

App idea:

An ingredient management and recipe builder app that allows users to input the ingredients they have into an AI agent that will be able to provide recipes based on the ingredients, store the ingredients into a pantry to remember for later, and provide grocery lists based on ingredients the user also previously had. Plan a week of meals, including days where cooking is not required (stretch goal).

Users:

20-60 year old people who need help creating recipes and want to cook. Average tech knowledge.

Major Workflows:

Recipe Workflow

1. User inputs list of ingredients they have
2. User gives filters for the recipes such as “use only ingredients I have”, “italian”, and “previously made”
3. The user can then modify recipes given by the AI agent by using requests like “increase the protein of the meal”, “add this ingredient to the recipe”, and “increase the amount of this ingredient”.
4. The user can then say make recipe and the AI agent will remove the ingredients used from the pantry

Pantry Workflow

1. User inputs list of ingredients they have
2. Users can view the ingredients they have
3. Users can modify the ingredients amounts they have

Grocery List Workflow

1. User inputs ingredients they have
2. User requests recipes from AI
3. AI returns list of recipes with ingredients
4. Missing ingredients are adding to grocery list

Views:

- Pantry
- Recipe plan for the week (stretch goal)
- Grocery list

Data: Recipe JSONs, Pantry JSONs, Grocery List JSONs, stored in browser data
In the JSON files: String: Ingredients, directions, Recipe title, description of the recipe, equipment needed, Int: amount of ingredients, macros (calories, protein), servings and serving size.

Anticipated Challenges:

- Only a few team members have worked with AI agents so there will be challenges learning
- Not everyone on the team has used the development environment (React)

Schema:

The “food_type” schema represents the user’s current food inventory if pantry, and the inventory they must purchase if shopping_list. It is an array of objects, where each object details a specific food item and its available quantity.

```
pantry | shopping_list = [
  {
    "food": "string", // Name of the food item (e.g., "chicken breast", "rice", "onions")
    "quantity": {
      "value": "number", // Numerical value of the quantity
      "unit": "string" // Unit of measurement (e.g., "grams", "kilograms", "pieces", "cups", "ml")
    }
  },
  // ... more food items
]
```

PANTRY SCHEMA:

The “user_request” schema defines the input structure sent to the set of agents for recipe generation. It combines the user’s pantry information, and specific user preferences for the desired meal.

```
"user_request": {
  "meal_type": "string", // e.g., "dinner", "lunch", "breakfast", "snack"
  "cuisine_preference": "string", // e.g., "Italian", "Mexican", "Asian", "American" (optional)
  "dietary_restrictions": [ // Array of dietary restrictions (optional)
    "vegetarian",
    "gluten-free",
    "dairy-free",
    // ... other restrictions
  ],
  "allergens": [ // Array of known allergens to avoid (optional)
    "peanuts",
    "shellfish",
    // ... other allergens
  ],
  "number_of_servings": "number", // Desired number of servings for the recipe
  "prep_time_minutes": "number", // Maximum desired preparation time in minutes (optional)
  "cook_time_minutes": "number", // Maximum desired cooking time in minutes (optional)
  "difficulty_level": "string", // e.g., "easy", "medium", "hard" (optional)
  "include_ingredients": [ // Array of specific ingredients the user wants to include (optional)
```

```

    "pasta",
    "broccoli",
  ],
  "exclude_ingredients": [ // Array of specific ingredients the user wants to exclude (optional)
    "cilantro",
    "olives",
  ],
  "keywords": "string" // Free-form text for additional user requests or specific dish ideas
}

```

The “recipe” schema defines the expected final output from all the agents, representing a complete recipe.

```

recipe = {
  "title": "string", // Name of the recipe (e.g., "Creamy Chicken Pasta")
  "description": "string", // A brief overview of the recipe
  "ingredients": [
    {
      "food_item": "string", // Name of the ingredient (e.g., "chicken breast")
      "quantity": {
        "value": "number", // Numerical value of the required quantity
        "unit": "string" // Unit of measurement (e.g., "grams", "cups", "teaspoons")
      },
      "preparation": "string", // e.g., "diced", "sliced", "minced", "cooked" (optional)
      "notes": "string" // Any additional notes for the ingredient (e.g., "for garnish") (optional)
    },
    // ... more ingredients
  ],
  "instructions": [
    {
      "step_number": "number", // Order of the instruction step
      "description": "string", // Detailed instruction for the step
      "duration_minutes": "number", // Estimated duration for this step (optional)
      "equipment_needed": [ // List of equipment needed for this step (optional)
        "large pan",
        "spatula"
      ]
    },
    // ... more instruction steps
  ],
  "prep_time_minutes": "number", // Estimated total preparation time
  "cook_time_minutes": "number", // Estimated total cooking time
  "total_time_minutes": "number", // Sum of prep and cook time
  "servings": "number", // Number of servings the recipe yields
  "cuisine": "string", // e.g., "Italian"
}

```

```

"dietary_tags": [           // Array of relevant dietary tags
  "dairy-free",
  "high-protein"
],
"difficulty": "string",    // e.g., "easy"
"image_url": "string",    // URL to an image of the dish (optional)
"nutrition_info": {       // Nutritional breakdown (optional, can be AI-generated or looked up)
  "calories": "number",
  "protein_grams": "number",
  "fat_grams": "number",
  "carbohydrates_grams": "number"
}
}
{
  "title": "string",
  "description": "string",
  "ingredients": [
    {
      "food_item": "string",
      "quantity": {
        "value": "number",
        "unit": "string"
      },
      "preparation": "string",
      "notes": "string"
    }
  ],
  "instructions": [
    {
      "step_number": "number",
      "description": "string",
      "duration_minutes": "number",
      "equipment_needed": [
        "large pan",
        "spatula"
      ]
    }
  ]
},
"prep_time_minutes": "number",
"cook_time_minutes": "number",
"total_time_minutes": "number",
"servings": "number",
"cuisine": "string",
"dietary_tags": [
  "dairy-free",

```

```
"high-protein"  
],  
"difficulty": "string",  
"image_url": "string",  
"nutrition_info": {  
  "calories": "number",  
  "protein_grams": "number",  
  "fat_grams": "number",  
  "carbohydrates_grams": "number"  
}  
}
```