**Zenith App Improvements Time Estimation 01.10.2024**

1. Increase the Precision of Clustering

We can add more clusters to the existing macro groups to create more precise categories. For example:

- Ultra-low carb, moderate protein, moderate fat

- Moderate carb, high protein, high fat

- Very low fat, high carb, high protein

- More combinations could allow better segmentation and recommendation accuracy.

ETA: 3–4 days to evaluate the existing clusters, create new clusters, and implement changes.

2. Recommendation Rankings

We will rank the recommendations using a scoring algorithm based on factors such as deviation from the target nutrients, user preferences, and category-based prioritization (e.g., protein from beef is better than from plant-based sources in some cases).

ETA: 3–5 days to implement and test ranking logic for food recommendations.

3. Implement Memory for Iterative Recommendations

We will add memory to keep track of the user's selected or adjusted meal plan. This allows the recommendation engine to consider previous selections and optimize the meal iteratively. The memory will also enable users to modify specific meals incrementally, without regenerating everything.

ETA: 5–7 days to set up memory functionality and ensure it integrates with the iterative recommendation process.

4. User Guidance for Food Selection

We’ll add logic to handle edge cases where it’s difficult to match recommendations (e.g., “It’s not possible to meet your goal with these foods, please add more variety” or “Select more balanced meals for better recommendations”). This could be integrated as alerts.

ETA: 1-2 days to add user feedback mechanisms for edge cases.

5. Food Group Prioritization

Fine-tune the food group prioritization by linking it to more specific guidelines (e.g., prioritizing whole foods over sauces or processed items). Additionally, add exclusions for certain foods like sauces if they are suggested too often for fat adjustments.

ETA: 3–4 days for fine-tuning the prioritization.

6. Avoiding Unwanted Recommendations (e.g., Sauces)

We’ll add exclusion rules to prevent items like sauces from being recommended unless absolutely necessary, ensuring more meaningful food substitutions.

ETA: 2–3 days to implement exclusion rules.

Timeline Overview:

- Start Date: 08.10.2024

- Total Time: Approximately 15–20 days in total (with concurrent work on some items to accelerate the process).