Refined Requirements

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1 Functionality Requirements

1.1 Meal Plan

1.2.1 Description
The Meal Plan feature is available to a user to plan out their nutritional intake and habits. A user may add recipes of their choice to the plan for breakfast, lunch, dinner, or snacks. A user may view the meal plan on a weekly or monthly basis, with emphasis in the system towards weekly planning to encourage users to eat healthy actively.

1.2.2 Requirements
REQ-1-2-2-1: A user must be able to view a weekly table format.
REQ-1-2-2-2: A user must be able to view a monthly table format. This monthly view will be displayed as a set of four weeks.
REQ-1-2-2-3: An added recipe must be linked to the correct data/ time slot on the timetable view.
REQ-1-2-2-4: A user must be able to click, and select specific recipes from the weekly menu.
REQ-1-2-2-5: A selected recipe must present a recipe ingredient list, preparation instructions, and the calorific value of the recipe.

1.2 Recommendations

1.2.1 Description
The Recommendations feature will be based on an AI powered algorithm that improves over time based on recipes a user selects, searches they make, and preferences they set on the User Profile page. A user must be able to select and add recommended recipes directly to their Meal Plan as any one type of component such as breakfast, lunch, dinner, or snacks at a time.

1.2.2 Requirements
REQ-1-2-2-1: A user must be recommended recipes based on recipes they have previously added.
REQ-1-2-2-2: A user must be recommended recipes based on recipes they have previously searched for.
REQ-1-2-2-3: A user must be recommended recipes based on their set preferences such as their goal(s), allergies, and dietary restrictions.
REQ-1-2-2-4: A user must be able to directly add recommended recipes to their Meal Plan.
REQ-1-2-2-5: A user must be able to select the type of meal and the day/ day to add the meal on from the Recommendations page itself.

1.3 Advanced Search

1.3.1 Description
The Advanced Search feature will enable a user to search for recipes that are filtered against any filters they set for that specific search. The search criteria will include categories such as the type of recipe (Breakfast, Lunch, Dinner, etc.), the calorific value, the taste

profile, cooking time, etc. Searched recipes may then be added to a user's weekly meal plan.

1.3.2 Requirements
REQ-1-3-2-1: A user must be able to enter text in the search box available on all pages.
REQ-1-3-2-2: Recipes that are returned from the search must be filtered against user search categories.
REQ-1-3-2-3: A dropdown list of recipes must be displayed when a user enters text in the search box.
REQ-1-3-2-4: A user must be able to click on a recipe that matches the search to view its details in a new page.
REQ-1-3-2-5: A user must be able to directly add a recipe they like from the search results dropdown list to their Weekly Meal Plan.

1.4 User Profiles

1.4.1 Description
The User Profile feature allows a user to view their account details such as their email, their bio data, and preferences such as dietary restrictions and allergies. A user may add, edit or delete preferences such as their goal, dietary restrictions, and allergies on the User Profile page. These preferences are used to filter search results to only recommend recipes that a user is likely to be satisfied with. Generic features such as resetting a user's password, adding/editing bio data will also be available on the User Profile page.

1.4.2 Requirements
REQ-1-4-2-1: A user must be able to add profile details on the User Profiles page.
REQ-1-4-2-2: A user must be able to edit profile details on the User Profile page.
REQ-1-4-2-3: A user must be able to delete profile details on the User Profile page.
REQ-1-4-2-4: A user must be able to reset their password on the User Profile page.
REQ-1-4-2-5: A user must not be able to change their username on the User Page page.

2 Data Requirements

2.1 Input

2.1.1 Description
Key data inputs to the system include addition of recipe components to the meal plan, recipe search, user preferences, and any button clicks that result in a change in the state of the system. The search string for the recipe search is fed to an API. Preferences entered by a user, such as their goal, dietary restrictions, and allergies are stored against the user's profile in a preferences database that is referenced by the Recommendations page to display appropriate recommended recipes.

2.1.2 Requirements
REQ-2-1-2-1: A user must be able to input the type of recipe to be added to the Meal Plan.
REQ-2-1-2-2: A user must be able to input the day/ date on which a recipe is to be added to the Meal Plan.

