Perfect Pantry

Team #7

Chiaghame Allen
Sarah Asghar
Nina Dang
Wan Ning Ma
Michel Nwoye-Vincent
Edison Tran

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Perfect Pantry is an app designed to help users reduce food waste in their homes by providing tools to better organise, track, and utilise the items in their kitchen pantries, fridges, and freezers. This digital assistant aims to bring efficiency and sustainability to everyday food management.

The program serves as a kitchen inventory manager. It allows users to add, remove, and monitor food items across different storage locations. It is equipped with features like a calendar view, virtual location view, colour-coded expiration tracking, and recipe recommendations based on available ingredients.

This tool is planned for a wide range of users, from busy families to students to individuals living alone, and is especially useful for environmentally conscious individuals looking to reduce food waste and optimise grocery usage. Because everybody's time and mind are usually preoccupied with their daily tasks, like with school and work. Most of the time, they are not thinking about shelf life of their products. As such, the application will help organize and keep track of it for them. It also helps save time with planning on what to use with food items, and especially expiring food items by presenting to the user with recipes that use those food items so that they do not need to do research and find the recipes themselves.

Perfect Pantry addresses the critical issue of food wastage, a global concern with significant environmental and economic implications. By providing an efficient means of tracking and utilising food items before they expire, Perfect Pantry helps reduce waste, save money, and promote sustainable living practices. Additionally, it aids in meal planning and grocery shopping, making the process more efficient and less time-consuming.

The app will be considered successful if surveys of users show they are throwing away less spoiled food after using Perfect Pantry. We aim for users to reduce their household food waste by 15-40%. Environmental impact will also be measured by tracking the reduction of organic material entering landfills from users' homes.

To achieve our goal, Perfect Pantry will be equipped with many systems to help users in tracking their products and which products will soon expire. We plan on implementing warnings on the app to notify the user of any products that are going bad. For example, there will be a calendar view to present to the user on which days specifically their products expect to go bad. As well, users will be able to sort their products in many ways, one of which being sorting by expiration date to see what items are going to expire the soonest.

Overall user stories (Both big and detailed ones):

Iteration 1:

Big Story Description: Initialise Fridge/Pantry With items
Goal of user: The user should start being able to managing their virtual fridge
Priority: High
Cost: 14 Days

User Stories:
Create Fridge
Priority: Med
Cost: 0.5 Days
1. I should be able to create a new fridge/pantry and give it a specific name. This will help me keep track of what pantry space I'm managing.

Add Items
Priority: High
Cost: 2 Days
2. I should be able to add whatever food item I want to my virtual pantry. This will help me know what I currently have available.

Remove Items From Pantry
Priority: High
Cost: 2 Days
3. I'd like to also be able to remove items from the pantry, if I no longer have it available. When foods are consumed or expired, I would need to be able to stop tracking them.

