Household Grocery Tracker

Project Summary

The project aims to develop an application that helps users record their purchase products, and the application designer can utilize the data provided by users to analyze consumer preferences. With this application, users can easily track the food purchase history, the food's condition, and the timing of supplementing new food. Users can compare the price and quality of the same products sold in different stores and know which store will cost them less or is worth visiting again. By analyzing consumer preferences, these data can be used in precision marketing. The store can plan a promotion to their main targeted audiences.

Description

People usually go to grocery stores but what they need with little plans. But households have limited capacity to store their food in fridges, freezers, and pantries. If we buy more than we need, some items have to be thrown away because we didn't notice the expiration date. It's hard to keep track of everything we have and keep in mind to plan ahead. Also, only a few people would make a good arrangement of their space such that the food may be accidentally hidden. In case we waste too much food unintentionally, we need to focus on what we already have and make a precise plan. We tend to manage our groceries in an organized way so we came up with the idea of inventory management similar to a retail warehouse.

Usefulness

The CozZo is a mobile application similar to our expected functionalities of the website. The main idea of CozZo is to customize users' grocery shopping lists by recording their current spaces occupied by each food type. The application gives users several fields to fill in detailed information about each kind of food. For example, when we bought a bottle of milk at home and would like to update it, we need to fill in the place we put it (freezer or fridge?), the amount of it (eq. 2 gallons) and its shelf life, to calculate the expiration date. This information help users to have better organization of how the food is stored and when they should restock. With such specific status of food, users are able to better control food waste. Besides, they will go shopping more efficiently as planning precisely by clear shopping lists.

However, the function of CozZo does not meet our expectations. We hope to improve some processes based on the existing features of CozZo. There are three main differences between our application and those existing. Firstly, we will preserve the information of grocery stores where the users buy these food products. That information is important for many people because they want to calculate budgets and weigh the quality and cost of products. Therefore, recording which store provides the best quality or the lowest price allows people to judge if they should go to the same

store next time. Further, we can use these data to analyze what kind of store is preferred by what groups of users.

Secondly, we will store the nutrition information of food and show how many calories of food for users. This function can help people who want to lose weight and who need to track diets measure what they consume.

The last main difference is that we will keep records according to every time people buy products instead of the same kind of food. For example, Mary bought three tomatoes five days ago and now has one tomato remaining. Then she bought two more tomatoes yesterday. Our application will show two records for tomatoes. One for the one tomato which was bought five days ago and will expire tomorrow, and the other is two tomatoes bought yesterday and will expire in five days.

Realness

Most of the data will be entered by users, including users' profiles, what food, when and where they have purchased, and the food they plan to purchase. The product price can be manually entered by users or imported from the grocery stores' website. The data of product items can also be gotten from Price look-up codes. In regards to the calorie tracking function of our website, we can collect this data from online databases that are free for us to access.

Tentative List of Data

Item list	Data Source
User Account Information	User Input
Product Image	User Input https://github.com/marcusklasson/GroceryStoreDataset
PLU code list	https://www.ifpsglobal.com/PLU-Codes/PLU-codes-Search
Item Calorie Information	https://fdc.nal.usda.gov/
Product Price From Other Stores	https://comparegroceryprices.org/search/data/comparison.shtml

Functionality

The application will equip the following functionalities:

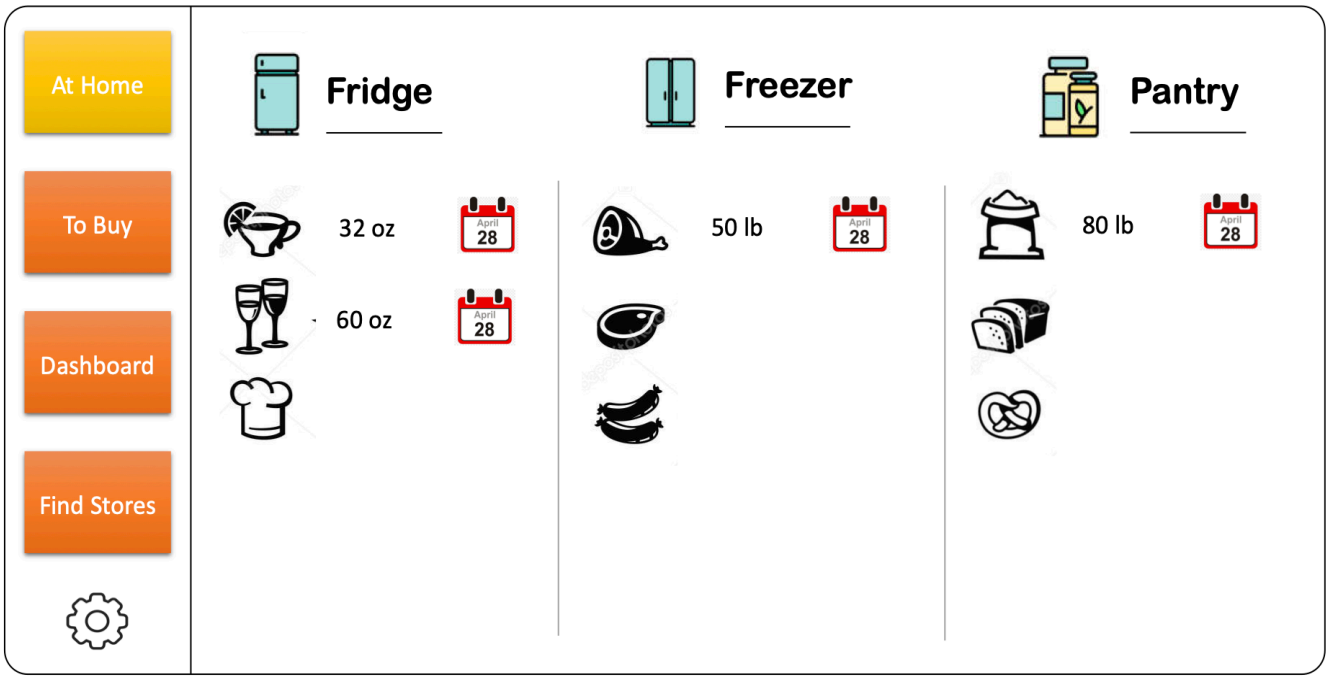
1. Create an account: The users must create an account before using the application. While creating an account, users need to fill out their name, age range, gender, email, and password.
2. Update user profile: The users can update their personal information, including name, age range, gender, email, and password.
3. Update product list: The application designer will import the item information from the PLU list to the product list. The users can manually key in new items. The user can also categorize the items.
4. Add items to cart/shopping list: The users can add product items and the quantity of the things to their shopping list. The items can be selected from the product list.
5. Change the item in the shopping list: The user can check off the item when they have already bought them, and the items will automatically be added to the inventory list. They can also add new things to the list or delete them when they change their mind.
6. Add records to inventory list: The user can add the items they bought to the inventory list. This list can record how many items they purchased, how much they spent, where they bought from when they bought it, the item's comment, where they store the food, and when those items will expire. The store they bought from can be selected from the store list.
7. Change inventory: The user can change the inventory list when they consume or discard the items. The time and the quantity of consumption and discard will be recorded when they change the inventory.
8. Add photos: The user can add photos of the items they purchased.
9. Change store list: the application designer will import grocery stores' information from open data. The system will store the name and location of grocery stores. It can also be added, updated, or deleted by the user.
10. Receiving expire alarm: The user will receive an expired alarm of the expiring items in the inventory list.
11. Dashboard: The dashboard will display the summary item in the inventory list.
12. Search: search the purchased item, time of purchasing, store where item was purchased, commentary, and expiration date in the inventory list.

