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ICBP 2.0

Smart AI-Powered Nutrition Planning Assistant - SANA

Your Name : Sarthak Baburao Narnor

Project GitHub Link: https://github.com/s8narnor/SANA/tree/main

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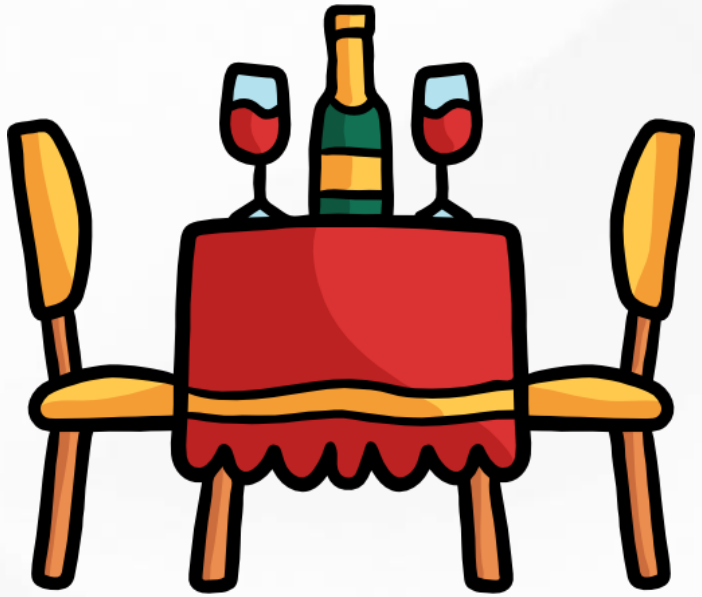
Problem Statement

- People struggle to make healthy food choices tailored to their unique needs.
- Generic diets ignore cultural preferences, seasonal foods, and personal dislikes.
- Lack of accessible, expert-level nutrition guidance for daily planning.



Our Solution

- An AI-driven virtual assistant for personalized nutrition planning.
- Generates daily/weekly meal plans based on user preferences and profile.
- Friendly, conversational experience via text input.

Key Features

👤 Profile-based meal generation (age, gender, location, meal times, food likes/dislikes).

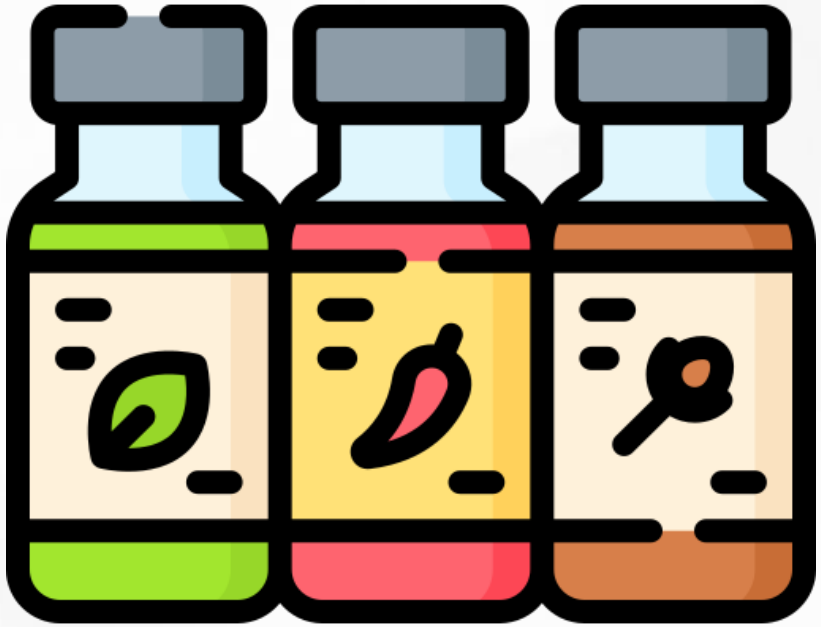
🧠 AI Agents that adapt plans using contextual understanding.