REQ-2-1-2-3: A user must be able to input their personal data such as their name, age, height, weight, etc. on the User Profiles page.

REQ-2-1-2-4: A user must be able to input their preferences such as their goal(s), allergies, and dietary restrictions, if any, on the User Profiles page.

REQ-2-1-2-5: A user must be able to input a search string in the search box provided on the top right corner of the app.

REQ-2-1-2-6: A user must be able to input advanced search filters on the Advanced Search page.

2.2 Output

2.2.1 Description

The output of the Nutrition Manager varies based on which feature is being interacted with. There are views for each feature such as the Weekly Meal Plan, Monthly Meal Plan, Recommendations, Advanced Search and the User Profile that fetch and display data relevant to the page for a specific user. Additionally, the recipe search feature outputs recipes returned from an API call.

2.2.2 Requirements

REQ-2-2-2-1: A user must be displayed all recipes for a week on the Weekly Meal Plan page.

REQ-2-2-2-2: A user must be displayed all days of the week to make a selection and view recipes for a specific day from the Monthly Meal Plan page

REQ-2-2-2-3: A user must be displayed recommendations based on added recipes, search history, and preferences on the Recommendations page.

REQ-2-2-2-4: A user must be displayed filtered search results on performing an advanced search on the Advanced Search page.

REQ-2-2-2-5: A user must be shown their personal details such as name, age, height, weight, etc. on the User Profile page.

2.3 API interfaces

2.3.1 Description

There will be multiple internal data sources that fetch data to be displayed for the features. There will however be one main internal API interface to fetch recipes to be filtered. Based on a user's recipe search, an API call will be sent out to fetch a set of recipes that matches the search. From the returned results, recipes will be filtered against preferences and displayed to a user after performing an advanced search, and also on the recommendations page.

2.3.2 Requirements

REQ-2-3-2-1: The search API interface must filter results based on input to the Advanced Search feature of the Nutrition Manager.

REQ-2-3-2-2: The search API interface must filter results based on user preferences after an Advanced Search is performed.

REQ-2-3-2-3: The search API interface must return data in a JSON format.

REQ-2-3-2-4: There must be clear front-end - back-end demarcation between the logic for implementation of the API.

REQ-2-3-2-5: The search API interface must function both for an advanced search and a keyword search.

3 Process Requirements

3.1 Add recipe to weekly meal plan

3.1.1 Description
A user may enter search terms and get recipe recommendations based on their added recipes, search history, and profile preference details. Recipes are sourced from an API and are validated against search parameters and user profile preferences to filter the ones a user is most likely interested in.

This filtered set of recipes are displayed to the user. Now, the user is free to select one of them to be added to their meal plan at a time. Once a recipe is added, a user may view it on the Weekly Meal Plan page in the slot(s) they inserted it in.

A user has the ability to add recipes to the plan based on a day-of-week, or a day-of-month scheme, and the Meal Plan may be viewed in a similar way, but with an emphasis on weekly tracking, even when viewing the meal plan in a day-of-the-month scheme.

3.1.2 Requirements
REQ-3-1-2-1: A user must be able to add only one recipe at a time to their Meal Plan.
REQ-3-1-2-2: A user may view their added recipe from the Weekly Meal Plan view.
REQ-3-1-2-3: A user may view their added recipe from the Monthly Meal Plan view.
REQ-3-1-2-4: The default page to view recipes is the Weekly Meal Plan view.
REQ-3-1-2-5: A user must be able to view specific recipes in specific type slots in either the Weekly, or the Monthly Meal Plan view.
REQ-3-1-2-6: A user must be able to view specific recipes in the specific day/ date slots in either the Weekly, or the Monthly Meal Plan view.

3.2 Add recipe from recommended recipes

3.2.1 Description
A user may add recipes from the Recommendations page to the Meal Plan directly. To do so, a user must select a recipe from the page, and then define which type of meal, and on what day/ date they want to add it to their Meal Plan. Upon adding a recipe, the recipe shall be viewable to the user in either their Weekly or their Monthly Meal Plan page view.

