

Pantry

Software Requirements Specification

Joe Cates, Piper Sheldon Young, Cole Pendergraft, Ethan Pressley, Colton Lobdell

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1. The Concept of Operations (ConOps)

1.1. Current System or Situation

With all the food products shopping that restaurants and other food based businesses must do, it is easy for them to forget about items they have already bought, leading to unnecessary extras of products being purchased, or food items at the back of the pantry or the fridge expiring without being used. All of this leads to food waste, a problem that affects all of America with an estimated 40% of America's food supply ending up as trash, this wastes business' money and hurts the environment. Luckily, we can eliminate food waste with one simple solution, tracking expiration dates. Sadly most businesses have too many food items to effectively remember or must spend an exorbitant amount of time to keep a running list of expiration dates. But if businesses had a way to track all the food in their pantry as well as each food item's expiration date, we can put an end to unnecessary food waste.

1.2. Justification for a New System

While there are existing apps that strive to solve the problem of food waste, these apps, especially the ones on the google play store focus exclusively on families and ignore businesses. We feel that apps made with businesses in mind, will be able to better suit the needs of the business, allowing us to corner the market. The other existing apps also focus on the grocery list aspect and lack the features needed to effectively and efficiently track expiration dates and organize our pantry. For example, in these apps when adding items, one must specify an expiration date, but for some products such as chicken, the chicken will always last at most a week in the fridge, so why does the user have to specify a date, if the expiration date will always be a week from when the item was purchased? These apps also do have a way to sort or filter the items in the pantry list, the lists are always ordered from closest to expiring to furthest from expiring, making it harder to get a complete picture of what is in one's pantry. Because of the lack of these features, we feel that we can provide a better product, that is easier to use, and more useful for businesses.

1.3. Operational Features of the Proposed System

The new system, Pantry, will be an android app that will help businesses organize both their pantry and shopping list. While a user is unloading food products after that week's food shipment, they can add each item to their pantry list in Pantry. Pantry will then allow the user to specify an expiration date, if the expiration date is left blank Pantry will give an estimation of the expiration date, based on data from the FDA. User's will be able to create groupings for food items, so users can differentiate between food in the pantry vs food in the fridge, or between produce and meat. Users can then filter and sort items using groups they have made, and the properties of the food items, such as the item's expiration date. Once food gets close to expiring, Pantry will notify the user of any upcoming expiration dates allowing them to use the food product before it needs to be thrown away. After using food items, users can delete the item from the pantry list, and if the user will need to buy more of that item, they can add that item to next

week's grocery list. If the current grocery list on Pantry is what the user has purchased then they can automatically remove all the items from the grocery list and add them to the pantry list. Therefore, Pantry will provide an up to date organized view for the user's food stock, and a grocery list for next food shipment. Pantry will help businesses save money, by reducing their food waste.

1.4. User Classes

For Pantry, there will be one major user class, and that is businesses. Businesses must buy a lot of food, and often lack the time needed to organize and track their pantry. Pantry will be available for everyone one to use, but food waste is less of a problem for families and individuals as it is easier for both families and individuals to track their food, as they buy much less food. Pantry's grocery list will not aid users to buy food, it will only tell user's what food they need to buy.

1.5. Modes of Operation

There will be one Mode of operation for all users, which will allow user to effectively organize both their pantry and their grocery list.

1.6. Operational Scenarios (aka "Use Cases")

Use Case: Adding a food item to the pantry list

Brief description: This use case describes how a user would add a purchased food item to the pantry list.

Actors: A student.

Preconditions:

1. The student has a food item they would like to add to the pantry list.

Steps to Complete the Task:

1. The user navigates to the pantry screen, through the side menu.
2. The user will then click the addition button on the top right.
3. This will bring up a new screen for adding a product, here the user will first type out the name of the product.
4. The user will specify how many copies of that food item they have purchased.
5. The user will then specify an expiration date, if no date is specified, Pantry, will then provide an expiration date based on how long an average copy of that product will last
6. 6.Finally the user will specify a purchase date, if no date is specified then it is assumed that the food product was bought that day.

Postconditions:

The user has added an item to their pantry list that will help them to track the expiration dates of the items in the pantry list and will allow them to sort and filter the pantry list to give them a better idea of what products they have and do not have.

Use Case: Adding a food item to the grocery list

Brief description: This use case describes how a user would add an item they would like to purchase in their next grocery run.

Actors: A student.

Preconditions:

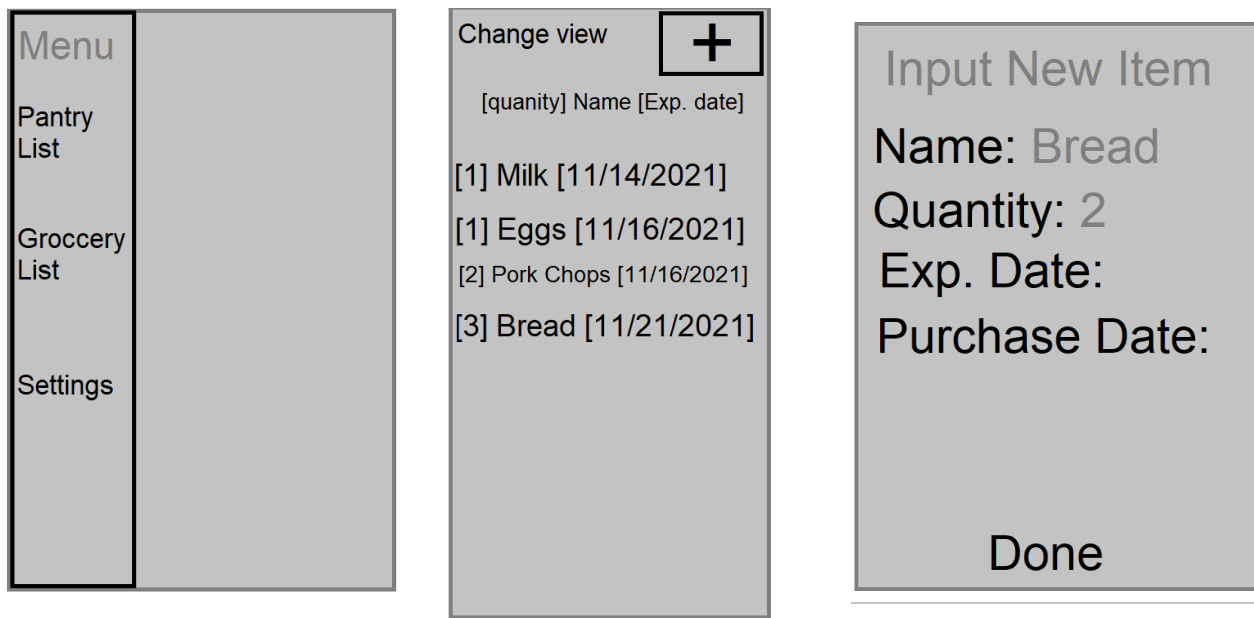
1. The student has a food item they would like to add to the grocery list.

Steps to Complete the Task:

1. The user navigates to the grocery list screen, through the side menu.
2. The user will then click the addition button on the top right.
3. This will bring up a new screen for adding a product, here the user will first type out the name of the product.
4. The user will specify how many copies of that food item they would like to have purchased.

Postconditions:

The user has added an item to their grocery list that will help them what they need to buy at the grocery store.



2. Specific Requirements

2.1. External Interfaces (Inputs and Outputs)

2.1.1 Inputting food items to the pantry and shopping list:

1. Purpose: inputting food items to the pantry and shopping list allows for Pantry to show an organized pantry and shopping list.

2. Source of input/source of output: Input would be the food item the user would like to add to their pantry or shopping list. The Output would be an updated pantry or shopping list with the food item added.
3. Valid ranges of inputs and outputs: The user will be able to add any possible food item, but uncommon food items might not have an expiration date provided by the FDA. The range of outputs would be a pantry or grocery list with all the items the user has added on the list.
4. Units of measure: Time (to track expiration dates)
5. Data formats: The food items will be stored in a database

2.2. Functions

1. Validity checks on the inputs: When a user is adding food items, the given name must have at least one character to differentiate food items. The user also can not provide an expiration date for the food that is before the date that the food was purchased.
2. Sequence of operations in processing inputs: After a food item is added to any list, the input will then be error checked. If no errors are found, then the food item will be added to a database that tracks the information that the user has provided about the item such as the name of the item. After the item has been added to the database, the item will then show up on the pantry or grocery list, depending on what screen the user added the item on.
3. Responses to abnormal situations, including error handling and recovery: If the user has tried to input an empty string as a food item name, then an error message will come up requesting that the user enter at least one character for the name. If the user tries to give an expiration date that is before the purchase date, then an error will pop up requesting that the user provide an expiration date that is after the purchase date.
4. Relationship of outputs to inputs: The outputs for Pantry would be either a grocery list or pantry list, these lists get their items from user inputs. So, all outputs must be inputted by the user.

2.3. Usability Requirements

The accuracy of the pantry or grocery list will be left up to the user, as if the user is not adding new items or removing used items from Pantry, then Pantry can not be expected to provide an up-to-date view of the user's pantry or grocery list. Pantry is also not able to guarantee the accuracy of the expiration dates, as either the user could input the incorrect expiration date, or the expiration date provided by the FDA, while correct, could be made to be incorrect through user error. For example, if a user enters an item that they purchased last week, as an item purchased that day, and according to the FDA that item will expire in two weeks, then the item will expire faster than the date provided by Pantry, as the user inputted incorrect data. Therefore, the accuracy and usefulness of the Pantry app is up to the user.

2.4. Performance Requirements

After the user has inputted the information needed to add an item to the pantry or grocery list, the item should show up in the list after a refresh of the page, which will be done automatically and will take less than a second. Removing an item from the pantry or grocery list or changing the way that the lists are sorted or filtered will also be displayed to the user after a refresh that will be done automatically once a change is made, this refresh should take less than a second.

2.5. Software System Attributes

The important attributes for Pantry are usability, reliability, and correctness. Since business are the main consumer base for Pantry, we want to ensure that businesses do not need to devote excessive time or money on training workers on how to use pantry, as if it is hard to use Pantry and a lot of training is needed to use app, then business will not make the transition to Pantry. We want to ensure that Pantry is reliable by notifying the user of expired food only when the food is actually expired, as if the food is not expired but the user thinks it is, the food will get wasted. We also want to ensure that Pantry is correct, as if it does not meet the needs of the user, no business would invest the time and money to train their workers and transition to Pantry as their main organization application.

3. References

“Food Waste Faqs.” *USDA*, FDA, <https://www.usda.gov/foodwaste/faqs>.

4. Acknowledgements

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