🗣️ Multimodal interaction (text and voice).

🥗 Healthy food analysis ("Is this food healthy?").

Tech Stack

- Frontend: React, Vite, Tailwind CSS
- Backend: Python (FastAPI), AI agents
- AI Tools: Generative AI, Rule-based logic, Future GANs for visual checks
- Database: JSON store / scalable options for MVP



User Flow

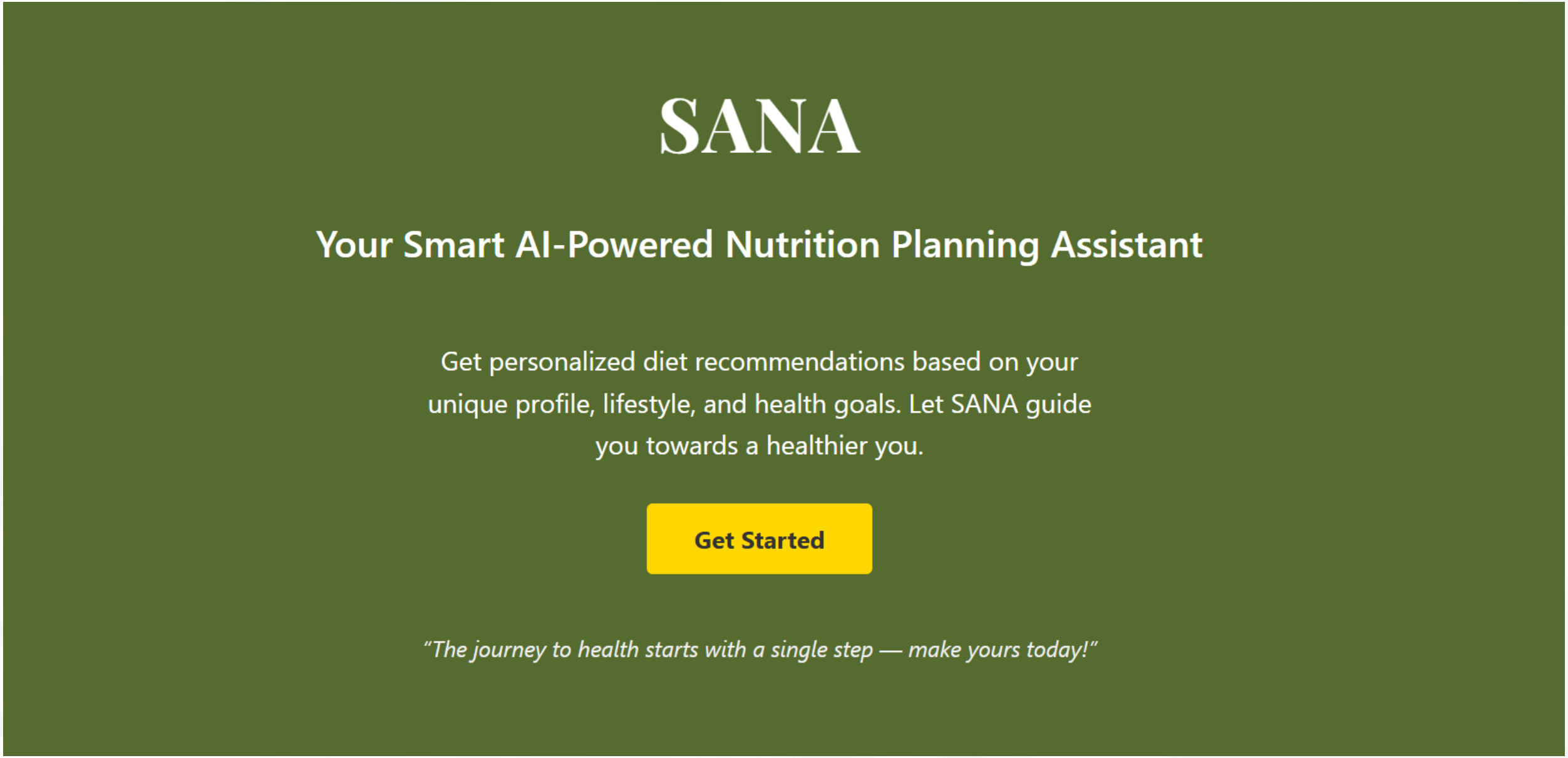
User fills in profile form

AI processes preferences + context

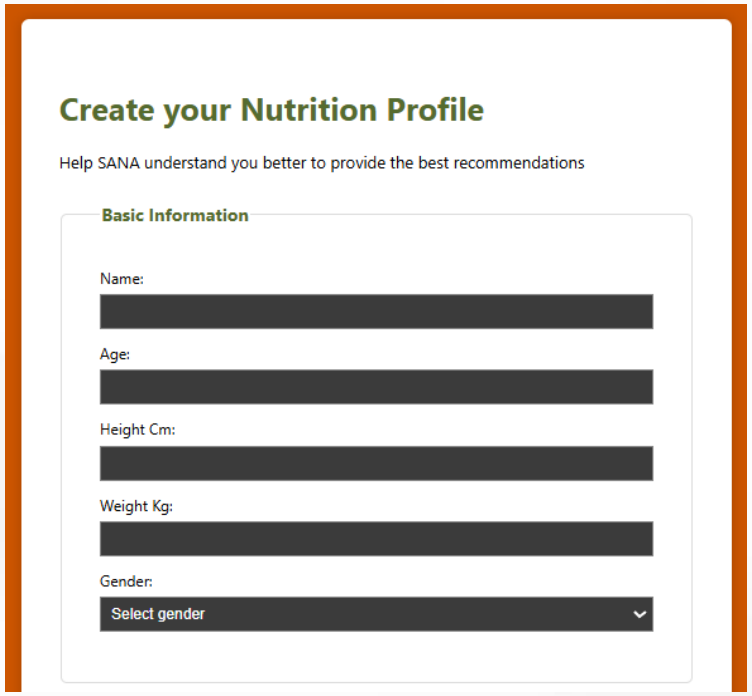
Personalized meal plan generated

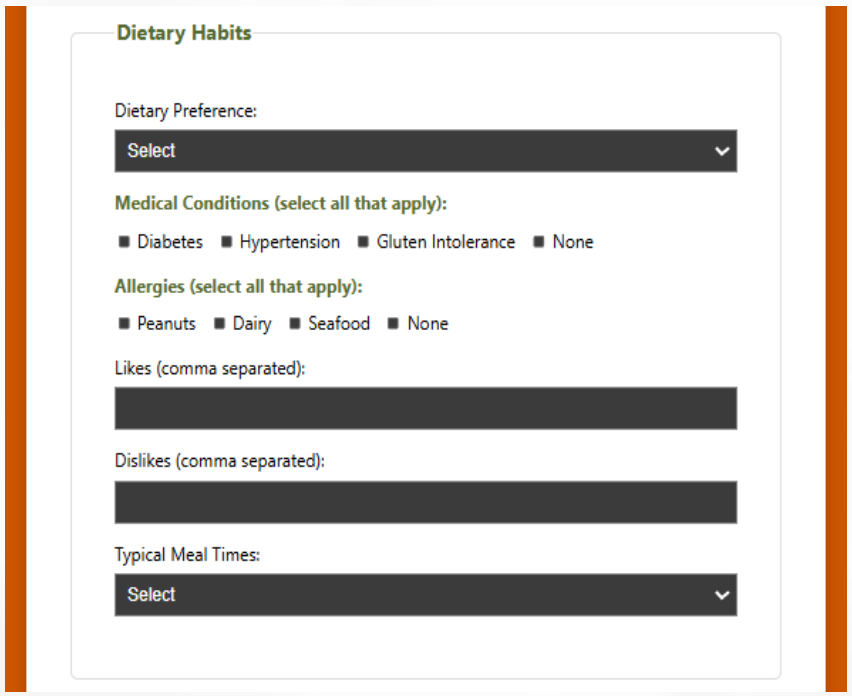
User reviews, restarts, or refines

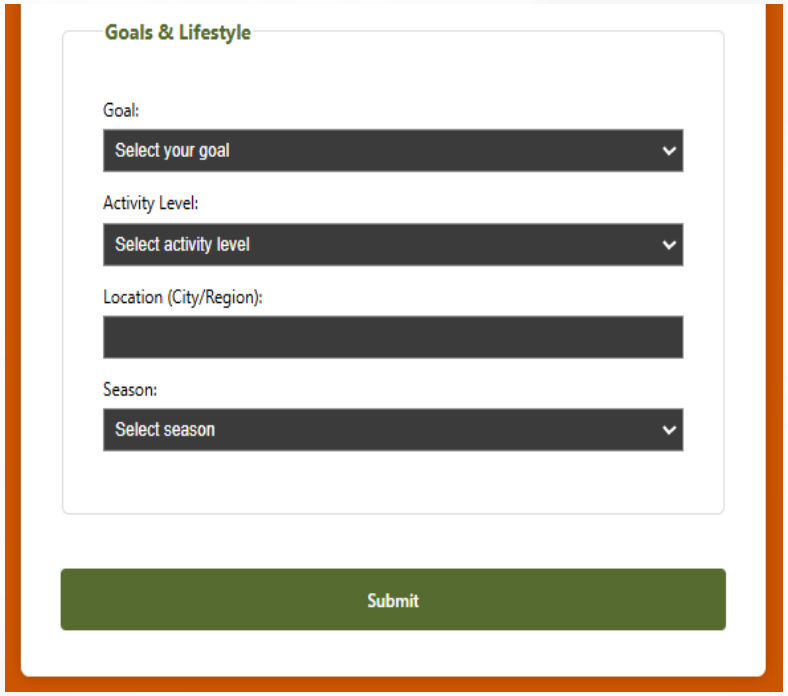
Results


SANA
Your Smart AI-Powered Nutrition Planning Assistant
Get personalized diet recommendations based on your unique profile, lifestyle, and health goals. Let SANA guide you towards a healthier you.
