Grocery Shopping Aid Application - GROCO

CSE Senior Design – Spring 2022

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VISION

Many applications help with grocery shopping; however, because the shoppers have many choices, it could be overwhelming and time-consuming since they have to look through many deals to compare and decide. There is also a high chance that the selected one might not be the best deal.

This is when the application becomes helpful and necessary. The application will take into consideration of time, distance, and cost to suggest the optimal choice. By doing this, the application will help users to save money, time and avoid traffic frustration.

KEY REQUIREMENTS

The key requirement of this product is to optimize the grocery items based on users' preferences. In order to achieve that, the application must:

- *allow a user to search for grocery items*
- *present the user with the best grocery item*
- *allow users to choose references that define optimal items*
- *allow users to create grocery lists*
- *search for all items on the shopping list*
- *search for optimal items from more than one store*
- *provide the most optimal route to the user*
- *allow users to view and share recipes*
- *allow users to add all ingredients from a recipe to their shopping list*
- *allow users to keep a list of favorite grocery items*

DETAILED DESIGN SPECIFICATION

MISSION

Our objective was to develop a grocery shopping web application that is accessible on PCs, smartphones, and tablets. Users will be able to search for grocery items and based on the user's preferences such as traveling distance, the number of stores to shop, brands, and prices, the app will suggest the optimal grocery items to shop at certain stores. The system also allows users to search for recipes, add favorite recipes to their meal plans, and add their recipes to their shopping list to perform the optimization.

ARCHITECTURAL DESIGN SPECIFICATION

Groco consists of four main layers:

