

This is **PantryPilot**, a mobile app that my group made for the VTHacks 2024 hackathon. This app scans your pantry or fridge, then analyzes the ingredients that you have, and generates recipes based on the available ingredients. I implemented the front end of the system, as well as trained the AI model for the main functionality of the app. The front end was written with SwiftUI, and the AI model was from Azure Custom Vision services.

2:36

5G%

PantryPilot

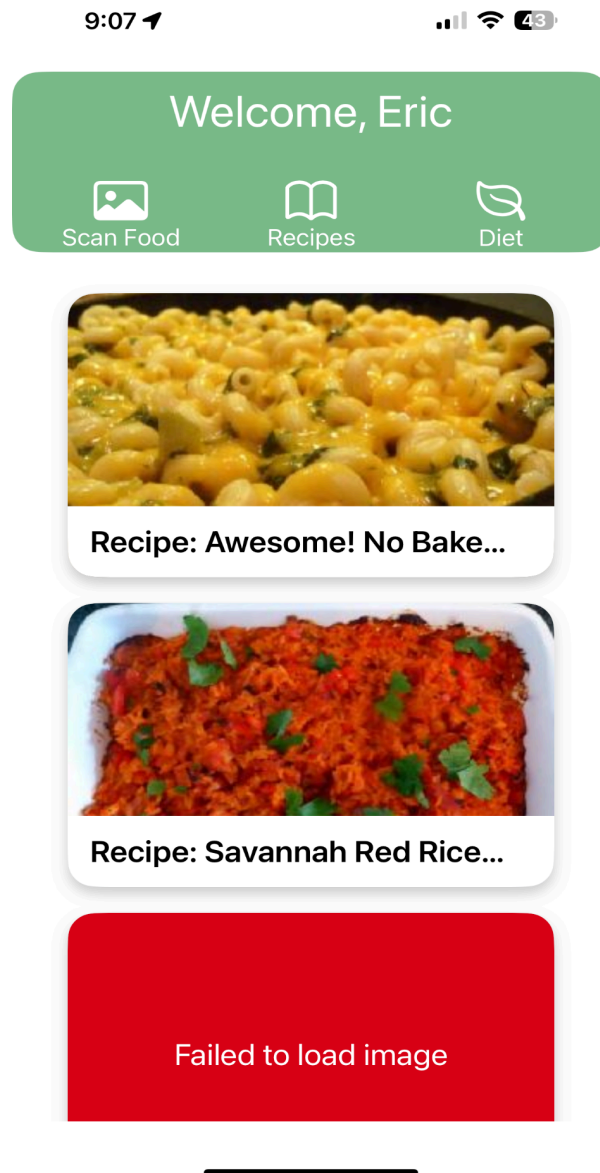


Enter your name

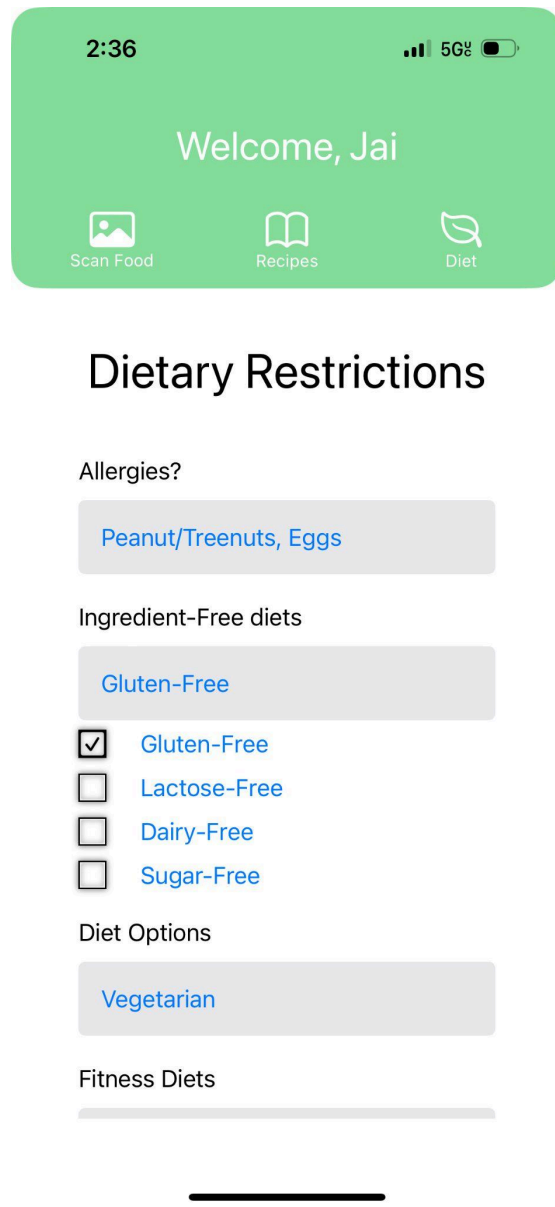
LOGIN

Login Screen

This is the main landing page after logging in. The available recipes are displayed, along with an image representing the dish. Clicking on each item will bring you to a section with more information about the recipe.



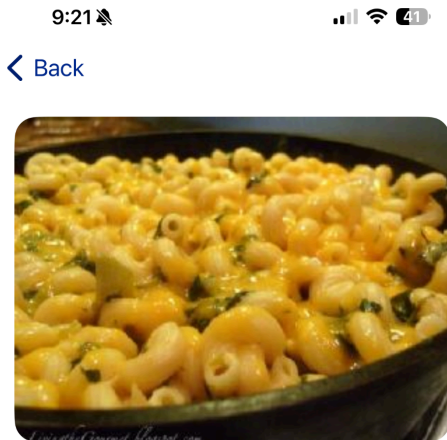
This is the dietary preferences page. Here, the user is able to filter out any preferences they have in their diet, such as being gluten or dairy free.



The screenshot shows a mobile application interface for dietary preferences. At the top, a green header bar contains the time '2:36', a 5G signal indicator, and a battery level of 56%. Below the header, the text 'Welcome, Jai' is centered. Three icons are displayed: 'Scan Food' (camera icon), 'Recipes' (book icon), and 'Diet' (fork and knife icon). The main section is titled 'Dietary Restrictions'. Under the heading 'Allergies?', a button labeled 'Peanut/Treenuts, Eggs' is shown. Below this, the section 'Ingredient-Free diets' contains a button labeled 'Gluten-Free'. A list of checkboxes follows: 'Gluten-Free' (checked), 'Lactose-Free', 'Dairy-Free', and 'Sugar-Free'. The 'Diet Options' section features a button labeled 'Vegetarian'. The 'Fitness Diets' section is currently empty, indicated by a horizontal line. A black home indicator bar is visible at the bottom of the screen.

Dietary restriction screen

This is the actual recipe screen after clicking on one of the available recipes. Upon opening, a stream of text will appear, generated in real time from OpenAI's public API. Information on the dish and how to prepare it are displayed, as well as substitutions for some healthier alternatives to some ingredients.