Get Started
"The journey to health starts with a single step — make yours today!"

Results


Create your Nutrition Profile
Help SANA understand you better to provide the best recommendations
Basic Information
Name:
Age:
Height Cm:
Weight Kg:
Gender:
Select gender


Dietary Habits
Dietary Preference:
Select
Medical Conditions (select all that apply):
Diabetes
Hypertension
Gluten Intolerance
None
Allergies (select all that apply):
Peanuts
Dairy
Seafood
None
Likes (comma separated):
Dislikes (comma separated):
Typical Meal Times:
Select


Goals & Lifestyle
Goal:
Select your goal
Activity Level:
Select activity level
Location (City/Region):
Season:
Select season
Submit

Results

User Profile Data Analysis Report:

Age: 45
Gender: Female
Weight: 170 lbs
Height: 5'6"
Medical Conditions: Hypothyroidism, Type 2 Diabetes
Allergies: None reported
Dietary Preferences: Vegetarian
Activity Level: Light exercise 3 times a week

Key Health Risks or Factors:
1. Hypothyroidism and Type 2 Diabetes are significant factors that will impact nutrition planning. Both conditions require careful management of blood sugar levels and may necessitate specific dietary considerations.
2. Being overweight with a BMI of 27.4 indicates a higher risk for conditions like heart disease, stroke, and high blood pressure. Weight management should be a priority in the nutrition plan.
3. The vegetarian dietary preference may require additional attention to ensure adequate intake of essential nutrients like protein, iron, and B12.