Tagging Food Groups
Priority: Med
Cost: 2 Days
4. I want to tag each food based on their food groups. I.e Fruits, Vegetables, Grains, Proteins and Dairy. This will be useful to know the composition of food items in the pantry.
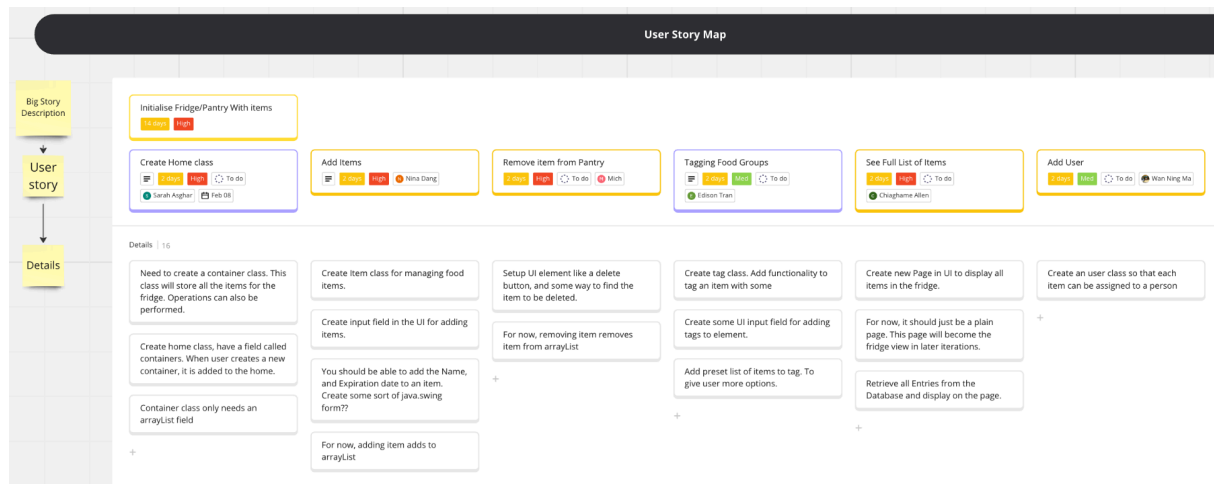
Add User
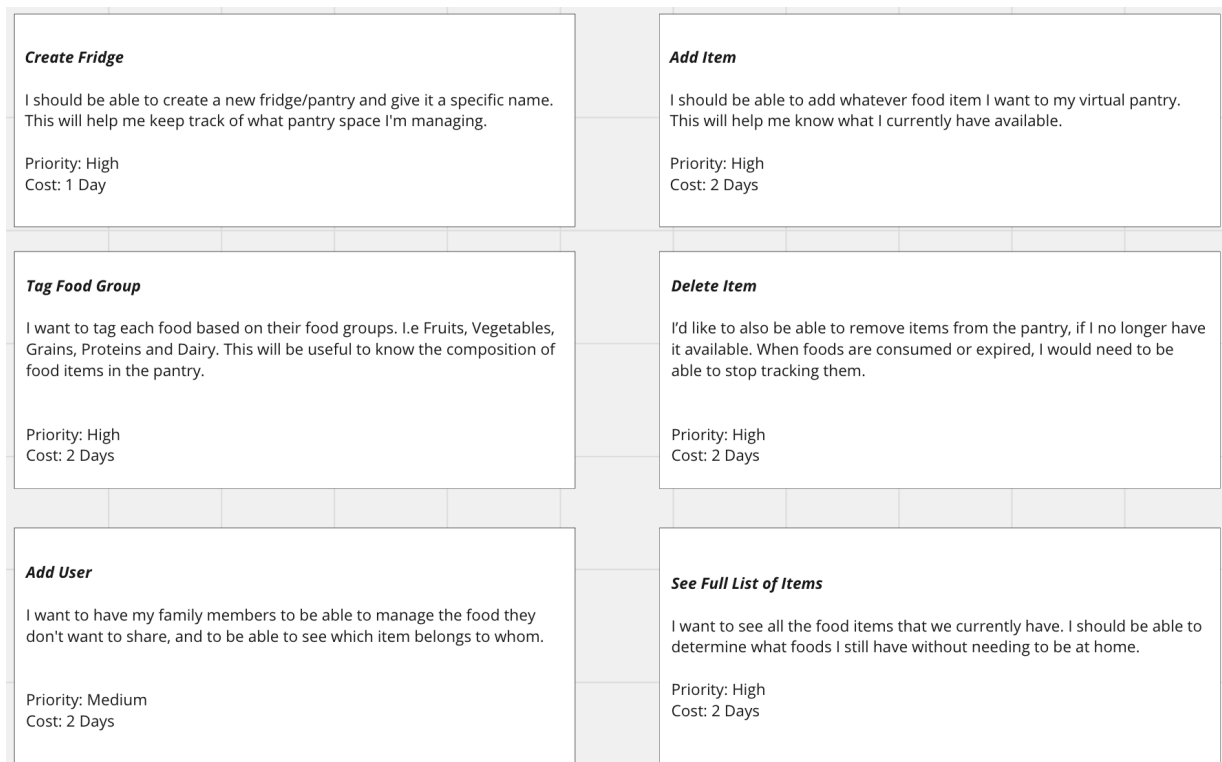**Priority: Med**
Cost: 2 Days
5.I want to have my family members to be able to manage the food they don't want to share, and to be able to see which item belongs to whom.

