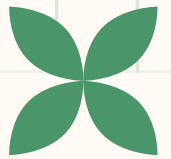# KITCHEN COPILOT

CHALLENGE STATEMENT

Let's reinvent the way food delights us to promote healthy living

CHALLENGE

We are looking for a group of enthusiasts to work with us to reinvent the way food delights us to promote healthy living. We have developed an application called Kitchen Copilot to help individuals prepare meals and recipes. We want to explore how we can use Kitchen Copilot more easily and be part of an individual's daily use.

KEY CONSIDERATIONS

- Simple and fun to use
- Even a child can use it to prepare meals
- Allow recipes and meal plans to be shared
- Promote healthy living.

Join Kitchen Copilot's Discord Channel!

OPTIONS

Choose one of the options below for this challenge statement.
More information on each option can be found in subsequent pages.

OPTION A. LEFTOVER RECIPE BUILDER

OPTION B. "SMART PANTRY BUDDY"

OPTION C. {SURPRISE US!}

KITCHEN COPILOT
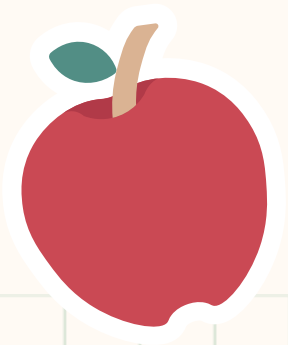
OPTION A. LEFTOVER RECIPE BUILDER

CORE IDEA

Take a picture of your leftovers, have AI identify the ingredients, and instantly get a creative and healthy recipe suggestion.

KEY OBJECTIVES

- **Multimodal AI:** Combine image recognition (to identify ingredients) with text generation (to create recipes).
- **User-Friendly Interface:** Make it simple to upload or snap a photo of leftovers.
- **Room for Creativity:** Decide how detailed the recipe gets, experiment with cooking styles, or add fun features.
- Each meal should be healthy, and consider different ways to improve the health of the people consuming the meal.
- Add a share to social channels option so that each recommended recipe can be shared with other people. Bonus points will be awarded if the user can make modifications to the recipe and give their own custom message to the social channel.

GOAL

Build something fun and functional that shows how AI can turn leftovers into inspiration. Let your creativity shine!

KITCHEN COPILOT

OPTION A. LEFTOVER RECIPE BUILDER

SUGGESTED TECHNOLOGIES

- **Image-to-Text AI:** Recognise common ingredients from the uploaded image. (Use OpenAI, a vision API, or an open-source model.)
- **Recipe Generation (LLM):** Take the ingredient list and produce a coherent, step-by-step recipe.
- **Recipe API:** You can consider using a free recipe API like https://www.themealdb.com/.
- **Frontend Frameworks:** Web or mobile—React, Vue, Flutter, etc. Add a camera/upload button, a preview of detected ingredients, and a "Generate Recipe" button.
- **Backend Setup:** Simple REST endpoints or serverless functions to handle image input and calls to AI services. Authentication is optional.

POTENTIAL ENHANCEMENTS

- Add seasoning or cooking time suggestions.
- Offer multiple recipe styles (vegan, spicy, etc.).
- Let users edit ingredient lists before generating a recipe.
- Store favorite recipes if you choose to add authentication.
- Use a local LLM using Ollama

WHAT'S UP TO YOU

- Which models and APIs to use for image detection and recipe generation.
- How polished or experimental the UI should be.
- Whether to focus purely on functionality or add special features like ingredient swaps, saving recipes, or sharing options.

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OPTION B. "SMART PANTRY BUDDY"

CORE IDEA

Scan or input what's currently in your pantry or fridge, ask the user for their preferences (e.g. their diet, health issues, and favorite or disliked foods, or a particular dietary plan), and let AI suggest weekly meal plans with deserts, complete with recipes and a shopping list for missing items.

KEY OBJECTIVES

- **Ingredient Inventory:** Use a quick input method—maybe scanning barcodes, uploading a grocery receipt image, or manually typing in what you have.
- **Meal Planning AI:** Use a language model to suggest a variety of recipes for the week, ensuring they use up what's on hand and add minimal extra ingredients.
- **Adaptability:** Let users specify dietary preferences (vegan, gluten-free, etc.), cuisines, or difficulty level.
- **Health Conscious:** Each meal should be healthy and consider different ways to improve the health of the people consuming the meal. Help the people who are enjoying the meal to be more aware of their health and what the ingredients help them with.
- **Social Engagement:** Add a share to social channels option so that each recommended recipe can be shared with other people. Bonus points will be awarded if the user can make modifications to the recipe and give their own custom message to the social channel.

GOAL

Demonstrate how AI can turn a random pantry inventory into a cohesive, time-saving, and healthy meal plan that reduces food waste and streamlines shopping.

KITCHEN COPILOT

OPTION B. "SMART PANTRY BUDDY"

ADAPTABILITY PREFERENCES IDEAS

Incorporate whichever you would like to. Below are some ideas.
- **Allergies:** Avoid nuts and gluten.
- **Preferences:** Don't like mushrooms. Love tomatoes.
- **Workout routine:** Trying to lose weight, or trying to build muscle.
- **Meals:** Interested in just dinners, or all meals, or lunches for weekdays.
- **Effort:** Quick meals (e.g. busy executive). Delight your taste buds..
- **Sentiment:** "I'm feeling sunny today". Let users enter how they are feeling and what interests them, and it will build a meal plan based on that.

SUGGESTED TECHNOLOGIES

- **Image/Document Scanning:** OCR API or LLM to extract text from a receipt or packaging labels (e.g. OpenAI or Azure AI Document Intelligence).
- **LLM for Planning:** Feed the ingredient list plus constraints into an LLM to generate a structured weekly meal plan (e.g., Monday's breakfast, lunch, dinner).
- **Frontend Flexibility:** Choose a web or mobile frontend with a simple interface to add ingredients, view the meal plan, and toggle recipe options.
- **Recipe API:** You can consider using a free recipe API like https://www.themealdb.com/.

POTENTIAL ENHANCEMENTS

- Suggest smart grocery lists for the missing items.
- Use a local LLM using Ollama

WHAT'S UP TO YOU

- Which OCR/vision solution to use.
- Which LLM or recipe data source to guide meal planning.
- How fancy the UI should be (a simple list or a beautiful interactive calendar).

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OPTION C. {SURPRISE US!}

CORE IDEA

Explore the Kitchen Copilot app and note anything you believe should be added to the app. Build a proof of concept that will fill in that gap.

KEY OBJECTIVES

- **Build your own objectives.** Use the other project briefs for ideas.
- **Health Conscious:** What you develop must show a desire to enrich people's lives with healthy choices.
- **Social engagement:** You must add an element of social, for example, sharing something interesting to a social channel.

GOAL

Showcase how AI or other technologies can enrich the existing Kitchen Copilot app and further delight the user.

IDEAS

- Gamification (engage, share, build community)
- Calorie counter (for your meals, or your week)
- Personalization
- Improve your photos (user images can be enriched to be more appealing)

SUGGESTED TECHNOLOGIES

- You can use your favorite technology. See the other project briefs for ideas.

WHAT'S UP TO YOU

- Which LLM or language processing tool to use.
- How extensive or minimal the UI design and customization options should be.