view grocery lists. The reasons stated for this included the hassle of typing lists into a phone, the fact that smartphone lists are not as easy to share as a single list in the kitchen, and that the participants had not yet found a list making application that was to their liking.

Two of our participants used grocery lists regularly, and one did not. Both of our participants who made lists said that they sometimes forgot the list that they made when they went to the store. One of them said that she would occasionally forget to put important items on the list as well. Our final participant typically did not use a list, instead attempting to remember or guess what was important to buy. In these cases items were sometimes overbought or forgotten. This led to wasted food and inconvenient extra trips to the store.

None of the participants completed all their grocery shopping at the same store--they all had at least two stores that they would visit to complete their shopping. Sometimes this meant going to more than one store in a single trip, and sometimes it meant choosing which store was the most important store to go to.

The frequency of grocery trips varied among our participants, but generally, the participants liked to keep their number of grocery shopping trips to a minimum. Still, each of them sometimes had to make unplanned shopping trips in order to pick up an important item.

## Answers to Task Analysis Questions

1. Who is going to use the design? Our target audience is people who, for the most part, do their own cooking and grocery shopping. For our contextual inquiries, we wanted to observe the average grocery shopper--specifically, anyone who does the majority of the grocery shopping for themselves and potentially also for others. This initially left the pool of candidates for contextual inquiry wide-open--most people that you would find in a grocery store would fit this description, the only exception being those who are going to pick up one or two small items but don't typically grocery shop much. We later refined our target audience, focusing on targeting young families with children, while still allowing the application to be broad enough to be used by others.
2. What tasks do they now perform? Our potential users perform a number of tasks related to grocery shopping: list creation, budgeting, expiration date management, and making grocery store trips. Depending on the task and the person, they are completed with or without the use of smartphones, online lists, or tangible lists (pen and paper, whiteboard, etc.).
3. What tasks are desired? The desired tasks are making grocery lists, buying groceries, list sharing, and deciding where to shop.
4. How are the tasks learned? These tasks are typically learned from parents, and by trial and error. After making enough shopping trips, a person begins to get a feel for the types and quantities of foods that they should buy. However, as we saw in the contextual interviews, there is even room for improvement among experienced shoppers.
5. Where are the tasks performed? The tasks are typically performed in the kitchen and at one or more grocery stores.
6. What is the relationship between the person and data? The individual uses the data in order to make choices about what they should and shouldn't buy while they are grocery shopping.
7. What other tools does the person have? People generally use pen and paper, marker and whiteboard, electronic lists, their memory, or a combination thereof when figuring out what to buy from the grocery store.
8. How do people communicate with each other? People usually communicate face-to-face, by phone call, by text, by written word, or by email. When people are

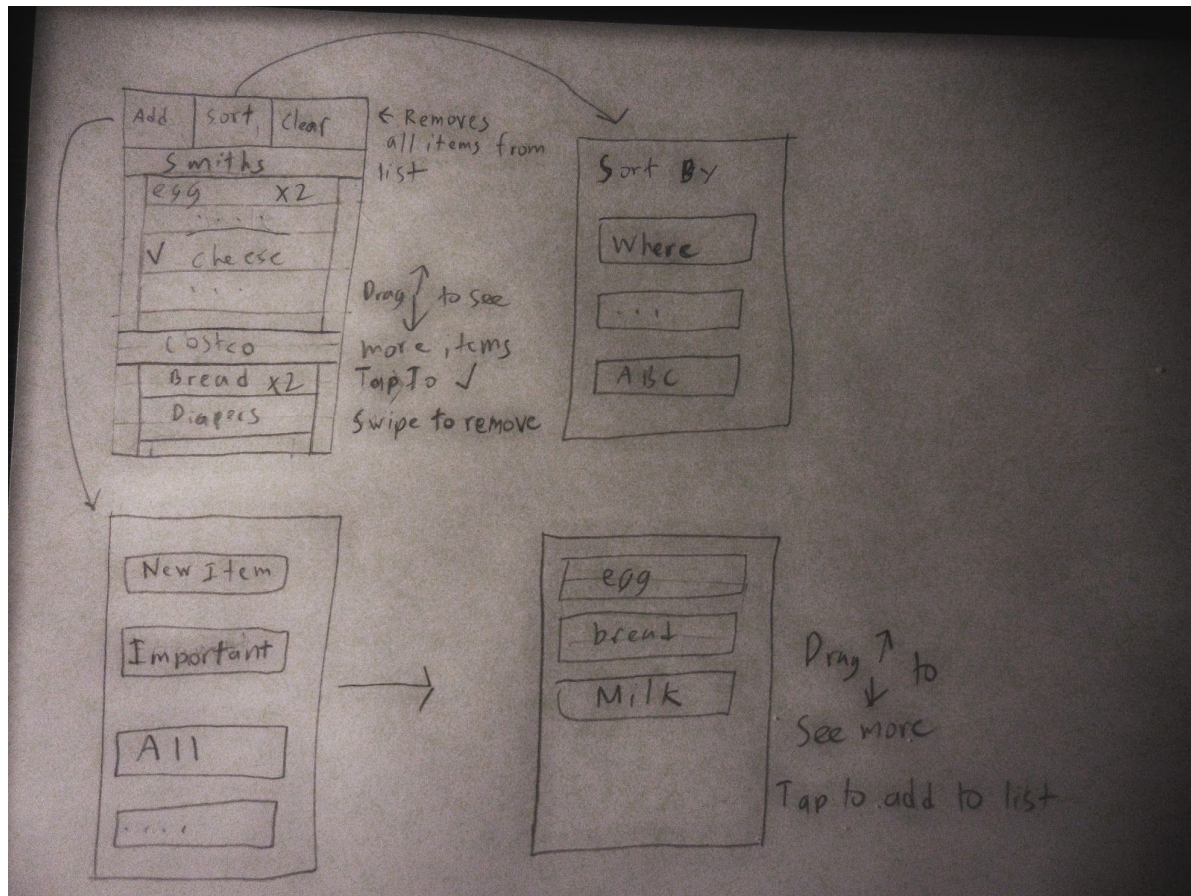
talking about groceries and shopping, they most often communicate verbally, by text, or by leaving notes/lists in the home.

9. How often are the tasks performed? In our contextual interviews, we saw that people generally add to their grocery list periodically throughout the week, and do their grocery shopping as often as 3 times a week and as infrequently as once every two weeks. It is, however, important to note that we are relied on the interviewee's perception of how often they go to the store. They may make grocery trips more often than they realize. Unfortunately, having them self-track their number of grocery trips for long enough to get an accurate count was not feasible for our contextual interviews.
10. What are the time constraints on the tasks? There are often no time constraints on how much time a person can spend making a list and grocery shopping, but it would be safe to say that most people want to make their grocery shopping trips as short as possible.
11. What happens when things go wrong? The most common thing to go wrong in this process is for a shopper to forget items from their list. This can be a result of a incomplete shopping list, or the result of forgetting to bring the list to the store. The end result is either another trip to the grocery store, or not being able to cook their desired meal.

## **Proposed Design Sketches**

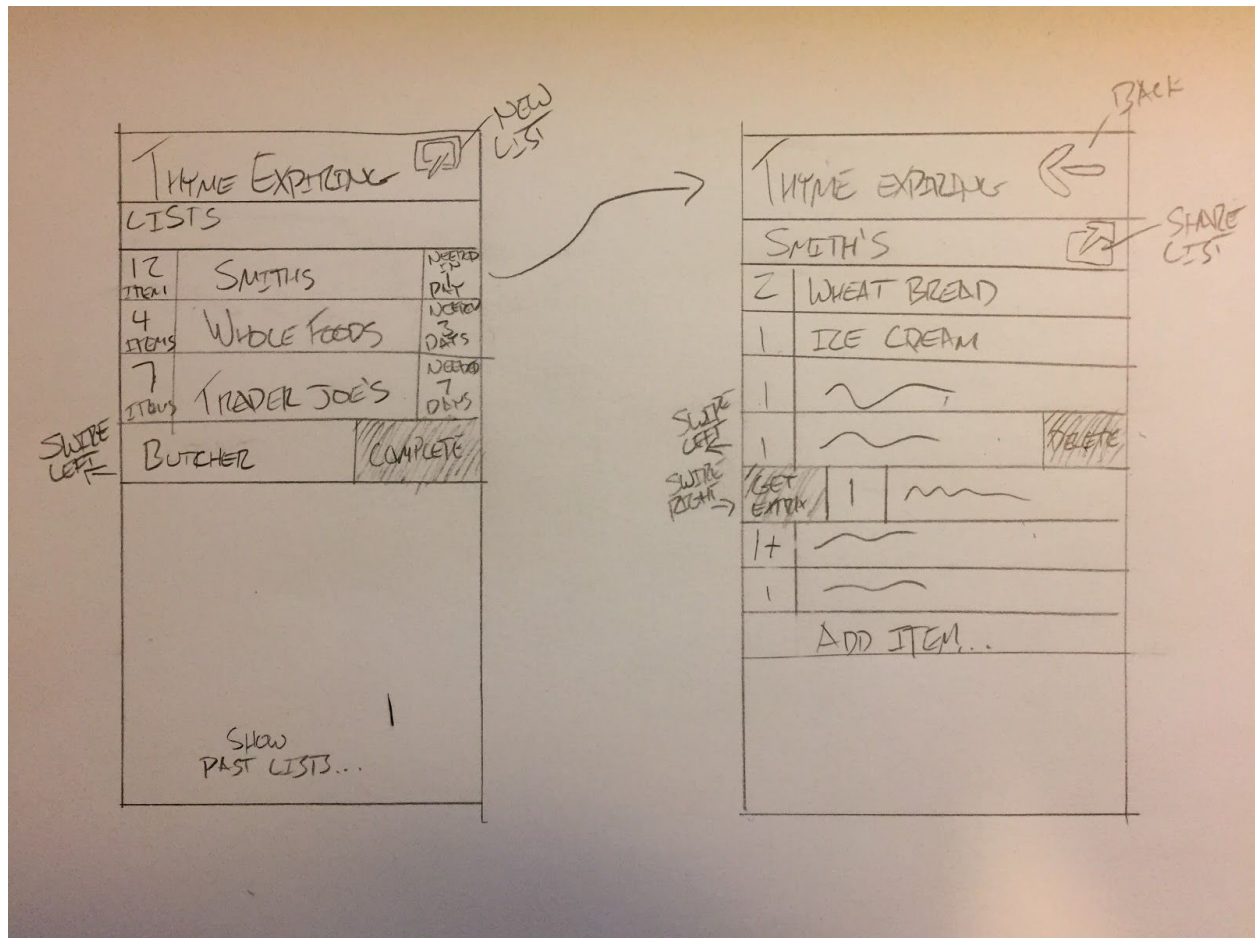
### Design 1: Lightweight App

This design aims to be a simple, lightweight app on a phone that is quick, easy, and intuitive to use, replacing the need for an easily forgotten pen and paper list. The app is consist of a few screens, starting with a home list screen, where the actual shopping list is. There are a few buttons along the top that take you to other screens, which allow you to add new items to the list and sort the list. The sorting function allows the list items to be sorted a few different ways, including alphabetically and by store (assisting shoppers in the commonly made decision of which store to go to). Use of the application is quick and easy, and a user can create a reminder to pickup an item with only a few taps. Finally, the design uses simple and established touchscreen interactions, such as swiping an item to remove it from the list.



## Design 2: Highly Functional App

Another smartphone application, this one is designed to allow multiple lists to be created with a lot more detail. It also uses only a few screens, but each of these screens includes much more data. This application helps decide which store is most important to go to by helping track which lists have the most urgent items. Our users already had a clear idea of where they would be shopping for certain items. With multiple lists, items can easily be split into different destination stores. This application also allows the user to check previously made lists in order to help them in their list-building process. Removing items and adjusting quantity is simple with this application, and will automatically update the other data in the list (such as purchase timing) to help the user keep track of their shopping needs.