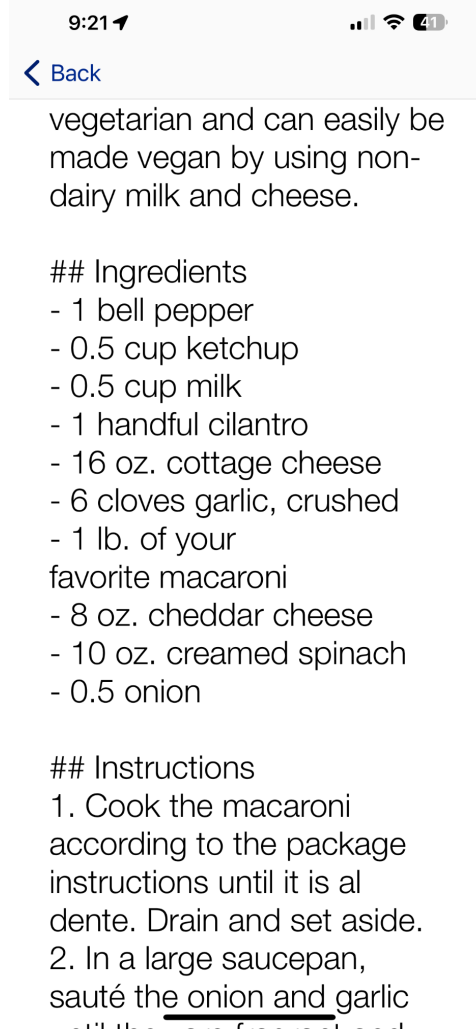


Recipe: Awesome! No Bake  
~ Macaroni and Cheese

#### ## Introduction

This recipe is for an awesome macaroni and cheese that is easy to make and doesn't require baking. It is a great recipe for those who want a quick and delicious meal without all the fuss. This recipe is vegetarian and can easily be made vegan by using non-dairy milk and cheese.

Recipe



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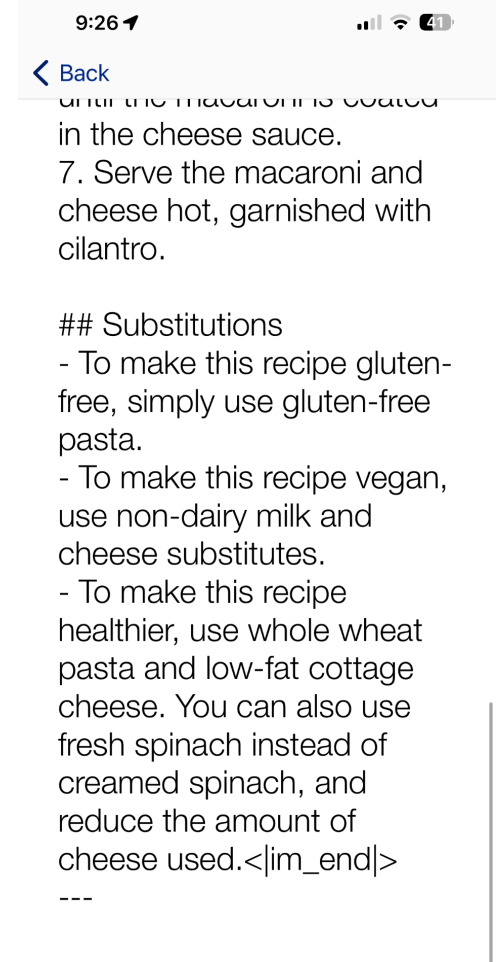
#### ## Ingredients

- 1 bell pepper
- 0.5 cup ketchup
- 0.5 cup milk
- 1 handful cilantro
- 16 oz. cottage cheese
- 6 cloves garlic, crushed
- 1 lb. of your favorite macaroni
- 8 oz. cheddar cheese
- 10 oz. creamed spinach
- 0.5 onion

#### ## Instructions

1. Cook the macaroni according to the package instructions until it is al dente. Drain and set aside.
2. In a large saucepan, sauté the onion and garlic

Ingredients/Instructions



until the macaroni is coated in the cheese sauce.

7. Serve the macaroni and cheese hot, garnished with cilantro.

#### ## Substitutions

- To make this recipe gluten-free, simply use gluten-free pasta.
  - To make this recipe vegan, use non-dairy milk and cheese substitutes.
  - To make this recipe healthier, use whole wheat pasta and low-fat cottage cheese. You can also use fresh spinach instead of creamed spinach, and reduce the amount of cheese used.
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Substitutions

This is Custom Vision's model training UI, where I trained the AI model. In the image, you can see all of the predicted items, which are what the model picked up using computer vision. The items are then sorted into categories such as peppers, tomatoes, apples, etc. This was repeated with a dataset of over 350 images, and more than 500 data points.

Quick Test

Regions Shown

Image URL

Enter Image URL

Browse local files

File formats accepted: jpg, png, bmp  
File size should not exceed: 4mb

Using model trained in

Iteration

Iteration 3

Predicted Object Threshold

Only show suggested objects if the probability is above the selected threshold.

Threshold Value: 15%

Predictions

Predictions are shown in red

Tag	Probability
carrot	89.7%
[Auto-Generated] Other Pr	83.8%