SDS Design Doc

Overview:

The project idea revolves around a comprehensive health and wellness app designed to assist users in making informed decisions about their grocery shopping, meal planning, and fitness routines. The app is divided into four main components, each addressing a critical aspect of health and wellness. The components are interconnected, providing a seamless user experience that promotes a balanced, healthy lifestyle. By leveraging AI through NLP and image recognition APIs, it personalizes the experience, making healthy living accessible and tailored to individual needs and preferences.

Objective: What problem are you solving?

The user will input grocery items, location and budget into the Budget Groceries page. You may also toggle nutrition as an important factor as well as dietary restrictions. The program will query the database and check which stores nearby contain the cheapest prices for said grocery ingredient while also taking into consideration dietary restrictions. It will prompt the user with the 3 cheapest options, of which the user can pick one and choose quantity. This will repeat until the budget is reached. The user can return to a previous grocery and change the quantity. The output will be a fully made grocery list (data structure: dictionary) at a given store. The user will be able to save the grocery list and has the option of ordering groceries online through the web application. The objective is to streamline shopping on a budget as the program will do all the price comparison and price checking for you.

Background: What is the context of the problem?

The challenge of accessing affordable and nutritious groceries is a multifaceted issue influenced by socio-economic, geographical, and systemic factors, leading to widespread food insecurity, particularly among lower-income populations. This problem, exacerbated by economic uncertainties and the disparities in food distribution, is further compounded by the nutritional quality of affordable food options, often linked to health issues. Addressing this requires innovative solutions that streamline the acquisition of nutritious food at minimal cost, leveraging technology and community resources to create a more equitable food system. Such initiatives are essential for promoting health and economic stability, ensuring that individuals and families, regardless of their economic status, have access to the food necessary for a healthy, active life.

Requirements: What needs to be in the solution?

* The Budget Groceries page needs a way to place various specifications. The inputs must contain budget, location and grocery items, with dietary restrictions and nutritional goals being additional inputs.
  + By creating an account system, it would be possible to streamline the process as the page could pull information like dietary restrictions, weekly budget, location, often bought items, etc, meaning the user would not have to enter every time
* Past items in the grocery list must be mutable
* The output list must be easily readable and accessible for the user. It must stay within the budget and align with the inputs (follow dietary restrictions, grocery store is nearby)
* A way to save/store the output in order for future use or reference

Design: What is the overview of your solution?

Steps:

1. Receive Inputs and access information for various items like ingredients, nutrition and price at various stores nearby location.
   1. If dietary restrictions, filter version of grocery item with prohibited ingredients out
2. Program/AI determines the three cheapest options and prompts the user to pick which one they want to add to their grocery list (displays price and nutritional information)
3. User picks their option and quantity of said item, this repeats until all grocery items are accounted for or the budget is reached
4. If the budget is reached, the user may reduce quantity of previous items, swap item for a cheaper version or just complete the list
5. If edits are made, the list will be updated and the remaining budget will be prompted. If no more edits, the list will be saved to the user's account.

A diagram of a company

Description automatically generated

Alternatives Considered: What are other solutions and why are we not using them?

* Another solution would be to provide pre-made shopping lists
  + Pro: no need for inputs and would be must less complex to design meaning faster run time
  + Cons: less diversity in selection
* Another solution is to outright pick the cheapest option for each item and provide the cheapest list possible
  + Pro: it is more efficient for user as they would need to do less
  + Con: the final output list may not be to the user’s liking/preferences
* Another solution is to take meals in as input, break them down into ingredients and determine the cheapest way to make the meals
  + Pro: grocery list will be more tailored to making a meal, making it more cohesive as it is based around a dish or cuisine
  + Con: different ways to make same meal, may be hard to implement or fit user’s preferences