

Customer Requirements:

Diabetic Meal Planner

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1) Project Background

Managing diabetes is a constant, day-to-day challenge for millions of people as it requires careful monitoring of nutrient intake to keep blood sugar levels stable. This issue is even more critical for low-income individuals who often face the added burden of limited budgets and reduced access to fresh and nutritious ingredients that support their dietary needs. Because of this, many struggle to create meals that align with their health goals while remaining within their financial means. Our Diabetic Meal Planner app will solve this problem by providing an accessible way for users to track their nutritional intake along with the help of recommended meal recipes. These will not only be personalized but will also fit within the users' selected price range and will have suggested nearby locations where the ingredients can be purchased. By addressing both the health and economic challenges that many diabetics face, our app empowers users to take control of their condition in a way that is practical and affordable.

2) Users

This section describes all the user roles in the Diabetic Meal Planner application and their detailed responsibilities, interactions, and specific needs. The system is designed to serve diabetic patients each with unique needs meanwhile helping health providers by allowing their patients to make smart decisions about their daily meals.

1. Diabetic Patients/Primary Users

- a. Role: The primary users of the app are individuals with diabetes, who use the app to make informed dietary decisions based on a repository of diabetes-friendly recipes.
- b. Tasks/Interactions:
 - i. Browsing Recipes: Users will search or filter recipes based on carbohydrate count, meal type, or dietary restrictions. They will choose recipes that fit their dietary needs or preferences.
 - ii. Meal Planning: Users can create daily or weekly meal plans by selecting recipes and organizing them into a schedule. This feature helps them plan meals while managing carb intake.
 - iii. Tracking Nutritional Information: Users will see detailed nutritional facts for each recipe, including carb counts, calories, and other relevant nutrients.
 - iv. Grocery List Generation: After selecting recipes, users can generate grocery lists with ingredients and see estimates of grocery costs at nearby stores.
 - v. Language Preference: Users will interact with the app in their preferred language (English or Spanish) and may switch between the two.
- c. Needs:
 - i. Ease of Use: Many diabetic patients, particularly older users or those less tech-savvy, will require a highly intuitive interface with

minimal steps to browse recipes, create meal plans, and generate grocery lists.

- ii. **Cultural Relevance:** Recipes should be relevant to the cultural preferences of the users, particularly for the app's Spanish-speaking audience, offering familiar, culturally appropriate dishes.
- iii. **Accurate Nutritional Information:** Nutritional and carb counts must be accurate and easy to understand to ensure users are making informed decisions for their diabetes management.
- iv. **Budget Considerations:** Given that the target audience includes low-income users, the app needs to provide grocery pricing estimates and show affordable options based on local stores.

3) Features to be implemented

This section discusses a descriptive list of functional and nonfunctional features to be implemented by the Diabetic Meal Planner application and its use cases.

Features (with functional and non-functional capabilities):

1. Recipe Search

a. Users

- Diabetic individuals searching for diabetes friendly recipes with specific names, ingredients or types of cuisine.

b. Functional Capabilities

- A search bar to search for recipes by name, ingredients, type of cuisine.

c. Non-Functional Capabilities

- As the user types into the search bar, relevant search results begin to appear in the main screen based on what is being typed within seconds.

2. Recipe Search Filters

a. Users

- Individuals who want to easily select identifiers for the types of recipes they want to find.

b. Functional Capabilities

- List of filters that categorize recipes into groups, such as vegetarian, vegan, keto, Chinese, Mexican, Mediterranean, Halal etc.

c. Non-Functional Capabilities

- When a category button is clicked, it lists the search results of that specific category of recipes to the screen within seconds.

3. Search by Ingredients

a. Users

- Individuals searching for a recipe with a specific ingredient.

b. Functional Capabilities

- An ingredients button near the search bar that the user can click to see an empty list which the user can add/delete typed ingredients from to search for recipes containing these ingredients.

c. Non-Functional Capabilities

- When the list is submitted (searched for), a list of recipes that contain at most all of the ingredients listed will appear as search results within seconds.

