Workflow README: Personalized Recipe Recommendation System

1. Overview

This document outlines the workflow of our personalized recipe recommendation system. It describes how recipes are structured, what information users provide, and how the system processes this information to suggest the most suitable recipe.

2. Recipe Data Structure

Each recipe is stored in a structured JSON format with the following fields: - **title**: Name of the recipe - **ingredients**: Complete list of ingredients - **instructions**: Step-by-step cooking instructions - **NER**: Simplified ingredient names for consistency - **tags**: Metadata such as flavor profile and dietary category

3. User Input

The system requires three inputs from the user: 1. **Long-term Preferences**: Favorite recipes or dishes selected during signup, which establish the user's general taste profile (e.g., vegetarian, sweet, simple). 2. **Short-term Requirement**: Current mood or constraints for today (e.g., "sweet", "not spicy", "quick"). These are converted into tags or filters. 3. **Available Ingredients**: Items currently in the user's kitchen (e.g., tofu, soy sauce, garlic). Only recipes that can be prepared with these ingredients are considered.

4. System Workflow

The system processes the inputs as follows: 1. **Filter Recipes** - Remove recipes that conflict with today's requirements (e.g., exclude spicy dishes). - Exclude recipes requiring ingredients not present in the user's inventory. 2. **Combine Preferences** - Transform the user's long-term favorites and today's short-term tags into a single "taste vector" representing the user's desired flavor and style for the day. 3. **Match Recipes** - Compute the similarity between the taste vector and each candidate recipe's vector. - Recommend the recipe with the highest similarity score.

5. Input-Output Summary

What the User Inputs	System Actions
1. Available Ingredients	Filters recipes by ingredient availability
2. Today's Requirement	Applies flavor/mood constraints
3. Favorite Recipes	Builds the user's taste profile vector
Combined into "Today's Taste Vector"	Matched against recipe vectors
	Outputs the top-matching recipe