### Design 3: Automatic Tracker

This design takes the opposite approach to those above, tracking current inventory and building a list as items are used. The idea is that the user will have a rough idea of what is in their pantry at any given time. Items are removed from the inventory tracking device as they are used up. The list of items needed is automatically generated from the current inventory and what inventory the user has specified they want on hand. Extra items can be added easily to the automatically generated lists. This means a shopping list can be easily brought up even while away from the home. In addition, inventory tracking lets the user know at a glance what they currently have and what they need without having to search their kitchen and try to remember items that may have been all used up.





### Final Design Decision

For the final design we chose to use the lightweight application design. This design allows us to create a program that will be easy to use and non intimidating to people who do not commonly use smartphone technology to aid in their day-to-day lives. This design subsequently will not turn users away as soon as they open it. This design lends itself to a broad user base since, it will incorporate functionality that many people are interested in, and will do so in a user-friendly manner. The two tasks that we selected are easily managing the shopping list and being able to sort the shopping list by stores. These tasks are compelling because they are features that are desired by the intended users. These tasks will allow for the user to quickly and easily manage their lists and easily shop at a variety of grocery stores.

## **Written Scenarios - “1x2”**

### Task 1: Easily Manage the Shopping List

Tim is recently married and enjoys preparing fancy meals. He has a wide variety of foods that he likes to keep stocked in his home. Throughout the week, he adds items to the list as he remembers them. He also removes an item that his spouse brought home. However, on Saturday, when he is preparing to go to the grocery store, he has a feeling that he forgot to add some items to the list. So he takes out his phone and opens his ‘regularly bought’ list of items, and selects the ones that he needs, adding them to his shopping list.

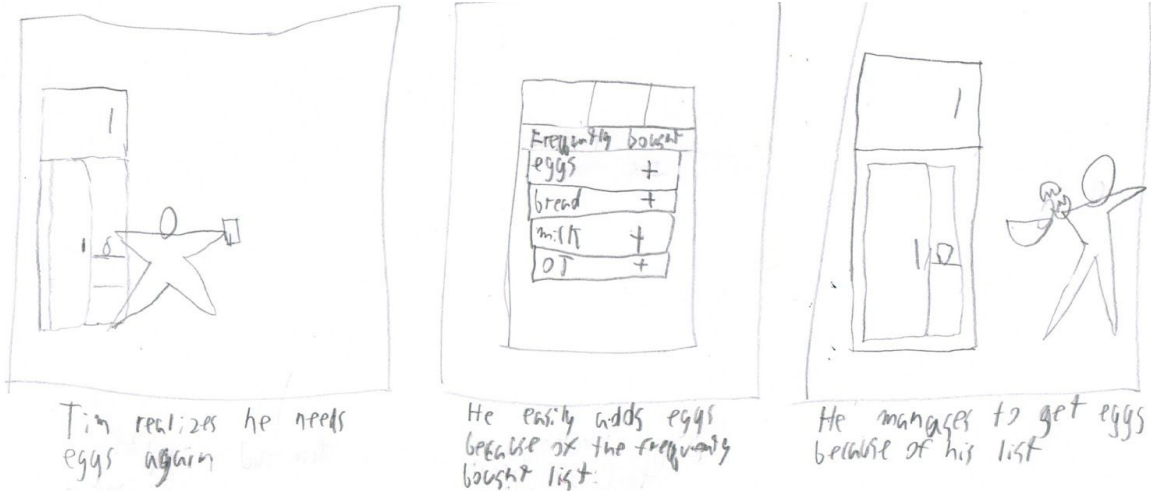
### Task 2: Split Items Into Store-Dependent Lists

Kim has several different grocery stores that she likes to shop at, and each grocery store carries certain items that she likes. She uses her phone to build a grocery list, and for each item, she is able to enter a grocery store where she prefers to buy that item from. When she is planning out her shopping trips, she can choose to view her grocery list as a whole, or she can choose to view only the items that correspond to a specific store. On her drive home from work, she passes by Smiths, and decides to stop and pick up a few items. While shopping, she pulls out her phone and chooses to view her ‘Smiths’ items as a smaller sublist.



## Storyboards of the Selected Design

### Storyboard 1: Easy to Use Lists



### Storyboard 2: Store-Specific Lists

