**Group Proposal:**

**Pitch One:** Superb-Market: Supermarket Optimization

**General Description and Why:**

We are proposing the creation of a web application that could be used for general help while shopping for groceries in the Northeast United States. As the price of groceries and other commodities fluctuate with inflation, it is essential that customers are well informed so that they are able to get the best deal for their dollar. Our software will ensure that users are saving money on their grocery bills by allowing them to find the best options in their area for their budget.

**What the User will be able to do:**

The user will input their grocery list for the week and the supermarket webapp will return the prices for each item on their list. The user will be able to compare pricing between different grocery stores and notice whether or not shopping at an alternative store will save them money. The user will be able to rank their desired products by importance and indicate whether or not specific brands or items are mandatory on their shopping trip, to match not only the least expensive store, but also the store that best matches their needs. The app will also search for replacement products if there are other cheaper brands or similar products available as long as the customer indicates that replacements are acceptable for those items. The software will then return a list of grocery stores, each with an example receipt with their items from that store, using our algorithm to determine the best match for each customer’s trip based on affordability, distance, and products available.

**What we will do (How we will do it and APIs):**

To populate and update our pricing database, we will enlist multiple APIs from big supermarket chains on the east coast, such as Whole Foods (Amazon) or Costco. In addition, we plan to scrape data from additional supermarket chains to access less readily available pricing data. We plan to update prices weekly on Sundays at midnight (EST) to keep the database accurate with the latest prices. In conjunction with our pricing database, we will also use Google Maps API in order to help the user consider distance and potential transportation costs when planning their grocery trips.

**Above and Beyond:**

If we happen to have extra time, we will implement additional features, such as adding recipes to the database to allow the user to cook with ingredients they already have at home, as well as what they need to get at a supermarket nearby in order to have all the ingredients they need for a given recipe. Additionally, we hope to implement a feature regarding nutrition. This would allow the user to track calories, carbohydrates, lipids, and protein, as well as essential vitamins and minerals they need for the day. Also it would allow us to recommend certain recipes previously mentioned in order to hit daily intake goals provided by the FDA. Over the course of the pandemic, we’ve also noticed an increase in the use of grocery delivery services, particularly in urban areas, so we would also like to compare the relative costs of delivering these groceries with the rest of our pricing data.

Unfortunately all software is not error proof. This is why we would also like to implement a feature that allows the customers to vote on price updates that might have been missed or updated by supermarkets in between scraping times. This feature would be similar to the GPS/traffic software “Waze”, allowing users to submit price change requests and interact with each other's submissions in real time to get the most accurate prices for individual stores. Price changes could be upvoted or downvoted depending on the validity behind the request, adding a sense of community to the software. This feature could also be extrapolated to stores with individual sales on items.

Finally, shopping ethically and sustainably is important to us. That is why we would allow locally owned businesses and markets to submit their prices for items. We would develop a separate section or option for strictly shopping locally, for all those who feel inclined to.

**Condensed Pitch 1:**

We are proposing the creation of a web service for general help while shopping for groceries in the Northeast United States. As grocery prices rise due to inflation, our software will ensure that users are saving money on their grocery bill by allowing them to find the cheapest nearby option. The user will input their grocery list for the week and our software will return the prices for their list. The user will be able to track trends in pricing and whether shopping at an alternative store may save them money. The software will return a list of grocery stores from least to most expensive so the user has options. Furthermore, the app may try and find replacement products for the customer if there are other brands or similar products available for less money. We will enlist multiple APIs from big supermarket chains such as Whole Foods (Amazon) or Costco. In addition, we could run a data scraping software that allows us to scrape prices off of supermarkets websites to gather more data not conventionally found in APIs. An example of such is Trader Joes, whose entire inventory and pricing is listed on their websites. This scraping software will run weekly on Sundays at midnight (EST) to keep the software accurately running with the latest prices. We will also use Google Maps API in order to find nearby grocery stores with distances and directions.