FRONT-END/CLIENT:
Includes all software that is part of the product interface. The software is the code that is executed on the client-side (typically HTML, CSS, and JavaScript) that runs in the user's browser to create the user interface. Users interact directly with different components of the frontend, including user-entered data, buttons, links, and other features.
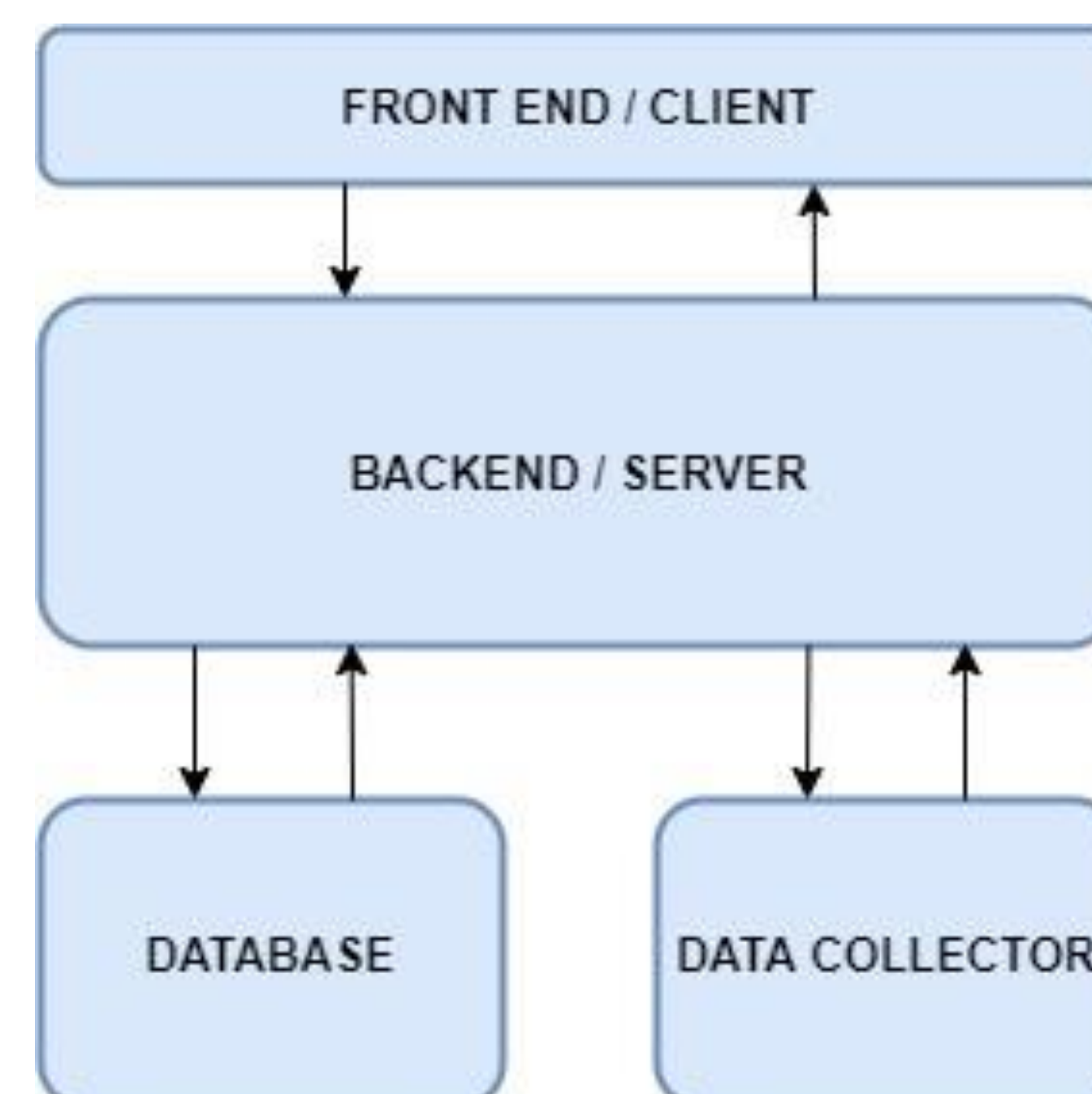
BACK-END/SERVER:
The back-end is the code run on a server. It receives requests from the front-end and contains the logic of the application to process each request and return appropriate data to the client. The back-end can directly interact with the database and data collector to retrieve the required data to fulfill each request.
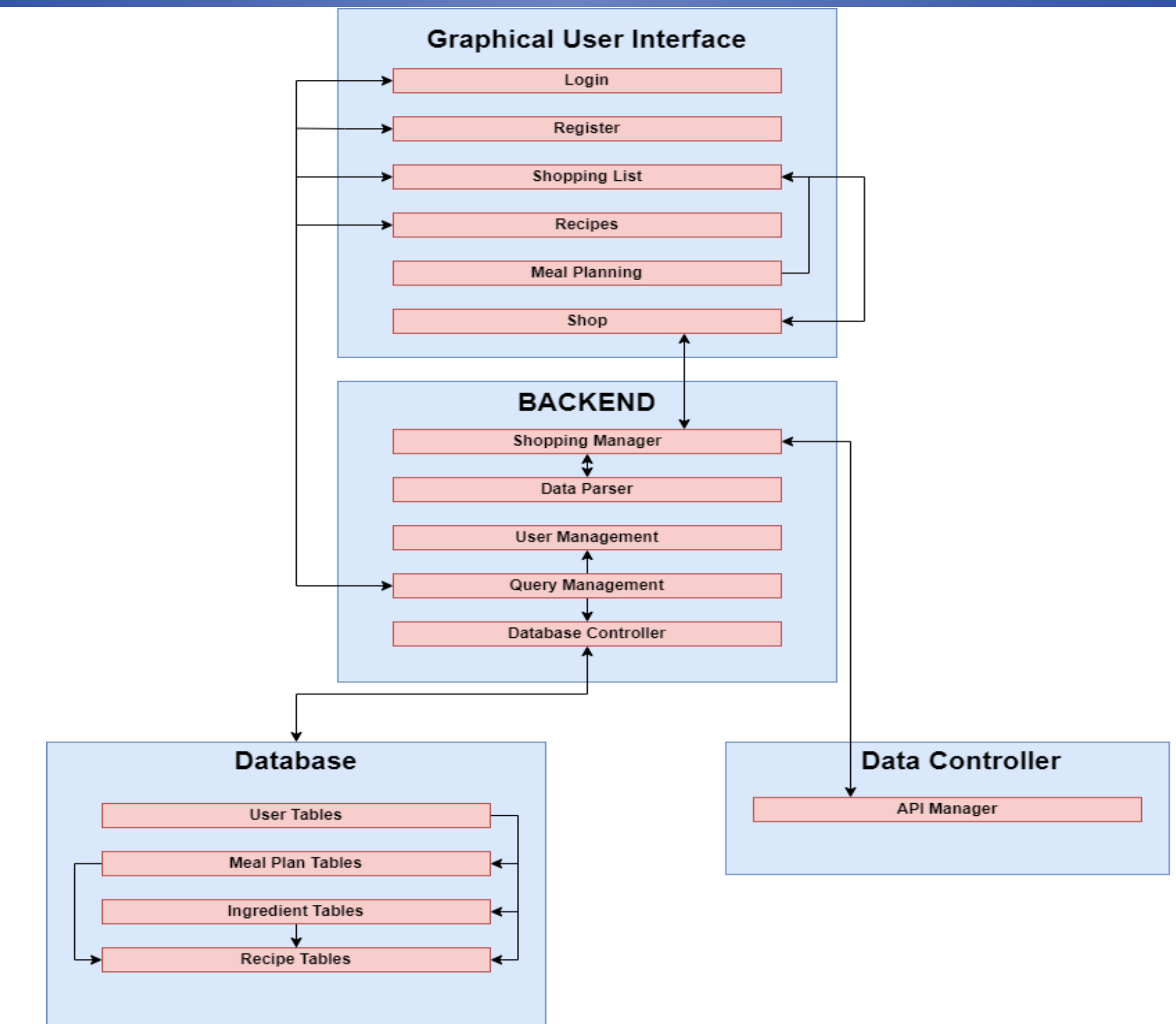
DATABASE:
The database layer stores and retrieves data. The database is also responsible for managing updates. The database layer includes multiple data tables that correspond with different functionalities of the product.
