Expectations

The following problem is a theoretical problem intended to demonstrate a job candidates' skills. The candidate will be given an entire weekend to work on the problem to be accommodating of the individual's schedule, but on average we recommend spending 2-3 hours of time producing a solution. The minimum requirement is that the submission should be functional. The candidate can write in any language they choose.

Problem

Objective

Create a meal recommendation system for diabetics that can be integrated with a smart refrigerator. For each meal, the user enters their desired carbohydrate intake range. The meal recommendation system then recommends a meal menu by selecting a subset of the current food items in the smart refrigerator.

Use Case

As a person living with diabetes, I want mealtime decision to be simplified given the foods I have available to me.

Software Requirements

- The meal recommendation software shall recommend a list of food items (i.e., a meal menu) that satisfy the user's desired carbohydrate intake range (e.g.: min: 50gr, max: 70 gr).
- The meal recommendation software shall not recommend a menu containing multiples of the same food.
- The meal recommendation software shall recommend a meal menu with an average ranking of at least 8.
- The meal recommendation software shall recommend a meal menu with at least one beverage.
- The meal recommendation software shall recommend a meal menu with at most 4 items.
- The meal recommendation software shall recommend a meal menu with at least 2 items.
- The meal recommendation software should output the total carbohydrate amount of the recommended meal.
- The meal recommendation software shall output an error code when there is no valid meal menu.

Software Design Inputs/Details/Constraints

- Food to carb mapping and preference ranking has been given in MyFoodData.csv.
- The smart refrigerator can hold maximum of 30 food items.
- The smart refrigerator can hold any subset of items given in MyFoodData.csv.