Important Contraindications or Special Considerations:
1. Due to the presence of hypothyroidism and Type 2 Diabetes, monitoring carbohydrate intake and choosing low-glycemic index foods is crucial.
2. The user's weight status suggests a need for portion control and a focus on nutrient-dense, whole foods to support weight loss goals.
3. As a vegetarian, incorporating plant-based sources of protein like beans, lentils, and tofu is essential for meeting protein needs.

Insights to Guide the Nutrition Assistant:
1. Create a personalized meal plan that balances carbohydrate intake to manage blood sugar levels effectively.
2. Emphasize portion control and include a variety of fruits, vegetables, whole grains, and lean protein sources to support weight management.
3. Consider supplementing with vitamin B12 to address potential deficiencies in a vegetarian diet.

Overall, the user's profile data highlights the importance of a tailored nutrition plan that addresses specific health risks, dietary preferences, and lifestyle factors to promote overall health and well-being.

Demo & Screenshots

```
I now can give a great answer

Final Answer:
**Weekly Meal Plan**

**Monday:**
- Breakfast: Greek yogurt with mixed berries and a sprinkle of chia seeds (250 calories)
- Lunch: Quinoa salad with roasted vegetables and chickpeas (400 calories)
- Dinner: Lentil curry with brown rice and steamed broccoli (450 calories)
- Snack: Carrot sticks with hummus (100 calories)

**Tuesday:**
- Breakfast: Avocado toast on whole grain bread with a side of grapefruit (300 calories)
- Lunch: Spinach and feta stuffed bell peppers with a side of quinoa (350 calories)
- Dinner: Vegetable stir-fry with tofu and brown rice (400 calories)
- Snack: Almonds and dried apricots (150 calories)

**Wednesday:**
- Breakfast: Smoothie with spinach, banana, almond milk, and protein powder (300 calories)
- Lunch: Lentil soup with a side of whole grain bread (350 calories)
- Dinner: Zucchini noodles with marinara sauce and vegan meatballs (450 calories)
- Snack: Greek yogurt with sliced almonds (200 calories)

**Thursday:**
- Breakfast: Chia seed pudding with sliced mango (250 calories)
- Lunch: Chickpea and avocado wrap with a side salad (400 calories)
- Dinner: Baked sweet potato with black beans, salsa, and guacamole (450 calories)
- Snack: Apple slices with peanut butter (150 calories)

**Friday:**
- Breakfast: Oatmeal topped with walnuts and dried cranberries (300 calories)
- Lunch: Quinoa and black bean stuffed bell peppers with a side of mixed greens (350 calories)
- Dinner: Vegetable curry with quinoa and roasted cauliflower (400 calories)
- Snack: Rice cakes with almond butter (150 calories)
```

Demo & Screenshots

Saturday:
- Breakfast: Whole grain pancakes with maple syrup and mixed berries (350 calories)
- Lunch: Mediterranean salad with falafel and tahini dressing (400 calories)
- Dinner: Lentil bolognese with whole wheat pasta and a side of steamed green beans (450 calories)
- Snack: Trail mix with nuts and dried fruit (200 calories)

Sunday:
- Breakfast: Tofu scramble with spinach and cherry tomatoes (300 calories)
- Lunch: Black bean and corn quesadillas with a side of salsa and guacamole (350 calories)
- Dinner: Roasted vegetable and quinoa bowl with tahini dressing (400 calories)
- Snack: Cottage cheese with pineapple chunks (150 calories)

Nutritional Highlights:
- Balanced macronutrients with a focus on plant-based proteins, whole grains, and a variety of fruits and vegetables.
- Adequate fiber intake to support digestive health and blood sugar control.
- Incorporation of essential nutrients like iron, B12, and omega-3 fatty acids through plant-based sources.
- Portion-controlled meals to support weight management goals and overall health.

Total Daily Calories: Approximately 1600-1800 calories

Preparation Tips:
- Batch cook grains, beans, and roasted vegetables for easy meal assembly throughout the week.
- Use herbs and spices to add flavor without excess salt or sugar.
- Incorporate a variety of colors and textures to keep meals interesting and satisfying.

This personalized weekly meal plan is designed to meet the user's dietary preferences, health requirements, and weight manage
ment goals. It provides balanced and nutritious meals that are easy to prepare and culturally appropriate for a vegetarian li
festyle.

Demo & Screenshots

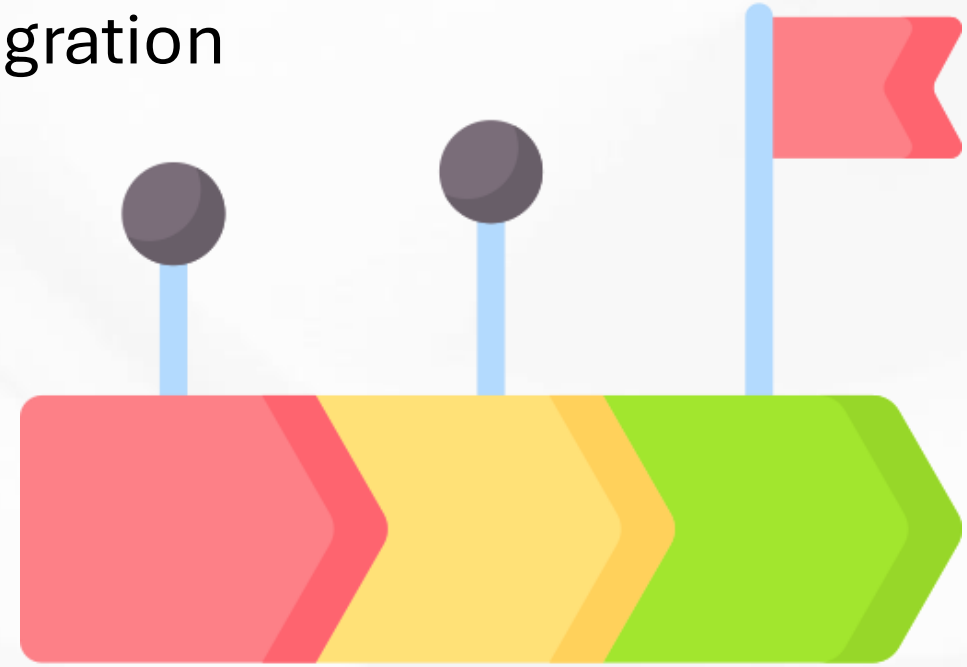
```
 [DEBUG]: == [Recipe Recommender] Task output: Recipe 1: Lentil and Chickpea Curry
Ingredients:
- 1 cup lentils
- 1 can chickpeas
- 1 onion, diced
- 2 cloves garlic, minced
- 1 can diced tomatoes
- 1 can coconut milk
- 1 tbsp cumin
- 1 tbsp coriander
- 1 tbsp turmeric
- Salt and pepper to taste

Instructions:
1. In a large pot, sauté the onion and garlic until fragrant.
2. Add the lentils, chickpeas, diced tomatoes, coconut milk, and spices. Stir well.
3. Simmer for 20-25 minutes until lentils are tender.
4. Season with salt and pepper to taste.
5. Serve over rice or quinoa.

Nutritional Info:
- Calories: 350 per serving
- Protein: 15g
- Fiber: 10g
```

Impact

- Encourages healthy eating habits through personalization.
- Reduces dependency on nutritionists for basic guidance.
- Scalable across demographics and geographies.

Future Roadmap

- 🍽️ Visual food analysis using computer vision (GANs, ML)
- 📅 Weekly meal calendar with grocery list generation
- 📲 Mobile app with reminders and goal tracking
- 🌎 Regional food database integration



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   https://platform.openai.com/docs
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   https://fastapi.tiangolo.com/
5. React + Vite Frontend Framework
6. Vite: https://vitejs.dev/
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   https://developer.nutritionix.com/
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   https://world.openfoodfacts.org/data
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    https://careclinic.io/

Thank You