4. Recipe Search Display

a. Users

- Individuals who would like to scroll through the retrieved recipes from their search.

b. Functional Capabilities

- A recipe name, recipe image, along with ingredients, important macro/micronutrients (e.g., carbs, proteins, fats, sodium, etc.) are displayed in a row and can be scrolled up and down.

c. Non-Functional Capabilities

- All the relevant recipe information will be retrieved at once and displayed on a single (scrollable) page.

5. Detailed Recipe Display

a. Users

- Individuals who would like to learn more about a selected recipe.

b. Functional Capabilities

- A formatted screen presenting recipe name, recipe image, ingredients, all nutrient quantities and recipe instructions are displayed on a single page.
- Important macro and micronutrients of the recipe ingredients will be cumulatively calculated and displayed with the recipe.
 1. *Macro*: carbs, proteins, fats
 2. *Micro*: sodium, potassium, magnesium, calcium, vitamin D

c. Non-functional Capabilities

- All information about the recipe is displayed to the new screen within seconds.

6. Saved Recipes

a. Users

- Individuals who would like to save a recipe they like or want to try in the future.

b. Functional Capabilities

- On each recipe display, there will exist a “Save” button or icon that will allow the user to save the selected recipe to a list that is always accessible.

c. Non-Functional Capabilities

- When the user saves a recipe, a reference to the recipe in the database will be saved to their account. When this “Saved” list is accessed by the user, a lookup and retrieve is performed to

display all their saved recipes in a scrollable list in one location within seconds.

7. Weekly Meal Planner

a. Users

- Individuals who would like to have a schedule of recipes to view or make for that week.

b. Functional Capabilities

- A week-by-week schedule with multiple meal slots per day that can be interacted with to add a recipe/meal to that day and user selected time.

c. Non-Functional Capabilities

- Upon clicking one of the meal slots on a day, the user will be prompted to add a recipe either from “Saved” recipes or to search for one. When this recipe is added, a daily nutrient calculator will display the total daily nutrients for that day. Each additional recipe added to this day will update the nutrient calculator for that day. In addition, there will be a weekly nutrient calculator that will work the exact same way, except it will display the current total weekly nutrients from all the recipes/meals of the week.

8. Grocery List Generator (from selected recipes for the week)

a. Users

- Individuals searching for a generated grocery list of items that they can go out to buy for their recipes. In addition to individuals who may already have some needed ingredients at home and do not wish to purchase everything in the ingredient list of the recipe.

b. Functional Capabilities

- There will be a weekly grocery list section that will contain all the ingredients (and their quantities) needed to make all the recipes that have been added to the weekly meal planner. The user can also add and remove any ingredients that they want to account for ingredients that they already have and/or do not want on the list.

c. Non-Functional Capabilities

- When recipes are added to the weekly meal planner, all of their ingredients will be automatically added to the weekly grocery list. As ingredients are added to the grocery list, a general total price of the list will be generated if prices of individual groceries are available.

9. Grocery Store Map (Including General Prices)

a. Users

- Individuals who would like to find the most convenient place to buy their weekly recipe ingredients based on location and price ranking.

b. Functional Capabilities

- There will be a grocery store map section that will allow either a user given location or current location to generate a display of nearby grocery stores.
- A list of the stores will also be displayed under the map with the general price ranking of the grocery store given that it is decided that the Google Maps API will be used to generate price rankings.

c. Non-Functional Capabilities

- We will use the user's current location or user input location to find all nearby grocery stores to display to the user.

10. Language Change

a. Users

- Users who prefer navigating the app in Spanish over English or vice-versa.

b. Functional Capabilities

- Allows user to change language from English to Spanish or Spanish to English from their last saved language preference in Settings section.
- Settings of a language for the app are saved, and content is displayed to the user in that language.

c. Non-functional Capabilities

- After closing out of the app and opening it again the preferred selected language is what the content of the application is displayed in.

4) Features not to be implemented

This section identifies a list of features that will not be implemented in the system.

1. Blood Sugar Logging
2. Filter Price Range of Foods Searched
3. Meal Recommendations Based on Meal Requirements, Nutritional Needs, or Any Health Metric
4. Save Type of Diabetes and Meal Requirements to User Account
5. Input Meal Preferences