3.2.2 Requirements
REQ-3-2-2-1: A user must be able to add a recipe to the Meal Plan directly from the Recommendations page.
REQ-3-2-2-2: A user must be able to define the type of recipe (for example, for breakfast, lunch, dinner, etc.) in a prompt on the Recommendations page itself.
REQ-3-2-2-3: A user must be able to select a day/ date slot to add a recipe in a prompt on the Recommendations page itself.

REQ-3-2-2-4: After adding from the Recommendations page, a user must be able to view the added recipe on the Weekly Meal Plan page.
REQ-3-2-2-5: After adding from the Recommendations page, a user must be able to view the added recipe on the Monthly Meal Plan page.

3.3 Edit personal profile details and preferences

3.3.1 Description
A user will have the option of entering preferences such as dietary restrictions, allergies, and goal(s).

Users have the ability to add these preferences on their User Profile page. All types of preferences will be optional.

If a user has preferences listed on their account, any searches and recommendations to them will yield results while keeping the preferences in consideration.

Preference rules are hard and fast, and a user must not be recommended things that are not good for their health, or for that matter something they are likely to dislike.

Additionally profile details such as the username, email, password, and bio data may also be viewed and edited by a user on the User Profile page.

3.3.2 Requirements
REQ-3-3-2-1: A user must be able to enter and edit preferences such as dietary restrictions, allergies and goals on the User Profile page.
REQ-3-3-2-2: User preferences must be optional.
REQ-3-3-2-3: A user must be able to enter and edit bio data such as their name, age, height, weight, etc. on the User Profile page.
REQ-3-3-2-4: All fields except the username for a user must be editable on the User Profile page.
REQ-3-3-2-5: A user must not be recommended things that are, in general, not good for their health.

4 Performance Requirements

4.1 Speed

4.1.1 Description
For the system to be able to deliver value to all users, it must be responsive to their requests. Pages must render near instantaneously, and there must be no lag while navigating through different features.

4.1.2 Requirements
REQ-4-1-2-1: The search API must output JSON data within 3 seconds of an advanced search being made.
REQ-4-1-2-2: A page in the Nutrition Manager must load under 1.5 seconds.

REQ-4-1-2-3: Transition between pages in the Nutrition Manager must not take more than 1.5 seconds.
REQ-4-1-2-4: The welcome page for the Nutrition Manager must load under 1 second.
REQ-4-1-2-5: Login credentials for the Nutrition Manager must be verified under 1 second.

4.2 Reliability

4.2.1 Description
For the system to be able to support all users, it must be reliable. What that means is that the system must have a high uptime, with the capacity to handle a lot more users than it is designed for. This way, the availability of the Nutrition Manager to a user is always maintained.

4.2.2 Requirements
REQ-4-2-2-1: The Nutrition Manager must display downtime notices in a banner on the top in case there needs to be any maintenance work done on it.
REQ-4-2-2-2: Downtime for the Nutrition Manager must not exceed more than 3 hours for routine maintenance and checks.
REQ-4-2-2-3: Accidental crashes of the Nutrition Manager must be able to be resolved within 30 minutes of the crash.
REQ-4-2-2-4: The Nutrition Manager must be able to handle at least 60,000 users at once.
REQ-4-2-2-5: The Nutrition Manager must run optimally for a threshold of 75,000 users using it at once.

5 Security Requirements

5.1 Description
Since the system will be designed to hold vast multitudes of user data, it is essential that it is properly protected. Measures to prevent issues like SQL injection attacks, or CSRF attacks must be implemented across the system to make sure that the system's integrity is maintained. Additionally, the system must be password protected in order to maintain data privacy and customization for all users.

5.2 Requirements
REQ-5-2-1: The Nutrition Manager must be secure from SQL injection attacks.
REQ-5-2-2: The Nutrition Manager must be secure from CSRF attacks.
REQ-5-2-3: The Nutrition Manager must have password protection implemented on it.
REQ-5-2-4: The Nutrition Manager must separate and keep user data and credentials secure.
REQ-5-2-5: The Nutrition Manager must be able to respond appropriately to DDoS attacks.