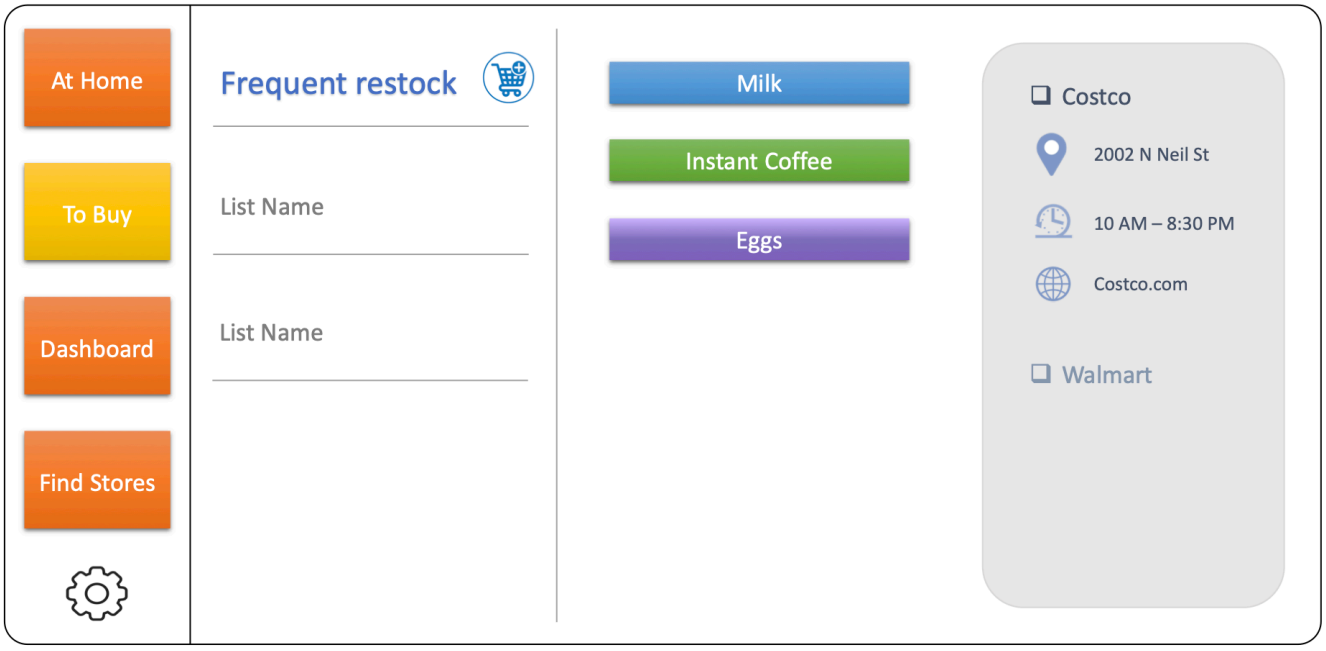
The following functionalities would make users easier to use the application:

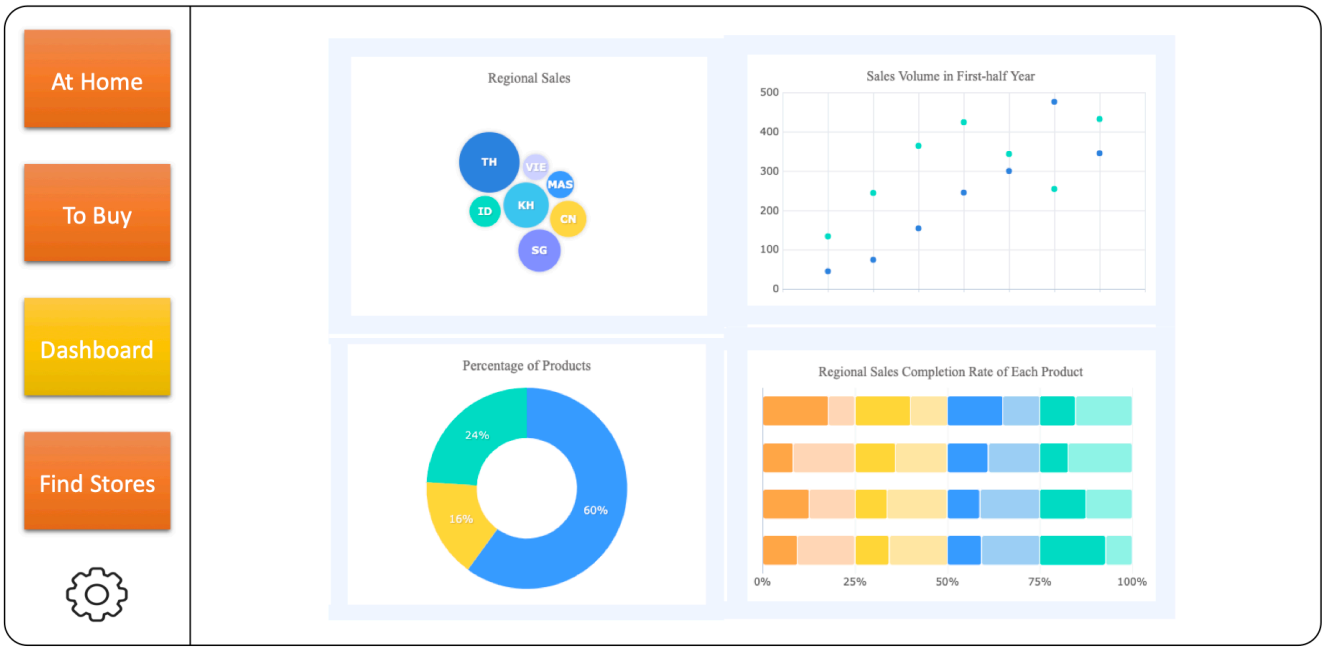
1. Easily update the current balance of food quantity by scanning the receipts after shopping.
2. Real-time prices are shown in the shopping list so that users are able to decide whether to go shopping according to the changing price.
3. A convenient button for users to order online by directing them to online shopping websites and adding the items into the shopping cart.

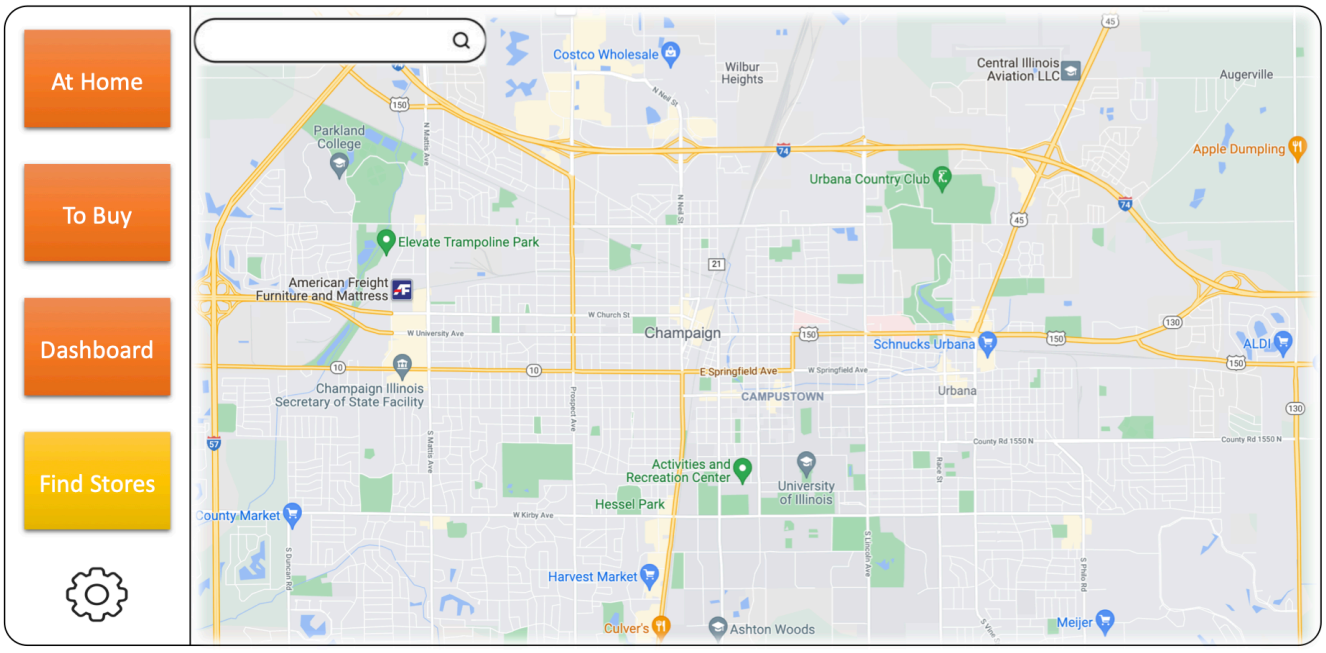
UI mockup

Home Page


At Home
To Buy
Dashboard
Find Stores
Fridge
Freezer
Pantry
32 oz
60 oz
50 lb
80 lb
April
28


At Home
To Buy
Dashboard
Find Stores
Frequent restock
List Name
List Name
Milk
Instant Coffee
Eggs
Costco
2002 N Neil St
10 AM – 8:30 PM
Costco.com
Walmart


At Home
To Buy
Dashboard
Find Stores
Regional Sales
TH
VIE
MAS
ID
KH
CN
SG
Sales Volume in First-half Year
500
400
300
200
100
0
Percentage of Products
24%
16%
60%
Regional Sales Completion Rate of Each Product
0%
25%
50%
75%
100%


At Home
To Buy
Dashboard
Find Stores
Costco Wholesale
Wilbur Heights
Central Illinois Aviation LLC
Augerville
Parkland College
Apple Dumpling
Urbana Country Club
Elevate Trampoline Park
American Freight Furniture and Mattress
Champaign
Schnucks Urbana
ALDI
Champaign Illinois Secretary of State Facility
CAMPUSTOWN
Urbana
Activities and Recreation Center
University of Illinois
Hessel Park
Harvest Market
Culver's
Ashton Woods
Meijer

Project work distribution

Phoebe	• Create an account and update user profile (CRUD) • Update product list (CRUD) • Add and change items to cart/shopping list (CRUD)
Candice	• Add and change records to inventory list (CRUD) • Add and delete photos (CRD) • Change store list (CRUD)
Grant	• Receiving expire alarm • Grant - Dashboard • Grant - Search