Project Title: LettuceEat (Let us eat)

Project Summary

Our project is designed to make meal planning easy for working adults. We are creating a website where users can enter their food preferences and nutritional goals to get a custom meal plan for the week.

The website uses dynamic SQL queries to find recipes that fit the user's needs and ranks recipes based on how popular they are. This helps users quickly find meals that are both nutritious and in line with current food trends. Our project helps people who are busy but want to quickly and easily plan their meals.

Description

We are building an application that helps users quickly create weekly meal plans based on their dietary needs and preferences. The application will automatically suggest recipes that match user inputs like dietary restrictions and favorite cuisines. It also features a system to show popular recipes and tracks user interactions to improve future meal suggestions. This application solves the problem of spending too much time planning meals and shopping by providing fast, efficient, and tailored meal planning. Our application is special because it really listens to what users like when making meal plans, instead of just picking recipes at random.

Creative Components and Technically Challenging Features:

Two of the technically challenging features we would like to include are dynamic SQL query generation and periodic ranking of recipes by popularity.

- Since each user may have different needs or preferences, there is no one query statement that works for all cases. During meal plan generation, we will generate the SQL query statements dynamically based on user input for better results.
- We also want to maintain a ranking of most popular recipes for the user to view and use. This means we need to track the updates to our recipes to update the rankings in a timely manner. We will need to find a sensible way to measure popularity by views, likes and dislikes for each recipe for the rank.

Usefulness

As a group of college students getting ready for a new stage of life with a 9-5 schedule, we realized that taking full control of life could be challenging. An endlessly recurring question I had to answer is what do I eat next week? It could be an energy draining process, when planning groceries shopping and cooking on a weekly basis.

Therefore, our application aims to eliminate the ordeal of meal planning for all the working adults. Our website will record the user's daily goal for calorie, protein, fat, etc. Based on the input, the application can generate a

complete plan for what to eat during the next week. While it is a random process, we will also take into account which recipe did the user like or dislike and what recipes have been trending recently. If there is a particular plan that the user favors, he or she can also save it and come back to it at any time.

Websites like eatthismuch.com provide a similar function, but their recipe generation is a complete random process after filtering. Our meal plan generation function provides better usability by offering generation based on chance or the popularity of each recipe.

Realness

In this project, we will be mainly using the following datasets:

- Data from Kaggle of recipes. A csv file with cardinality of 230186 and degree of 12, 294.52 MB of total size. It include detail cosine name, cooking steps and nutrition components
- Data from Kaggle of recipes reviews. It recorded users' feedback and rate of each cuisine.
- USDA Calculator allows as to compute recommended nutrition needs based on users' gender, weight and height
- Nutrition Calculator is a public API that is based on USDA Calculator.

The recipe data are mainly from food.com, a website that records many cuisines and recipes. We further found a dataset that based on ingredients, calculated nutrition components with each cuisine. With the DRI calculator, we are able to put everything together. A user only needs to fill in their gender, age, height, weight, as well as food preferences, our website can generate a weekly recipe for each meal that is both tasty and healthy.

Functionality

There are three aspects the user will interact with in this application: The recipe query page, personal profile page, and saved plans page. To begin with, the user can create and update his own profile information to include daily nutrition goals, and dietary restrictions. Then, the user will mainly interact with the recipe query page. By querying the recipe database, the user can generate weekly meal plans based on his profile and other factors like recipe popularity or previously liked recipes. The user can also indicate whether he or she likes a specific meal and even save the entire week's plan. Lastly, on the saved plans page, the user can view and update all of his saved weekly plans and liked/disliked recipes.

The user will interact with the database by searching for recipes that satisfy certain criteria. For example, they may want to find some recipes that include beef, has calories less than 600, and has a good credibility (with more than 10 reviews). This generation will induce database operations such as COUNT(review_id), GROUP BY (recipe_id), etc. Also, they can customize their own recipes through adjusting the portion of each ingredient, which adds entries in ingredient_portion relation table and CustomizedRecipe table. Similarly, they can add or delete their dietary restrictions, which will insert or delete entries in the user_restriction relation table.

Project work distribution*:

Yiwei Wang: Frontend, User Data, Recipe Data

Peiyang Wu: User Database, Recipe Data, Stored Procedures

Kaiwen Zhu: Saved Plan Database, Recipe Data, Stored Procedures

Hongyi Yang: Frontend, Saved Plan Database

*Data notes the table to be interact with and the correlated backend functions

UI Mockup: