411 Project Proposal

Team 101: nehasv2, pawudu2, alizain2, manasv2

1. **Project Title:** Pantry Pal

2. **Project Summary:**
   Pantry Pal will act as a one stop shop for all food-related needs and aims to make planning meals easier and less time-consuming. It will allow users to input the ingredients they already have at home, food preferences, allergies and calorie information to make personalized suggestions and plans. The functionalities include finding recipes that the user can make using only ingredients they already have, making personalized grocery lists based on liked recipes, retrieving a random recipe for the user to try, recommend recipes based on popularity and ranking, and creating meal plans based on calorie intake goals.

3. **Application Description**:
   As students, we lead very busy lives. Planning when and what to cook can be difficult, and often leads to poor eating habits. Our web app aims to make the planning process of nutrition a little easier by automatically finding and filtering recipes according to preferences and the ingredients you already have in your fridge. We want to make a website that asks users a series of questions to understand their preferences and returns recipes that meet their criteria.
   In particular, the website would have:
   - A survey for allergy information and long term preferences.
   - A button for randomly picking a recipe with long-term preferences and constraints.
   - A textbox to enter the ingredients available so that the website can return recipes that can be made using only those ingredients.
   - An option to enter the maximum calories in a recipe
   - An option to browse recipes and add them to your ‘Liked Recipes’
   - A tab that allows you to see which ingredients you would need to buy in order to make the recipes in your ‘Likes’

   We would have a relation for the following: recipes, reviews, contributors, ingredients, preferences (allergies/ calorie information) and Liked Recipes.

4. **Creative Component**:
   One thing we could add is a calorie tracker so that if users choose to input their goals and which recipes they made, we can create charts and visualizations. We could also use this to rank suggestions based on their daily intake: as soon as a recipe is made, the ranking of

the recipes would be reordered to prioritize recipes with calorie counts that put the user closer to their goal. We could also track a user's preferred ingredients to add nutritional visualizations as well.

5. **Usefulness**:
   Our project will be useful for people who want to find new recipes that fit their preferences, but don't have the time to browse to find one that works. It also helps keep track of all things meal-prep by keeping track of ingredients they have at home, ingredients they need to buy the next time they visit the grocery store, and the calories they consumed that week.

   There are existing websites that have similar functionality. For example, https://myfridgefood.com/ allows you to check off which ingredients you have in your fridge and gives you recipes based on those ingredients. Similarly, https://www.supercook.com/#/desktop also allows you to select which ingredients you have and find appropriate recipes. Where our project differs is we intend to take care of all the nutritional planning. Our web app will be able to filter out recipes that have too high of a calorie count for example, or restrict recipes based on allergy information. We also intend to keep user profiles, so that we can easily build a grocery list off of their Liked Recipes, and keep track of what is in their fridge. We can also take their nutritional goals and plan meals for a day/week to give personalized plans. There are also calorie tracking applications, but these rarely suggest recipes to try. Our project aims to find the middle ground so that users can plan their meals for the week in one place.

6. **Realness**:
   The dataset we plan to use is in the form of multiple csv files found here: https://www.kaggle.com/datasets/shuyangli94/food-com-recipes-and-user-interactions?select=RAW_recipes.csv
   The dataset contains recipes and reviews from Food.com over 18 years. It also contains user interaction data, like the number of reviews and their activity on the website. We will also have to collect calorie and price information related to ingredients used in the recipes.
   - The recipes include information about name, cook time, calorie class, rating, steps, contributor and nutrition information.
   - The reviews include information about the date, user, review and rating.
   - The user information includes user ids, recipes rated, ratings and number of reviews.

   Data size: The dataset contains over 180K+ recipes and 700K+ recipe reviews.

7. **Functionality**:

The user could search for:

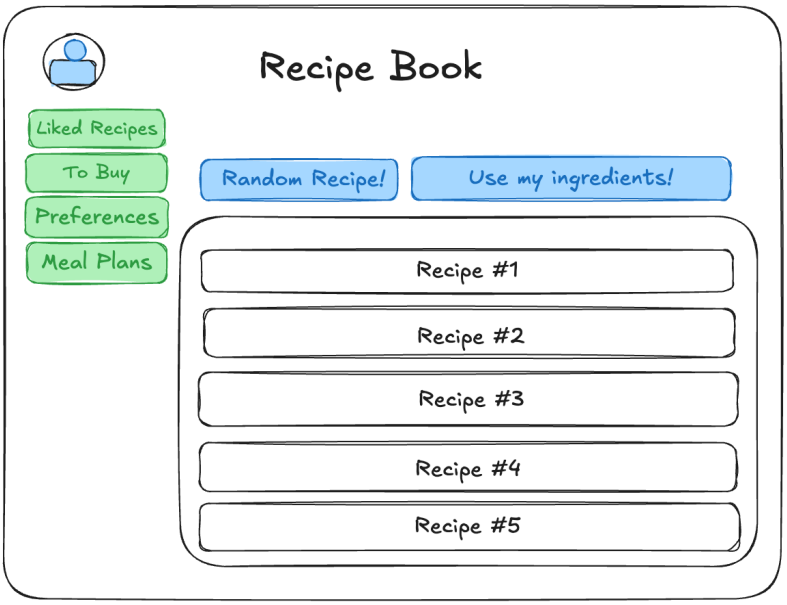
- Recipes based on ingredients
- Recipes based on rating
- Recipes based on review
- Recipes made by a certain contributor
- Recipes containing a certain calorie count

The user could insert/update/delete:

- Their long-term preferences
- Their allergies
- Their Liked Recipes
- Their to-buy lists

The user would interact with the website through buttons and textboxes on the UI that would change between modes for searching (randomized/targeted/rating-based/etc.)

1. **UI mockup**:



2. **Project work distribution**:

Task	**Team Member**
Backend, grocery list	Neha
Random recipe filter, ingredient recipe filter	Abalus
UI, survey for preferences/ allergies	Alizain
meal plans based on calories	Manasi