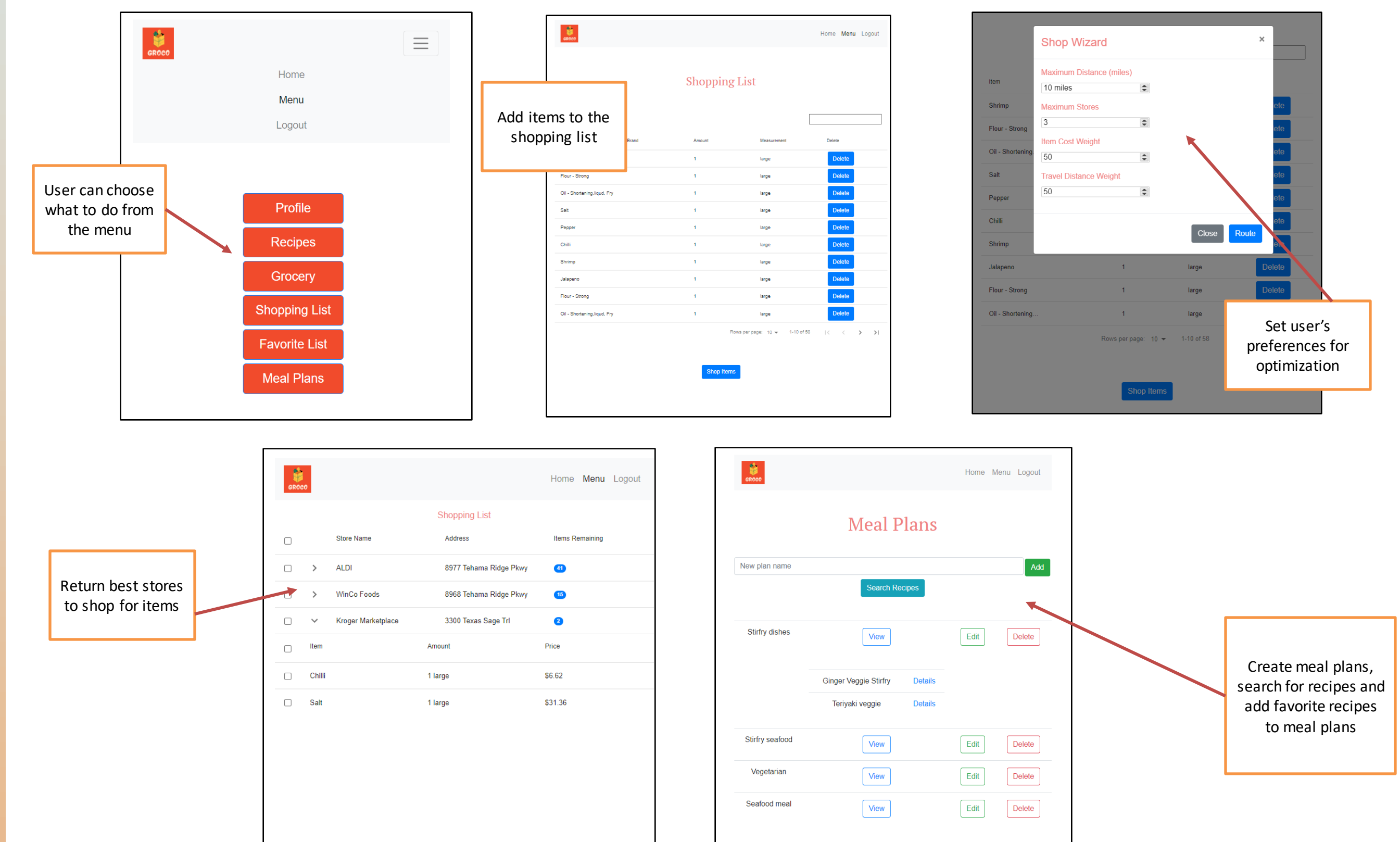
DATA COLLECTOR:
The data collector retrieves data from various stores through their respective APIs and returns it to the backend layer.

PROTOTYPE

CURRENT STATUS AND FUTURE WORK

Groco app meets all the primary requirements given to us by the sponsor within the resource constraints. Actual stores' API access needs stores' permissions therefore the app is using mock data to test the algorithm. Another component is the embedded map navigation, this requires a subscription therefore the app only provides the address to the store at this stage.

For future work, the actual stores' API access should be obtained as well as the direct map navigation, the iOS and Android mobile app should be developed, the app should also allow users to rate recipes and report violations, the app can also generate revenue such as from partnerships with other parties to provide more services.