See Full List of Items
Priority: High
Cost: 2 Days
6. I want to see all the food items that are currently located in my pantry. I should be able to determine what foods I still have without needing to be at home.

Create Fridge

I should be able to create a new fridge/pantry and give it a specific name. This will help me keep track of what pantry space I'm managing.

Priority: High
Cost: 1 Day

Add Item

I should be able to add whatever food item I want to my virtual pantry. This will help me know what I currently have available.

Priority: High
Cost: 2 Days

Tag Food Group

I want to tag each food based on their food groups. I.e Fruits, Vegetables, Grains, Proteins and Dairy. This will be useful to know the composition of food items in the pantry.

Priority: High
Cost: 2 Days

Delete Item

I'd like to also be able to remove items from the pantry, if I no longer have it available. When foods are consumed or expired, I would need to be able to stop tracking them.

Priority: High
Cost: 2 Days

Add User

I want to have my family members to be able to manage the food they don't want to share, and to be able to see which item belongs to whom.

Priority: Medium
Cost: 2 Days

See Full List of Items

I want to see all the food items that we currently have. I should be able to determine what foods I still have without needing to be at home.

Priority: High
Cost: 2 Days

Miro View Link: https://miro.com/app/board/uXjVNvll-FM=/?share_link_id=150674584264
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Development Tasks

1. Create Fridge (Sarah)
Dev Tasks..
- Create the container class. A container represents a pantry/fridge of items that users can add and delete from.
- Create Home and ContainerView, using java.swing to develop the UI.
- Setup the home to receive user input (name of container to be created).
- Create stub db class.

Estimated Cost: 2 Days
Actual Cost: 7 Days

- Setting up this user story took longer than estimated. It also served as the foundation for other user stories as there must be consistent logic for setting up the UI and data binding.

2. Add Items Class (Nina)
Dev Tasks..
- Create an item class to represent a food added to a user's pantry.
- Setup the AddItemPanel view to receive user input.
- Implement error handling on user input.
- Populate stub db with items.
- Test implementation of adding an item

Estimated Cost: 2 Days
Actual Cost: 3 Days

3. Remove Item from Pantry (Michel)
Dev Tasks...
- Create DeleteItemView to prompt users for the item they want to remove from their pantry.
- Implement error handling on user input to ensure that items actually exist in the database.
- Test implementation of deleting an item

Estimated Cost: 2 Days
Actual Cost: 3 Days

4. Tagging Food Groups (Edison)
Dev Tasks...
- Create a tag class and several "tag" classes.
- Implement tagging test cases

Estimated Cost: 2 Days
Actual Cost: 1 Days

5. See Full List of items (Allen)
Dev Tasks...
- Create ItemsList Listview to display list of items
- Display this view over top the containerView

Estimated Cost: 2 Days
Actual Cost: 1 Days

6. Add User (Ning)
Dev Tasks...
- Setup user class to implement user logins in future iterations

Estimated Cost: 2 Days
Actual Cost: 1 Day

Iteration 2:

Pantry Awareness (This big story aims to help the user make more informed decisions about what is in their pantry, by developing the virtual fridge)

Colour Coded Fridge Items
Priority: Low
Cost: *1 Days*
1. Colour coded fridge items would be extremely beneficial. For example, food items that are going bad could be coloured red. This should give a sense of urgency for me to use them. The food groups could also be colour coded.

Calendar
Priority: High
Cost: 2 Days
2. I want to see all food expiry dates in a calendar format. This will help me have a better idea of when foods will go bad. This should help me make more informed decisions about what I cook.

Manage Grocery List
Priority: Med
Cost: 2 Days
3. I definitely would like to have a grocery list feature implemented. When I see that food is running low or has expired, it would be great to add them to a grocery list.
QUESTION: Is it better to have one big grocery list or one per pantry/container?
   - One big list is preferred

Generate Food Storage Tips
Priority: Med
Cost: 1 Day
4. I'd like to be able to choose an item and get proper food storage tips. This will help me ensure that my food lasts longer.

Sorting
Priority: Low
Cost: 4 Days
5. It would be nice if I could sort foods based on food groups, and also based on the days that they will expire.

Notifications
Priority: Med
Cost: 2 Days
6. Whenever I open a pantry, I'd like to receive some instant notification on the app. This should mostly be for foods that are about to expire. This should help me be alert and aware of foods that are about to go bad.

Development Tasks

1. Colour Coded Fridge Items (Nina)
Dev Tasks:
- Colour coded item entries based on food freshness
- Auto assign Food Freshness Tag based on distance between current date and expiry date
- Make enums in database and enums in food group and food freshness consistent
- Allow Food Group tag dropbox to update items enum in database
- Display the item tags on ItemListView
- Refactor itemUtility methods such as verifyAddItem to return a boolean, making it consistent with verifyDeleteItem.
- Add ItemUtility JUnit test

Estimated Cost: 1 Day
Actual Cost: 1 Day

2. Calendar (Sarah)
Dev Tasks:
- Create Calendar view
- Retrieve items and corresponding expiry date information from the database, and display it in the calendar view.
- Refactor SeeContainersView to use right click to edit or delete containers instead of a separate page

Estimated Cost: 2 Days
Actual Cost: 1 Days

3. Manage Grocery List (Ning)
Dev Tasks:
- Implement add, remove, and export functionalities.
- Design GUI components for interaction.
- Enable strikethrough font for crossed off items.
- Handle user interactions and events.
- Ensure data consistency and error handling.

Estimated Cost: 2 Days
Actual Cost: 2 Day

4. Generate Food Storage Tips (Michel)
Dev Tasks:
- Update database schema to include table for storing food tips
- Setup right click popup menu with generate storage tip option.
- Initialise storage tips database with some values for the user.
- Create a utility function to query the database with the name of the item that the user wants a tip for.

Estimated Cost: 1 Day
Actual Cost: 2 Days

5. Sorting (Edison)

Dev Tasks:
- Integrate database for storing a food item in a container
    - Initialise database on program startup to load each item to their respective container from the database
- Include test cases for database integration
- Implement sorting and filtering functionality to the JTable inside of a container.

Estimated Cost: 1 Days
Actual Cost: 1 Days

6. Notifications (Allen)
Dev Tasks:
- Creating notification that alerts the users of expired or soon to expire products.
    - Update database to allow notification read through the database for expired products.
    - Initialise the notifications to work with newly created containers and already existing containers.

Estimated Cost: 1 Days
Actual Cost: 1 Days

Iteration 3:

Research and Analytics (The point of this big story is to provide the user with information they need about their pantry, which foods tend to spoil quickly, and start offering some ways to utilise fridge items)
- Support for recipes (based on available ingredients)
- 'Star' recipes
- Get reminders if starred recipes ingredients are low
- Editable System Settings (for reminders (what should you get reminded for), Customize parts of UI)
- Reminders about upcoming expiration dates.
- Log in System (for different users)

Major Changes
There are a few major changes we made from the start of our planning.

Deliverable 1
- The name of the application has changed from ExpireMeNot to Perfect Pantry. The name fits and sounds better. Additionally it was agreed upon by most of the members.
- We decided to stop working on the user logins for the first iteration of the project. It may be scrapped for later iterations of the project as well. Since this application is for personal use, there is little need for there to be multiple users with access to different containers. Additionally, it adds extra complexity to the project, which may not be necessary for us to consider at this moment.

Iteration 2

- Detailed Fridge View has been replaced in favour of Food Storage Tips. The UI for such a story is very complex, and seems to be beyond the scope of this particular project. Additionally, it isn't something that was highly requested by our user, so it is of lower importance.
- "Add to grocery list" was replaced with "manage grocery list". This user story should be a full implementation of the grocery list (UI, adding, deleting, etc) rather than just simply adding to a list.