Basics of Programming 1

Name: Tóbiás Máté Levente
Neptun: VV5EPA
Date: 2023.10.23

Specification

Recipe Book Management System

The Recipe Book Management System is a user-friendly and efficient tool for managing recipes, ingredients, and cooking logs. It simplifies the process of meal planning and ensures that users can make the most of their available ingredients while minimizing food waste. + depo

1. System Components:

• Recipe Management: Users can create, edit, and delete recipes. Each recipe includes a unique ID, a name, a list of ingredients, and a description of how to prepare the dish.

• Ingredient Management: Users can add ingredients. Each ingredient includes a unique ID, a weight, a unit, a name, and an expiration date. ingredient list should contains the wieght of one unit, depo should contains available amout of that ingredient

• Log Management: The system logs the date when a recipe is prepared. ..the date a meal was cooked.

2 Features:

• Add and Delete Recipes: Users can add new recipes to their collection and delete recipes they no longer need. .. that are no longer needed.

• Add Ingredients: Ingredients can be added to the system, including specifying their weight, unit, name, and expiration date.

• Generate Random Recipes: The system can suggest random recipes based on available ingredients, ensuring that there are enough ingredients to prepare the dish. Suggest Random Recipe(s) - (only one, or multiple?)

• Generate Recipes Based on Expiration Date: The system suggests recipes that include ingredients nearing their expiration date.

• Generate Recipes from Log: Users can generate recipes based on their cooking history to revisit dishes prepared in the past.

• Unit Conversion: The system supports different unit types (e.g., liters, kilograms, grams) and can perform unit conversions. Not every conversion should supported by default. Ex. (liter->kilogram?)
Only between:
Liquids: ml <-> dl <-> l (consider, that L and liter is two different type of input for the same meaning!)
Solid ingredients: g <-> dkg <-> kg
I think this funcionality needs to be hidden, or you must strictly prescribe all accepted and available unit types (and conversions) for the user.

3. Data Storage:

The Recipe Book Management System stores data in CSV (Comma-Separated Values) files to manage recipes, ingredients, storage, connections, and logs. Here are the details for each CSV file: Those files are editable for the users, or read only? Export, import is possible?

• Recipe File (recipes.csv):
  ◦ ID (Primary Key): A unique identifier for each recipe.
  ◦ Name: The name or title of the recipe. + the description, how the dish should be cooked.
• Ingredients File (ingredients.csv):
  ◦ ID (Primary Key): A unique identifier for each ingredient.
  ◦ Name: The name of the ingredient. + unit type (g, kg, l, ml ..)
• Storage File (storage.csv): Depository could be a more descriptive name This is ambigous, because the Data Storage and also the Storage storage is a storage.
  ◦ ID (Foreign Key): A reference to the corresponding ingredient.
  ◦ Weight: The weight of the ingredient. Weight -> Amount
  ◦ Unit: The unit of measurement for the ingredient (e.g., kg, g, l). This should be amongst the ingredients, in the storage or depo you have to describe the available amount of each ingredient. (When the amount is differs from 0)
  ◦ Expiration Date: The expiration date of the ingredient.
• Connections File (connections.csv): The storage or depo can contains the same ingredient multiple times. (Ex. you will have two bottle of milk, but with different expiration date)
  ◦ Recipe_ID (Foreign Key): A reference to the corresponding recipe.
  ◦ Ingredient_ID (Foreign Key): A reference to the corresponding ingredient. Ok, the "connections" name can be fine, but a more descriptive name is desireable. (I mean, what kind of connections are those?)

◦ Weight: The weight of the ingredient in the recipe.
◦ Unit: The unit of measurement for the ingredient in the recipe.

Weight -> Amount

See, if you store the unit in the ingredients, you can avoid such data duplication easily.

• Log File (logs.csv):
◦ Date: The date when the log entry was recorded.
◦ ID: A reference to either a recipe or an ingredient based on the context of the log entry.
◦ Operation Description: A string describing the operation performed, such as adding, deleting, or updating a recipe or ingredient.

Listing all the logged operation can be useful. Is the "cooking" action logged? What kind of operations do we have?

The system reads and writes data to these CSV files to manage recipes, ingredients, storage, connections, and logs. The use of primary and foreign keys ensures data integrity and consistency, and the log file records operations performed within the system for tracking and auditing purposes.

Maybe defining the datatypes can be useful like ID:string, Unit:string (see examples in ER or UML diagrams), at least for think through the possibilities. Consider the modifications, and see if what is working for your solution or applicable.

4. User Interface:

Here's a breakdown of the menu options:

1. View Recipes: Display a list of available recipes.
2. Add Recipe: Add a new recipe to the system.
3. Delete Recipe: Delete an existing recipe.

How can I edit a selected recipe or an ingredient?
You mentioned that functionality earlier.
Delete and recreate will not work, because you already linked the recipes and the ingredients by ID.

4. View Ingredients: Display a list of available ingredients.
5. Add Ingredient: Add a new ingredient to the system.
6. View Storage: Display the current ingredient inventory in storage.
7. Add to Storage: Add ingredients to storage.
8. Generate Random Recipe: Generate a random recipe based on available ingredients.
9. Suggest Recipe by Ingredients: Suggest recipes based on selected ingredients.
10. Suggest Recipe by Expiry Date: Suggest recipes based on ingredients nearing their expiration dates.
11. Generate Recipe from Logs: Generate recipes based on past usage and logs.
12. Exit: Quit the application.

If you mean usage by cook a recipe or make a dish, than you have to log that event too.

Users can navigate the menu by entering the corresponding number or option. Each option leads to a specific function within the system, allowing users to perform tasks such as managing recipes, ingredients, storage, and generating recipes based on various criteria.
The console-based menu provides a user-friendly interface for interacting with the Recipe Book Management System and performing various operations. Users can input their choices to access and utilize the system's features.