Problem Statement. Develop a recipe generator algorithm that takes into account user preferences and generates customized recipes based on those preferences.

Sub-Problems.

1. User Input.

- Sub-Problem. A user with dietary restrictions may not be able to find recipes they can eat.

- Sub-Solution. The recipe generator could prompt the user for their dietary restrictions and then filter the recipe database to only include recipes that are compatible with those restrictions.

2. Recipe Selection.

- Sub-Problem. A user may not have time to cook a complicated recipe.

- Sub-Solution. The recipe generator could filter the recipe database to only include recipes that are relatively easy to make.

3. Recipe Information.

- Sub-Problem. A user may be unskilled in cooking or not able to read the instructions for a recipe because they are in a foreign language.

- Sub-Solution. The recipe generator could translate the instructions for the recipe into the user's preferred language.

Functions Necessary.

1. getting user preferences().

- Function to prompt the user for their dietary restrictions and store their preferences.

2. filtering recipes by restrictions(preferences, recipe database)

- Function to filter the recipe database based on the user's dietary restrictions/preferences.

- Input: preferences (user's dietary restrictions/preferences), recipe database

- Output. filtered recipes (recipes compatible with the user's preferences)

3. filtering recipes by complexity(time available, recipe database).

- Function to filter the recipe database based on the user's available time.

- Input. time available (user's available time), recipe database

- Output. filtered recipes (recipes that are relatively easy to make within the given time)

4. translating recipe(recipe, target language):

- Function to translate the recipe instructions into the user's preferred language.

- Input. recipe (a single recipe with instructions), target language

- Output. translated recipe (recipe with translated instructions)

5. generating customized recipes(preferences, time available, recipe database, target language)

- The main function that integrates all the sub-solutions and generates customized recipes.

- Input. preferences (user's dietary restrictions/preferences), time available (user's available time), recipe database, target language

- Output. customized recipes (filtered and translated recipes based on user preferences)

Defining of variables

1. getting user preferences()

- preferences: List to store the user's dietary restrictions/preferences.

- user input: String to store the user's input for each dietary restriction/preference.

2. filtering recipes by restrictions(preferences, recipe database)

- preferences: List of dietary restrictions/preferences provided by the user.

- recipe database: List or database structure storing recipes.

- filtered recipes: List to store recipes that are compatible with the user's preferences.

3. filtering recipes by complexity(time available, recipe database)

- time available: Numeric value representing the user's available time.

- recipe database: List or database structure storing recipes.

- filtered recipes: List to store recipes that can be prepared within the given time.

4. translating recipe(recipe, target language)

- recipe: Recipe object or data structure representing a single recipe.

- target language: String representing the user's preferred language.

- translated recipe: Recipe object or data structure with translated instructions.

5. generating customized recipes(preferences, time available, recipe database, target language)

- preferences: List of dietary restrictions/preferences provided by the user.

- time available: Numeric value representing the user's available time.

- recipe database: List or database structure storing recipes.

- target language: String representing the user's preferred language.

- filtered by restrictions: List to store recipes filtered based on dietary restrictions.

- filtered by complexity: List to store recipes filtered based on time availability.

- customized recipes: List to store the final customized recipes.